

ECOLOGICAL ASSESSMENT REPORT OF
the projects of the Cross-Border Cooperation Program 2021-2027, co-financed
under the Instrument for Pre-Accession Assistance, between the Republic of
Bulgaria and the Republic of North Macedonia and the Territorial Strategy for
Integrated Measures

Client: Ministry of Regional Development and Public Works

Contractor: „BT Engineering“Ltd

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СПИСЪК НА СЪКРАЩЕНИЯТА

AMS	Automatic measuring station
HWY	Highway
ARI	Agency Road Infrastructure
BD	Basin Directorate
WABD	West Aegean Basin Directorate
BEQ	Biological elements for quality
BC	Berne Convention
BoC	Bonn Convention
BOD₅	Biological oxygen demand - oxygen consumed per liter of sample at a constant temperature of 20 ° C for 5 days incubation period
RES	Renewable energy sources
RES	Hydroelectric power station
CBC	Cross Border checkpoint
UET	Upper evaluation threshold
UWWTP	Municipal wastewater treatment plant
EAR	Environmental assessment report
FRA	Flood Risk Assessment and Management Directive 2007/60/EC
LET	Lower evaluation threshold
BD	Birds Directive - Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds
HD	Habitats Directive - Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
EEA	European Environment Agency
e.inh.	Equivalent inhabitants
EMF	Electromagnetic fields
EA	Environmental assessment (Strategic environmental assessment within the meaning of Directive 2001/42)
EU	European Union
ERDF	European Regional Development Fund
RW	Railway
Biodiversity Act	Biodiversity Act
WPZ	Water protection zone
AoCM	Areas of community importance
ENPA	Environmental Noise Protection Act
EPL	Environmental Protection law
WMA	Waste Management Act
AWB	Artificial water body

UAA	Used agricultural area
ICT	Information and communication technologies
AAQ	Atmospheric air quality
KTM	Key types of measures
STTR	Short-term target rate
LWWTP	Local wastewater treatment plant
IDC	International disease classification
MEW	Ministry of Environment and Water
MRDPW	Ministry of Regional Development and Public Works
SMEs	Small and medium enterprises
Ordinance on EA	Ordinance on the terms and conditions for carrying out environmental assessment of plans and programs
NIMH-BAS	National Institute of Meteorology and Hydrology at the Bulgarian Academy of Sciences
NO	National authority
NGOs	Non-governmental organizations
NSI	National Statistical Institute
NEMS	National Environmental Monitoring System
NCPHA	National Center for Public Health and Analysis
OIP	Ornithologically important places
EIA	Environmental impact assessment
UN	United Nations
AC	Assessment of compatibility (with the subject and objectives of protection of protected areas of the ecological network "Natura 2000")
PAH	Polycyclic aromatic hydrocarbons
DDWS	Drinking and domestic water supply
SWB	Surface water body
GWB	Groundwater body
PoM	Program of measures
PFRA	Preliminary flood risk assessment
WWTP	Wastewater treatment plant
CBCP	Cross - border Cooperation Program
EMEPA	Enterprise for management of environmental protection activities
RBMP	River basin management plan
FRMP	Flood risk management plan
WFD	Water Framework Directive
RHI	Regional Health Inspectorate
AWSPFR	Area with significant potential flood risk
RIEW	Regional Inspectorate for Environment and Water

AAQAMA	Atmospheric air quality assessment and management area
RWMS	Regional waste management system
TPP	Thermal power plant
MA	Managing authority
FDP	Fine dust particles
AAR	Average annual rate
AAV	Average annual value
ADN	Average daily norm
SPAs	Special protected areas
SCA	Special conservation areas
EQS	Environmental quality standard
HMWB	Heavily modified water body
AHR	Average hourly rate
SNM	Strategic noise maps
TSIM	Territorial strategy for integrated measures
FRM	Flood risk management
FAO	Food and Agriculture Organization
SWR	Southwestern region
CITES	Convention on International Trade in Protected Species of Wild Fauna and Flora
EIONET	European Environment Information and Observation Network
IUCN	International Union for Conservation of Nature / International Union for Conservation of Nature and Natural Resources
MASIS	n Soil Information System
NUTS	The nomenclature of territorial statistical units
SUDS	Sustainable urban drainage systems
TEN-T	Trans - European network - transport

INTRODUCTION

This document has been prepared within the framework of contract № ПД-02-29-88 / 16.04.2021 with subject: "Elaboration of environmental assessment report for INTERREG - IPA CB cooperation programme 2021 – 2027 between the Republic of Bulgaria and the Republic of North Macedonia and for Cross-border Strategy for Integrated Territorial Development to be financed under the INTERREG - IPA CB cooperation programme 2021 – 2027 between the Republic of Bulgaria and the Republic of North Macedonia ", with identification number Interreg - IPA CBC-TA-2020-4 / Lot 3, signed between: Ministry of Regional Development and Public Works of the Republic of Bulgaria (Contracting Authority) and BT-Engineering Ltd (Contractor).

The Environmental Assessment Report (EAR) of the draft *Cross-Border Cooperation Programme (CBCP) 2021-2027 co-financed under the Instrument for Pre-Accession Assistance between the Republic of Bulgaria and the Republic of North Macedonia* and the draft *Territorial Strategy for Integrated Measures (TSIM)* has been prepared in accordance with the national legislation of the two countries transposing the requirements of *Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (Directive 2001/42/EC)*. Under these requirements, the EAR has been developed as a single document which includes:

- an instructive part;
- a list of the experts and the team leader who prepared the environmental assessment report; declarations of each of the experts - in **Appendix 1** of the EAR a tabular list of experts and declarations is presented;
- a reference for consultations and the opinions, proposals expressed during the consultations, as well as the manner of their coverage - the reference is presented in item 12 of the EAR, and copies of the received opinions are presented in **Appendix 2** of the EAR;
- appendices.

The main objectives of the EAR are to integrate environmental considerations into the draft of the CBCP and TSIM in the process of their preparation by:

- an analysis of the current condition and problems of the environment, including in relation to human health in the cross-border area subject to CBCP and TSIM,
- an assessment of possible impacts, including significant ones, on the environment and human health resulting from the provisions of the CBCP and TSIM projects, motivating the choice of the most environmentally and human health-friendly alternative for their implementation;
- proposing measures to prevent, reduce and compensate as fully as possible of adverse effects and measures to monitor and control environmental and human health impacts in the implementation of the CBCP and TSIM.

A non-technical summary, in a volume of not less than 10 percent of the volume of the report, has been prepared as an independent **Appendix 3** to the EAR. The summary does not contain technical terms, it is written in a language understandable to the general public and contains the necessary visual materials - maps, photos, diagrams.

The EAR shall adequately reflect and take into account any advice received as a result of the consultations held on the EAR Scope and Content Assignment with the public, stakeholders and third parties that may be affected by the implementation of the CBCP and the TSIM.

The EAR and all appendices thereto shall be made available for consultation in accordance with Art. 6 of Directive 2001/42/EC, together with the drafts of the CBCP and the TSIM.

CONTACT INFORMATION WITH THE ASSIGNOR

1. Name, registered office and unique identification number of the legal entity

Ministry of Regional Development and Public Works

2. Full postal address

Sofia 1000, 17-19 "St. St. Cyril and Methodius" str.

3. Phone, Fax, E-mail

Contact person: Desislava Georgieva - Director of the Territorial Cooperation Management Directorate

Phone: +35929405488

E-mail: D.G.Georgieva@mrrb.government.bg

1. Description of the content of the main objectives of the CBCP and TSIM and connection to other relevant plans and programmes

1.1. Reason for drawing up CBCP and TSIM

The drawing up of cross-border cooperation programs is based primarily on the Regulation (EU) 2021/1060 of the European Parliament and of the Council of 24 June 2021 laying down common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, the Just Transition Fund and the European Maritime, Fisheries and Aquaculture Fund and financial rules for those and for the Asylum, Migration and Integration Fund, the Internal Security Fund and the Instrument for Financial Support for Border Management and Visa Policy (**General Regulation**) and *Regulation (EU) 2021/1059 of the European Parliament and of the Council of 24 June 2021 on specific provisions for the European territorial cooperation goal (Interreg) supported by the European Regional Development Fund and external financing instruments (Interreg Regulation)*.

At the national level, the leading documents for preparation of the programs are:

- Draft **Partnership Agreement** containing a list of Interreg programs;
- **Decision No 196 of the Council of Ministers of 11 April 2019 approving the Analysis of the Socio-Economic Development of Bulgaria 2007-2017 setting out the national priorities for the period 2021-2027, the list of policy objectives to be supported during the programming period 2021-2027 and the list of programmes and leading departments for their development**, under which the Ministry of Regional Development and Public Works (MRDPW) was designated as a leading department for the development of the programmes under the *European territorial cooperation (Interreg) 2021-2027 goal*;
- **Decree No 142 of the Council of Ministers of 2019 for the development of the strategic and program documents of the Republic of Bulgaria for the management of the funds of the EU for the programming period 2021-2027**;

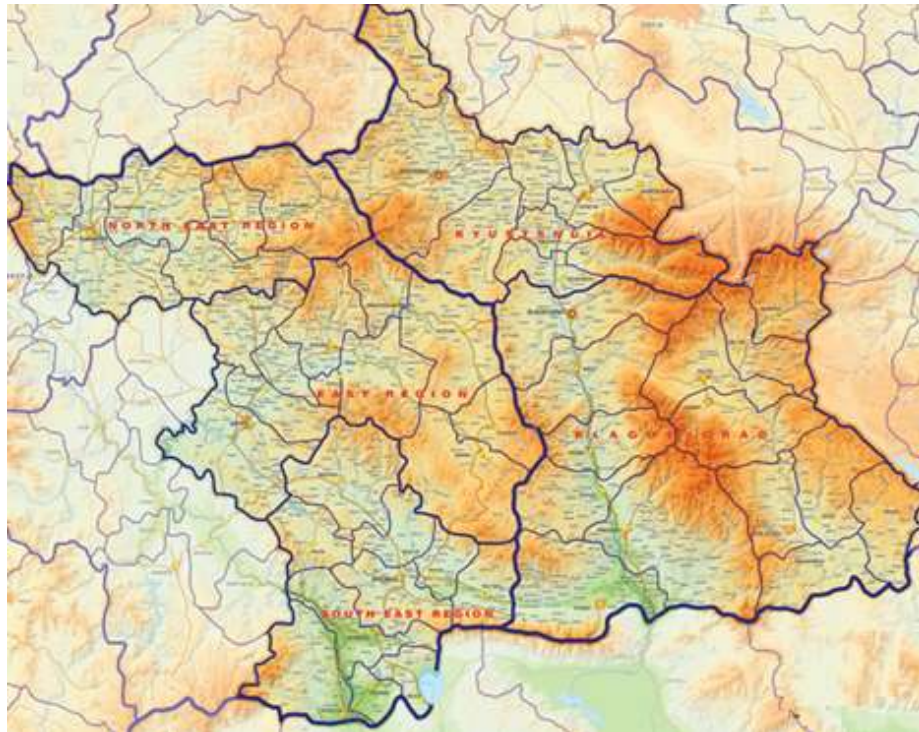
CBCP and TSIM are funded by the European Union with funds from the Instrument for Pre-Accession Assistance.

The Ministry of Regional Development and Public Works is the MA under the bilateral Interreg programs for cross-border cooperation between the Republic of Bulgaria and the Republic of Serbia, the Republic of Turkey and the Republic of North Macedonia.

1.2. Main targets and provisions of CBCP and TSIM

A. The CBCP 2021-2027 between the Republic of Bulgaria and the Republic of North Macedonia has a geographical scope:

- *Republic of Bulgaria*: 2 NUTS III districts: Blagoevgrad and Kyustendil;
- *Republic of North Macedonia*: 3 NUTS III regions: Northeast, East and Southeast.



Фигура № 1.2-1 *Territorial scope of the CBCP 2021-2027 between the Republic of Bulgaria and the Republic of North Macedonia*

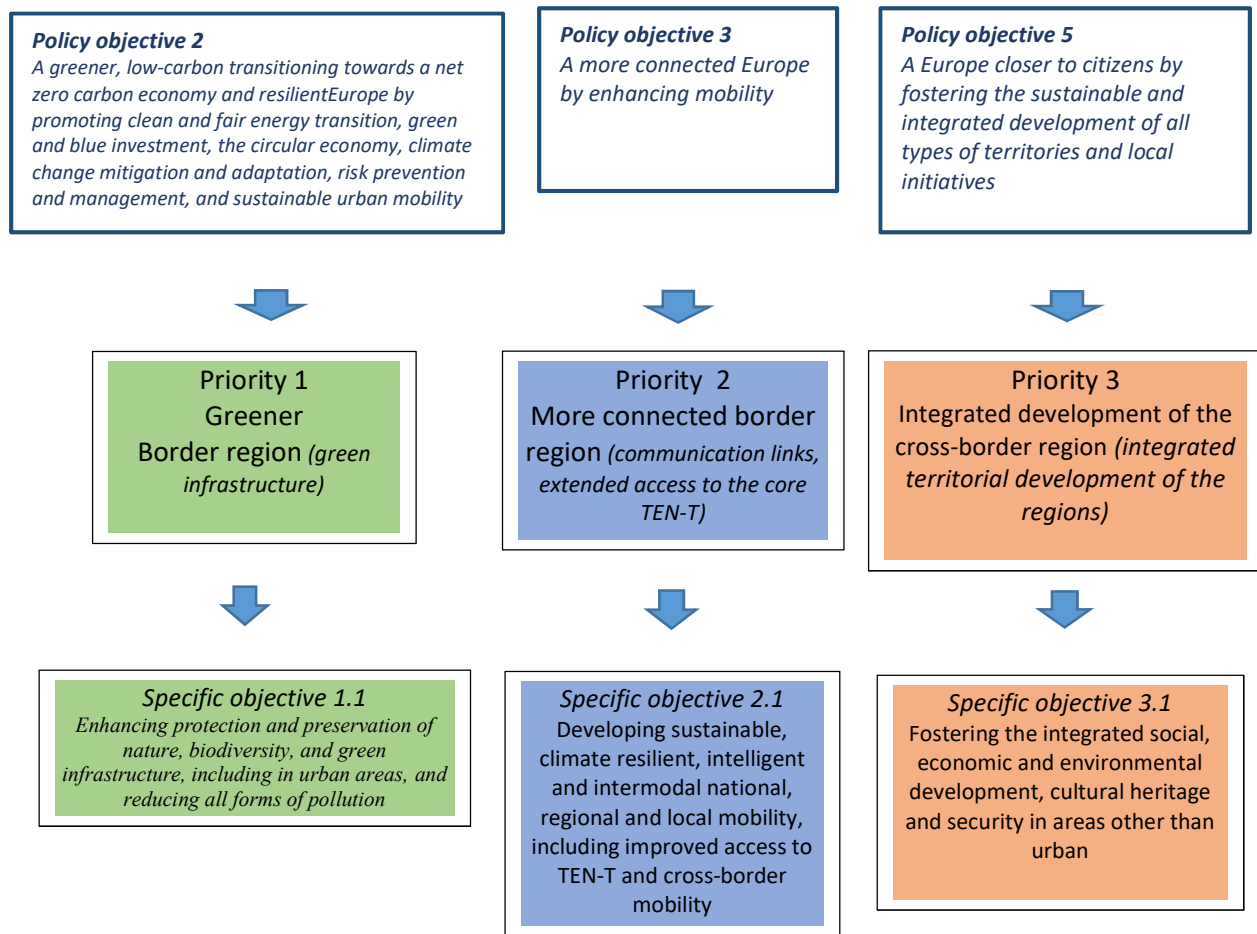
The main common challenge of the region for cross-border cooperation for the period 2021-2027 is to leave the group of lagging regions and take a more advanced course of development, while still facing persistent problems related to the risk of poverty and inequality in terms of income due to negative demographic change, underdeveloped regional value chains and entrepreneurship, low technological specialization, unattractive and uncompetitive economic environment.

The territorial analysis carried out for the purposes of programming and its updated version provide an opportunity to structure the main findings in the following groups of policy areas, considered in terms of obstacles and drivers of development:

- Negative demographic change;
- Poverty and income inequality;
- Differences in educational results and results in the field of employment;
- Inequality in access to health care;
- Discrepancies in the competitiveness and business environment;
- Insufficient acceptance of digital innovations;
- Underdeveloped year-round tourist infrastructure;
- Lack of ecosystem-based practices and services for dealing with natural disasters and loss of biodiversity;
- Limited readiness for ecological transition;
- Limited cross-border connectivity and intra-regional mobility.

- Based on the territorial analysis, they have been identified as **driving forces** for development
- :
- Favorable macroeconomic context and results for small and medium - sized enterprises (SMEs);
 - Rich biodiversity with a strong impact on economic growth.

The Programme identifies the following Policy Objectives (of the Common Provision Regulation) and related **Priorities, Specific Objectives and Supported Activities/Investments**



Фигура № 1.2-2 *Thematic concentration of CBCP 2021-2027 between the Republic of Bulgaria and the Republic of North Macedonia*

The content of the **priorities** is as follows:

Priority 1: Greener Border region (green infrastructure)

Policy objective 2: A greener, low-carbon transitioning towards a net zero carbon economy and resilient Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate change mitigation and adaptation, risk prevention and management, and sustainable urban mobility

Specific objective 1.1: Enhancing protection and preservation of nature, biodiversity, and green infrastructure, including in urban areas, and reducing all forms of pollution

List of actions/ investments to be supported:

- **Investments in building greens** (green balconies, green walls, green roofs, atrium spaces, green pavements, green parkings, green fences, noise barriers, etc.);
- **Investments in developing urban and peri-urban green areas**, including improving connections between green spaces (tree alley and street tree/hedge, street green and green verge, green playground/school ground, green and colored squares, riverbank greens);
- **Investments in developing natural urban green areas** (urban park, historical park/garden, pocket park/park let, neighbourhood green space, institutional green space, green sport facility, forest, shrubland, abandoned and derelict area with patches of wilderness);
- **Investments in developing green areas for water management** (swales, creek restoration and nature scaping, rain gardens or sustainable urban drainage systems (SUDS), naturalized storm water pond, bio retention areas);
- **Support for joint strategies and action plans** for developing new tools, instruments, as well as transferring solutions between relevant stakeholders;

Target groups:

Local population and visitors, Local authorities and regional structures of central administration, R&D, academic and scientific institutions, NGOs

Priority 2. More connected border region (communication links, extended access to the core TEN-T)

Policy objective 3: A more connected Europe by enhancing mobility

Specific objective: Developing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility

Strategic project: “establishment of a new Border cross check point (BCCP) „Klepalo” between the Republic of Bulgaria and the Republic of North Macedonia”

Main project goal of the project is to improve regional connectivity and to boost the economic growth of the CBC area. Specific project objectives:

- To facilitate the increasing traffic of people and goods between the two countries
- To strengthen communication lines between the two countries
- To improve and extend access to the core TEN-T network.

Indicative project activities:

- Upgrade of the existing and construction of new BCCP facilities;
- Purchase of specialized technical equipment based ICT solutions;
- Rehabilitation of existing and construction of new roads in both countries;
- Environmental and other project-related assessments

At present, in the previous programming period 2014-2020 and before it, the following activities have been implemented under the project:

- *On the territory of the Republic of Bulgaria:*

The construction of CBP infrastructure and sites, as well as the leading road is forthcoming. Complex investment design has been assigned - cadastral map, plot plan for land expropriation, The detailed development plan-regulation and construction plan for the engineering and building infrastructure of CBP, investment project - technical phase.

Part of the project for the Bulgarian territory is the repair and completion of road III-1008 Strumyani - Klepalo CBP. A contract has been concluded by RIA with a contractor for the development of a technical project for rehabilitation of section 1 from km 0 + 000 (near the village of Strumyani) to km 0 + 650 (before the road junction of the Struma highway). The aim is to restore and improve the technical and operational qualities with the overhaul of the section, to increase the bearing capacity of the road surface and to improve the drainage. For section 2 is included the elaboration of a preliminary design for the construction of a new route on road III-1008 from km 22 + 000 (before the road diversion for the village of Kolibite) to the beginning of the site of the Klepalo CBP. On the basis of the developed conceptual design, a technical design will be prepared along the route approved by the competent authorities with a detailed zoning plan - plot plan for terrain provision for the completion of the road. At the moment, the first stage has been developed - route variants. EIA and AC procedures are to be carried out.

- *On the territory of the Republic of North Macedonia:*

The new Klepalo BCP has been built to a significant extent, incl. the complex of engineering infrastructure and buildings, as well as the access road have been built.

Upgrading of the project documentation and bringing the construction in compliance with the requirements of the current regulations for BCP.

Priority 3 Integrated development of the cross-border region (integrated territorial development of the regions)

Policy objective 5: A Europe closer to citizens by fostering the sustainable and integrated development of all types of territories and local initiatives

Strategic objective 3.1: Achieving integrated territorial development focusing on competitiveness and tourism development.

Priority 3, for the implementation of Policy Objective 5 "Europe closer to the citizens", foresees the development of a **Territorial Strategy for Integrated Measures (TSIM)**, which will address the measures (identified eligible support activities under the program) by specific territorial needs.

The integrated approach for meeting/addressing the needs and potentials of the territory in the developed TSIM is manifested in three main aspects:

- territory defined on the basis of achieving sustainable results in terms of common needs and potentials for development;
- participation of a wide range of partners in the whole process of preparation, discussion, adoption and implementation of the strategy.
- derived package of interconnected and complementary (integrated) measures, based on close coordination of different public policies according to local specifics, meeting local needs and development potentials and bringing common benefits to partners and the region.

Through **TSIM** it will give priority to support for some projects /actions /activities over others – are described below in the TSIM description as measures.

Target groups:

Civil society; Local/regional authorities, regional structures of central public authorities; NGOs; Research and development, academic and training institutions; Social Institutions, Micro, Small and Medium Enterprises (MSMEs); Local population.

B. TSIM 2021-2027 between the Republic of Bulgaria and the Republic of North Macedonia

The TSIM defines the **Vision** of the CBCP, **the strategic objective, specific objectives** (described above in **Priority 3** of the CBCP) and **the measures**.

Vision: The CBC regions of the Republic of Bulgaria and the Republic of North Macedonia: a place for consolidation and stability of the cultural and historical heritage through joint efforts for mutually beneficial cooperation, socioeconomic cohesion and balanced sustainable development.

The area within the TSIM geographic scope is characterized by common needs and development potentials and is essentially a functional area, but a more deeply tailor-made intervention approach allows for identification of **Intensive intervention zones in it**.

The local context specifics determine the determination of **four such zones (Figure No. 1.2-3)**. Each of them also contains at least one development center of higher-level (large city) and is thus connected to the core of the polycentric network. This connection has not only a spatial but also a functional dimension - in larger and more developed cities it is easier to achieve results in the

field of new technologies (green, circular, digital) and there it is most likely to take the first steps and to give a push the whole territory development.

The zones overlap/intersect over each other. The different cities and the surrounding territories fall into several different zones at the same time, which determines their profile in terms of the intensity of the different interventions/measures.

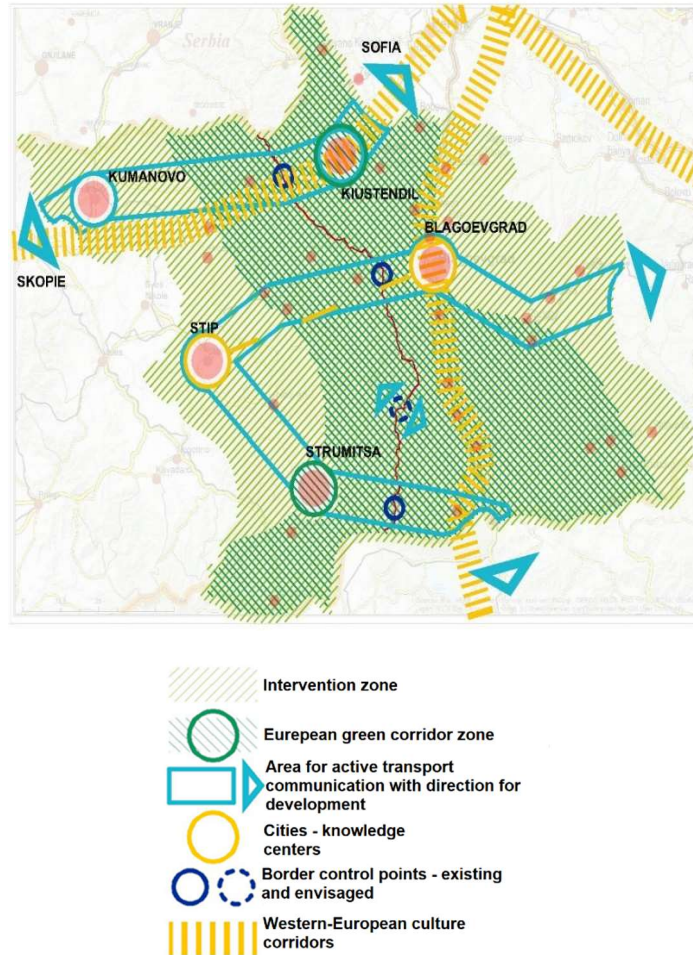


Figure № 1.2-3 *Identified intensive intervention zones between the Republic of Bulgaria and the Republic of North Macedonia in TSIM 2021-2027*

Strategic objective: Achieving integrated territorial development focusing on competitiveness and tourism development.

Specific objective 1.1: Increase the competitiveness of the local economy and improve the business environment:

Measure 1.1.1. Actions aimed at increasing the productive capacity of the SMEs to become greener, more digital and more competitive (technological modernization);

Measure 1.1.2. Actions aimed at improving the knowledge capacity of the SMEs to operate in a greener, more digital and more competitive environment (acquiring new

knowledge and skills, incl. access to external finances);

Measure 1.1.3. Actions aimed at building effective product development process (it encompasses all steps needed to take a product from concept to market availability) and reaching new markets (marketing, entrepreneurship, internationalization);

Specific objective 1.2: Development of an attractive, all-season tourism product by means of smart solutions that ensure universal access and participation.

Measure 1.2.1. Improving the mobility and connectivity of the transport and engineering infrastructure by a system of alternative mobility, including a grid of bicycle lanes, ‘dirt’ forest and country roads, helipads, etc.;

Measure 1.2.2. Development and marketing of integrated regional tourism products suitable for various activities through the inclusion of the cultural and historical heritage and natural assets; joint efforts for diversification of the forms of tourism services and the realization of all-season tourism in the CBC region;

Measure 1.2.3. Development of integrated targeted financial packages for supporting business activity and the creation of new SMEs in tourism with a focus on family businesses and the offering of local tourism products: wine and gourmet tourism, rural eco-tourism, cycling tourism, hunting and fishing, off-road tourism, etc.;

Measure 1.2.4. Creating a joint network of locations for the realization of concepts like ‘green school’, ‘in the country’, ‘visiting with...’, ‘made by...’, etc.;

Measure 1.2.5. Elaborating and applying joint measures for reducing the vulnerability of services in the tourism sector to the effects of pandemic and epidemic situations; promoting the development of health and recreational tourism: products and services related to physical exercise, outdoor sports, strengthening the immune system and improving the health status through spa procedures, climate therapy, mud therapy; combining short breaks of different kinds with individual travel;

1.3. Alternatives to CBCP and TSIM

The draft program and strategy do not contain alternatives.

1.4. Relation of CBCP and TSIM with other relevant plans, programs and strategies

The projects of CBCP and TSIM 2021 - 2027 are related to plans, programs and strategies:

- at European and international level;

- at national, regional and local level (falling within the territorial scope of the program and strategy in the Republic of Bulgaria and the Republic of North Macedonia).

A. Plans, programs and strategies at European (including bilateral) and international level related to CBCP and TSIM 2021-2027.

- ***Territorial Agenda 2030 "A Future for All Places"*¹ (December 2020, European Commission)**

The document sets out two main objectives: a **Fair Europe** and a **Green Europe**, which have **6 priorities** for the development of the European territory as a whole, covering all its parts.:

- *Balanced territorial development;*
- *Functional areas with fewer inequalities;*
- *Integration and cooperation beyond administrative-territorial and national borders,*
- *Healthy environment,*
- *Circular economy,*
- *Sustainable digital and physical connectivity.*

The Territorial Agenda 2030 is one of the main documents on which TSIM is based and is fully integrated into it.

- ***The United Nations Sustainable Development Agenda 2030 "Transforming the World"*¹ (October, 2015, United Nations)**

The program and the 17 global goals for sustainable development and 169 specific sub-goals identified in it are considered as a framework for national development policies, as Bulgaria is committed to achieving these goals.

B In this regard, the Program is reflected in the National Development Program of Bulgaria: 2030, and from there - in the program documents for the period 2021-2027.

The 17 goals for sustainable development are (*those related to CBCP and TSIM are highlighted, and the relationship is described*):

Objective 1: Eradicate poverty - through measures under specific objective 1.1. of TSIM;

Objective 2: Eliminate hunger - through measures under specific objective 1.1. of TSIM;

Objective 3: Good health and well-being - all three CBCP priorities contribute;

Objective 4: Quality education - through measure 1.1.2 under specific objective 1.1 of TSIM;

Objective 5: Gender equality - no concrete measures, but the principle is a basic horizontal requirement for EU-funded programs and is consistent with the definition of eligible activities and support measures;

Objective 6: Clean water and sewerage - there are no specific measures, but the need to provide clean water and sewerage in the relevant measures and activities is taken into account;

¹ https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

Objective 7: Economically accessible and clean energy - - no specific measures, but the objective is consistent with the identification of territorial measures;

Objective 8: Decent work and economic growth - through measures under specific objective 1.1. of TSIM;

Objective 9: Industry, innovation and infrastructure - through measures under specific objective 1.1. of TSIM;

Objective 10: Reduction of inequalities - CBCP and TSIM aim to reduce inequalities, which is the main subject of EU co-financed programs;

Goal 11: Sustainable Cities and Communities - Overall, the implementation of the CBCP and TSIM will contribute to the goal.

Objective 12: Responsible consumption and production - through measures under specific objective 1.1. of TSIM;

Objective 13: Climate Activities - Contributions to climate change mitigation and adaptation to change have CBCP Priority 1 activities, as well as measures to TSIM Specific Objective 1.1;

Goal 14: Underwater life - direct involvement in specific goal 1.1 of the CBCP;

Goal 15: Life on Earth - Direct Link to CBCP Specific Goal 1.1;

Goal 16: Peace, justice and strong institutions - no direct relationship;

Goal 17: Partnership to achieve goals - CBCP and TSIM are based entirely on the principle of partnership.

*The analysis of the relevance of the Sustainable Development Goals, representing environmental goals at the international level - 3,6,7,11,12,13,14,15, to the CBCP and TSIM, is made in **item 5** of the EAR.*

- ***Proposal for a Decision of the European Parliament and of the Council on the European Union Joint Program of Action for the Environment to 2030 (Eighth Program of EU Action for the Environment to 2030).***² (European Commission, 14.10.2020, COM (2020) 652)

The Program is the basis for achieving the environmental and climate goals set out in the UN Agenda 2030 and its Sustainable Development Goals; its monitoring framework is an environmental and climate-related part of the EU's efforts to measure progress towards greater sustainability, including climate neutrality, resource efficiency, prosperity and resilience.

The program has 6 thematic priority objectives, for the implementation of which favorable conditions have been identified.

*The analysis of the relevance of the thematic priority objectives to CBCP and TSIM and their way of compliance is made in **item 5** of the EAR.*

- ***Regulation (EU) 2021/694 of the European Parliament and of the Council of 29 April 2021 establishing the Digital Europe Program and repealing Decision (EU) 2015/2240***³

² <https://eur-lex.europa.eu/legal-content/BG/TXT/?uri=CELEX%3A52020PC0652>

³ <https://eur-lex.europa.eu/legal-content/BG/TXT/?uri=CELEX:32021R0694>

Regulation (EU) 2021/694 establishes the Digital Europe Program for the period 2021-2027 and sets out the objectives of the program, the budget, the forms of European Union funding and the rules for providing such funding. With a total budget of € 7.588 billion, the program will provide funding for cutting-edge technology projects in 5 key areas:

- High-performance computing technologies: € 2.2 billion;
- Artificial intelligence: EUR 2 billion;
- Cybersecurity and trust: 1.6 billion euros;
- Advanced digital skills: EUR 577 million;
- Implementation, best use of digital capacity and interoperability: € 1 billion.

Measures 1.1.1 and 1.1.2 of the TSIM also include activities aimed at digitalisation.

- ***Communication from the European Commission "A Clean Planet for All". European strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy"***⁴ (European Commission, 28.11.2018, COM (2018) 773)

The aim of the long-term strategy paper is to reaffirm Europe's commitment to leading global climate action and to present a vision that can lead to zero net greenhouse gas emissions by 2050 through socially just transition in a cost-effective way. 7 main strategic building blocks for achieving a economy with zero net greenhouse gas emissions have been identified, and the measures under specific objective 1.1 of TSIM to increase the competitiveness of the local economy and improve the business environment will contribute to them.

*Analysis of the relevance and degree of compliance in CBCP and TSIM is made in **item 5** of the EAR.*

- ***Communication from the European Commission: "Building a climate-resilient Europe - the EU's new strategy for adapting to climate change"***⁵ (European Commission, 24.02.2021, COM (2021) 82)

The strategy outlines ways to address the inevitable consequences of climate change. The aim is to build a climate-resilient society through more and better knowledge of the consequences and necessary adaptation, faster development of plans for adaptation and assessment of climate risks, acceleration of adaptation actions and support for strengthening resilience on global climate change.

The strategy is consistent with the preparation of CBCP and TSIM, as reflected in the activities of CBCP Priority 1, and specific objective 2.1. of the CBCP integrates the need to adapt to climate change

*An analysis of the guidelines included in the document and their way of compliance in the CBCP and TSIM projects is made in **item 5** of the EAR.*

⁴ <https://eur-lex.europa.eu/legal-content/BG/TXT/?uri=CELEX:52018DC0773>

⁵ <https://eur-lex.europa.eu/legal-content/BG/ALL/?uri=CELEX:52021DC0082>

- **Communication from the European Commission "Updating the new industrial strategy for 2020: Building a stronger single market for Europe's recovery"** ⁶(*European Commission, 05.05.2021, COM (2021) 350*)

The strategy addresses the need to better understand our dependencies in strategic areas of key importance and presents a set of tools to address them. New measures are also proposed to accelerate the environmental and digital transition. The key importance of the circular economy as well as investment in skills is emphasized.

The TSIM project takes into account the priorities, envisaging measures specifically for SMEs, incl. for transition to a circular economy - measure 1.1.1 (technological modernization), measure 1.1.2 (acquisition of new knowledge, including for a greener environment).

- **Communication from the European Commission "A Road to a Healthy Planet for All". EU Action Plan: Towards zero air, water and soil pollution"** ⁷(*European Commission, 12.05.2021, COM (2021) 400*)

The document sets out a vision for zero pollution by 2050: A healthy planet for all - Air, water and soil pollution has been reduced to levels that are no longer considered harmful to health and natural ecosystems, and that comply with borders, to which our planet is able to cope with, thus creating a non-toxic environment. Leading initiatives to achieve the vision have been identified.

In item 5 of the EAR an analysis of the attitude of the initiatives (representing environmental objectives) to the CBCP and TSIM projects is made..

- **Communication from the European Commission on the European Green Pact** ⁸(*European Commission, 11.12.2019, COM (2019) 640*)

According to the document, climate change and environmental degradation are a threat to the very existence of Europe and the world.

The European Green Pact provides an action plan for:

- increase resource efficiency by moving to a clean, circular economy and
- restoration of biodiversity and reduction of pollution.

An analysis of the relevance and compliance of environmental objectives with / in CBCP and TSIM is made in item 5 of the EAR.

- **Communication from the European Commission: A New Action Plan on the Circular Economy - Towards a Cleaner and More Competitive Europe** ⁹(*European Commission, 11.03.2020, COM / 2020/98*)

The plan presents a set of interrelated initiatives to establish a credible and coherent framework in the following areas of key action (described in an annex to the plan.):

- a policy framework for sustainable products;
- key product value chains;

⁶ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52021DC0350>

⁷ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM%3A2021%3A400%3AFIN>

⁸ <https://eur-lex.europa.eu/legal-content/BG/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN>

⁹ <https://eur-lex.europa.eu/legal-content/BG/TXT/?uri=CELEX%3A52020DC0098>

- less waste, more value;
- reaping the benefits of the circular economy for people, regions and cities – one of the areas is: supporting the transition to a circular economy through cohesion policy funds, the fair transition mechanism and urban initiatives - this area is directly related to TSIM, and specifically to measure 1.1.1., which includes transformation activities of businesses in greener and more digital;
- leading position in global efforts;
- monitoring of progress.

Analysis of the relevance and compliance of the directions to / in CBCP and TSIM is made in item 5 of the EAR.

- ***EU Biodiversity Strategy 2030***¹⁰. (European Commission, 20.05.2020, COM (2020) 380)

The strategy aims to put Europe's biodiversity on the road to recovery by 2030, benefiting people, the climate and the planet. Key actions to be taken by 2030 include creating protected areas, restoring damaged ecosystems, providing funding for biodiversity, tackling the global biodiversity crisis.

The strategy is reflected in CBCP Priority 1, which provides for eligible activities mainly for green areas and pollution reduction, which has a positive impact on biodiversity.

An analysis of the relevance and compliance of environmental objectives with/in CBCP and TSIM is made in item 5 of the EAR.

- ***EU Strategy for the Danube Region***¹¹ (European Commission, 08.12.2010, COM/2010/0715 final) and the ***EU Strategy for the Adriatic and Ionian Region***¹² (European Commission, 17.06.2014, COM (2014) 357 final), ***Amended Action Plan*** (02.04.2020, COM (2020) 132 final) and ***Addendum to the Commission Communication*** (02.04.2020, COM (2020) 132 final)

The CBCP's territorial challenges (e.g. environmental threats, uneven socio-economic development, uncoordinated education systems, research and innovation) are also recognized as such in the EU Strategy for the Danube Region (EUSDR) (Republic of Bulgaria) and in the EU Strategy for the Adriatic and Ionian Region (EUAIRS) (Republic of North Macedonia). This opens up opportunities to align the relevant priorities of the cross-border cooperation program with the two macro-regional strategies and to integrate them into the strategic framework of the reference program. However, the program area is not close to the Danube basin or the Adriatic and Ionian basins. This circumstance allows the inclusion of macro-regional strategies mainly in terms of indirect synergies and contributions. In particular, the synergies and coordination of actions between the CBCP and the two macro-regional strategies can potentially be envisaged in the area of institutional

¹⁰ <https://eur-lex.europa.eu/legal-content/BG/TXT/HTML/?uri=CELEX:52020DC0380&from=EN>

¹¹ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52010DC0715>

¹² https://ec.europa.eu/regional_policy/index.cfm/en/policy/cooperation/macro-regional-strategies/adriatic-ionian/library/#1

capacity and exchange of practices / knowledge / solutions in the following priorities of the macro-regional strategies:

- Priority area 3 "Promoting culture and tourism, people-to-people contacts" (EUSDR) and pillar 4 "Sustainable tourism" (EUAIRS)

A significant range of actions under the cross-border cooperation program, which will be supported under the priority "Integrated development of the border region", will be focused on tourism. Investments are expected to improve tourism, branding and marketing infrastructure and services, as well as strengthen interinstitutional coordination and policy development, while promoting the protection and reintegration of natural ecosystems in order to achieve a sustainable cross-border tourism community. Relationships between people are at the heart of this community.

- Priority Areas 5 "Environmental Risks", 6 "Biodiversity, Landscapes, Air and Soil Quality" and 10 "Institutional Capacity and Cooperation" (EUSDR) and Pillar 3 "Environmental Quality" (EUAIRS)

Under Priority 1 "Green Border Region", the cross-border cooperation program will seek to improve environmentally friendly infrastructure as a means of protecting and enhancing environmental connectivity, as well as preventing biodiversity loss and ecosystem collapse. Public authorities are increasingly recognized as key providers of ecosystem services in the construction and restoration of green spaces, so proposing practices to strengthen the institutional capacity to adapt to climate change, together with the dissemination of green solutions, would help to achieve for the purposes of the EUSDR and EUAIRS.

- ***Regional Energy Strategy of the Cross-Border Region - Blagoevgrad District, Republic of Bulgaria and Eastern Planning Region of the Republic of Macedonia for the period 2018-2023.***¹³ (September, 2018.)

The strategy was developed under a project funded by the *Cross-Border Cooperation Program between the Republic of Bulgaria and the Republic of Macedonia 2014-2020*.

The main goal of the strategy is to achieve sustainable use of energy resources of the cross-border region and reduce greenhouse gas emissions in the same, by implementing energy efficiency activities to improve the management of public buildings, and providing methodological support to municipalities in the cross-border region.

The following strategic goals have been formulated:

- Reduction of energy intensity of enterprises - the goal is reflected in the draft TSIM - measure 1.1.1;
- Reduction of energy consumption in public buildings, buildings of education, healthcare, administrative management and residential buildings;

¹³http://www.bl.government.bg/images/stories/documenti/Proekti/2017/green/%D0%A0%D0%B5%D0%B3%D0%B8%D0%BE%D0%BD%D0%B0%D0%BB%D0%BD%D0%B0_%D0%95%D0%BD%D0%B5%D1%80%D0%B3%D0%B8%D0%B9%D0%BD%D0%B0_%D0%A1%D1%82%D1%80%D0%B0%D1%82%D0%B5%D0%B3%D0%B8%D1%8F_BG_V1.pdf

- Improving energy infrastructure;
- Improving the transport infrastructure – is directly reflected in CBCP Priority 2, under which a specific project is envisaged, as well as in measure 1.2.1 of TSIM.
- Utilization of the potential for energy production from RES on the territory of the cross-border region.

B. Plans, programs and strategies on the territory of the Republic of Bulgaria related to CBCP and TSIM 2021-2027.

- ***Draft Partnership Agreement for the programming period 2021-2027.***¹⁴ (June, 2021).

The Partnership Agreement is the national strategic document outlining the framework for the management of European funds in Bulgaria in the programming period 2021 - 2027.

Table 7 of the draft Agreement, as Program 3, shows the Bilateral Program for Cross-Border Cooperation at the External Borders of the European Union between the Republic of Bulgaria and the Republic of North Macedonia.

- ***National Development Program: Bulgaria 2030***¹⁵ (approved by the Council of Ministers by Protocol № 67 of 2 December 2020)

The program is a framework strategic document of the highest order in the hierarchy of national programming documents, determining the vision and general objectives of development policies in all sectors of government, including their territorial dimensions.

The program includes three strategic goals: Accelerated Economic Development, Demographic Recovery and Reducing Inequalities, for which 13 priorities have been identified. CBCP and TSIM include interventions contributing to priorities:

- P1: Education and skills;
- P4: Circular and low-carbon economy;
- P5: Clean air and biodiversity;
- P6: Sustainable agriculture;
- P7: Transport connectivity;
- P8: Digital connectivity;
- P9: Local development;
- P 11: Social inclusion.

As priorities 4, 5 and 6 set environmental objectives at the national level, an analysis of the extent to which they are integrated into the CBCP and TSIM is made in item 5 of the EAR.

- ***National Strategy for Regional Development for the period 2012-2022.***¹⁶ (Approved by Decision № 696 of the Council of Ministers of 24.08.2012.)

¹⁴ <https://www.eufunds.bg/bg/taxonomy/term/867>

¹⁵ <https://www.minfin.bg/bg/1394>

¹⁶ <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=772>

The strategy sets goals for economic, social and territorial cohesion at European, national and regional level, which is also the basis for the development of CBCP and TSIM. In this regard, the strategy is taken into account and taken into account in the preparation of documents. Direct link has strategic goal 3 of the strategy "Territorial cohesion and development of cross-border, interregional and transnational cooperation".

- **National Concept for Spatial Development for the period 2013-2025. – Update 2019.** ¹⁷(adopted by Decision of the Council of Ministers of 07.05.2020.)

Following the National Strategy for Regional Development, the Update of the National Concept of Spatial Development sets 3 strategic goals - for territorial cohesion, economic cohesion and social cohesion. The concept also defines the areas for cross-border cooperation, one of which is "Zone Bulgaria - Republic of North Macedonia". According to the concept for this area, it is stated that the current development in the field of tourism, ecology, biodiversity conservation and economic development are the natural directions for cross-border cooperation with the Republic of North Macedonia. There are reserves for tourism development in the field of health, cultural and conference tourism, for which Bulgaria can provide appropriate conditions. Protected areas for biodiversity conservation on both sides of the border are the basis for creating a cross-border environmental corridor and preparing and implementing joint projects. Traditions in cross-border education and shared services based on linguistic and cultural proximity are a prerequisite for further development in this direction. Economic ties are deepening, and low unemployment and new jobs created, especially in the outsourcing industry, are the basis for developing economic ties between the two countries. Increasing the capacity of the CBC, ensuring the reliability of the checkpoint system, solving the problems of "narrow sections" in the transport infrastructure are identified as key measures to achieve easy physical access.

The concept and guidelines for the development of the area are consistent with the CBCP and TSIM projects.

- **National Strategy for Small and Medium Enterprises 2021-2027.** ¹⁸

The National Strategy is a key strategic document for the next programming period, which sets the vision for public policy in support of SMEs and reflects EU policy towards small and medium-sized enterprises. 6 areas of impact have been identified (Entrepreneurship, Market Access, Access to Finance, Digitalisation and Skills, Better Regulation and the Environment). In the area of impact 3 Access to finance as a measure 3.5. Support is provided for small projects promoting interregional cooperation of SMEs, which identify activities funded by cross-border programs Interreg - support for the implementation of small interregional projects; support for events, meetings, conferences, workshops and business meetings between Bulgarian and foreign SMEs; support for international cooperation of SMEs in national and regional priority sectors. In addition, the total operational programs for funding policies in response to the crisis with COVID-19.

¹⁷ <https://www.eufunds.bg/bg/oprd/node/4554>

¹⁸ <https://www.mi.government.bg/bg/themes/nacionalna-strategiya-za-malki-i-sredni-predpriyatiya-msp-v-balgariya-2021-2027-g-2194-285.html>

The strategy is consistent with the identification of CBCP and TSIM measures and activities.

- ***Innovation strategy for smart specialization for the period 2021-2027 (in the process of preparation ¹⁹)***

The thematic priority areas for smart specialization in the period 2021-2027, set in the strategy, are the following:

1. Informatics and ICT.
2. Mechatronics (independent field).
3. Healthy living and biotechnology industries.
4. New technologies in creative and recreational industries.
5. Clean technologies, circular and low-carbon economy.

Thematic priorities - mainly 1 and 5 are taken into account when defining the measures to specific objective 1.1 of TSIM.

- ***Concept for digital transformation of the Bulgarian industry ²⁰(Industry 4.0), adopted by Decision № 37 of 30 August 2017 by the Council of Ministers***

The aim of the concept is to create preconditions for modernization, automation and competitive positioning of the Bulgarian economy in the medium to long term (2017 - 2030).

The vision outlined in the Concept is that by 2030 Bulgaria will be recognized as a regional center of the digital economy through the implementation of products, technologies, business models and processes from Industry 4.0.

The adoption of the Concept will allow the adoption of specific policies and measures to digitize the real economy and the productive sector and will help coordinate policies, instruments and mechanisms in the various line ministries, and in line with European Union policies in this area.

The areas of intervention covered in the Concept for business digitization, export orientation and competitiveness are the following:

- *Area 1:* Strengthening the link between science and industry in the country and accelerated integration of Bulgaria in European and international programs, initiatives and networks related to the development and implementation of Industry 4.0.

- *Area 2:* Technological renewal of the Bulgarian economy through: introduction of standards, construction of infrastructure, development of specific mechanisms to stimulate the development and market implementation of technological innovations (new products, services and production processes) through technologies from Industry 4.0.

- *Area 3:* Building human, scientific, organizational and institutional capacity for development of Industry 4.0 in Bulgaria.

Activities and measures for digitization to measures under specific objective 1.1 of TSIM are envisaged.

¹⁹ <http://www.arcfund.net/index.php?id=2302>

²⁰ <https://www.mi.government.bg/bg/themes/koncepciya-za-cifrova-transformaciya-na-balgarskata-industriya-industriya-4-0-1862-468.html>

- **National strategic document “Digital Transformation of Bulgaria for the period 2020-2030”²¹**, approved by Decision № 493 of the Council of Ministers of 21.07.2020.

The document defines the vision and goals of the policy for digital transformation of the Republic of Bulgaria for the period until 2030, as a generalized political framework in which the National Program "Digital Bulgaria 2025", the priorities of the "National Development Program BULGARIA 2030" and a number of other national strategic documents with a technological component (listed in the Annex to the document), covering the period 2020-2030. It takes into account the objectives of the UN Agenda 2030 for Sustainable Development and the Use of New Technologies to Achieve Them, as well as the European Commission's Strategy Papers "A Europe Fit for the Digital Age", "Building a Digital Future for Europe", "A New Industrial Strategy for Europe" and others.

Activities and measures for digitalization are envisaged under specific objective 1.1 of TSIM.

- **National Disaster Risk Reduction Strategy 2018-2030.**²² (approved by Decision of the Council of Ministers № 505 of 19.07.2018.)

The strategy defines the vision for reducing the risk of disasters on the territory of the Republic of Bulgaria, outlining an agreed framework for adequate reduction of existing risks and prevention of new ones, increasing preparedness and response capabilities and rapid disaster recovery, respecting the principle "yes let's build again, but better. "

The strategy is not directly related to CBCP and TSIM, but since the risk of disasters affects all sectors, the document is taken into account in the preparation of documents and environmental assessment.

- **Updated National Strategy for Sustainable Tourism Development in the Republic of Bulgaria 2014-2030.**²³ (approved by Decision № 65 / 02.02.2018 of the Council of Ministers)

The main goal defined in the Strategy is sustainable development of tourism in the Republic of Bulgaria. The following strategic goals / priorities / have been defined for its achievement:

1. Creating a favorable environment and business environment for the development of sustainable tourism
2. Development of a competitive tourism sector
3. Successful positioning of Bulgaria on the world tourist market
4. Balanced development of the tourist regions - the scope of the cross-border region, subject to CBCP and TSIM, includes parts of two tourist regions - Sofia Region and Rila-Pirin Region (according to the Concept for Tourist Zoning of Bulgaria, 2015).

²¹ https://www.mtitc.government.bg/sites/default/files/cifrova_transformaciya_na_bulgariya_za_perioda_2020-2030.pdf

²² <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1279>

²³ <https://www.tourism.government.bg/bg/kategorii/strategicheski-dokumenti/aktualizirana-nacionalna-strategiya-za-ustoychivo-razvitie-na>

Specific objective 1.2 of the TSIM project is aimed at developing an attractive year-round tourism product, a prerequisite for which is the cultural and historical heritage in the cross-border area, and with the identified measures to the specific objective will contribute to the strategic objectives.

- ***National Strategy for Road Safety in the Republic of Bulgaria with horizon 2021 - 2030 and Action Plan for its implementation for the period 2021 - 2023*** ²⁴
(approved by Decision № 775 / 26.10.2020 of the Council of Ministers)

The strategic document also reviews the implementation of measures to increase road safety over the last decade. Our country has achieved a 19% reduction in the number of victims of road accidents and a 22% reduction in the number of people seriously injured in road accidents in the period 2010-2019. as the average European rate of decline for the decade to 2018 is about 21%.

In the context of European policy in the field, Bulgaria is committed to working in the long run to achieve "Vision Zero" killed and seriously injured in road accidents, and by 2030 to reduce their number by half.

In order to achieve the goals, the implementation of a wide range of measures set out in the Action Plan is set in the thematic areas: integrity-based governance; socially responsible behavior - lifelong learning; control - effective and preventive; sparing road infrastructure; human protection vehicles; lifebuoy.

CBCP includes a specific strategic project to Priority 2, related to the construction of CBC "Eyelid" and related infrastructure, incl. road connections to it, which should take into account the measures for sparing road infrastructure.

- ***Recovery and sustainability plan*** ²⁵ (draft version 1.4, October 2021.)

The main objective of the Recovery and Sustainability Plan is to facilitate economic and social recovery from the crisis caused by the COVID-19 pandemic. In pursuit of this goal, the government has grouped a set of measures and reforms that not only restore the potential for economic growth, but also develop it by ensuring resilience to negative externalities. The plan lays the foundations for a green and digital transformation of the economy, in the context of the ambitious goals of the Green Deal.

The plan is structured in four pillars: **Innovative Bulgaria, Green Bulgaria, Connected Bulgaria and Fair Bulgaria**, including measures (reforms/investments) in areas/sectors: education and skills, research and innovation, smart industry, low carbon economy, biodiversity, sustainable agriculture, digital connectivity, transport connectivity, local development, business environment, social inclusion, health.

²⁴ <https://www.sars.gov.bg/%D0%BF%D1%80%D0%B8%D0%B5%D1%82%D0%B0-%D0%B5-%D0%BD%D0%B0%D1%86%D0%B8%D0%BE%D0%BD%D0%B0%D0%BB%D0%BD%D0%B0%D1%82%D0%B0-%D1%81%D1%82%D1%80%D0%B0%D1%82%D0%B5%D0%B3%D0%B8%D1%8F-%D0%B7%D0%B0-%D0%B1%D0%B5/>

²⁵ <https://nextgeneration.bg/14>

The plan is not directly related to CBCP and TSIM, as it sets out specific funding measures, but takes into account the development of CBCP and TSIM, in order to demarcate and complement investment and avoid conflicts with reforms.

- ***Strategy and action plan for transition to a circular economy of the Republic of Bulgaria for the period 2021-2027.*** ²⁶ (project, 2020, Ministry of Environment and Water)

The country's policy for transition to a circular economy will be implemented by setting the following strategic goals in the draft Strategy for transition to a circular economy: green and competitive economy; less waste and more resources; consumer economy. Specific objectives have been proposed for each of the strategic objectives.

Contribute to the transition to a circular economy are the measures under specific objective 1.1 of TSIM, and in particular measures 1.1.1 for technological modernization and 1.1.2 for the acquisition of new knowledge and skills, incl. for a greener environment.

*An analysis of the relevance and compliance of the objectives of the draft strategy to / in CBCP and TSIM is made in **item 5** of the EAR.*

- ***National Program for Air Pollution Control (2020 - 2030)*** ²⁷ (approved by Decision № 541 of the Council of Ministers of 13.09.2019.)

The program was developed and adopted in order to fulfill the commitments of the Republic of Bulgaria to achieve national ceilings for total annual emissions of certain air pollutants for 2020 and 2030, and in particular for pollutants - sulfur dioxide (SO₂), nitrogen oxides NO_x), non-methane volatile organic compounds (NMLC), ammonia (NH₃) and particulate matter (FDP2.5), relative to emissions for the base year 2005 in accordance with Directive (EU) 2016/2284.

CBCP and TSIM do not have specific forecasts, but Priority 1 activities contribute to reducing air pollution.

*Analysis of the relevance and compliance of the objectives of the program to / in CBCP and TSIM is made in **item 5** of the EAR.*

- ***National Program for Improving Atmospheric Air Quality 2018-2024.*** ²⁸ (approved by Decision № 334 of the Council of Ministers of 07.06.2019.)

Due to non-compliance with air quality standards, the Bulgarian government is currently subject to infringement proceedings before the Court of Justice. In particular, this applies to twenty-eight municipalities in which non-compliance with the cleaner air directive for Europe (CAFE directive) is observed in relation to FDP10. The program proposes a package of measures to be implemented by the end of 2024 in order to comply with the requirements of the Cleaner Air Directive for Europe in terms of FDP10 levels. The measures are targeted at reducing emissions

²⁶ <https://www.moew.government.bg/bg/strategiya-i-plan-za-dejstvie-za-prehod-kum-krugova-ikonomika-na-republika-bulgariya-za-perioda-2021-2027-g-10910/>

²⁷ <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1289>

²⁸ <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1288>

from the two main sectors that are sources of FDP10 emissions, namely domestic heating and transport.

CBCP and TSIM do not have specific forecasts, but Priority 1 activities contribute to reducing air pollution.

An analysis of the relevance and compliance of the program objectives with / in CBCP and TSIM is made in item 5 of the EAR.

- ***The National Strategy for Adaptation to Climate Change and the Action Plan until 2030.*** ²⁹ (approved by Decision № 621 of the Council of Ministers on 25.10.2019.)

The strategy analyzes climate risks and vulnerabilities by sectors of the economy, sets goals and provides opportunities for adaptation. The common strategic goals are:

- o Inclusion and integration of adaptation to climate change;
- o Building institutional capacity for adaptation to climate change;
- o Raising awareness of climate change adaptation.

Priority 1 of the CBCP provides for activities contributing to adaptation, and specific objective 2.1. of the CBCP integrates the need for adaptation to climate change, as *an analysis of the relevance of the objectives and opportunities for adaptation to the activities and measures in the CBCP and TSIM projects is made in item 5 of the EAR.*

- ***Integrated plan in the field of energy and climate of the Republic of Bulgaria 2021 - 2030.*** ³⁰ (approved by the Protocol of the Council of Ministers of 27.02.2020)

The Integrated Energy and Climate Plan of the Republic of Bulgaria 2021-2030 defines the main goals and measures for the implementation of national energy and climate policies for the implementation of European legislation, principles and priorities for energy development, in order to achieve the binding EU goals for climate and energy for 2030. The main goals of the integrated plan of the Republic of Bulgaria are as follows:

- stimulating low-carbon economic development;
- development of competitive and secure energy;
- reducing dependence on imports of fuels and energy;
- guaranteeing energy at affordable prices for all consumers.

Some of the measures under specific objective 1.1 of TSIM are related to energy efficiency (as a result of technological modernization, which will make businesses more environmentally friendly), such as *analysis of the degree of compliance with the relevant objectives of the plan in CBCP projects and TSIM is made in item 5 of the EAR.*

²⁹ <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1294>

³⁰ <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1301>

- **National Program for Protection, Sustainable Use and Restoration of Soil Functions 2020-2030.**³¹ (approved by Decision № 748 of the Council of Ministers of 22.10.2020.)

The general strategic goal of the country related to the protection, sustainable use and restoration of soil functions is: Sustainable land use, ensuring a high level of preservation of soil functions, high productivity, maintenance of ecosystems and social welfare. Strategic goals have been formulated to achieve the general strategic goal.

*As the program sets objectives for soil protection (as a component of the environment), an analysis of their relevance to/in CBCP and TSIM is made in **item 5** of the EAR.*

- **National Strategy for Forest Sector Development 2013-2020.**³² (approved by Protocol № 48.1 of the Council of Ministers of 27.11.2013.)

The National Strategy for Forest Sector Development is the main document that defines the strategic framework of the state policy for achieving long-term and sustainable management of living and productive multifunctional forests and increasing competitiveness of the forest sector as a basis for better living standards, especially in mountain and rural areas.

As a result of the implementation of the Strategy, it is expected that the ecological, social and economic functions of forests will be preserved and enriched.

As a significant part of the cross-border region within the scope of the CBCP and TSIM is occupied by forest areas, the strategy is consistent with the preparation of the EAR.

*The strategy sets goals for forest protection (as part of the biodiversity component), in connection with which an analysis of their relevance to/in the CBCP and TSIM is made in **item 5** of the EAR.*

- • **National Waste Management Plan 2021-2028.**³³ (approved by the Council of Ministers, June 2021)

Three main goals have been formulated:

Goal 1: Reduce the harmful effects of waste by preventing its generation and encouraging its reuse

Goal 2: Increase the amount of recycled and recovered waste

Goal 3: Reduction of the quantities and risk of landfilled municipal waste

Directly related to and contribution to the implementation of the objectives of the plan is measure 1.1.1 of TSIM, which includes activities aimed at making businesses more environmentally friendly, which is related to limiting the generated waste.

*As the plan sets waste management objectives (as a significant factor for the environment), an analysis of the relevance of the objectives of the plan and their compliance with the CBCP and TSIM is made in **item 5** of the EAR.*

³¹ <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=1324>

³² https://www.mzh.government.bg/media/filer_public/2018/03/02/nacionalna-strategiya-razvitie-gorski-sektor-2013-2020.pdf

³³ https://www.moew.government.bg/static/media/ups/tiny/%D0%A3%D0%9E%D0%9E%D0%9F/%D0%9D%D0%9F%D0%A3%D0%9E-2021-2028/NPUO_2021-2028.pdf

- ***National Strategy for Management and Development of the Water Sector in the Republic of Bulgaria and Action Plan to it in the short-term (2013-2015), medium-term (2016-2021) and long-term (2022-2037) perspective***³⁴ (approved by the National Assembly on 21.11.2012)

The long-term goal in the field of the water sector is Sustainable use of water resources, providing optimal current and future needs of the population and the economy of the country, as well as aquatic ecosystems. 4 goals have been formulated for its achievement.

The strategy is not directly reflected in the CBCP and TSIM projects, as *an analysis of the relevance of the objectives to the CBCP and TSIM and their projections is made in item 5 of the EAR.*

- ***National plan for protection of the most important wetlands in Bulgaria 2013-2022.***³⁵ (prepared in 2012.)

The national plan includes as a priority the 11 wetlands included in the Ramsar Convention list. Another 28 wetlands are considered, which are not included in the Ramsar List, but which are reported to meet one or more of the declaration criteria or have a high potential for protection and restoration. Based on the analysis, horizontal and specific measures have been identified to be implemented within the 10-year implementation period of the plan.

The territorial scope of CBCP and TSIM includes two potential Ramsar sites - *Choklyovo marsh* (protected area), part of which is located in the village of Bunovo, Kyustendil municipality, and the *Seven Rila Lakes* (within the Rila National Park), also located in Kyustendil district.

For the activities and measures of investment nature under CBCP and TSIM, which are likely to affect territorially or as an impact wetlands, the relevant measures of the *National Plan for protection of the most important wetlands in Bulgaria* should be observed.

An analysis of their relevance to / in the CBCP and TSIM projects is made in item 5 of the EAR.

- ***National Strategy for Biodiversity Conservation***³⁶ (adopted by Protocol № 15.3 of the Council of Ministers of 06.04.1998)

The aim of the strategy is conservation, restoration and sustainable management of biodiversity in the country, as well as limiting the loss of biodiversity. The strategy has 7 main priorities - *analysis of the relevance and compliance of environmental objectives to / in the CBCP and TSIM projects is made in item 5 of the EAR.*

- ***Biodiversity Strategy in the Republic of Bulgaria***³⁷ 2030 (in preparation - draft, October, 2021)

³⁴ <https://www.moew.government.bg/bg/nacionalna-strategiya-za-upravlenie-i-razvitie-na-vodniya-sektor-v-republika-bulgariya/>

³⁵ <http://forthenature.org/documents/879>

³⁶ <https://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=386>

³⁷ <https://www.moew.government.bg/bg/proekt-na-strategiya-za-biologichno-raznoobrazie-na-republika-bulgariya/>

The draft Strategy sets out the following vision: By 2050, biodiversity, a national and world natural heritage, is protected, restored, assessed, sustainably and equitably exploited through long-term and strategic policies and approaches, integration into other national sectoral policies, participation and involvement of state, scientific, educational institutions, non-governmental organizations and initiatives, business and civil society.

3 priorities have been identified:

Priority 1 - Conservation, sustainable use of biological diversity and fair and equitable distribution of benefits arising from the use of genetic resources.

Priority 2 - Preservation and restoration of ecosystems and preservation of the services and benefits they provide.

Priority 3 - Maintenance and effective management of the National Ecological Network.

Based on the formulated priorities, 12 national goals have been set.

CBCP and TSIM do not have direct plans for biodiversity conservation, but as an indirect effect they will contribute to achieving the priorities of the strategy.

An analysis of the degree of compliance with the 12 objectives of the strategy is made in item 5 of the EAR.

- ***River basin management plan (RBMP) in the West Aegean region (2016-2021)***³⁸ (adopted by Decision №1108 / 29.12.2016 of the Council of Ministers) **and the RBMP (2022-2027) (under preparation)**

The main goal of the RBMP is to achieve long-term sustainable water management based on a high level of protection of the aquatic environment. The defined general goal to be achieved for all water bodies is to achieve good status / potential by introducing the principle of preventing further deterioration. In the implementation of the CBCP and TSIM the activities comply with the current RBMP and water protection measures should be applied. The programming period of CBCP and TSIM coincides with the period of updating, preparation and implementation of the third River Basin Management Plan (RBMP 2022-2027).

An analysis of compliance with the RBMP has been made in the EAR sections for the Water component, as well as in EAR item 5.

- ***Flood Risk Management Plan (FRMP) in the West Aegean Basin Management Region 2016-2021.***³⁹ (approved by Decision of the Council of Ministers № 1105 / 29.2016) **and Draft of the Updated Preliminary Flood Risk Assessment (PFRA) for the West Aegean Basin Management Region (March 2021)**

The FRMP contains the established framework for the assessment and management of flood risk and the reduction of their adverse effects on human health, the environment and the cultural heritage. CBCP and TSIM activities need to comply with existing FRMPs and flood risk assessment and management measures should be implemented. The CBCP and TSIM programming period coincides with the period of updating, preparing and implementing the second FRMPs for the period 2022-2027. At the time of preparing this EAR, the PFRA project with updated preliminary

³⁸ <https://wabd.bg/content/%d0%bf%d1%83%d1%80%d0%b1/%d0%bf%d1%83%d1%80%d0%b1-2016-2021/>

³⁹ <https://wabd.bg/content/%D0%BF%D1%83%D1%80%D0%BD/%D0%BF%D1%83%D1%80%D0%BD-2016-2021%D0%B3/>

AWSPFRs (including new AWSPFRs) is published on the website of the Biodiversity Act and is compliant in the "waters" of the EAR.

An analysis of compliance with the FRMP and the updated PFRA has been made in the EAR sections of the Water component, as well as in EAR item 5.

- • **National Priority Framework for Action for Natura 2000 for the period 2021-2027 (draft - first working version, option 3, 2021)**⁴⁰

This document is prepared in accordance with the requirements of Article 8 (1) of the *Habitats Directive*, which requires Member States to submit to the Commission their estimates of the European Union's financial contribution they deem necessary to fulfill their obligations under the *Habitats Directive*. the Natura 2000 network.

Expected results:

- Developed measures for maintaining and improving the conservation status of species and natural habitats subject to protection in Natura 2000;
- Estimation of the amount of financial resources necessary for the implementation of the developed measures, as well as the source for their financing;
- Developed system for monitoring, reporting and updating the framework for the period 2021 - 2027;
- Completed format of the framework for the period 2021 - 2027;
- Implemented process for discussion and harmonization of the framework for the period 2021 - 2027;
- Ensure coherence with the priorities of EU funds and other financial instruments.

Analysis of the relevance of measures to / in the CBCP and TSIM projects is made in item 5 of the EAR.

- • **Integrated Territorial Strategy for Development of the Southwest Region of Level 2 for the period 2021-2027.** ⁴¹ (project, Ministry of Regional Development and Public Works)

The identified vision for the development of the region is: Southwest region - developing its potential for a worthy place among European regions. 3 development priorities have been identified:

Priority 1: Promoting an innovative and smart economic transition

Priority 2: Preservation and development of human capital by providing access to quality services

Priority 3: Better connected and sustainable area.

Especially for cross-border cooperation in the Integrated Territorial Strategy, attention is paid to the need to improve road connections, stimulate cross-border cultural connections, encourage investment, develop business and tourism and improve the quality of the living environment. Specific specific objective 3.5 "Strengthening cross-border perspectives" has been identified, providing guidance on joint projects for nature and biodiversity conservation, climate

⁴⁰ https://www.moew.government.bg/bg/purva-rabotna-versiya-variant-3-na-nacionalnata-ramka-za-prioritetni-dejstviya-za-natura-2000-2021-2027-g/?fbclid=IwAR19l61ktI7_X2_rwqm0zPC3pS7i76w4Gwvx70QwA4MI85c6268P2uaZY_U

⁴¹ <https://drive.google.com/file/d/1lxDLrdvhhfrngi5FikAB1ua03D--QZuT/view>

change mitigation, transition to a low-carbon economy, restoration and maintenance of tourist sites of historical and cultural significance, expanding the economic activity of SMEs, building new CBCs, e-government, investing in education, efficient use of resources, etc.

CBCP and TSIM include projections, measures and activities within the scope of all three priorities and integrate specific objective 3.5.

- ***District and municipal strategies, plans and programs for the municipalities in Blagoevgrad and Kyustendil districts, incl. General development plans*** ⁴²

The regional strategies for the period 2021-2027 are currently being prepared.

CBCP and TSIM have low detail of the forecasts, as the exact location and scope of activities have not been determined, so that at the next stage of implementation of the documents it will be possible to assess whether each project proposal is assessed in accordance with current municipal development plans. .

Most of the strategic documents of the municipalities are currently subject to updating / development of new documents, as exemplified by the plans for integrated development of municipalities (replacing municipal development plans under the *Regional Development Act*). As part of the system of strategic documents, these plans integrate regional and spatial development and serve to identify current problems, needs and potentials for development of regions, municipalities and settlements, which are taken into account in the development of investment programs and financial instruments, including co-financed from European Union funds. In line with them is the planning and implementation of integrated approaches to territorial and urban development and local initiatives contributing to the achievement of national goals and priorities for regional and local development.

At the moment, plans for integrated development for the period 2021-2027 have been prepared for the municipalities of Kyustendil and Nevestino, Kyustendil district.

Similar to the one described for the general development plans, the approval and implementation of project proposals under CBCP and TSIM should be in accordance with the plans for integrated development of municipalities, in order to ensure compliance and avoid contradictions..

C. Plans, programs and strategies on the territory of the Republic of North Macedonia related to CBCP and TSIM 2021-2027.

- ***Regional Development Strategy of the Republic of North Macedonia 2020-2030***
(Ministry of Local Self-Government, November, 2020)

The vision of the Regional Development Strategy 2020-2030 is to overcome the perceived differences and the planning regions to grow into functional-territorial units, which generate stable economic growth, provide quality social and other public services protecting the environment and nature and thus contributing to increasing their attractiveness, population retention and sustainable development through smart specialization and the use of competitive advantages.

⁴² Интернет страници на общините в области Благоевград и Кюстендил

3 strategic goals have been formulated:

1) *More even economically developed, environmentally sustainable and competitive planning regions through consistently applied smart specialization and stronger incentives for private investment in line with public investment.*

2) *Attractive planning areas with improved local services, effective access to the labor market, ensuring a higher degree of gender equality and effective social protection of the most vulnerable groups.*

3) *Significantly strengthened regional development policy, improved financial instruments for its implementation and built administrative capacity at central, regional and local levels.*

The strategy is consistent with the preparation of the CBCP and TSIM, and the measures and eligible activities in both documents will contribute to achieving its strategic objectives.

- ***Fiscal Strategy of the Republic of North Macedonia for the period 2021-2023.***⁴³ *(July, 2020)*

The strategy recognizes that the new programming period 2021-2027 is expected to increase the financial package and contribute to the implementation of the Economic and Investment Plan for the Western Balkans - financing major infrastructure projects in the transport, environment, digitalization and energy sectors, which have regional significance.

The strategy was taken into account in the development of the CBCP and TSIM projects.

- • ***National Strategy for Small and Medium Enterprises (SMEs) 2018-2023.***⁴⁴ *(Ministry of Economy, March 2018)*

The vision of the strategy is: SMEs in 2023 are engines of inclusive economic growth in the Republic of North Macedonia and in creating productive and sustainable jobs.

The strategy for SMEs has been developed around three strategic goals:

Strategic Goal 1 — Favorable business environment: To create a favorable business environment in which to encourage entrepreneurship and investment.

Strategic Goal 2 - Increase and improve the growth opportunities of SMEs: To help SMEs in the Republic of North Macedonia become highly productive and competitive players in European and other international markets.

Strategic Goal 3 - Dynamic ecosystem of entrepreneurship and innovation: To stimulate the economic competitiveness of the Republic of North Macedonia by increasing the entrepreneurial and innovative capacity of SMEs.

The measures under specific objective 1.1 in TSIM are aimed at SMEs, incl. to improve the business environment, competitiveness, innovation of enterprises.

- ***Program for development of the Northeast Planning Region 2021-2026.***⁴⁵ *(Northeast Planning Development Center, December 2020.);*

⁴³ <https://arhiva.finance.gov.mk/mk/node/4107>

⁴⁴ <https://economy.gov.mk/Upload/Documents/Strategija%20za%20MSP%20-%20finalna%20verzija%2003%2004%202018%20.pdf>

⁴⁵ <https://northeastregion.gov.mk/dokumenti/programa-za-razvoj/>

The vision for the development of the region is: Improving the quality of life for all in the region by developing the infrastructure, attracting investments and increasing the competitiveness of the typical activities. At the end of the period, the goal is for the Northeast Planning Region to no longer be the least developed in the country.

The following strategic goals have been formulated:

1. Achieving sustainable economic development by increasing investment, improving the business environment and increasing competitiveness - specific objective 1.1 of TSIM and the measures assigned to it is relevant, which will contribute to achieving the strategic goal of the program.

2. Development of human capital in the region by improving the quality and scope of education, child care and quality of health services - measure 1.1.2 of TSIM is provided to improve knowledge and skills.

3. Improving living conditions by improving infrastructure, spatial planning and the environment - Priority 3.2 indicates the need for solutions to protect the environment, incl. green spaces in cities, traffic (pedestrian areas, bike lanes), protection of cultural and historical heritage, development of sports, recreation and tourism - such activities are defined as eligible under the CBCP and TSIM. They should be implemented on the basis of an integrated approach, through master plans for urbanization.

4. Integration of agricultural development, tourism and rural development - measure 4.2.5 of the Program is: Formation and promotion of regional tourism products, corresponding to measure 1.2.2 of TSIM, which includes the development and supply of integrated regional tourist products, incl. for all-season tourism, which will contribute to achieving the goal.

- ***Eastern Development Planning Program 2021-2026.***⁴⁶ (*Eastern Planning Development Center, April 2021.*)

The vision for the development of the region is: The Eastern Planning Region is a competitive and dynamic environment in which potentials are used, quality human resources are developed, sustainable development is taken care of, with satisfied and happy people.

The following strategic goals have been set:

1. Development of a competitive and innovative regional economy through modernization of infrastructure, attraction of investments and labor force in accordance with the needs of the labor market - the goal is in accordance with *specific objective 1.1 of TSIM - Increasing the competitiveness of the local economy and improving business the environment* and the measures assigned to it, which will contribute to achieving the strategic goal of the program.

2. Provision of quality and inclusive social, educational and health services - contribution to improving the knowledge and skills of SMEs employed in the region will have a measure 1.1.2.

⁴⁶https://eastregion.mk/wp-content/uploads/2021/07/%D0%9F%D1%80%D0%BE%D0%B3%D1%80%D0%B0%D0%BC%D0%B0-%D0%B7%D0%B0-%D1%80%D0%B0%D0%B7%D0%B2%D0%BE%D1%98-%D0%BD%D0%B0-%D0%98%D1%81%D1%82%D0%BE%D1%87%D0%B5%D0%BD-%D0%BF%D0%BB%D0%B0%D0%BD%D1%81%D0%BA%D0%B8-%D1%80%D0%B5%D0%B3%D0%B8%D0%BE%D0%BD-2021-2026_v2_2.pdf

3. Sustainable management of the environment and natural resources - CBCP Priority 1 for a greener border region and its eligible activities contribute to achieving the strategic goal of the program.

4. Competitive agriculture and improving the quality of life in rural areas - activities to increase the competitiveness of the local economy and improve the business environment have been identified as eligible under the TSIM, which will contribute to achieving the goal.

- **Program for Development of the South-East Planning Region 2021-2026.**⁴⁷
(Southeastern Development Planning Center, April 2021)

The vision for the development of the region is: The Southeast region in 2026 is an economically dynamic and competitive region, recognizable by its attractive offers for tourism, agricultural products and food, environmental care, social security and quality of life in urban and rural areas.

The following strategic goals have been set:

1. Development of entrepreneurship and industry, increasing the competitiveness and innovation of enterprises and creating a favorable investment climate - the goal is in line with specific objective 1.1 of TSIM - *Increasing the competitiveness of the local economy and improving the business environment* and its measures. will contribute to achieving the strategic goal of the program.

2. Development and modernization of the infrastructure in the South-East planning region - contribution is contributed by measure 1.2.1 of TSIM.

3. Promotion of social inclusion, competitive and quality education and health care of the population in the region - TSIM measures for improving knowledge and skills are envisaged - measure 1.1.2.

4. Development of competitive agricultural production and improvement of the quality of life in rural areas - activities to increase the competitiveness of the local economy and improve the business environment have been identified as eligible under the TSIM, which will contribute to achieving the goal.

- **National strategy for tourism development**⁴⁸ (2018, Ministry of Economy)

8 strategic goals have been formulated:

1. *Raising awareness of Republic of North Macedonia as an attractive tourist destination*
2. *Increasing the attractiveness of Republic North Macedonia as a tourist destination*
3. *Improving the organizational structure in tourism*

⁴⁷<https://southeast.mk/wp-content/uploads/2021/04/%D0%9F%D1%80%D0%BE%D0%B3%D1%80%D0%B0%D0%BC%D0%B0-%D0%B7%D0%B0-%D1%80%D0%B0%D0%B7%D0%B2%D0%BE%D1%98-%D0%BD%D0%B0-%D0%88%D1%83%D0%B3%D0%BE%D0%B8%D1%81%D1%82%D0%BE%D1%87%D0%BD%D0%B8%D0%BE%D1%82-%D0%BF%D0%BB%D0%B0%D0%BD%D1%81%D0%BA%D0%B8-%D1%80%D0%B5%D0%B3%D0%B8%D0%BE%D0%BD-2021-2026.pdf>

⁴⁸https://economy.gov.mk/Upload/Documents/BER_Tourism%20Strategy%20Macedonia_FINAL%20REPORT_16%2004_MK%20Edit%202018.pdf

4. *Improving the investment climate for entrepreneurs in the Republic of North Macedonia in connection with the development of additional accommodation facilities.*

5. *Improving the quality and quantity of available data on tourism*

6. *Improving the framework conditions for tourism development*

7. *Improving knowledge about tourism and the quality of services*

8. *Raising the awareness of the local population in connection with tourism.*

Specific objective 1.2 of the TSIM project is aimed at developing an attractive tourist product, a prerequisite for which is the cultural and historical heritage in the cross-border area, and with the identified measures to the specific objective will contribute to the strategic objectives of the strategy.

- ***Strategy for Energy Development in the Republic of North Macedonia until 2040.***⁴⁹ (Ministry of Economy, 2020.)

The strategic goals for energy development are:

- Achieving the highest possible energy efficiency;
- Maintain energy dependence around the current level (54% net imports) and at the same time contribute to the integration of European markets;
- Limiting the growth of greenhouse gas emissions;
- Significant increase in the share of renewable energy sources (RES) in gross final energy consumption compared to the current level (19% RES) in a sustainable way;
- To minimize system costs based on the principle of optimization at the lowest price;
- Ensure continued compliance with and application of EU law.

Within the framework of TSIM, measure 1.1.1 envisages technological modernization, which is also related to the improvement of energy efficiency.

- ***National Strategy for Nature Conservation 2017-2027.***⁵⁰ (Ministry of Environment and Spatial Planning, 2018.)

The Strategy is an integrated document at the national level, setting the goals and necessary actions for nature conservation and sustainable use, which covers all its components, sites and areas, characterized by specific natural status and value, which require an appropriate level of protection.

The strategy sets a vision: The diverse and preserved nature of the Republic of North Macedonia is the basis for a healthy and prosperous society, for which the main and specific goals have been identified and an action plan setting out national goals.

The document should be taken into account when implementing project proposals under CBCP and TSIM, in order to avoid contradictions.

⁴⁹ <https://economy.gov.mk/doc/2759>

⁵⁰ <https://www.moep.gov.mk/wp-content/uploads/2014/12/%d0%9d%d0%b0%d1%86%d0%b8%d0%be%d0%bd%d0%b0%d0%bb%d0%bd%d0%b0-%d1%81%d1%82%d1%80%d0%b0%d1%82%d0%b5%d0%b3%d0%b8%d1%98%d0%b0-%d0%b7%d0%b0-%d0%b7%d0%b0%d1%88%d1%82%d0%b8%d1%82%d0%b0-%d0%bd%d0%b0-%d0%bf%d1%80%d0%b8%d1%80%d0%be%d0%b4%d0%b0%d1%82%d0%b0-2017-2027.pdf>

An analysis of the relevance of the objectives to / in the CBCP and TSIM projects is made in item 5 of the EAR..

- **National Biodiversity Strategy with Action Plan 2018-2023.**⁵¹ (Ministry of Environment and Spatial Planning, 2018)

The vision set out in the strategy is: "Biodiversity, unique natural resources and traditional human connections with nature in the Republic of North Macedonia are preserved, valued and provide ecosystem services that contribute to human well-being." The strategy sets 4 strategic goals, to which a total of 19 national goals are grouped.

The document should be taken into account when implementing project proposals under CBCP and TSIM, in order to avoid contradictions.

An analysis of the relevance of the objectives to / in the CBCP and TSIM projects is made in item 5 of the EAR.

- **Strategy for Environment and Climate Change 2014-2020**⁵² (May, 2015, Ministry of Environment and Spatial Planning)

The strategy focuses on improving the overall quality of life and avoiding any permanent damage to the environment. In terms of environmental protection, the goals are aimed at preserving and improving the quality of water, air and soil, maintaining biodiversity and protecting the country's natural resources. With regard to climate change, the aim is to reduce its negative impact.

The strategy is reflected in CBCP Priority 1, and the development and implementation of project proposals, both under CBCP and TSIM, should not conflict with its objectives.

The strategy sets 10 operational objectives, which are analyzed in terms of their relevance to CBCP and TSIM projects in item 5 of the EAR.

- **National Long-Term Action Strategy for Climate Change of the Republic of North Macedonia 2020-2050 and Action Plan for the first stage of implementation of the strategy 2021-2030.**⁵³ (project, Ministry of Environment and Spatial Planning)

The draft Strategy sets out the following vision: By 2050, the Republic of North Macedonia is a prosperous, low-carbon economy, following climate change-sustainable development pathways, increasing competitiveness and promoting social cohesion through action to combat climate change and its impacts.

CBCP and TSIM include activities and measures for competitiveness, social cohesion, and some of the activities have a direct contribution to combating climate change (under CBCP Priority 1).

⁵¹ https://www.moep.gov.mk/wp-content/uploads/2014/12/NATIONAL-BIODIVERSITY_MKD.pdf

⁵² <https://www.moep.gov.mk/wp-content/uploads/2014/12/%d0%a1%d1%82%d1%80%d0%b0%d1%82%d0%b5%d0%b3%d0%b8%d1%98%d0%b0-%d0%b7%d0%b0-%d1%81%d0%b5%d0%ba%d1%82%d0%be%d1%80%d0%be%d1%82-%d0%b6%d0%b8%d0%b2%d0%be%d1%82%d0%bd%d0%b0-%d1%81%d1%80%d0%b5%d0%b4%d0%b8%d0%bd%d0%b0-%d0%b8-%d0%ba%d0%bb%d0%b8%d0%bc%d0%b0%d1%82%d1%81%d0%ba%d0%b8-%d0%bf%d1%80%d0%be%d0%bc%d0%b5%d0%bd%d0%b8.pdf>

⁵³ <https://climateaction-ipaproject.mk/how-to-engage-with-the-project/>

The strategy sets main and specific objectives, and the action plan - measures that *are analyzed in terms of their relevance to CBCP and TSIM projects in item 5 of the EAR.*

- ***National Strategy for Sustainable Development of Forestry in the Republic of North Macedonia, June 2006*** (provided through the National Authority of the CBCP and TSIM of the Republic of North Macedonia)

The government's goal is to increase the contribution of the forestry sector through sustainable forest management, the national economy and rural development, the provision of renewable resources and the protection of the local and global environment, thus ensuring improved quality of life. to all citizens.

To maintain and improve the economic efficiency of forestry for the needs of overall national development, the government will provide:

- legal, institutional and economic framework for the implementation of sustainable forest management;
- a stable financial mechanism that will improve the condition of forests and the development of forestry.

There are 7 main guidelines, which are *analyzed in item 5 of the EAR.*

- ***National Water Strategy of the Republic of North Macedonia (2012-2042)***⁵⁴ (prom. SG, no. 122/2012, Ministry of Environment and Spatial Planning)

The strategy examines the state of water, on the basis of which it proposes a program of actions and measures for their protection. The actions and measures aim to ensure the access of people, businesses and nature to water of the required quality and to achieve the desired water use when considering the water cycle as a whole.

- The measures and activities are grouped as follows:
- Protection against floods and other negative effects of water;
- Water protection;
- Conservation and other areas of importance related to water;
- Expert and operational framework for water management;
- International cooperation and EU accession process;
- Frame and tools;
- Economic instruments;

In item 5 of the EAR an analysis of the relevance of specific measures and activities to the CBCP and TSIM is made.

- ***National Strategy for Sustainable Development in the Republic of North Macedonia (2009-2030)***⁵⁵ (Ministry of Environment and Spatial Planning, 2010.)

The strategy is based on the principles of sustainable development established at the global level, and it is an important element among the priorities set in the European Partnership, as well as

⁵⁴ https://www.moep.gov.mk/wp-content/uploads/2014/09/Nacionalna%20Strategija%20za%20Vodi%20SV%20br.122_2012.pdf

⁵⁵ <https://vlada.mk/sites/default/files/dokumenti/strategii/MZHSP/nacionalna-strategija-za-odrzliv-razvoj-vo-rsm.pdf>

for the implementation of obligations under the Strategy of the country for integration into the European Union.

The guiding principles set by the strategy are the following:

Guiding principle №. 1: The government to be innovative, supportive and with a leading role in relation to the municipalities and the private sector, which in turn have an operational role in achieving sustainable development in the Republic of North Macedonia.

Guiding principle №. 2: Introduction of e-government (electronic) at national and local level. This will ensure greater transparency and efficiency and contribute to faster and more effective sustainable development.

Guiding principle №. 3: The short-term focus should be on a highly educated workforce to prevent further "brain drain" and to attract citizens of North Macedonia living abroad who are highly qualified, well educated and have great potential.

Based on the principles, 7 strategic goals have been identified.

The CBCP and TSIM projects comply with the strategy, and specific measures and eligible activities and measures (to improve knowledge and skills, to digitalize, to increase competitiveness and to improve the business environment) will contribute to the achievement of strategic objectives.

*An analysis of the relevance of the objectives to / in the CBCP and TSIM projects is made in **item 5** of the EAR.*

- ***National Waste Management Plan of the Republic of North Macedonia 2020 - 2030***⁵⁶ (Ministry of Environment and Spatial Planning, project, 2020)

The aim of the plan is to establish and develop a functioning system for integrated waste management in accordance with the waste hierarchy and EU law, to achieve environmentally safe treatment and treatment, in a way that is best adapted to the situation in the Republic of North Macedonia.

The plan examines European waste management policy and legal context, includes sections and guidelines for improving the national legal framework for waste management, improving central government capacity, improving regional planning and services, improving waste management data, improving waste management. producer responsibility, municipal waste management, commercial and industrial waste management, construction, demolition and excavation waste, hazardous waste, hospital waste, wastewater waste, landfill, export and import of waste, rehabilitation of illegal landfills and contaminated areas.

*An analysis of the relevance of the plan's projections to / in the CBCP and TSIM projects is made in **item 5** of the EAR.*

- ***Air pollution reduction program***⁵⁷ (Ministry of Environment and Spatial Planning, 2015)

The program offers a systematic approach to reducing emissions from all identified sectors through strategically planned and implemented measures aimed at reducing air pollution by 50% by 2020 in Skopje and 30 to 50% in other cities. Priority activities have been identified.

⁵⁶ <https://www.moepp.gov.mk/wp-content/uploads/2020/08/NPUO-2020-2030-final-draft.pdf>

⁵⁷ https://air.moepp.gov.mk/wp-content/uploads/2015/07/Plan_Programa.pdf

An analysis of the relevance of the identified priority activities to / in the CBCP and TSIM projects is made in **item 5** of the EAR.

- **Regional Waste Management Plans of the Republic of North Macedonia for the Northeast (September, 2014), East (September, 2014) and Southeast (March, 2017)**⁵⁸ (Ministry of Environment and Spatial Planning)

Regional waste management plans are important tools that contribute to the implementation and achievement of the policies and objectives set in the field of waste management at national and European level. They are based on: (a) European and national legislation and strategies, which may include targets set in specific areas; and (b) analysis and assessment of the current situation.

The plans are tailored for the purposes of this EAR in the sections on the waste factor“.

2. Current state of the environment and possible development without the application of CBCP and TSIM

2.1. Current state of the environment

2.1.1. Climate and climate change

A. Climatic characteristics

- ***Kyustendil and Blagoevgrad districts (Republic of Bulgaria)***

Kyustendil district

The area falls into the transitional continental climate area of the European continental climate area and in particular the Kyustendil-Blagoevgrad climate region. The climatic wind rose is characterized by protection from eastern and western invasions, characteristic of zonal air transport. There are about 30 days in winter with temperatures below 0. The average January temperatures in the area are around +1 ÷ -1.

Blagoevgrad District

The climate in the district is determined by the transition between the transitional-continental and continental-Mediterranean climatic regions, with a strong influence of the Mediterranean climate in the southern regions of the district. It is characterized by warm, hot summers and relatively mild winters, with a lower annual temperature amplitude (about 22°C) compared to the temperate-continental zone, and with two maximum rainfall - late autumn and spring. Average annual value of air temperature around and above 12°C. It is characterized by a well-defined annual course, with a maximum in July or August (around 22 ÷ 23°C) and a minimum in January (around 0°C). The absolute maximum is over 40°C.

⁵⁸ https://www.moep.gov.mk/?page_id=3194

The annual amount of precipitation varies widely - from about 500-700 mm I varies depending on altitude and exposure of the slopes. In the internal annual distribution of precipitation by seasons there is a clear maximum in autumn and winter and a minimum in spring and summer. The lowest precipitation is in August and September, which is typical for the continental-Mediterranean precipitation regime. The precipitation in winter is mostly rain, as the snow cover lasts about 12-15 days and melts quickly. The thickness of the snow cover rarely exceeds 10-15 cm.

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

Despite the relatively small territory of the Republic of North Macedonia, the climate is diverse. The following more homogeneous climatic regions and subregions are distinguished: Mediterranean climate (50–500 m asl); temperate-continental-Mediterranean climate (up to 600 m); hot continental climate (600-900 m); cold continental climate (900–1 100m); sub-forest-continental-mountain climate (1,100–1,300 m); forest-continental mountain climate (1,300–1,650 m); subalpine mountain climate (1,650–2,250 m) and alpine mountain climate (over 2,250 m).

Southeast region

It is characterized by two climatic zones: transitional-Mediterranean to a greater or lesser extent continental climate, which provides the region with a specific feature - long hot summers with high lunch temperatures and reduced annual rainfall, reduced winter temperatures and winds from all directions. This region is characterized by northwest and southeast winds (**Figure 2.1.1.A-1**) and less frequently by westerly and east winds. The southeastern region has about 230 sunny days. On average, sunshine lasts 2,377 hours a year. This area is the sunniest region in the Republic of North Macedonia. Due to the Mediterranean influences from the Aegean, the climatic conditions in the region are characterized by reduced annual rainfall and lower winter temperatures. The average annual temperatures vary from 12.5°C to 13°C, and in the highest regions of the mountain massifs up to 7.5°C. The warmest months are July and August, with an average temperature of 23°C, while the coldest is January with an average of 1.2°C. The average annual rainfall is 563 mm, with large variations from year to year, but there are differences between mountainous and flat areas. The fog appears on average no more than 20 days.

Eastern region

The climate in the Eastern region is dry. Characteristic of this type of climate are the long and dry summers, often with temperatures up to + 41°C with mild, humid winters, with rare cases of extremely low temperatures, which can reach -22 ° C. This is a result of the contact between the influences of the Mediterranean and the continental climate. The average annual precipitation varies between 506 mm in Kochansko Pole and 672 mm in Maleshevia. Precipitation is unevenly distributed, both during the year and in terms of quantity - they are maximum in April and May, and minimum in the summer months of July and August. The average annual temperature in the plains is 12.9°C, and in Maleshevia - 8.7 ° C. The snow falls from December to March. Fog is rare in this region, with the exception of Maleshevia, where there are an average of 3 to 5 foggy days a year..

Northeast region

The climate in the Northeast region is mostly temperate to mountainous. Temperature differences vary with altitude and usually lead to moderately cold winters, moderately hot summers, cool springs and relatively warm autumns, which in some parts of the region are due to geographical location and some influences from the Aegean Sea through Kriva Reka. Significant precipitation compared to the surrounding areas is observed in the area of Kriva Palanka, which is due to the high altitude, which is a natural condenser of water vapor brought by the south winds. In addition, the influence of the southwest winds is felt in Kratovo, leading to warm and rainy weather, while the northeast winds blowing from the mountain slopes require the appearance of dry and cold weather. In this area, summer is the driest period of the year, with a minimum of precipitation occurring in August and an average monthly rainfall of 27 mm.

Atmospheric circulation

The most significant feature of the considered cross-border region is the predominant year-round zonal west-east air mass transfer, which is determined by the advective type of meteorological weather. This transfer takes place through the atmospheric centers: for cyclones (Icelandic minimum) and for anticyclones (Azores maximum), in most cases reaching the Balkan Peninsula significantly transformed. Apart from them, the weather in our country is also influenced by the seasonal Mediterranean cyclones and Siberian anticyclones.

The ground wind regime is a highly local characteristic and is directly dependent on a complex of factors, among which the orographic features have the strongest influence: the orientation and exposure of the slopes of the relief forms to the directions of the world, which transform the characteristic zonal air mass transfer.

The dynamics of air transport in the ground layer is characterized by the so-called wind rose - wind speed and frequency of prevailing directions in the main 8 or 16 directions-**Figure 2.1.1.A-1**:

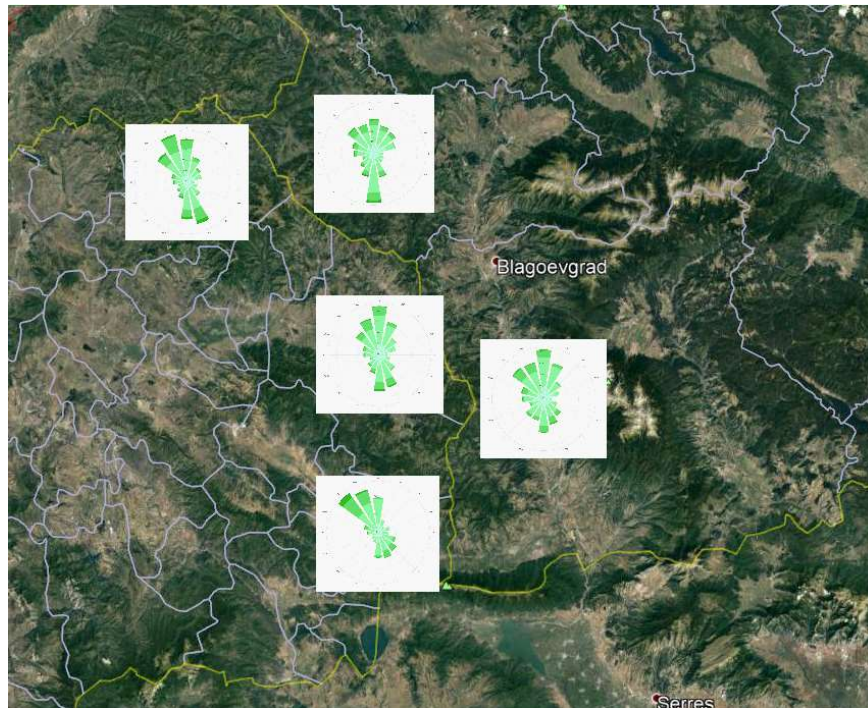


Figure 2.1.1.A-1 *Wind roses in the border regions of the Republic of Bulgaria and the Republic of North Macedonia.*

B. Climate change

Climate change is a fact due to large-scale global processes in both the Northern and Southern Hemispheres. They mainly affect the regime of air temperature and precipitation, as well as the change of seasons. There is a general tendency to increase global air temperature, increase evaporation and reduce rainfall, especially winter and increase extreme events such as floods, high temperatures and related fires and others.

In recent years, the frequency of extreme meteorological and climatic phenomena has increased: there is a significant increase in the average number of days with daily precipitation of over 100 mm - by about 30% for the period 1991-2020 compared to the base period 1961-1990. cases with a typical spring-summer type of convective clouds with rainfall, thunderstorms and sometimes with precipitation from the city during winter months such as January and February. The annual amplitude between the maximum and minimum air temperature decreases - the minimum temperature rises faster than the maximum.

Climate change is a threat to the regions, especially to those parts where agriculture, tourism, forestry and hydropower are well developed, as in the border region between the Republic of Bulgaria and the Republic of North Macedonia.

The two countries are expected to be hit hardest by climate change, mainly through rising temperatures and heavy rainfall and an increase in the frequency of extreme events such as droughts and floods.

The Republic of North Macedonia is generally less vulnerable to vulnerability and climate change due to lack of access to the sea. The border area is part of a region for which the 6th degree of vulnerability to climate change has been identified, according to the EU-wide index.

The most common hydrometeorological and natural disasters in the cross-border region (*National Strategy for Adaptation to Climate Change and Action Plan until 2030* of the Republic of Bulgaria and *draft National Long-Term Action Strategy for Climate Change* of the Republic of North Macedonia 2020-2050) are extreme rainfall and temperatures, storms, floods, forest fires, landslides and droughts. The number of deaths and casualties due to natural disasters is significant, indicating vulnerability to weather and climate conditions. The vulnerability of the population and economy of both countries to the effects of climate change is exacerbated by the relatively high level of poverty, the uneven distribution of the population and the various consequences of the transition from a state-controlled economy to a free market economy. There is growing evidence that economic losses from weather and climate disasters are also on the rise.

Scientific forecasts suggest that the average temperature will rise between 1.8°C and 4°C by 2100, with the rise in Europe expected to be even higher than the projected global average.

The research conducted by the Department of Meteorology of the National Institute of Meteorology and Hydrology at the Bulgarian Academy of Sciences (NIMH) envisages an increase in the annual air temperature in Bulgaria from 0.7°C to 1.8°C by 2020. More on -high temperatures are expected by 2050 and 2080, with projected increases of 1.6°C to 3.1°C and 2.9°C to 4.1°C, respectively. In general, the increase in temperature is expected to be greater during the summer season (July to September).

The expected temperature increases for the Republic of North Macedonia are between 1.0°C by 2025, 1.9°C by 2050, 2.9 °C by 2075 and 3.8°C by 2100, while the average decrease in precipitation is in the range from -3% by 2025, -5% by 2050, -8% by 2075 to -13% by 2010 compared to the reference period. The largest increase in temperature in the Republic of North Macedonia is expected during the summer seasons, due to a sharp decrease in precipitation. There will be almost no change in precipitation in the winter, but changes are expected in other seasons.

The vulnerability analysis of the sectors related to CBCP and TSIM shows the following:

- *Agriculture* – the vulnerability is high, adversely affecting the aging population and the unfavorable social status and standard of living. Prolonged droughts, intense rainfall - floods, temperature increases - hot flashes, water shortages, more pests, animal diseases, adverse effects on fisheries and aquaculture are expected;
- *Biodiversity and ecosystems* – Climate change leads to loss of genetic diversity, disruption of the life cycle, spread of invasive species, fires, floods, droughts (which in turn are associated with increased pests). The most vulnerable are the southern border areas, as well as the mountain ecosystems prevalent in the cross-border region. As a positive change as a result of climate change, which can lead to benefits is the extension of the growing season.
- *Energy sector* – its highest vulnerability to extreme weather events - affects infrastructure, threatens gas transmission. With regard to renewable energy sources,

hydropower plants are the most vulnerable due to water shortages, wind farms - storms and strong winds can damage their infrastructure. The reduction of heating needs is positive;

- Forests – their highest vulnerability to extreme phenomena - heat and cold waves, strong storms, wet snow, accumulation of ice, creating conditions for mass development of pathogenic organisms, spread of invasive, fires, deterioration of water regulation functions, reduced quality for recreation and tourism;
- Human health – Climate change is linked to primary and secondary effects. Primary effects directly affect human health, for example through heat and cold waves and floods. Secondary effects indirectly affect human health through other factors influenced by climate, such as pollen, vector diseases, fires, contaminated food, water and air, and damaged crops;
- Tourism - Adverse climatic events, including heat and cold waves, heavy rainfall, storms or changes in natural tourist attractions, such as lack of snow, can have negative consequences for tourists' experiences in a destination and the tourist's desire to return. They are associated with water shortages; a short winter season leading to a short season; health problems in the summer season; worse conditions for outdoor recreation; infrastructure damage; impaired access; the need to look for new tourist markets, e.g. development of cultural tourism;
- Transport - the highest vulnerability of the sector from floods and landslides, blizzards and snowfalls, extreme heat. Measures need to be taken to ensure the sustainability of the infrastructure;
- Urban environment - the most vulnerable are the central urban areas due to higher density, heavy traffic, reduced green and open spaces, old infrastructure, poverty - the main risk phenomena are heat islands, cold waves, floods, hail, prolonged rainfall, landslides, water shortage;
- Water - the vulnerability of the sector is related to floods, droughts (leading to water shortages), unpreparedness and poor infrastructure; depends on the readiness of the human factor.

Summary of the climate situation and climate change:

Climate change is a threat to the regions, especially to those parts where agriculture, tourism, forestry and hydropower are well developed, as in the border region between the Republic of Bulgaria and the Republic of North Macedonia. Climate change carries risks of drought, fire, soil erosion and floods and requires adequate adaptation and sustainability actions to be integrated into future projects.

2.1.2. Atmospheric air quality

Atmospheric air quality standards

Directive 2008/50/EA on air quality and cleaner air for Europe establishes a framework for air quality assessment at EU level and repeals and replaces the previous Air Quality Directive

(96/62/EA) and the three daughter directives (1999/30/EA, 2000/69/EA, 2002/3/EA), and Council of Europe Decision 97/101/EA. **Directive 2008/50/EA** is complemented by **Directive 2004/107/EA** of the European Parliament and of the Council of 15 December 2004 *on the content of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air*.

In the Bulgarian legislation these directives have been transposed into **Ordinance № 11 of 14 May 2007 on standards for arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air** and **Ordinance № 12 of 15 July 2010 - on standards for sulfur dioxide, nitrogen dioxide, fine dust particles, lead, benzene, carbon monoxide and ozone in ambient air**.

In the legislation of the Republic of North Macedonia these directives have been transposed into a **Decree amending the decree on limit values for air pollutant levels and types and warning thresholds, deadlines for reaching limit values, tolerances for limit values, target values and long-term objectives (Regulation amending and supplementing the limit values regulation levels and types of ambient airborne substances and alert thresholds, deadlines for reaching the limit values, margins of tolerance for limit damage, target values and long-term goals⁵⁹), as well as Regulations on criteria, methods and procedures for assessment of ambient air quality (Regulations on criteria, methods and procedures for assessment of ambient air quality⁶⁰).**

An alarm threshold for information of the population for fine dust particles up to 10 microns (FDP10) of 150 µg/m³ (from 2022 it is reduced to 100 µg/m³) has been introduced. The threshold is considered exceeded if the average daily concentration of FDP10 is above the threshold for two consecutive days in 50% of the number of installed stations for the settlement (if there is more than one monitoring station in the settlement) and there is a forecast for stable weather in the next period.

The comparison of the legislative norms for the air quality is made in **Table 2.1.2 1** and **Table 2.1.2-2**.

Table 2.1.2 1 Standards for the protection of human health

Indicator	Country	Concentration	Units	Period averaging	Allowed excesses	LET	UET
LIMIT NORM							
FDP _{2.5}	Republic of Bulgaria	25 Stage 1-2015r. 20 Stage 2-2020r.	µg/m ³	1 year	-	12	17
	Republic of North Macedonia	25 Stage 1-2020r. 20 Stage 2-2025r.	µg/m ³	1 year	-	-	-
Sulfur dioxide (SO ₂)	Republic of Bulgaria	350	µg/m ³	1 h	24	-	-
		125		24 h	3	50	75
Nitrogen dioxide (NO ₂)	Republic of Bulgaria	200	µg/m ³	1 h	18	100	140
		40		1 year	-	26	32
FDP ₁₀		50	µg/m ³	24 h	35	25	35

⁵⁹ <https://www.moep.gov.mk/wp-content/uploads/2014/10/UREDBA-ZA-IZMENVAN%20d0%88E-IDOPOLNUVANJE-NA-UREDBATA-ZA-GRANICNIVREDNOSTI.pdf>

⁶⁰ <https://www.moep.gov.mk/wp-content/uploads/2018/12/Pravilnik-za-kriteriumite-metodite-i-postapkite-za-ocenuvanje-na-kvalitetot-na-ambientniot-vozduh.pdf>

	Republic of Bulgaria	40		1 year	-	20	28
	Republic of North Macedonia	50	µg/m ³	24 h	7	20	30
		20		1 year	35	10	14
Lead (Pb)	Republic of Bulgaria	0.5	µg/m ³	1 year	-	0.25	0.35
Carbon monoxide (CO)	Republic of Bulgaria	10	mg/m ³	max 8 h avrg	-	5	7
Benzene (C ₆ H ₆)	Republic of Bulgaria	5	µg/m ³	1 year	-	2	3.5
TARGET VALUE							
Ozone (O ₃)		120	µg/m ³	max 8 h avrg	25 days avrg. for 3 years	-	-
Arsenic (As)		6	ng/m ³	1 year	n/a	2.4	3.6
Кадмий (Cd)		5	ng/m ³	1 year	n/a	2	3
Nickel (Ni)		20	ng/m ³	1 year	n/a	10	14
Polycyclic fragrant hydrocarbons (PAH)		1 <i>Concentration of Benzo (a) pyrene</i>	ng/m ³	1 year	n/a	0.4	0.6

Table 2.1.2-2 *The critical level for the protection of vegetation and ecosystems*

Pollutant	Concentration	Units	Period of averaging	Allowed excesses	LET	UET
Sulfur dioxide (SO ₂) ₅	20	µg/m ³	1 year in winter (1 Oct.-31 March)	-	8	12
Sulfur dioxide (NO ₂)	30	µg/m ³	1 year	-	19.5	24

The difference is in some of the limit norms, while the target values of the norms and norms for protection of vegetation and ecosystems in the legislation of the Republic of North Macedonia are transposed by **Directive 2008/50/EA**.

The National Environmental Monitoring System (NEMS) in the Republic of Bulgaria

➤ Regional Inspectorate for Environment and Water (RIEW) - Blagoevgrad

In 2020 in the region of RIEW - Blagoevgrad acted:

- **1 stationary point for air quality control (AAQ)** in Blagoevgrad. Automatic Measuring Station (AMS) - Blagoevgrad is an urban background point, located in the built-up part of the city, without a predominant influence of emissions from production and other activities. The range of AMS-Blagoevgrad is 100 ÷ 2,000 km, and it is located on the site of the National Institute of Hydrology and Meteorology - Bulgarian Academy of Sciences (NIHM-BAS), Kyustendil branch. The controlled

air pollutants are: sulfur dioxide (SOX), nitrogen oxides (NOX and NO), polycyclic aromatic hydrocarbons (PAH/PAHs), FDP10 and ozone (O3). In 2020:

- SO₂ - no exceedances of the average hourly norm (AHR) were found, as the maximum measured average hourly concentration of sulfur dioxide is 314.79 µg/m³, registered on 02.09.2020 at 10 pm. For the same period no exceedances of the average daily norm were registered (ADN) for the protection of human health.
- NO₂ - no excess of AHR and average annual norm (AAR) was reported.
- FDP10 - 360 average daily concentrations of FDP10 were registered, 48 times higher than the ADN of 50 µg/m³. The average annual value is 29.32 µg/m³, which is below the AAR of 40 µg/m³.
- O₃ - no exceedances of the short-term target norm (STTR) for protection of human health of 120 µg/m³ have been registered, as well as exceedances of the threshold for warning the population (240 µg/m³).

➤ ***RIEW-Sofia*** - Kyustendil district falls under its control of the AAQ.

There is no stationary AAQ control point on the territory of Kyustendil district. The Municipality of Kyustendil is included in the schedule of the mobile automatic station of the Central Laboratory of Sofia for monitoring of KAB for 2021.

Measurements of the content of lead aerosols, sulfur dioxide, nitrogen dioxide and dust in the town of Kyustendil are performed periodically by an accredited regional laboratory - Pernik at the IAAC. No disturbances were found from the measurements, but the maximum permissible concentrations for sulfur and nitrogen dioxide, ozone and carbon monoxide.

The districts in the cross-border region have developed programs for the quality of the atmospheric air and apply measures for reduction of the levels of the polluters, according to art. 27 of the Clean Air Act. The districts of Blagoevgrad and Kyustendil are part of AAQAMA "Southwestern" and are included in the list of regions (including agglomerations) for assessment and management of ambient air quality, approved by Order № RD-969/21.12.2013 of the Minister of environment and water. The prepared programs for reduction of the levels of the polluters, according to art. 37, para 2 of Ordinance № 12 for norms of *sulfur dioxide, nitrogen dioxide, fine dust particles, lead, benzene, carbon monoxide and ozone in the atmospheric air*, are:

- **Blagoevgrad District**
 - Update of the municipal program for air quality and achievement of the established norms of fine dust particles (FDP10) and polycyclic aromatic hydrocarbons (PAH) on the territory of **Blagoevgrad municipality**, with a period of action 2019-2023г.
- **Kyustendil District**
 - Program for management and improvement of air quality in the municipality of Kyustendil 2016-2020. The results of the measurements in 2021 will be ready in early 2022, and it will become clear whether the municipality of Kyustendil

should develop and implements a new program for management and improvement of KAB.

- Program for reducing the levels of FDP10 and reaching the established norms for their content in the atmospheric air in the municipality of Dupnitsa for the period 2019 - 2023.
- Bobov dol municipality - exceedances of the established norms were measured according to FDP10 and SO₂ indicators. Bobov Dol Municipality has been instructed to develop a municipal program to reduce pollutants in accordance with regulatory requirements.

State and local air monitoring network in the Republic of North Macedonia

*In the Summary Annual Report of Processed Data on the Quality of the Environment*⁶¹⁾ presents an estimate of AAQ based on average annual concentrations of pollutants obtained by monitoring air quality in national and local air monitoring networks.

According to the inventory of substances for 2019 for 2018 for certain sectors / activities it is seen that energy production participates in the total national emissions of sulfur oxides (SOX) with a share of 88%, nitrogen oxides (NOX) with a share of 28 %, as well as in the total national emissions of heavy metals Nickel - Ni (with a share of 43%), cadmium - Cd (with a share of 47%) and mercury - Hg (with a share of 45%).

Regarding the fulfillment of the requirements in the national legislation for the measured concentrations of pollutants in the air, the data from the measurements of the air quality and in the last year the most critical pollutant are FDP10. Exceedances above the limit values for this indicator are observed at all measurement points, especially during the winter period, when they are several times higher than the ADN. However, in the summer there are exceedances of the target value for ozone due to higher solar radiation.

Summary of the state of the atmospheric air:

In accordance with the procedure laid down in ISO 11222 (2002) "*Air quality - Determination of uncertainty in time-averaged air quality measurements*", **as an indicator of exceeding the daily average rate (ADN) for FDP10, a percentage of 90.4** of the daily average concentrations is used, determined on the basis of 35 permitted exceedances of ADN for one calendar year, which is lower than or equal to ADN for FDP10 of 50 µg/m³ , instead of the number of absolute exceedances that are strongly influenced by the data range.

Figure 2.1.2 2 according to data from the European Environment Agency for a period of 11 years (2009 ÷ 2019) shows the exceedances of concentrations (in µg/m³) of ADN according to FDP10 for all points in cross-border areas. There is a persistent trend of exceeding the ADN, which shows that air pollution with fine dust particles (FDP10) is a **problem** for AAQ, especially in urban locations (agglomerations). The red line is ADN. There is only an improvement of AAQ at AMS Blagoevgrad and AMS Center, Pernik for 2019.

⁶¹ https://www.moep.gov.mk/wp-content/uploads/2014/11/2019_VOZDUH_Godisen.pdf

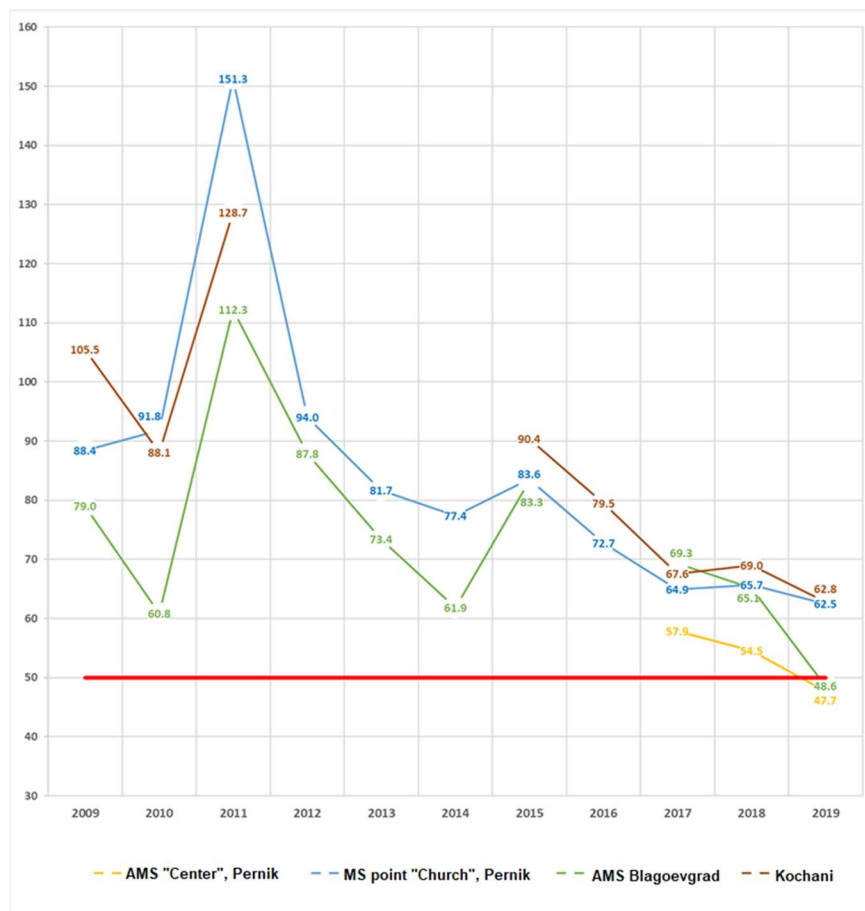


Figure 2.1.2-2 Summary results for ADN exceedances of 90.4 percentile (in $\mu\text{g}/\text{m}^3$) for FDP10 at cross-border air quality monitoring points for the period 2009 ÷ 2019.

The analysis of data and assessments of climatic and meteorological conditions in these areas lead to the following conclusions about the processes and phenomena of interest for the current state of the environment:

- the average daily concentrations of fine dust particles (**FDP10**) permanently exceed the ADN.
- there are no permanent exceedances of the norms for protection of human health for the other gas pollutants.

The main sources of dust pollution are:

- the use of solid fuels (coal and wood) in domestic heating during the winter months in settlements,
- construction activities - unorganized dust emissions from open construction sites,
- agricultural activities - unorganized emissions of dust from wind-blown soil when working in open fields,

- road transport - the re-subsidization of dust from uncleaned streets and unpaved roads.
- forest and agricultural fires - burning stubble.

2.1.3. Water condition, water protection zones, flood risk

A. Surface water

➤ Blagoevgrad and Kyustendil districts (Republic of Bulgaria)

West Aegean Region (Biodiversity Act) with the center in Blagoevgrad is one of the four areas for basin water management, determined on the basis of Article 152 of the Water Act. The West Aegean region covers the catchment areas of the Struma, Mesta and Dospat rivers, which are cross-border. The rivers cross the state border and flow into the Aegean Sea on the territory of Greece.

The catchment area of the **Struma River** amounts to 17,300 km² and covers parts of four Balkan countries - the Republic of Bulgaria, Greece, the Republic of North Macedonia and the Republic of Serbia - *Biodiversity Act River Basin Management Plan (2016-2021)*, 2016. It covers the entire Kyustendil district, the western part of Blagoevgrad district, about 80% of Pernik district and a very small part of Sofia district. The shape of the catchment area is very elongated, with an average length of about 250 km and an average width of about 40 km, with a pronounced mountainous character, which determines the large slope of its tributaries. There are 33 hydrometric stations in the catchment area of the Struma River, 5 of which are on the main river, and the rest are on its tributaries..

The basin of the **Mesta River** is formed by the confluence of the Cherna Mesta and Bela Mesta rivers. The length of the river is 273 km, of which 126 km on Bulgarian territory. It flows under the name Nestos, through the delta into the Aegean Sea. The river drains the southeastern slopes of Rila, the eastern slopes of the Pirin and Slavyanka mountains, the western and southwestern slopes of the Western Rhodopes. After the confluence of the tributaries Cherna Mesta and Bela Mesta, the river has more sloping banks - *River Basin Management Plan of the Biodiversity Act (2016-2021)* 2016. The Mesta River has a catchment area of 2767 km² and forms 6.5% of the total water outflow of the country. The tributaries of the Mesta River originate from the highest Bulgarian mountains - Rila, Pirin and the Western Rhodopes. It has about 30 larger and about 20 smaller tributaries, the largest of which is the Dospat River, which flows into the Mesta River on Greek territory..

Dospat River Basin - The Dospat River is a left tributary of the Mesta River. Its length is 110 km, of which on Bulgarian territory - 96.2 km, which ranks it 29th among the rivers of the Republic of Bulgaria. The Dospat River springs at 1610 m above sea level, about 800 meters southwest of Shipoko Peak (Gultepe, 1643 m) in the Velij-Videnishki part of the Western Rhodopes. The first 6-7 km flows in a southerly direction, then turns southeast, and its valley is deep, straight and well forested. The length of the river to the border is 96.2 km. In its upper course the river meanders through the Dospat valley with a height (1150-1200 m), part of which is flooded by the waters of Dospat dam. 1.6 km east of the village of Tuhovishta, the municipality of Satovcha, the river leaves the border and completely enters Greek territory, while the valley near its mouth

retains its fault character. Until 1997 it flowed to the left into the Mesta River, 366 m above sea level, 700 m southwest of the Greek village of Borovo (Potami), but now at high waters of the Mesta River Tisavros dam flows into it north. from the village. The area of the catchment area of the Dospat River on Bulgarian territory is 633.5 km², which represents 22.89% of the catchment area of the Mesta River, only on Bulgarian territory. To the southwest and west the catchment area of Dospat borders with the catchment areas of the rivers Bistritsa, Kanina and Zlataritsa, left tributaries of the river Mesta and several smaller tributaries. To the north - with the catchment area of the Chepinska River, right tributary of the Maritsa. To the northeast and east - with the catchment area of the river Vacha, right tributary of the river Maritsa. The largest left tributary of the Dospat River is the Sarnena River (Karadja Dere), flowing through Videnishki Hill with a length of 39.2 km, catchment area 181.1 km². Its mouth is near the village of Barutin at a distance of 24.9 km from the state border. Other major tributaries are Beladonovo Dere, Chereschkovitsa (left tributary of the Sarnena River), Vladovo Dere, Garchavo Dere, Osinska, Barutinska River (left tributary of the Osinska River) and Zhizhovska..

Annex 1.2.4 of the RBMP of the Biodiversity Act presents the main characteristics of surface water bodies in the West Aegean Basin Management Region..

The three main rivers in the West Aegean Basin Management Region - Struma, Mesta and Dospat - are transboundary and this determines the presence of transboundary surface water bodies in their river basins. For the territorial scope of the West Aegean region, a total of five transboundary surface water bodies have been identified - Biodiversity River Basin Management Plan (2016-2021) 2016. West Aegean Basin Directorate. For the Struma River Basin, **four transboundary surface water bodies** have been identified that are common to neighboring countries.:

- Dragovishtitsa River from the Bulgarian-Serbian border to its confluence with the Struma River, code BG4ST700R019. It springs on the territory of the Republic of Serbia, crosses the territory of the Republic of Bulgaria and flows into the Struma River;
- Strumeshnitsa River from the border between Republic of Bulgaria and Republic of North Macedonia to its confluence with Struma with code BG4ST400R1072;
- Lebnitsa River from from the border between Republic of Bulgaria and Republic of North Macedonia to its confluence with the Struma River, code BG4ST500R066. It springs on the territory of the Republic of North Macedonia, crosses the territory of the Republic of Bulgaria and flows into the Struma River.
- Struma River from the confluence of the Strumeshnitsa River to the Bulgarian-Greek border, code BG4ST300R073.

For the basin of the Mesta River, a transboundary surface water body has been identified - the Mesta River from the confluence of the Mutnitsa River to the border with the Republic of Greece, code BG4ME100R113.

A transboundary surface water body has been identified for the Dospat River basin: the Dospat River from the Dospat Dam to the Bulgarian-Greek border, code BG4DO135R1118.

Detailed characteristics of the state of surface water bodies are presented in Annex 1.2.4, section 1 of the RBMP of the Biodiversity Act 2016-2021.

As a result of the application of the normative approaches in the territorial scope of the Biodiversity Act, 29 highly modified water bodies (HMWB) have been identified and no artificial water bodies (AWB) have been identified.

HMWB codes and names in bold are HMWB falling within the scope of the Program:

- 1 BG4DO600L119 SHIROKA POLYANA DAM**
- 2 BG4DO900L117 DACPAT DAM**
- 3 BG4ME500R107 River Places from the confluence of the Kanina River to the confluence of the Matnitsa River**
- 4 BG4ME800R087 Bela Reka River from its springs to its confluence with Iztok River**
- 5 BG4ME800R1088 Sedrach River (Bachevska) from the springs to the confluence with the Iztok River**
- 6 BG4ME900R082 Belishka River from the confluence of the Votruchka River to the confluence with the Mesta River**
- 7 BG4ME900R1081 BG4ME900R081 Belishka River (after the confluence of the Dinkov Dol River) with its left tributary Votruchka River (after the confluence of the Torishka River) until their confluence**
- 8 BG4ST200R075 Pirin Bistritsa River from the springs with its right tributary Chereshnichka River to their confluence**
- 9 BG4ST200R076 Pirinska Bistritsa River (after the confluence of the Chereshnichka River) with its tributary the Kalimanska River until its confluence with the Struma River**
- 10 BG4ST300R073 Struma River from the confluence of the Strumeshnitsa River to the Bulgarian-Greek border**
- 11 BG4ST500L1004 KARAGYOL AND KALIN DAMS**
- 12 BG4ST500L1006 Stoykovtsi Dam**
- 13 BG4ST500R057 Struma from the confluence of the Oschavska River and the confluence of the Belishka (Shashka) River**
- 14 BG4ST500R063 Struma River from the confluence of the Belishka (Shashka) River to the confluence of the Sandanska Bistritsa River**
- 15 BG4ST500R068 Sandanska Bistritsa River from the elevation of 590 m with its tributary the Bobov Dol River to its confluence with the Struma River**
- 16 BG4ST500R069 Struma River from the confluence of the Sandanska Bistritsa River to the confluence of the Strumeshnitsa River**
- 17 BG4ST600R1032 German river from elevation 1052 m with its tributary Valyavitsa river and parts of its left tributaries Fudina river (900 m elevation) and Goritsa river (from 814 m elevation) to the town of Dupnitsa**
- 18 BG4ST700L1002 DRENOV DOL**
- 19 BG4ST700R021 Struma River from the confluence of the Sovolyanska Bistritsa River to the confluence of the Eleshnitsa River**
- 20 BG4ST700R1020 Sovolyanska Bistritsa River from elevation 1195 m to the confluence with the Struma River**
- 21 BG4ST700R1023 Novoselska river from the springs to the confluence with the Struma river**
- 22 BG4ST900L014 SPRING DAM**
- 23 BG4ST900L1001 COLD DAM**
- 24 BG4ST900L1005 DYAKOVO DAM**

25 BG4ST900L1008 DOLNA DIKANYA DAM

26 BG4ST900L1010 BEE DAM

27 BG4ST900L1012 CHOKLOVO BLATO DAM

28 BG4ST900R015 Orolachka (Kosmatitsa) river from Izvor dam to confluence with Struma river

29 BG4ST900R1009 Arkata River from Dolna Dikanya Dam to its confluence with Struma River.

Map 1.2.5 of Section I of the RBMP presents the HMWB in the Biodiversity Act.

Ecological condition of surface water bodies (SWB)

Of all 183 surface water bodies in the West Aegean region, an assessment of the ecological status of the RBMP was made for 178 water bodies, and 5 surface water bodies are in unknown ecological status. The analysis of the results of the assessment of the ecological status / potential of surface water bodies shows that 11 water bodies - 6% are in excellent condition / maximum potential, 103 bodies - 56% are in good condition / potential, 51 water bodies - 28% are in moderate condition / potential, 8 water bodies - 4% are in poor condition / potential and 5 water bodies - 3% are in very poor condition / potential.

The most common causes of deteriorating environmental status of surface water bodies in the Biodiversity Act are: exceeding the norms of good environmental status on indicators related to oxygen regime - dissolved oxygen, oxygen saturation, BOD5 - related to organic pollution from untreated domestic and industrial Wastewater; exceedances of the norms for good ecological status with regard to nutrients - ammonium nitrogen, nitrate nitrogen, nitrite nitrogen, orthophosphates and total phosphorus - related to biogenic pollution from untreated domestic wastewater and diffuse pollution from agricultural activities - agriculture and farming; exceeded environmental quality standards (EQS) for the following specific pollutants - copper, zinc, cyanide, less commonly iron and manganese - related to unregulated discharges of untreated domestic and industrial wastewater; deteriorating values of the indicative BEC.

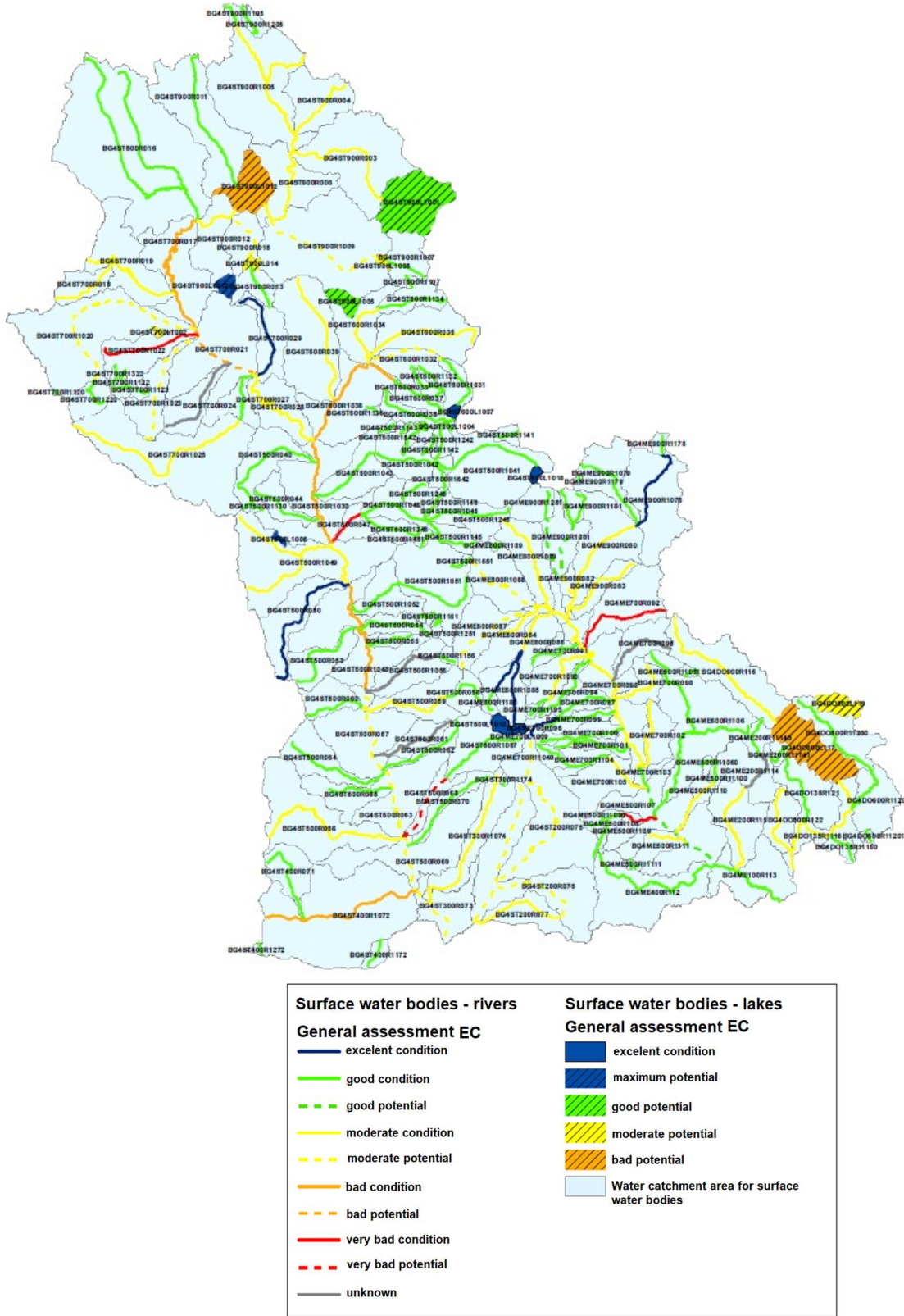


Figure 2.1.3.A-1 Map of the Ecological Status of Surface Water Bodies, according to the RBMP of the Biodiversity Act 2016- 2021

Chemical state of SWB

Out of a total of 183 surface water bodies in the West Aegean region, 63 water bodies - 34.4% are in good chemical status, 3 water bodies - 1.6% are assessed as lacking good chemical status and 117 water bodies - 64% are not assessed and are determined in an unknown chemical state. Exceeded average annual concentrations of priority substances above EQS are observed in two surface water bodies in the range of CBCP - Kyustendil region, determined in poor chemical status, namely:

- water body with code BG4ST700R1020, Sovolyanska Bistritsa River from elevation 1195 m to the confluence with the Struma River - high average annual values were measured, exceeding the EQS for the priority substances cadmium and lead. The pollution is a result of old, already completed industrial activities in the area for extraction and enrichment of non-ferrous ores;
- water body with code BG4ST700R1022, river Glogoshka (Banshtitsa) from elevation 1160 m to the confluence with the river Struma. High annual averages exceeding the EQS for the priority substances nickel, cadmium and lead were measured. The source of this pollution is insufficient treatment of discharged industrial wastewater in the area of Kyustendil.

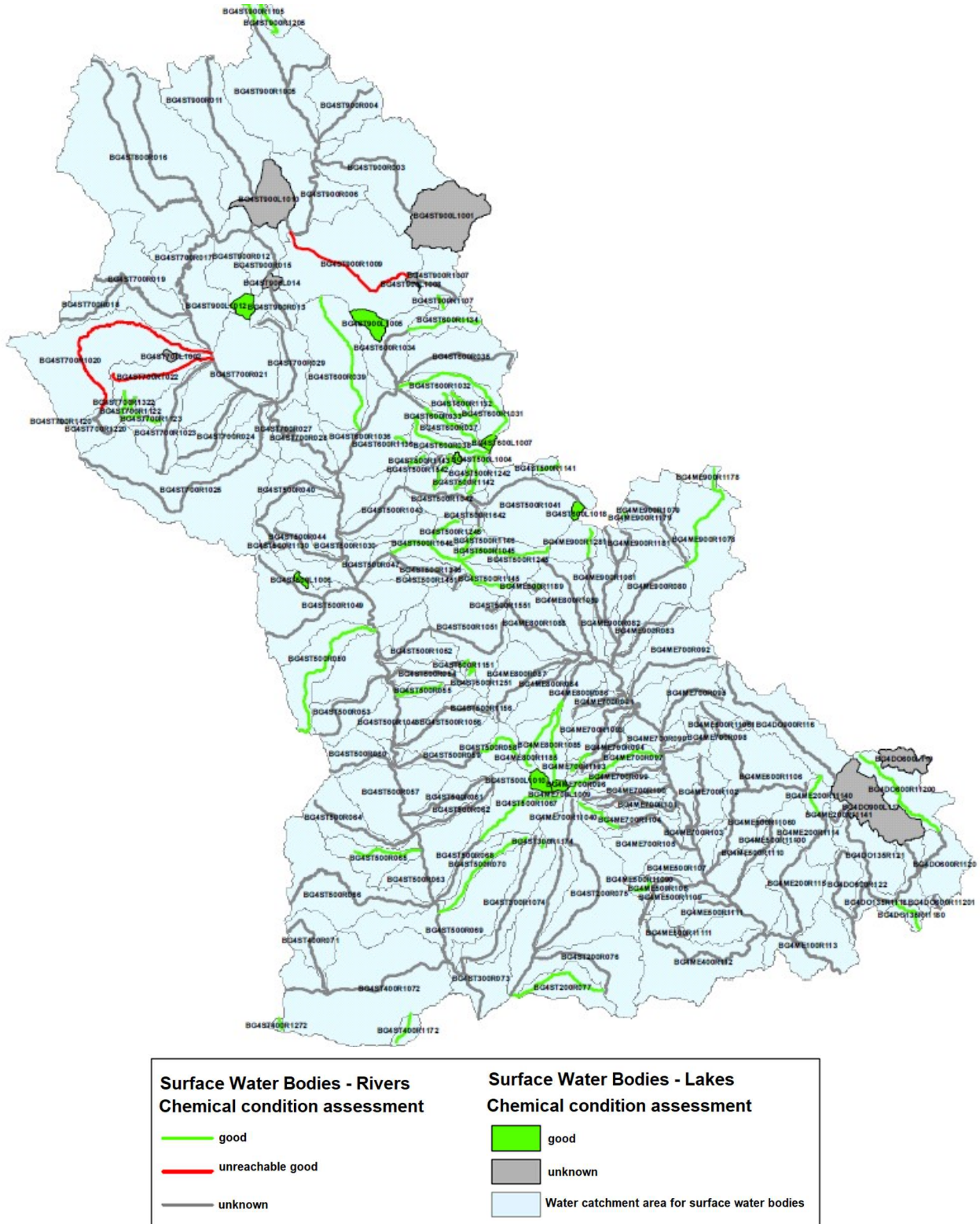


Figure 2.1.3.A-2 Map of the chemical status of surface water bodies according to the RBMP of the Biodiversity Act 2016- 2021

Conservation objectives

Main objective

for surface water bodies in the Biodiversity Act is the restoration and preservation of their good condition, including: prevention of deterioration of all surface water bodies; protection, improvement and restoration of all surface water bodies to achieve good water status; protection and improvement of water quality in all heavily modified water bodies and achievement of good ecological potential and good chemical status of surface waters; prevention, progressive reduction and cessation at once or at stages of pollution from emissions, discharges and releases of priority and priority hazardous substances; Annex 5.1.1. of the RBMP of the Biodiversity Act.

Key Types of Measures (KTM) of the RBMP:

- KTM Construction or modernization of wastewater treatment plants;
- KTM Water efficiency, technical measures for irrigation, industry, energy and households;
- KTM Price policy measures for the implementation of the reimbursement of water services by households;
- KTM Measures for prevention or control of pollution from urban areas, transport and built infrastructure;
- KTM Measures to phase out emissions, discharges and losses of priority hazardous substances or to reduce emissions, discharges and losses of priority substances;
- KTM Restoration of contaminated areas;
- KTM Price policy measures for the implementation of the recovery of costs for water services from industry;
- KTM Measures for prevention or control of pollution from urban areas, transport and built infrastructure;
- KTM Modernization or improvements of industrial wastewater treatment plants, including from agricultural holdings;
- KTM Water efficiency, technical measures for irrigation, industry, energy and households;
- KTM Modernization or improvements of industrial wastewater treatment plants, including from agricultural holdings;
- KTM Reduction of nutrient pollution from agriculture;
- KTM Reduction of pesticide pollution from agriculture;
- KTM Price policy measures for the implementation of the reimbursement of costs for water services from agriculture;
- KTM Water efficiency, technical measures for irrigation, industry, energy and households;
- KTM Research, improving the knowledge base to reduce uncertainty;

- KTM Measures to reduce sediments from soil erosion and surface runoff;
- KTM Research, improving the knowledge base to reduce uncertainty;
- KTM Improve longitudinal continuity, e.g. creation of fish passes, destruction of old dams;
- KTM Improving the hydromorphological conditions of water bodies, e.g. restoration of rivers, improvement of coastal areas, removal of solid embankments, restoration of the connection between rivers and floodplains, improvement of the hydromorphological condition of transitional and coastal waters, etc .;
- KTM Improving the runoff regime and / or determining ecological runoff;
- KTM Price policy measures for the implementation of the recovery of costs for water services from industry;
- KTM Research, improving the knowledge base to reduce uncertainty
- KTM Drinking water protection measures, e.g. determination of protection zones, buffer zones, etc .;
- KTM Improving the hydromorphological conditions of water bodies, e.g. restoration of rivers, improvement of coastal areas, removal of solid embankments, restoration of the connection between rivers and floodplains, improvement of the hydromorphological condition of transitional and coastal waters, etc .;
- KTM Improving the runoff regime and / or determining the ecological runoff.

Some KTMs are repetitive because they are caused by different driving forces.

The full text of the updated Program of Measures of the Biodiversity Act is presented in Annex 7.2 - Program of measures for surface and groundwater in the Biodiversity Act.

Measures in the RBMP relevant to achieving the objectives of the FRMP

The development of management plans under the Water Framework Directive and the Floods Directive is an opportunity to use available status and pressure information at the same time and to develop PoMs to help achieve good status while reducing the risk of floods. *In Annex 7.3. The RMP is presented with the measures of the FRMP, which are included in the PoM of the RBMP.*

Measures related to adaptation to climate change

The design of the RBMP's programs of measures has taken into account the expected climate change and its impacts. These measures are aimed at overcoming and mitigating the effects of rising temperatures, declining rainfall, changes in river and ecosystem outflows and drought, on the one hand, and sudden flood problems, on the other.

➤ Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)

There are 4 river basins in the Republic of North Macedonia: Vardar, Strumica, Cherni Drin and southern Morava - **Figure 2.1.3.A-3.**

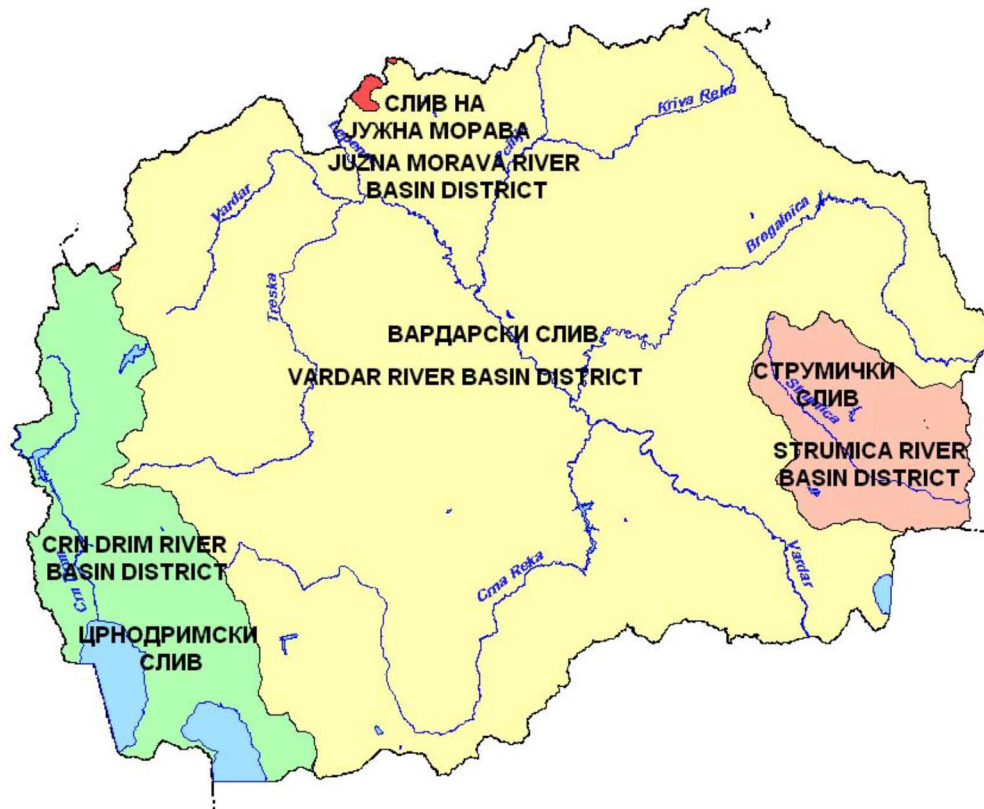


Figure 2.1.3.A-3 River basins in the Republic of North Macedonia, *Environmental Performance Reviews, 2019. United Nations. Geneva, 2019*

The scope of the CBCP is the Bregalnitsa River, which is a sub-basin of the Vardar River. An RBMP has been developed for this basin in accordance with the Water Framework Directive and is in the implementation phase and will be incorporated into the RBMP of the Vardar River.

The RBMP of the Strumica River has been developed and is at the stage of public consultations. Within the scope of the defined activities, continuous monitoring of the condition of surface and groundwater in the catchment area of the Strumica River is performed in accordance with the WFD of the *Hydrometeorological Institute*.

Full implementation of the WFD is expected in the next period, including intercalibration of water bodies, expansion of links with EIONET and full implementation of the Wastewater Directive.

Eastern region

The hydrography of the Eastern Planning Region consists of a river network and artificial reservoirs. The most important water resource is the Bregalnitsa River.

In the eastern part of the hydrographic network of the river Bregalnitsa there are rivers with constant regime and strong outflow. The main tributaries of the river and their main indicators are shown in **Table 2.1.3.A-4**. Of these, Bregalnitsa and Ratevska are rich in water and are used as storage systems for hydroelectric power plants. (RES).

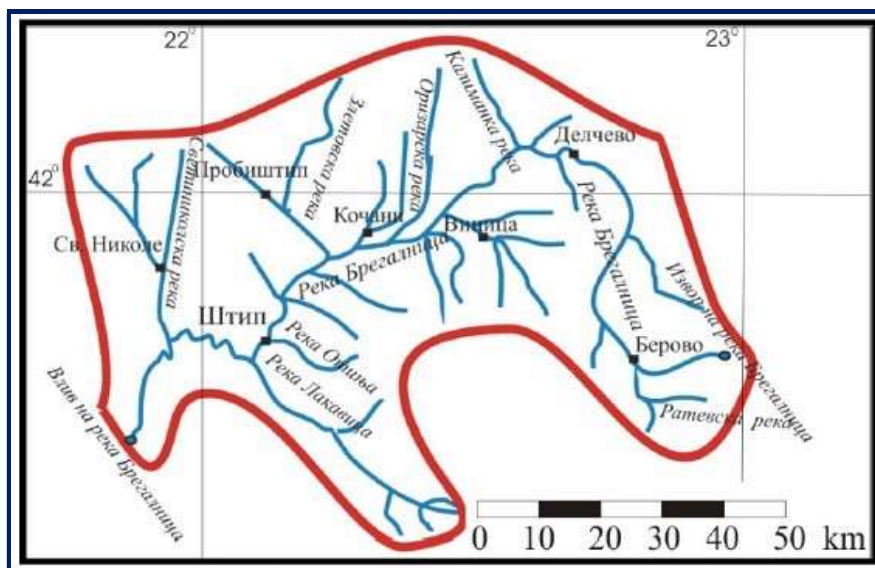


Figure 2.1.3.A-4 *Hydrographic network of the river Bregalnitsa*

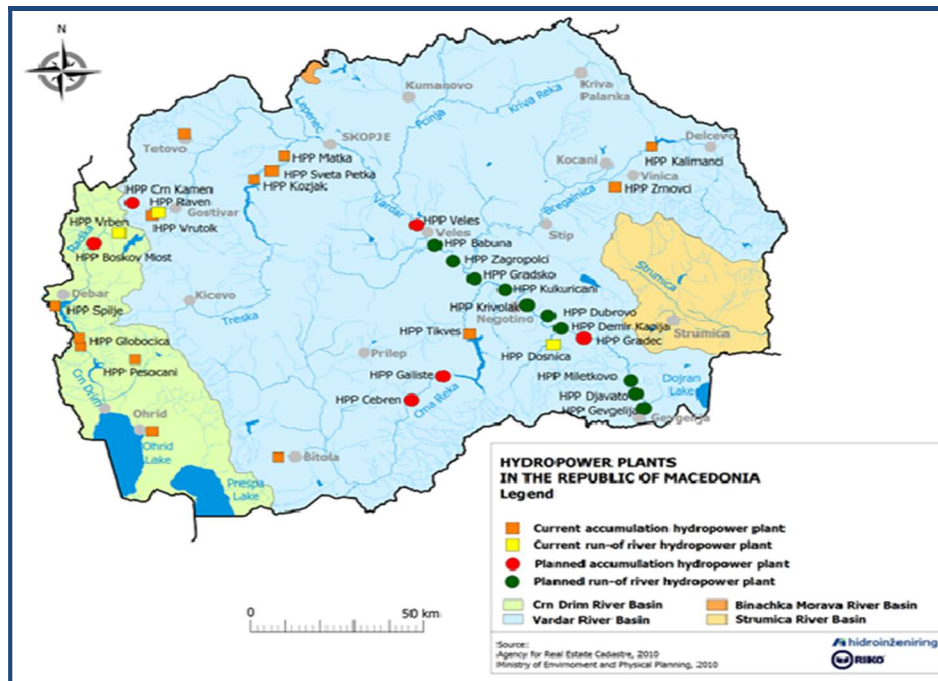
With its length Bregalnitsa is the largest tributary of the Vardar. It springs at the foot of Maleshevska Mountain. The average outflow of the river is 28 m³/s, maximum outflow 640 m³/s. On its way to the confluence, the river passes through many straits and extensions.

The valleys of the tributaries, with the exception of Bregalnitsa, whose river is polygenic, are monogenic. They are tributaries of individual lake basins, whose waters feed Bregalnitsa. In the mountainous part the valleys are deep and in the shape of a letter V.

Table 2.1.3.A-1 *Catchment area, length, average slope and afforestation of tributaries of the river Bregalnitsa*

River	Catchment area km ²	Length km	Medium slope ‰	Afforestation %
Kocanska River	198.0	34.0	39.3	45
Orizarska River	137.0	30.0	39.5	50
Voltinje	28.5	7.5		5
Vrbicka River	21.0	12.0		0
Zletovska River	460.0	50.0		25
Zrnovska River	70.0	23.0	47.6	60
Morodvisna River	7.0	6.0		90
Vidoviska River	5.0	6.0		85
Bregalnica	4307.0	225.0	7.0	-

In accordance with the water potential of the Eastern region there is a possibility for construction of reservoirs and dams in a number of places - **Figure 2.1.3.A-5** - existing and planned reservoirs in the region, according to *Current state of environment – RNM, East and Nord-east Regions. 2015-2019*.



Legend:

- Съществуващ акумулационен ВЕЦ
- Съществуващ речен ВЕЦ
- Планиран акумулационен ВЕЦ
- Планиран речен ВЕЦ
- Басейн на р. Черни Дрим
- Басейн на р. Вардар
- Басейн на р. Биначка морава
- Басейн на р. Струмица

Figure. 2.1.3.A-5 RES in the Republic of North Macedonia

Northeast region

The northeastern region covers the basins of the Pchinya and Kriva Reka rivers, which have many tributaries. Many springs and streams flow from Osogovo Mountain. The water potential is due to the high altitude and the geological structure.

Lake Lipkovo covers an area of 0.40 km² and accumulates 2,250,000 m³ of water. Its waters are used for irrigation, drinking water supply of Kumanovo and fish farming. Downstream is Lake Glaznia with a volume of 22,000,000 m³ of water and is used for fishing.

Two reservoirs have been built on the territory of Kriva Palanka municipality: Baziachko Bardo with a capacity of 14,100 m³ and Wallachian huts with a capacity of 6,200 m³ of water.

The Zletovitsa regional multifunctional hydro system has been built for the Eastern and Northeastern regions of the Zletovska River, whose upper course is characterized by cold and strong water, which will supply more than 200,000 inhabitants.

In accordance with the water potential of the region there is a possibility to build the following dams: Stanechka river for drinking water and other purposes, Moshtenichka river,

Toranichka river, Dubrovnik river, Mateychka river, Otlainska river, Slupochanska river and Loyanska river.

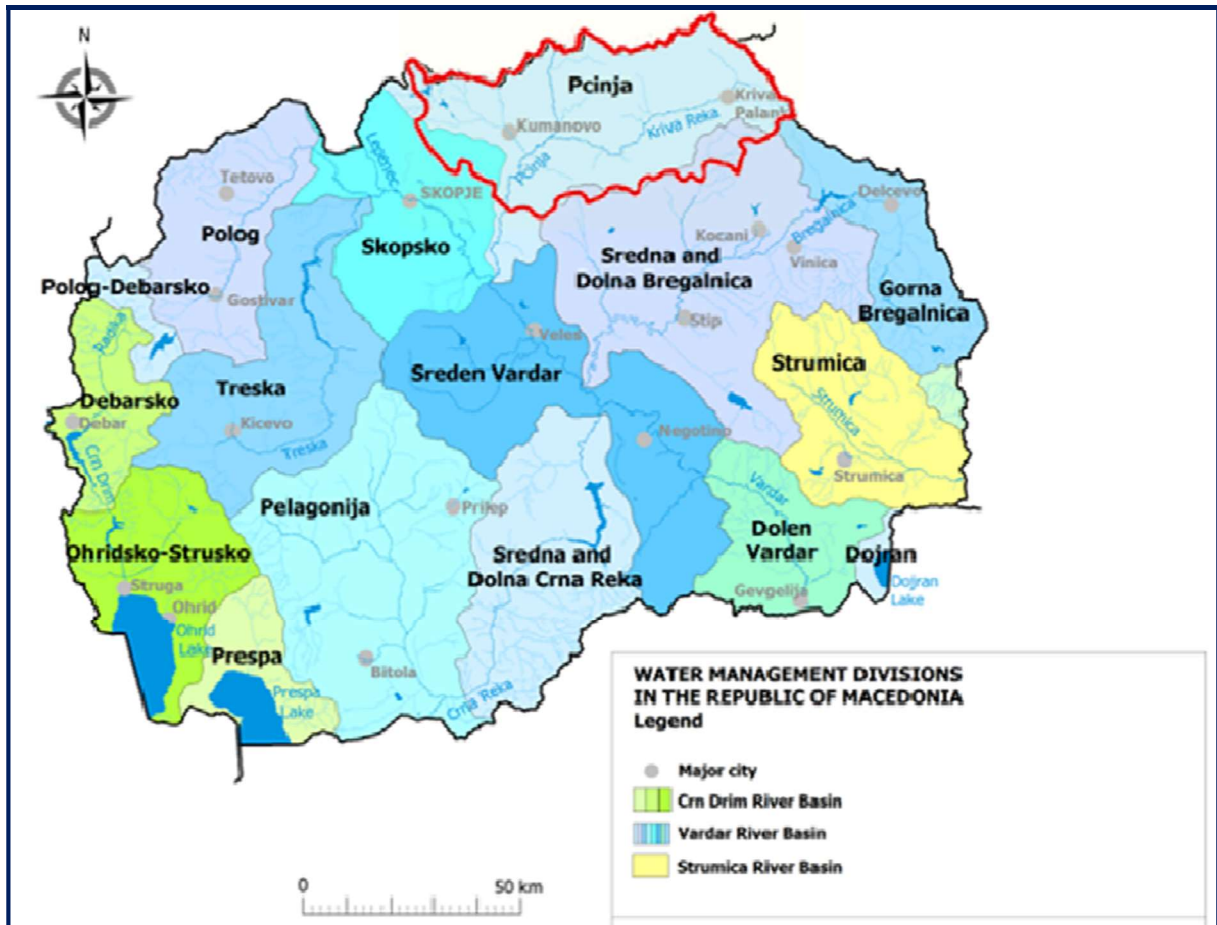


Figure 2.1.3.A-6 River basins in the Northeastern region (green - Cherni Drim basin, blue - Vardar river basin, yellow - Strumica river basin)

Unlike surface waters, spring waters are an important resource for drinking, for example the municipalities of Kumanovo, Kriva Palanka.

The qualities of the river waters in the Region, in accordance with the Ordinance for categorization are shown in **Table 2.1.3.A-2**.

Table 2.1.3.A-2 Categorization of rivers in the Northeast region

Rivers	Categories
Toranica	III
Kiselicka Reka	III
Kratovska Reka	III
Konjarska Reka	III

Slupcanska Reka	II
Mateicka Reka	II
Otljanska Reka	II
Lipkovka Reka	II
Kumanovska Reka	III
Pcinja	II

Southeast region

The southeastern region is the poorest in water resources. Small water quantities affect the water supply of the population, as well as industry and irrigation. Apart from the quantities, the quality condition is also bad. The total annual amount of water is about 132 million m³. Doyran Lake is of great importance for the region, both hydrographically and economically and touristically.

The lake is the third largest natural lake in the Republic of North Macedonia and belongs to the catchment area of the Vardar River. Its area is 43 km², of which 25.62 km² are in the Republic of North Macedonia and 17.07 km² - in the Republic of Greece. The average depth is 6.7 m, and the greatest - 10 m. Doyran Lake is an isolated ecosystem with specific flora and fauna, such as 15 species of fish.

Of the artificial accumulations, Vodocha and Turia in the Strumica area are more significant. Lake Vodocha is fed by the rivers Vodochnitsa and Trkayana. The lake has an area of 1.94 km² and a capacity of 26.7 million m³. Lake Turia is fed by the river of the same name. It has an area of 0.16 km² and a volume of 48 million m³.

The river Strumica is a recipient of Turia, Oraovichka, Plavia, Vodochitsa. Several micro-accumulations have been built in its catchment area: Drvoshka, Ilovitsa, Novoselska, Markova Brana. On the Stara Reka, which springs from the Kara Blija mountain, the Palyurtsi reservoir was built for irrigation, with a volume of 2.8x10⁶ m³.

Mantova Lake is fed by the river Kriva Lakavitsa. The lake has an area of 4.94 km² and a volume of 49 million m³.

Priority substances in surface waters

The Hydrometeorological Department monitors the lead and cadmium indicators in the three largest rivers in the country, at five points on the Vardar River, outside the CBCP and TSIM, and at two points on the Bregalnitsa and Crna Reka rivers within the program.

Water quality, monitored in the period 2014 - 2019, ranges from lightly polluted to moderately polluted water, which can be used for irrigation, and after purification - in industry as industrial water.

From the results for the period 2014 to 2019, a decreasing trend of the average annual concentrations of lead and cadmium can be established, which shows an improvement in the chemical status of the waters according to these parameters.

Substances that adversely affect the oxygen balance of rivers

In the Republic of North Macedonia there is a variable trend of BOD5 and ammonium concentrations in the period under review. Decrease in BOD5 is observed from 2008 to 2019, as the trend is relatively stable with minor changes. Ammonium concentrations in rivers decreased from 2001 to 2019 when concentrations corresponding to the mesotrophic status of waters were registered. Moderate eutrophic status for BOD5 was registered in the Vardar River.

This improvement of the condition is due to the observance of the normative requirements and to the construction of treatment plants.

The quality of the Bregalnitsa River varies from oligotrophic to mesotrophic as a result of urban wastewater treatment. At the stations of Crna Reka and Vardar, there is a moderate eutrophic status of the waters for BOD5.

Nutrients in the water

In the Republic of North Macedonia, this indicator is monitored by the concentrations of nitrates and orthophosphates in rivers and total phosphorus in lakes. In the analyzed period a variable trend of the average annual concentrations of nitrates and orthophosphates in all three rivers was established. It can be seen that after 2014 the concentrations of nitrates and orthophosphates increased slightly until 2019, but still the quality remains oligotrophic to mesotrophic.

Average annual concentrations of nitrates and orthophosphates have been relatively stable since the early 1990s. The concentrations of parameters is within national norms.

Objectives and conservation measures

The National Water Strategy of the Republic of Macedonia (2012-2042) defines the following measures and activities for water protection:

- Protection against floods and other negative effects of water - regulation of water runoff, protection against floods, protection against erosion, irrigation and drainage
- • Water use - provision of drinking water, wastewater treatment, industry (provision of the necessary amount of water for cooling in industry, introduction of water recirculation in technological processes, approval of plans for exploitation and protection of water resources), rural economy and agriculture (efficient use of water for irrigation, provision of the necessary quantities of water for irrigation, fragmentation of agricultural land and stopping the reduction of existing irrigation systems, repair and commissioning and harmonization with new requirements and needs), electricity generation the construction of hydroelectric power plants is a strategic goal for the state), navigation (maintenance of permanent waterways, inclusion of water infrastructure in the development of the transport network of river ports, etc.), fish farming, tourism and use of water for recreation to provide water supply and third waste water in the tourist season, the use of water for sports should not have a negative impact on the environment and water-related ecosystems), sustainable use of geothermal and mineral waters;
- Water protection - protection of surface and groundwater as water reserves for drinking purposes, protection of protected and other areas of importance in relation to water surfaces, improving the ecological functions of water, reducing the amount of hazardous substances at the source of pollution, sustainable management on the water;

- Protection of other important water-related areas - natural areas of importance, incl. Natura 2000, bathing waters, areas around drinking water sources, eutrophication of sensitive areas as a result of wastewater from settlements and areas sensitive to nitrates.
- Expert and operational framework for water management;
- International cooperation and EU accession process;
- Frame and tools;
- Economic instruments.

B. Groundwater

➤ *Blagoevgrad and Kyustendil districts (Republic of Bulgaria)*

Groundwater in the West Aegean Basin Management Region has been identified depending on the main types of hydrogeological structures, hydrogeological systems and their location in section.

The main types of hydrogeological structures and aquifers in the West Aegean Basin Management Region are:

- Sedimentary basins with layered pore waters in the Quaternary river deposits and partially, in the Neogene, Paleogene and Paleogene - volcanic sedimentary sediments of the intermountain valley basins;
- Hydrogeological systems (massifs) with fissure (fissure karst) waters in the Pre-Neogene rock formations;
- Karst (karst-crack) systems in Mesozoic carbonate rocks and Precambrian marbles.

Given the storeys of the aquifers, the dissected relief and the colorful mosaic of geological formations, in the West Aegean region for basin management are formed all the main types of groundwater - fissure, karst (karst-fissure) and pore. Depending on the type of reservoir, the water-bearing geological structure, the nature and conditions of drainage and feeding, and the relationship with surface water bodies, groundwater bodies (GWB) (Map 1.3.2.a - numbering according to RBMP) are divided into the following types:

- Water bodies in the alluvial deposits of the rivers - 10 pcs. (*Map 1.3.2.b - the numbering is according to RBMP*);
- Water bodies in graben-shaped depressions - 7 pieces (*Map 1.3.2.c - the numbering is according to RBMP*);
- Water bodies with cracked water - 11 pieces (*Map 1.3.2 - numbering is according to RBMP*);
- Water bodies in areas with karst basins, located in areas with spread of crack collectors - 4 pcs. (*Map 1.3.2.e - numbering is according to RBMP*);
- Water bodies in separate karst basins - 6 pcs. (*Map 1.3.2.e - the numbering is according to RBMP*).

Table 2.1.3.B-1 *Updated groundwater bodies in the West Aegean Basin Management Area falling within the scope of CBCP and TSIM*

№	Type GWB	Name of GWB	GWB code	Total area of GWB, km²	Open area (I horizon), km²	Covered area (horizon II and III), km²
1	Porous waters in the alluvial deposits of rivers	Porous waters in the Quaternary - Strumeshnitsa	BG4G000000Q001	98,19	98,19	0
2		Porous waters in the Quaternary - Kresna Sandanski	BG4G000000Q002	123,34	123,34	0
3		Porous waters in the Quaternary - Simitli	BG4G000000Q003	16,02	16,02	0
4		Porous waters in the Quaternary - Blagoevgrad	BG4G000000Q004	157,86	157,86	0
5		Porous waters in the Quaternary - Dupnitsa	BG4G000000Q005	117,02	117,02	0
6		Porous waters in the Quaternary - Neogene - Kyustendil	BG4G000000Q006	235,23	235,23	0
7		Porous waters in the Quaternary - Radomir Breznik	BG4G000000Q007	350,27	350,27	0
8		Porous waters in the Quaternary - Razlog	BG4G000000Q008	102,98	102,98	0
9		Porous waters in the Quaternary - Gotse Delchev	BG4G000000Q009	95,55	95,55	0
10		Porous waters in the Quaternary - Neogene-Paleogene - Dospat	BG4G001QNPg010	84,00	84,00	0
11	Porous waters in cauldron depressions	Porous waters in the Neogene - Strumeshnitsa	BG4G000000N011	124,67	32,86	91,81
12		Porous waters in the Neogene - Sandanski	BG4G000000N012	632,33	32,86	91,81
13		Porous waters in the Neogene - Simitli	BG4G000000N013	69,24	513,66	118,67
14		Porous waters in the Neogene - Blagoevgrad	BG4G000000N014	240,39	53,22	16,02
15		Porous waters in the Neogene - Breznik-Zemen	BG4G000000N015	104,73	104,57	135,82
16		Porous waters in the Neogene - Razlog	BG4G000000N016	154,47	42,44	62,29
17		Porous waters in the Neogene - Gotse Delchev	BG4G000000N017	182,28	59,65	94,82
18	Water bodies with cracked waters	Porous-fissure waters in the Gotse Delchev Paleogene aquifer	BG4G0001Pg018	312,59	296,3	16,3
19		Porous waters in a Paleogene sedimentary complex on the eastern slopes of Vlahina Mountain	BG4G0001Pg038	110,41	110,41	0

№	Type GWB	Name of GWB	GWB code	Total area of GWB, km²	Open area (I horizon), km²	Covered area (horizon II and III), km²
20		Porous-fissure waters in Osogovo Paleogene volcanic-sedimentary complex	BG4G0001Pg039	61,63	61,63	0
21		Porous waters in the Paleogene sedimentary complex of Bobovdol and Kyustendil valleys	BG4G0001Pg138	595,18	500,57	94,61
22		Porous waters in the Paleogene sedimentary complex of the Pernik valley	BG4G0001Pg238	246,75	217,62	29,13
23		Cracked waters in the Pirin block	BG4G1PzC2Pg019	1118,71	936,98	181,73
24		Cracked waters in Rila-Rhodope metamorphites, South Bulgarian granites, Kalin pluton	BG4G001PzC2021	2243,85	2219,35	24,5
25		Cracked waters in Belasitsa metamorphites	BG4G001PtPz025	132,57	130,19	2,43
26		Cracked waters in Western Rhodope metamorphites, South Bulgarian granites, Barutin-Buinovo pluton	BG4G001PtPz026	1317,63	1287,47	30,15
27		Cracked waters in Verila-Vitoshki block	BG4G001PtPz027	1282,31	607,91	674,4
28		Cracked waters in Vlahino-Ograzhden-Maleshevsko Osogovo metamorphites	BG4G001PtPz125	3089,9	2357,99	371,91
29		Water bodies in areas with karst basins located in areas of distribution of crack collectors	Crack-karst waters in the Elovdol karst basin	BG4G001T2T3029	530,68	459,89
30	Crack-karst waters in Satovchanski karst basin, Dolnodryanovski pluton		BG4G0001Pt1030	603,12	502,49	100,63
31	Crack-karst waters in Boboshevo Murvodol Carts Basin		BG4G00001T2035	87,07	81,14	5,93
32	Crack-Karst waters in the Gotse Delchev karst basin, Teshovo pluton		BG4G0001Pt1036	464,46	447,86	16,6
33	Water bodies in separate karst basins	Karst waters in the Earth karst basin	BG4G00T2T3028	189,32	189,32	0
34		Karst waters in the Reason karst basin	BG4G000Pt3031	47,77	46,7	1,07
35		Karst waters in the Vlach karst basin	BG4G000Pt3032	11,07	11,07	0

№	Type GWB	Name of GWB	GWB code	Total area of GWB, km ²	Open area (I horizon), km ²	Covered area (horizon II and III), km ²
36		Karst waters in the Logodashki karst basin	BG4G00T1T2033	18,36	18,36	0
37		Karst waters in the Smolich karst basin	BG4G00T1T2034	7,25	7,25	0
38		Karst waters in the Golobard karst basin	BG4G1T1T2T3037	247,17	178,93	68,24

Table 2.1.3.B-2 *Types of groundwater bodies*

Type of GWB	Total area (km ²) and number of GWB by Type		Open and closed area of GWB by Type	
	km ²	Qty	Open area (I horizon), km ²	Covered area (Horizon II and III), km ²
SWB in alluvial river deposits	1 380,46	10	1 380,46	0
SWB in graben-like depressions	1 508,11	7	903,24	604,87
SWB with cracked water	10 511,53	11	8 726,42	1 425,16
SWB in areas with karst basins located in areas with crack reservoirs	1 685,33	4	1 491,38	193,95
SWB in separate karst basins	520,94	6	451,63	69,31
Total:	15 606,37	38	12 953,13	2293,29

The following 3 groundwater bodies fall within the **border area** with the Republic of North Macedonia:

- BG4G000000Q001 - Porous waters in the Quaternary - Strumeshnitsa;
- BG4G000000N011 - Porous waters in the Neogene - Strumeshnitsa;
- BG4G001PtPz125 - Cracked waters in Vlahino-Ograzhden-Maleshevo-Osogovo metamorphites.

The main lithological varieties of the deposits covering GWB in their exposed part (feeding zone) are represented by soil layer, gravels, sands and clays in the valleys and graben-like depressions, to cracked, weathered and in some places karstic rock varieties in mountainous areas. The thickness of the sediments varies from 0.5 m to 2.0 m, exceeding 2 m in places.

The identified natural and available resources of the GWB, total for the Biodiversity Act and by types of SWB are presented in **Table 2.1.3.B-3**.

Table 2.1.3.B-3 *Natural and available resources by types of groundwater bodies, total for the
West Aegean region*

SWB type	Natural resources, in l/s	Required quantities for ecosystems, in l/s	Available resources, in l/s
SWB in alluvial river deposits	2625,0	481,2	2143,8
SWB in graben-like depressions	415,0	0,0	415,0
SWB with cracked water	3484,0	444,0	3040,0
SWB in areas with karst basins located in areas with crack reservoirs	1653,0	199,35	1453,65
SWB in separate karst basins	2065,0	139,4	1925,6
Total for Biodiversity Act	10 242	1 263,9	8 978,1

For 8 out of a total of 38 groundwater bodies have been identified in connection with surface water bodies. All 8 groundwater bodies are from the 1st horizon and are type - groundwater bodies in the alluvial deposits of the rivers. With a high and medium degree of interconnection with surface water bodies have 3 pcs. groundwater bodies, and 2 pcs. groundwater bodies are defined as low. The degree of interconnection and the corresponding surface water bodies with which the groundwater bodies are in hydraulic connection are presented in the following table:

Table 2.1.3.B-4 *Degree of interconnection of groundwater with surface water bodies*

SWB type	Name of GWB	GWB code	Degree of mutual connection	Name of SWB	SWB code
Groundwater bodies in alluvial sediments of rivers	Porous waters in the Quaternary - Strumeshnitsa	BG4G000000 Q001	Average	Strumeshnitsa river from from the border between Republic of Bulgaria and Republic of North Macedonia to the confluence with the river Current	BG4ST400R1072
	Porous waters in the Quaternary - Kresna - Sandanski	BG4G000000 Q002	High	Struma River from the inflow of the river Strumeshnitsa to the Bulgarian-Greek border	BG4ST300R073
				Struma River from the confluence of the Sandanska Bistritsa River to the confluence of the Strumeshnitsa River	BG4ST500R069
				Struma River from the confluence of the Belishka River (Shashka) to the confluence of the Sandanska Bistritsa River	BG4ST500R063
				Struma River from the confluence of the Oshtavska River and the confluence of the Belishka River (Shashka)	BG4ST500R057
	Porous waters in the Quaternary - Simitli	BG4G000000 Q003	High	Struma River from the confluence of the Stara Reka River and the confluence of the Sushichka River	BG4ST500R1048

Porous waters in the Quaternary - Blagoevgrad	BG4G000000 Q004	Average	Struma River from the inflow of Blagoevgradska river Bistrits with tributaries and Chetirka river and Aidarovsko dere in the inflow of	BG4ST500R1049
			Stara Reka river	
			Blagoevgradska Bistritsa River from the confluence of the Harsovska River to the confluence with the Struma River	BG4ST500R047
			Struma River from the confluence of the German River to the confluence of the Blagoevgradska Bistritsa River	BG4ST500R1030
			Rila River from the confluence of the Sharkovitsa River to the confluence with the Struma River	BG4ST500R1043
			Struma River from the confluence of the Eleshnitsa River to the confluence of the German River	BG4ST700R028
			German River from the confluence of the Otovitsa River to the confluence with the Struma River	BG4ST600R1036
Porous waters in Quaternary - Dupnitsa	BG4G000000 Q005	Low	German river from elevation 1052 m with its tributary Valyavitsa river and parts of its left tributaries Fudina river (from 900 m elevation) and Goritsa river (from 814 m elevation) to the town Dupnitsa	BG4ST600R1032
			German River from the confluence of the Otovitsa River to the confluence with the Struma River	BG4ST600R1036
Porous waters in the Quaternary - Neogene - Kyustendil	BG4G000000 QN006	Average	Struma River from the confluence of the Sovolyanska Bistritsa River and the confluence of the Eleshnitsa River	BG4ST700R021
			Struma River from the confluence of the Treklyanska River and the confluence of the Sovolyanska Bistritsa River	BG4ST700R017
			Dragovishtitsa River from the Bulgarian-Serbian border to the confluence with the Struma River	BG4ST700R019
Porous waters in the Quaternary - Radomir - Breznik	BG4G000000 Q007	Low	Struma River from Pchelina Dam to the confluence of Treklyanska River	BG4ST900R012
			Pchelina Dam	BG4ST900L1010
			Struma River from the confluence of the Konska River and the Pchelina Dam	BG4ST900R006
			Struma River from Studena Dam to the confluence of the Konska River	BG4ST900R003
Porous waters in the Quaternary - Gotse Delchev	BG4G000000 Q009	High	Places from the confluence of the Ribnovska River to the confluence of the Kanina River	BG4ME700R103

Places from the confluence of the
Kanina River to the confluence of the
Matnitsa River

BG4ME500R107

Review of groundwater pressure

According to the provisions of Art. 5 of the Water Framework Directive and Art. 157, para 1, item 2 of the Water Act, during the update of the RBMP, the significant pressure as a result of human activity was identified, which may cause deterioration of the good condition of the groundwater. The impact of this pressure on groundwater bodies has also been determined, in connection with determining the risk of not achieving good status by 2021.

Based on the information collected, analyzed and processed in the West Aegean region, the following categories of groundwater pressure have been identified:

- point sources of pollution;
- diffuse sources of pollution;
- groundwater abstraction;
- Climate change.

Assessment of pollution from point sources

Groundwater bodies have been identified as significant point sources of pollution:

- Municipal wastewater treatment plants;
- Installations with complex permits;
- Industrial enterprises without issued complex permits;
- Farms, warehouses, BB-cubes and other agricultural sites;
- Landfills for household, construction and industrial waste (up to 0.25 km²);
- Mines, quarries and tailings (up to 0.25 km²);
- Pollution from past activities (up to 0.25 km²).

In the territorial scope of the West Aegean region there is no identified permitted direct discharge of pollutants into groundwater.

The highest percentage of the types of point sources of pollution of groundwater bodies is occupied by the discharges of domestic wastewater from settlements and sites with issued permits for discharge of wastewater into surface water bodies.

The identified point sources of pollution (by species) for all groundwater bodies are visualized in **Figure 2.1.3.B-1**.

The assessment of the pressure on the groundwater bodies from point sources is calculated by dividing the total affected area by the total discovered area of the water body. When the sum of the affected area from point sources exceeds 33% of the discovered area of the respective groundwater body, the identified pressure is considered significant.

The analysis shows that in the territorial scope of the West Aegean region there are no defined groundwater bodies for which the pressure from point sources of pollution is significant.

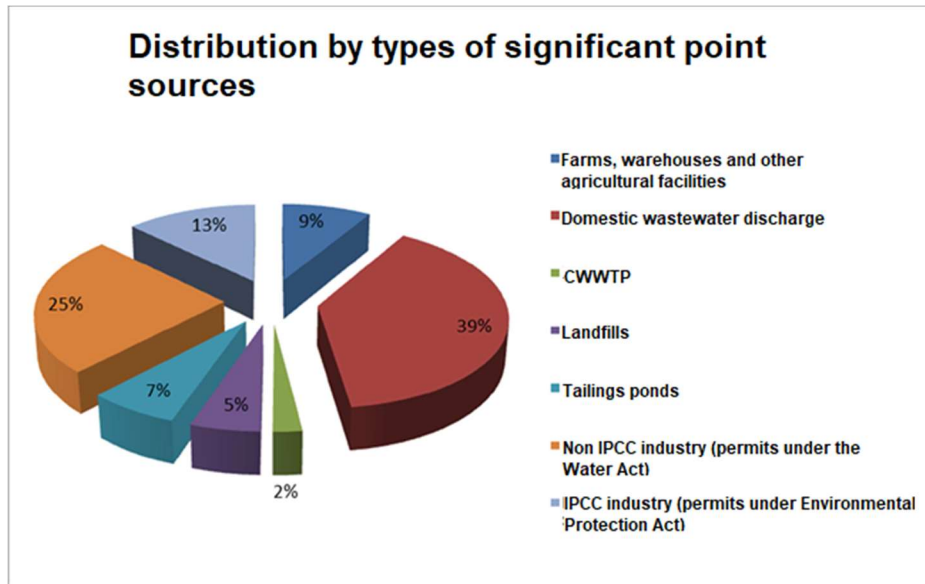


Figure 2.1.3.B-1 Identified point sources of pollution (by species) for all groundwater bodies

Estimation of pollution from diffuse sources

Diffuse sources of groundwater pollution have been identified as significant:

- Agriculture - (arable land, perennials, pastures, heterogeneous agricultural land);
- Landfills (over 0.25 km²);
- Mines, tailings (with an area over 0.25 km²);
- Pollution from past activities (with an area of over 0.25 km²);
- Settlements without or with partially built sewerage.

The highest percentage of the types of diffuse sources of pollution of groundwater bodies in the territorial scope of the West Aegean region is occupied by agriculture.

The identified diffuse sources of pollution (by species) for all groundwater bodies in the West Aegean Basin Management Region are visualized in **Figure 2.1.3.B-2**.

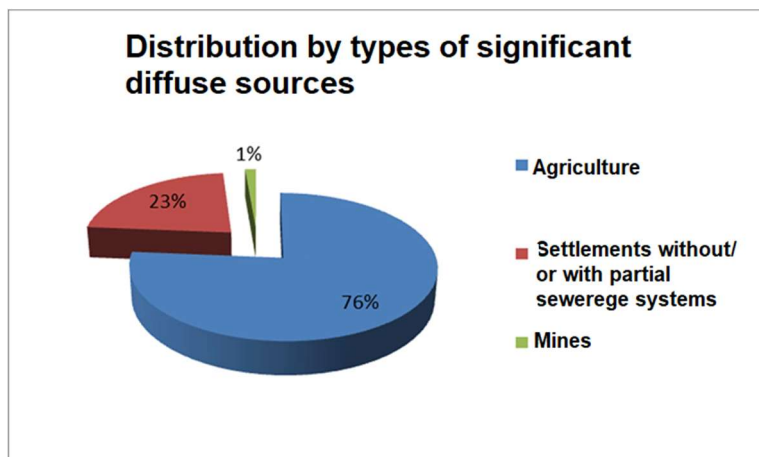


Figure 2.1.3.B-2 Identified diffuse sources of pollution (by

species) for groundwater bodies in the West Aegean region

The assessment of the pressure on the groundwater bodies from diffuse sources is calculated as the total affected area in relation to the total discovered area of the water body. When the sum of the affected area of diffuse sources exceeds 75% of the detected area of the relevant groundwater body, the identified pressure is considered significant.

The analysis shows that for 9 of the total 38 groundwater bodies in the territorial scope of the West Aegean region, the pressure from diffuse sources of pollution is defined as significant.

Estimation of water intake pressure

The highest percentage of groundwater abstractions is occupied by water abstraction for drinking and domestic water supply of settlements.

Significant pressure for groundwater is defined as any abstraction or group of abstraction in a certain area, where the exploitation index (ratio between the total abstraction from a groundwater body / part of a groundwater body and the available resources) is over 40%. Water intake pressure is defined as exceeded for 8 groundwater bodies, where the operational index exceeds 40%. In 5 of these 8 groundwater bodies, the operational index for a specific purpose (driving force) is over 40%, respectively the pressure from the respective target is defined as significant (**Table 2.1.3.B-5**).

Table 2.1.3.B-5 *Groundwater bodies with an operational index over 40%*

GWB code	Water body name	GWB performance index, %	Water abstraction for a specific purpose (driving force), representing significant pressure
BG4G000000Q001	Porous waters in the Quaternary -	40,53	-
BG4G000000Q003	Porous waters in the Quaternary -Simitli	97,86	For central drinking and household water supply of the population
BG4G000000Q007	Porous waters in the Quaternary - Radomir-Breznik	79,6	To meet the own needs of citizens (households)
BG4G000000N011	Porous waters in the Neogene -	71,68	For industrial purposes
BG4G000000N013	Strumeshnitsa	60,83	-
BG4G000000N014	Porous waters in the Neogene - Simitli	48,13	-
BG4G000001Pg238	Porous waters in the Paleogene sedimentary complex of the Pernik valley	84,61	To meet the own needs of citizens (households)
BG4G00000Pt3032	Karst waters in the Vlach karst basin	52,89	For central drinking and household water supply of the populatio

Areas (generalized water abstraction systems) with significant pressure from abstraction in groundwater bodies have also been identified (**Table 2.1.3.B-6**).

Table 2.1.3.B-6 *Areas with significant pressure from abstraction in groundwater bodies*

SWB code	Water body name	Name of the area with significant pressure from abstraction (system) or water abstraction located in the immediate vicinity of the receptor	Total flow (Qsum) l/s
BG4G000000Q001	Porous waters in the Quaternary - Strumeshnitsa	Greenhouses in Petrich	16,14
BG4G000000Q001	Porous waters in the Quaternary - Strumeshnitsa	DDWS_1285 Petrich	17,4
BG4G000000Q001	Porous waters in the Quaternary - Strumeshnitsa	Vegetable Exchange in the village of Karnalovo	1,98
BG4G000000Q002	Porous waters in the Quaternary - Kresna-Sandanski	town of Kresna	6,69
BG4G000000Q002	Porous waters in the Quaternary - Kresna-Sandanski	Damyantsa village	3,07
BG4G000000Q002	Porous waters in the Quaternary - Kresna-Sandanski	The village of Dolna Gradeshnitsa	4,32
BG4G000000Q002	Porous waters in the Quaternary - Kresna-Sandanski	DDWS W&S_Kresna 41510332	1
BG4G000000Q003	Porous waters in the Quaternary - Simitli	DDWS_W&S_Blagoevgrad_0977	48
BG4G000000Q003	Porous waters in the Quaternary - Simitli	Rosela AD_41520031	2,2
BG4G000000Q004	Porous waters in the Quaternary - Blagoevgrad	Blagoevgrad Industrial Zone +DDWS Blagoevgrad Water and Sewerage 41510028	35,11
BG4G000000Q005	Porous waters in the Quaternary - Dupnitsa	Balkanpharma-Dupnitsa AD_41510323 + The village of Kraynitsi	33,86
BG4G000000Q006	Porous waters in the Quaternary - Neogene - Kyustendil	The village of Yabalkovo	9,52

BG4G00000QN006	Porous waters in the Quaternary - Neogene - Kyustendil	The village of Kopilovtsi	6,07
BG4G00000QN006	Porous waters in the Quaternary - Neogene - Kyustendil	Shishkovtsi village	1,22
BG4G00000QN006	Porous waters in the Quaternary - Neogene - Kyustendil	Piperkov Chiflik village	2,24
BG4G00000Q008	Porous waters in the Quaternary - Razlog	The village of Banya	0,336
BG4G00000Q009	Porous waters in the Quaternary - Gotse Delchev	The city of Gotse Delchev	13,83
BG4G001QNPg010	Porous waters in the Quaternary - Neogene-Paleogene-Dospat	DDWS_W&S_Smolyan_41510482	3,52
BG4G00000N011	Porous waters in the Neogene - Strumeshnitsa	Neogene_Petrich	1,42
BG4G00000N012	Porous waters in the Neogene - Sandanski	Kapatovo Ltd. _41520043	3,94
BG4G001PzC2021	Cracked waters in Rila-Rhodope metamorphites, South Bulgarian granites, Kalin pluton	Bachinovo (DDWS_W&S_Blagoevgrad_41510102)	7,89
BG4G001PtPz025	Cracked waters in Belasitsa metamorphites	DDWS_W&S_Petrich_41510494	2,53
BG4G001PtPz025	Cracked waters in Belasitsa metamorphites	DDWS_W&S_Petrich_41510500_41510496	1,18
BG4G001PtPz025	Cracked waters in Belasitsa metamorphites	DDWS_W&S_Petrich_41510503	0,5
BG4G001PtPz125	Cracked waters in Vlahino-Ograzhden-Maleshev-Osogovo metamorphites	DDWS_W&S_Blagoevgrad_400460	7,35
BG4G001PtPz125	Cracked waters in Vlahino-Ograzhden-Maleshev-Osogovo metamorphites	DDWS_W&S_Kresna_0317	5

In the territorial scope of the West Aegean region there is no identified pressure from artificial groundwater recharge.

Climate change pressure assessment

During the first two forecast periods (2013-2042 and 2021-2050) a certain increase in the natural resources of groundwater is expected - mainly due to a certain increase in precipitation. It should be noted that for both periods the results are very close and this is understandable, as these two time periods for the most part overlap (overlap).

For the majority of groundwater bodies, the increase in resources is most often between 2 and 8% compared to the “current”.

During the third forecast period (2071-2100) there is a decrease in resources, associated not so much with a decrease in precipitation, but with an increase in evapotranspiration (due to higher temperatures).

Groundwater bodies for which there is a risk of not achieving the set objectives

The impact of water abstraction from groundwater bodies is characterized by local or regional decline in water levels. The impact of water abstraction is determined for each section of the water body in which significant pressure from groundwater abstraction has been identified, using numerical instruments and expert techniques.

Table 2.1.3.B-7 presents the results of the assessment of the impact on the quantitative status of groundwater bodies and the identified receptors in groundwater bodies. No groundwater intrusion has established an intrusion of contaminated water.

Table 2.1.3.B-7 Results of the assessment of the impact on the quantitative status of groundwater and identified receptors

SWB code	Water body name	Name of the area with significant pressure from abstraction (system) or water abstraction located in the immediate vicinity of the receptor	Receptors with established or expected effects as a result of water abstraction			
			MP with exceedances of SC for groundwater	Terrestrial ecosystems	Surface water bodies	NIMH point
BG4G000000Q001	Porous waters in the Quaternary - Strumeshnitsa	Greenhouses in Petrich	Yes	No	Yes	Yes
		DDWS 1285 Petrich	No	No	Yes	No
		Vegetable Exchange in the village of	No	No	Yes	Yes
BG4G000000Q002	Porous waters in the Quaternary - Kresna-Sandanski	town of Kresna	No	No	Yes	No
		Damyantsa village	No	No	Yes	No
		The village of Dolna Gradeshnitsa	No	No	Yes	Yes
		DDWS W&S Kresna 41510332	No	Yes	No	No
BG4G000000Q003	Porous waters in the Quaternary - Simitli	DDWS W&S Blagoevgrad 0977	No	No	Yes	No
		Rosela_ltd_41520031	No	No	Yes	No
BG4G000000Q004	Porous waters in the Quaternary - Blagoevgrad	Blagoevgrad Industrial Zone +DDWS Blagoevgrad W&S_41510028	No	No	Yes	No
BG4G000000Q005	Porous waters in the Quaternary - Dupnitsa	Balkanpharma-Dupnitsa AD_41510323 + The village of Kraynitsi	Yes	No	Yes	Yes
BG4G000000Q006	Porous waters in the Quaternary - Neogene-Kyustendil	The village of Yabalkovo	No	No	Yes	No
		The village of Kopilovtsi	No	Yes	Yes	No
		Shishkovtsi village	No	No	No	Yes

		Piperkov Chiflik village	No	No	No	Yes
BG4G000000Q008	Porous waters in the Quaternary - Reason	The village of Banya	No	No	No	Yes
BG4G000000Q009	Porous waters in the Quaternary - Gotse Delchev	Gotse Delchev	No	No	Yes	Yes
BG4G001QNPg010	Porous waters in the Quaternary - Neogene-Paleogene - Dospat	DDWS_W&S_Smoljan_41510482	No	Yes	Yes	No
BG4G000000N011	Porous waters in the Neogene - Strumeshnitsa	Neogen_Petrich	Yes	No	No	No

The results of the RBMP risk analysis for the chemical status of GWB from significant point and diffuse pressure show that no GWBs are identified at risk of point sources of pollution, but 9 SWBs at risk of diffuse sources of pollution are identified.

The overall assessment of the risk of failure to achieve good chemical status of the GWB shows that for 9 of the 38 GWBs there is a risk of non-achievement of the good chemical status objectives of the GWB,

The final assessment of the risk of failure to achieve good quantitative status of the GWB shows that for 13 of the 38 GWBs in total (*Table № 2.4.2.c of the RBMP*) there is a risk of failure to achieve good quantitative status.

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

In the territory of the Republic of North Macedonia in the past, in different phases, hydrogeological studies have been carried out for different purposes.

There are more detailed studies for these regions, where detailed studies have been carried out for specific purposes: water supply, construction of larger construction and hydrotechnical facilities, discovery of mines, preparation of the Basic Hydrogeological Map M 1: 100,000, etc.

As a summary hydrogeological document at the state level there is a Hydrogeological Map 1: 200 000, made in 1977.

Organized and planned research of groundwater bodies is carried out within the research for preparation of the Basic Hydrogeological Map of the Republic of North Macedonia 1: 100 000. These studies are regional in nature and are carried out according to the instructions for hydrogeological maps and pre-made project. Provides data on hydrogeological characteristics of the terrain, balance and groundwater reserves, detailed cadastre of springs and wells, use of groundwater, water supply systems, surface water flows, water quality data, protection of groundwater and surface water from pollution, solutions for capturing groundwater for various needs, etc.

Such studies have been fully completed on an area of 7,763 km², which covers 30% of the territory of the Republic of North Macedonia. On an area of 1575 km² (Ohrid Pogradec Map Sheet) the research is only partially completed.

These studies were started in 1985 and were supposed to be completed by 2010, but due to various influencing factors, the continuity of their preparation was interrupted.

In general, it can be concluded that for the territory of the Republic of North Macedonia there are data on the hydrogeological structure and characteristics of the terrain for a certain planning at the regional level, but it should also be emphasized that research results are not collected, stored and updated systematically. and organized. The research is not uniform, the

settlements and their surroundings are studied more thoroughly than the other terrain, the karst terrains, unlike the terrains with unrelated lithological formations, are less studied (**Figure 2.1.3.B-2**).

A special practical problem is that there is no continuity in research and updating of data, so there is still no hydrogeological database at the state level such as cadastre of springs, cadastre of wells, cadastre of groundwater reservoirs, quality and more. There is also a need to take and implement measures for organized determination of groundwater quality and their protection against pollution at the state level.

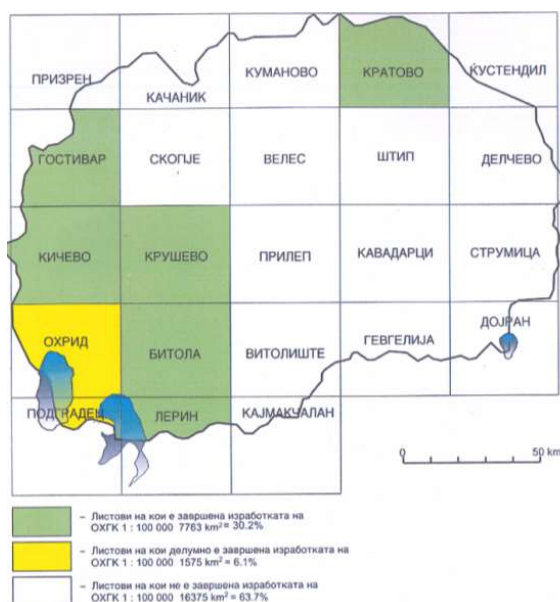


Figure 2.1.3.B-2 Exploration map of the Republic of North Macedonia (made from the Basic Hydrogeological Map 1: 100,000)

The following analysis was performed by water management areas. Out of a total of 16 separate water management regions on the territory of the Republic of North Macedonia, 4 of them fall within the scope of CBCP and TSIM - Pchinya, Gorna Bregalnitsa, Sredno and Dolna Bregalnitsa and Strumica.

Pchinya Water Management Area

This zone is located in the extreme northeastern part of the republic along the rivers Pchina and Kriva Reka. The big cities are Kumanovo, Kriva Palanka and Kratovo. In this zone there are pressureless porous waters in the Tertiary alluvial deposits with a thickness of 10-17 m, along the rivers Pchina and Kriva Reka, with a flow of water intake facilities 2-9 l/sec, as well as pressure aquifers, with a flow of water intake facilities up to 1 l/sec (Slavishko Pole), Kumanov Karst (Chetirtse, Dobroshane, Nikushchak). The potential is not significant, and is used for small local needs.

The largest consumers in this area are the towns of Kumanovo, Kriva Palanka and Kratovo, which use mainly surface water for water supply. Kumanovo uses about 250-300 l/sec of the

Lipkovo reservoir. Additional quantities of water are provided from wells built on the terrace of the Kumanovska River, in the area of Mitevo Most, with a capacity of 30-40 l/sec. Some villages in this area that are not connected to public water supply are supplied with water from wells or by capturing springs. Also, some of the industrial enterprises have built their own water supply. It is believed that additional quantities of water, about 50 l/sec, are used for the water supply of these settlements and industrial enterprises. The town of Kriva Palanka uses groundwater from a karst spring, "Kalin Kamak" (25 l/s), captured for water supply and additional groundwater from porous aquifers, through exploitation wells. Some villages in this area that are not connected to public water supply are supplied with water from wells or by capturing springs. It is believed that these are additional amounts of water of about 10 l/sec. Kratovo is supplied with surface water (80 l/sec) from the river Zletovitsa. Some villages in this area, which are not connected to the public city water supply, are supplied with water from wells or by capturing springs. It is believed that these are additional amounts of water of about 10 l/sec

Gorna Bregalnitsa water management region

This area stretches in the extreme eastern part of the republic and covers the source and upper reaches of the river Bregalnitsa. The larger cities are: Delchevo, Berovo and Pehchevo.

The most widespread is the pressureless aquifer, formed in the alluvial sediments of the river Bregalnitsa (with good filtration characteristics and thickness 5-15 m), Gabrovo River, Grashnitsa, etc., as well as in the more powerful parts of the Quaternary-Pliocene sediments. of the Delchevo-Pehchevo-Berovo basin. The capacity of the water intake facilities in this zone varies from 10 l/sec to 30-40 l/sec. A small-scale karst aquifer is developed in the Triassic limestones around the village of Zvegor, Grad, Planitsa and is drained by several small springs.

The largest consumers in this area are the cities of Berovo, Pehchevo, Delchevo and Makedonska Kamenica. These cities use surface water for water supply, with penetration into the surrounding rivers (Pehchevska, Loshinska, Ratevska, etc.). About 80 l/sec of groundwater is exploited and used through public water supply systems in this area (*according to data from the Preparatory Study for the preparation of a national groundwater cadastre, St. Cyril and Methodius University, Skopje, Faculty of Civil Engineering / Preparatory Study for elaboration of a national cadastre of groundwater, University "St. Cyril and Methodius", Faculty of Civil Engineering - Skopje*).

Water management region Sredna and Dolna Bregalnitsa

This area stretches along the middle course of the river Bregalnitsa, until the confluence with Vardar and covers the Kochanski and Kratovo-Zletovski valleys, the Ovchepol valley, as well as the Plachkovitsa mountains, Osogovo mountains and others. The big cities are: Kochani, Vinica, Shtip, Probishtip and St. Nicholas. The most common are the pressureless, porous aquifers in the sediments of the rivers Bregalnitsa, Lukavitsa, Otinya, Svetinikolska, Orizarska, Osotniska, Gradechka, Zletovska and others. These aquifers are operated through numerous water intake facilities (wells, boreholes, galleries), which largely serve for water supply of the surrounding areas: Vinita, Kochani, Shtip, Probishchip, Kratovo and others, whose separate flow is up to 10-60 l/s. The individual exploitation of groundwater through wells, especially during the growing season,

for irrigation is quite intensive. With the commissioning of the Zletovitsa irrigation system, the water supply of Shtip, Probistip, Kratovo, Sveti Nikole and a number of smaller settlements in the region was resolved. Pressure porous horizon is developed in the Pliocene sediments of the Ovchepol valley, with a flow rate of up to 10 l/sec, around the villages of Krupishte, Durfulia, Lozovo, Erdzelia, etc.

Strumica Water Management Region

This area covers the basins of Strumica and Radovish, as well as the peripheral parts of the mountain massifs Plachkovitsa, Maleshevski mountains, Ograzhden, Belasitsa and others. The larger cities are Strumica and Radovish. Pressureless, porous aquifers are widespread in the Quaternary-Pliocene sediments in the valleys, as well as in the sediments of the rivers: Stara Reka, Strumica, Turia, Shchuchka and others. The town of Radovis and most of the industrial enterprises draw 10 l / s from them, in addition, springs (with a flow rate of 30 l / s) have been captured from the Quaternary-Pliocene sediments in the Azmakot area along the Stara Reka valley. The individual capacity of the wells is up to 15 l / sec. Drilling wells of pressure waters have been built in the Quaternary-Pliocene sediments in the central part of the Strumica river valley, around the villages of Sofilari, Murtino, Dabile, Bosilevo and others. In several artesian horizons at a depth of 18-160 m. The individual flow rates of water intake facilities vary from 10-20 l / sec and are used for local water supply, irrigation, industry, etc. In the Paleozoic mixed series in the peripheral parts of the Radovish-Strumica valley a karst-fissure aquifer is developed. It is drained through multiple springs with a flow rate of 1-10 l / sec, rarely up to 30 l / sec. The captured karst springs in the village of Oraovitsa are used for water supply of the town of Radovish (30 l / sec).

The general conclusion from the provided hydrogeological information is that detailed studies are needed, as the existing systems are far from the modern approach to water management. In addition, the institutional framework so far does not reflect coherent and integrated water resources management in terms of the decision-making process, planning, coordination, implementation of acts at national or local level, etc. This weakness also leads to inadequate protection of water as a resource and as an element of the environment.

According to the data provided in the report, some conclusions and recommendations can be highlighted. They should be considered for future stages of the project and groundwater treatment in general.

First of all, it is noted that the current state of knowledge of geological and hydrogeological information allows a general description of aquifers and groundwater potentials, but is insufficient to accurately describe groundwater conditions and hydrogeological properties for all areas in the country.

Some of the data given are of older origin and the preparation of groundwater balances is not accurate enough.

It is known that the irrigation and water supply sector is facing many problems from a technical, institutional and financial point of view. Some of these problems need to be solved with the new organizational structure through the formation of new water economies and aquatic

communities. In terms of technical problems, there are several projects that are restoring and reconstructing most of the irrigation schemes.

In order to define the problems regarding the quantity or quality of groundwater, it is necessary to create a database at national level on water consumption, pollution and impact. An effective solution is to combine this database with the Cadastre of Pollutants and Groundwater, so that one database has all the necessary information. There are currently no accurate data on the quality of groundwater used.

At national level, it is necessary to complete all hydrogeological maps for all topographic sections based on the same methodology in order to obtain more reliable data as a basis for all other steps in water management.

C. Water protection zones

➤ *Blagoevgrad and Kyustendil districts (Republic of Bulgaria)*

The environmental protection objectives for the water protection zones (WPZ) are determined in terms of the quantity and quality of the waters, in order to achieve the requirements of the legislation, by virtue of which the zone has been declared or designated.

As a result of applying the methodological approach, the Biodiversity ActBU has identified 63 surface drinking water bodies, representing protection zones. The following figure presents visually the assessment of the condition of PWDs intended for drinking and domestic water supply (DDWS).

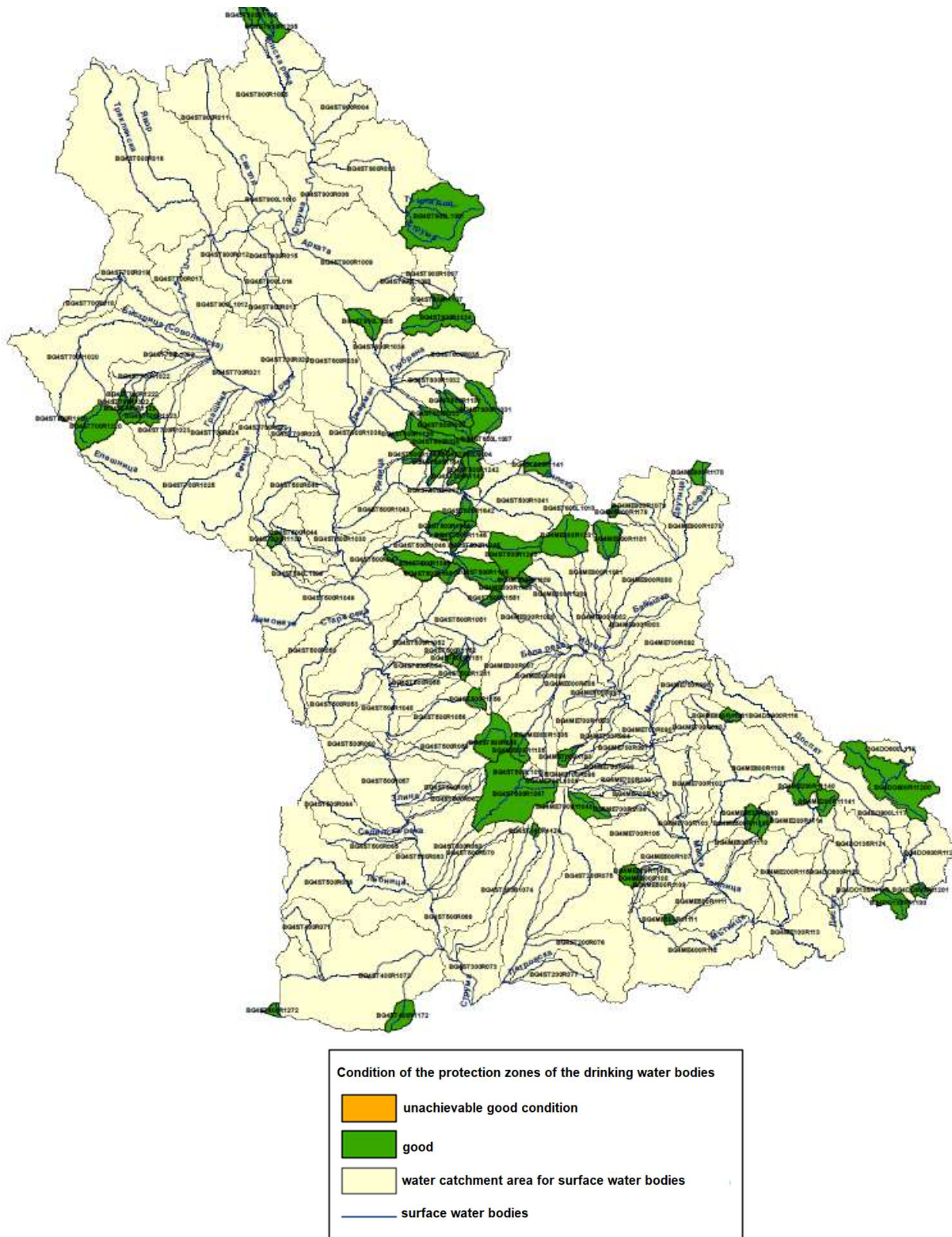


Figure 2.1.3.B-1 *Assessment of the condition of the water protection zones intended for drinking and domestic water supply, RBMP of the Biodiversity Act 2016-2021*

60 of them are surface water bodies category "river" and 3 pcs. are surface water bodies of the lake category“.

The assessment of the condition of the surface water protection zones intended for DDWS, according to the RBMP for Biodiversity Act 2016-2021, shows the following: all 63 surface water protection zones intended for DDWS have been assessed in good condition; in poor condition - no assessed surface water protection zones designated for DDWS. All surface drinking water sources are located in the source parts of rivers or in their upper reaches, which determines their good condition and the absence of risk of pollution.

The implementation of the monitoring in the zones for protection of surface waters intended for DDWS is in accordance with the requirements of Ordinance 12/16.06.2002 on the quality of surface waters intended for drinking. The information obtained serves to determine the quality and categorization of fresh surface water, which after the application of appropriate treatment is used or is promising for obtaining water for drinking and domestic water supply. The annual categorization of surface water intended for DDWS is published as part of the Annual reports on the quality of surface water intended for drinking and domestic water supply. It is clear from the reports that the DDWS PIAs are in good environmental status / potential and good chemical status.

A total of 135 water use permits for DDWS have been issued in the Biodiversity Act.

During the categorization in 2019 according to physicochemical indicators in category A1 50 SWB were determined, and in category A2 - 13 SWB. The most common deviations from category A1 are in terms of ammonium.

During the categorization in 2019 according to microbiological indicators in category A1 43 SWB were determined, and in category A2 - 20 SWB. The most common deviations are by indicators Coliforms and Fecal streptococci.

In the categorization performed in 2019 by specific and priority substances, no SWBs outside category A1 have been established.

In 2019, no water source with quality in category A3 and worse was identified.

See Annex 3.1.a to Section 3 of the RBMP - Register of Surface Water Protection Areas for Drinking Water Supply for the Biodiversity Act and Annex 1 to the Annual Report on the Quality of Surface Water for Drinking Water for Domestic Water Supply. Biodiversity Act.

All 63 pcs. Surface water bodies intended for drinking and domestic water supply are assessed as "in good condition" in relation to the purpose of defining the zones. For them, the environmental goal is to maintain good condition and protect it from deterioration.

With regard to **the zones for protection of the groundwater, intended for DDWS**, their protection shall be carried out by defining zones for protection of the drinking waters, which include the territory of the catchment of the surface water bodies and the land surface above the groundwater bodies under art. 119, para. 1, items 1 and 2 of the Water Act.

In the first RBMP (2010-2015), 32 groundwater bodies out of all 39 groundwater bodies in the West Aegean region were identified as groundwater protection areas for DDWS. Only 7 bodies were not used for drinking purposes. When updating the register of the zones for protection of groundwater, intended for drinking and domestic water supply, out of all 38 updated groundwater

bodies, 34 meet the criteria of art. 119, para 1, item 1 and item 2 of the Law and are defined as water for water consumption for human consumption - *Map 3.1.b and Annex 3.1.b of RBMP.*

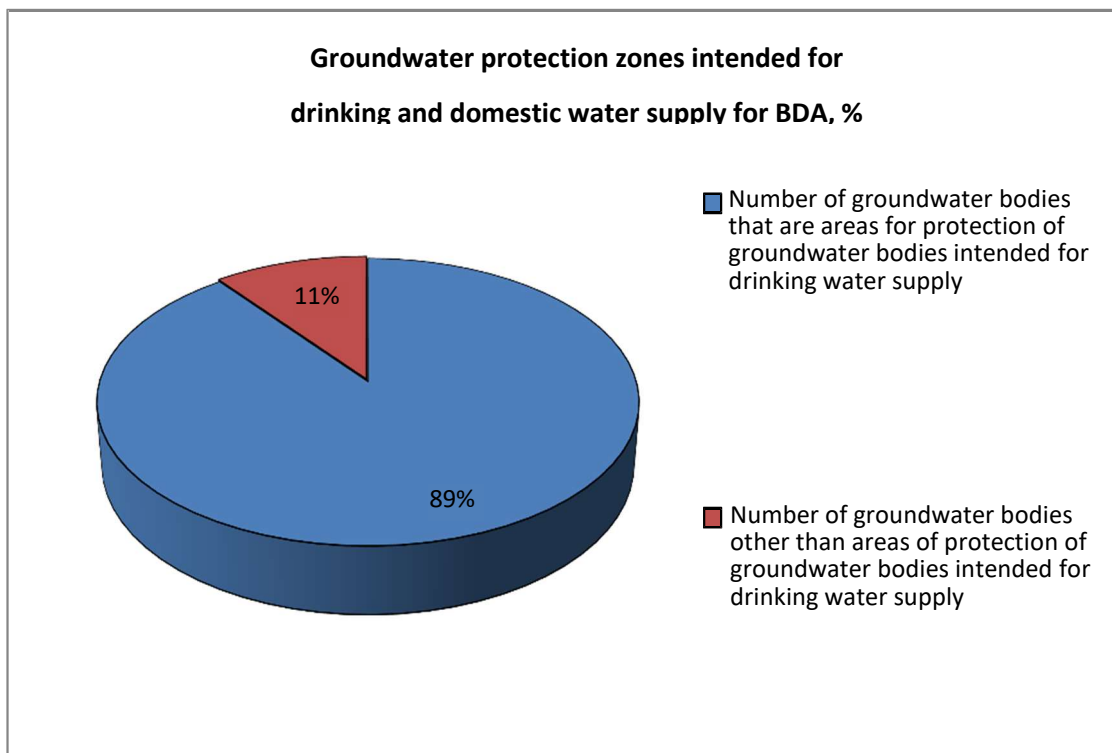


Figure 3.1.2.B-2 *Groundwater protection zones intended for drinking water supply, defined as water bodies*

Vulnerable areas

According to Order № RD-146 / 25.02.2015 of the Minister of Environment and Water for the West Aegean region for basin management no surface water bodies have been identified that are polluted or are threatened by pollution with nitrates from agricultural sources.

The main environmental goal in the identified nitrate vulnerable zones is to prevent the excess of the concentration of the pollutant nitrates in surface waters above 50 mg / l.

Two groundwater bodies have been identified as contaminated or at risk of nitrate pollution from agricultural sources - BG4000000Q001 - Porous waters in the Quaternary Strumeshnitsa and BG4000000N011 - Porous waters in the Neogene Strumeshnitsa (*Map 3.3.1.a of RBMP*).

Sensitive areas.

The following surface water bodies have been identified as sensitive areas:

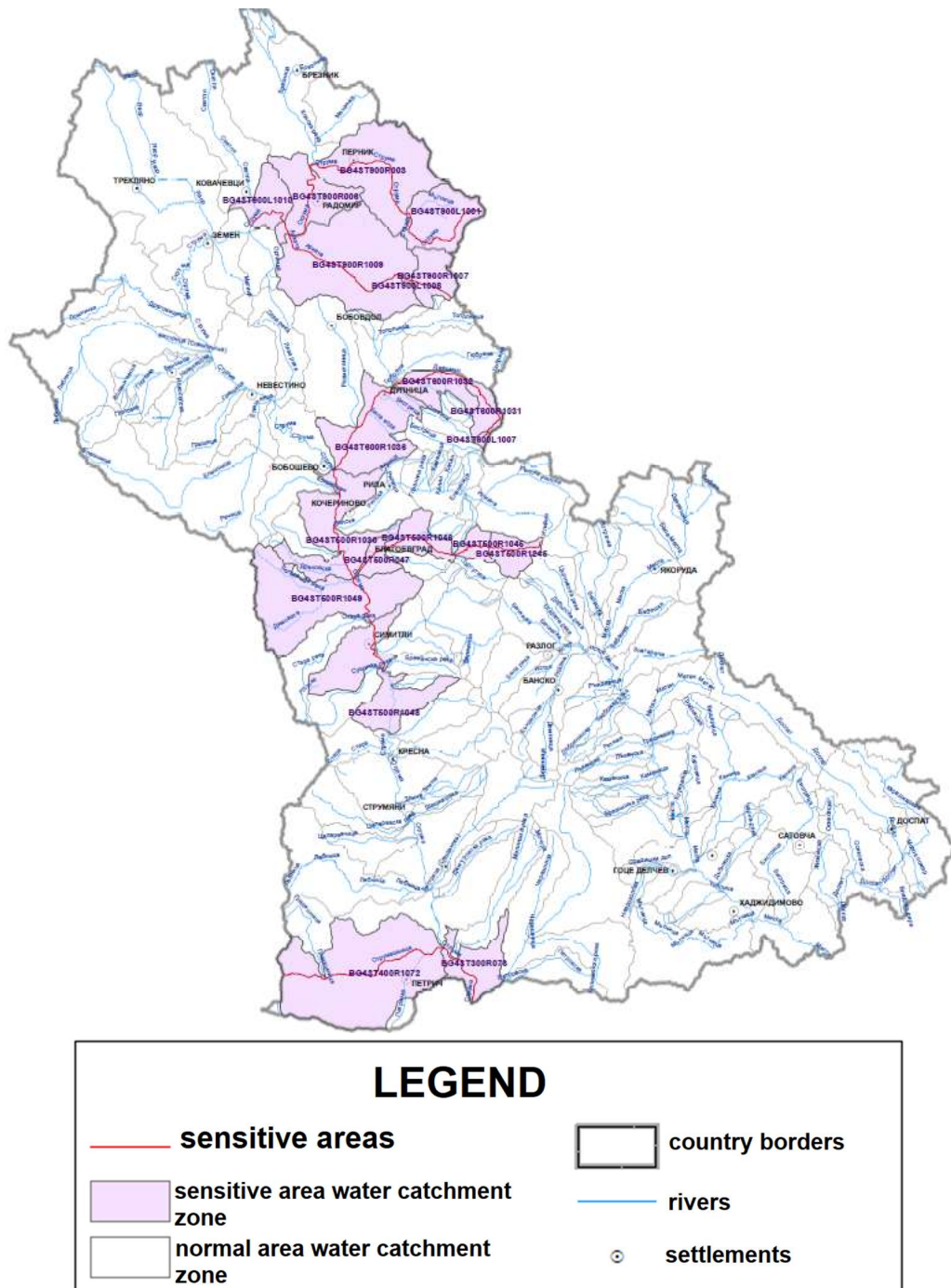


Figure 3.1.2.B-3 Sensitive areas on the territory of the Biodiversity ActBU, RBMP of the Biodiversity Act 2016-2021.

- Blagoevgradska Bistritsa River from the confluence of the Harsovska River to the confluence with the Struma River BG4ST500R047;
- Struma River from the confluence of the Stara Reka River and the confluence of the Sushichka River and BG4ST500R1048;

- Struma River from the confluence of the Blagoevgradska Bistritsa River with its tributaries and the Chetirka River and the Aidarovsko Dere River in the confluence of the Stara Reka River and BG4ST500R1049;
- Strumeshnitsa River from from the border between Republic of Bulgaria and Republic of North Macedonia to its confluence with the Struma River BG4ST300R1072;
- Struma River from the confluence of the Strumeshnitsa River to the Bulgarian-Greek border BG4ST300R073;
- Struma River from the confluence of the German River to the confluence of the Blagoevgradska Bistritsa River BG4ST500R1030;
- Blagoevgradska Bistritsa River from the confluence of the Dinovo Dere River and the confluence of the Slavova River BG4ST500R1045;
- Blagoevgradska Bistritsa River from the confluence of the Slavova River to the confluence of the Harsovska River BG4ST500R1046;
- Blagoevgradska Bistritsa River from the springs to the confluence of the Dinovo Dere River BG4ST500R1245.

The Water Framework Directive does not require specific targets for surface water bodies that are sensitive areas. The objectives of environmental protection for them are to achieve or maintain good environmental status for the type of water body.

Protection zones - bodies of water defined as recreational and water sports, including designated bathing areas, according to the ordinance of art. 135, para 1, item 7 in accordance with art. 119a, para. 1, item 4 of the Water Act, The RBMP (2016 - 2021) in the Biodiversity Act does not define areas for recreation and / or water sports, in accordance with the effective amendments to the Water Act, as of July 2015.

Areas for protection of economically valuable species of fish and other aquatic organisms

In connection with the identification of areas for protection of economically valuable species of fish and other aquatic organisms, the Minister of Environment and Water in 2012 approved a List of economically valuable species of fish and other aquatic organisms. In it, for the territorial scope of the West Aegean region for basin management there are no certain economically valuable species of fish and other aquatic organisms, respectively no zones for their protection have been declared.

Protected areas declared for the protection of habitats and biological species

When updating the register of protected areas declared for protection of habitats and species in which the maintenance or improvement of water status is an important factor for their protection, the following change was made: out of 42 in the RBMP 2010-2015. increase to 44 for the second planning period.

Protected areas of the National Ecological Network Natura 2000 for the protection of natural habitats and habitats of plant and animal species (excluding birds) - the update preserves the initially determined number of 25 habitat areas identified in the first RBMP.

Protected areas of the National Ecological Network Natura 2000 for the protection of bird habitats and areas where significant numbers of birds congregate during breeding, moulting, wintering or migration - the update of the register identified 19 bird areas in the RBMP (2016 - 2021) for certain 17 issues in the RBMP (2010-2015). The same stems from the fact that during the period of validity of the first plan two new zones for protection of wild birds have been determined - Pirin Buffer PA, announced by Order №RD352 / 11.04.2013. and PA "Rila Monastery", announced by Order №RD-886 / 25.11.2013, which are included in the register.

Update of environmental objectives for surface water bodies, which are areas designated or declared for the protection of habitats and species in which the maintenance or improvement of water status is an important factor for their conservation. At this stage, the objectives for environmental protection regulated in the Law, ie. achieving good surface water status are accepted as objectives for the protection of waters in protected areas and protected areas, declared for the protection of water-dependent species and habitats. Annexes 5.3.1.4.a, 5.3.1.4.b and 5.3.1.4.c. of the RBMP of the Biodiversity Act.

Northeastern, Eastern and Southeastern regions (Republic of North Macedonia)

Eastern region

Five important protected areas for the protection of birds in the Eastern region have been identified: Osogovo Mountain, Zletovska River Valley, Ovche Pole, Topolka - Babuna - Bregalnitsa and Mantovo - Lukavitsa.

Table 2.1.3.B-1 Important protected areas for bird protection in the Eastern region - 2010

Code	Name	acreage (ha)
35	Mantovo & Lakavica	5729,81
34	Osogovo Mountains	7048,58
32	Ovche Pole	41365,91
19	River Zletovica valley	12480,68
24	Topolka-Babuna-Bregalnica	27962,41

In addition, there are five important plant protection zones in the Eastern region: Osogovo, Ovche Pole, Bogoslovets, Lyudovi Livadi, Krivolak - Serta and Plachkovitsa.

Table 2.1.3.B-2 Important plant protection areas in the Eastern region - 2004

Code	Name	acreage (ha)
50	Krivolak (Orlovo Brdo-Solen Dol-Serta)	39366,96
51	Osogovo Mountains	50542,86
55	Ovche Pole-Bogoslovec	25457,86
72	Pehchevo-Judovi Livadi	388,42
56	Plachkovica	26542,72

Northeast region

There are a total of 91 areas in the Republic of North Macedonia, identified and proposed for designation as valuable natural areas. Three of them are related to the Northeast region.

Currently there are only two protected areas in the Northeast region (Ploche Litotelmi and Kaklitsa). Another six areas are important for nature protection and they have been proposed for inclusion in the National Network.

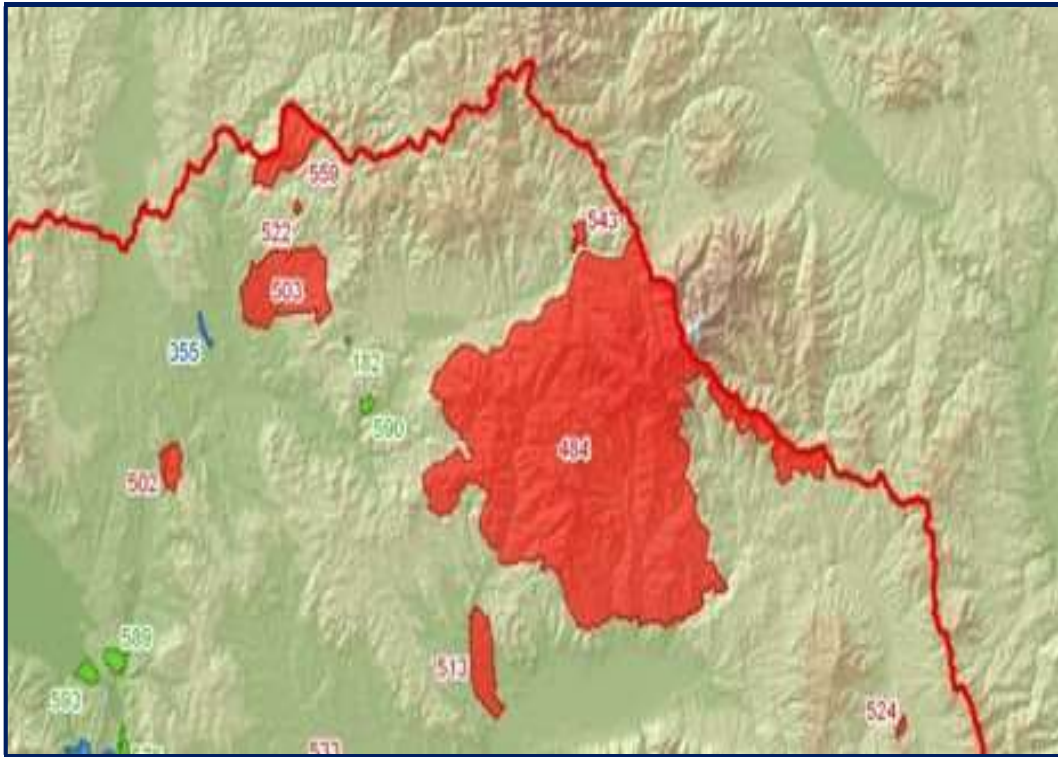


Figure 2.1.3.B-4 National system for protected areas in the Northeast region (green - protected areas; blue - proposals for protected areas in accordance with the Spatial Plan of RM; red - new proposed protected areas)

There are four important Bird Areas in the Northeast region - **Table 2.1.3.B-3**:

Table 2.1.3.B-3 Important Bird Areas in the Northeast Region

Code	Name	Year	acreage (ha)	altitude min	altitude max
34	Osogovo Mountains планина	2010	7048,58	485	1653
25	Pchinja-Petroshnica-Kriva Reka	2010	84098,02	276	1347
33	Preod-Gjugjance	2010	12190	321	867
19	River Zletovica valley	2010	12480,68	324	859

Only a small part of Skopje Montenegro and Ovche Pole - Bogoslovets are in the Northeast region.

Important habitat areas in the Northeast region are listed in the following table.

Table 2.1.3.B-4 *Important habitat areas in the Northeast region*

Code	Name	Year	acreage (ha)	altitude min	altitude max
17	Osogovo Mountains	2004	50542,86	400	2245
55	Ovche Pole-Bogoslovec	2004	25457,86	201	719
53	Skopska Crna Gora	2004	10022,91	636	1641

Southeast region

In terms of biodiversity, the following are identified: Monospitovo marsh and Doyran lake, as well as waterfalls in Smolare and Koleshino, Mokrin springs.

Lake Dojran is protected by the Law on Lakes in the Republic of North Macedonia and is protected by the Gavato hydro system to protect it from drying out.

Monospitovo marsh is the largest reservoir of swamp-swamp type in the Republic of North Macedonia and is the last of its kind in the country. Not satisfactorily studied.

The largest percentage of water bodies in the country fall on natural lakes used for recreation. The water quality in these lakes is threatened by wastewater discharges, uncontrolled use for agricultural and tourist purposes, and climatic conditions. In addition to natural lakes, there are also artificial lakes, which are used for both recreational and economic purposes.

The quality of bathing water is satisfactory, but there are also rivers that contribute to the deterioration of lake waters. The percentage of deteriorating indicators is still high, especially for physico-chemical parameters. The settlements around the three natural lakes Prespa, Ohrid and Doiran are one of the few that have treatment plants.

Drinking water sources

The access of safe drinking water in the Republic of North Macedonia is 97% for the period 2001 to 2019, as in the cities this percentage is 100%, and in the villages - 78%. The sanitary and hygienic condition of the sites is generally satisfactory compared to previous years. In the period from 2001-2019 the poor quality of water in physico-chemical condition is 2.7-7.5%, and according to microbiology it is 0.8-2.99%. The most common pollutants are due to residual chlorine, iron, aerobic mesophilic bacteria and nitrites. Toxic parameters are within normal limits. There are many unidentified sanitary protection zones around drinking water sources.

Sanitary protection zones around bodies of water intended for drinking – SPZs

These protected areas are not fully defined. A total of 56 pcs. POPs are planned so far.

A large share of the planned areas has not been determined. Currently, only 6 pcs. SPZ are defined, 12 pcs. SPZ are being identified and 38 identified areas need to be identified.

The Ministry of Health is obliged to determine SPZ, while the Ministry of Environment and Spatial Planning keeps a register of SPZ of water bodies intended for drinking water use. There is an obvious increase in the process of determining SPZ. Currently, there is no single and integrated database of SPZ, and the information is located in different sectors of the ministries, municipalities and the city of Skopje.

The established PO SPZ Ps represent 11% of the identified ones and are for the main water sources Studenchitsa, Rasche, Lukar and Zletovska Reka, Kucheshka Reka, Knezhovitsa Reservoir, Vrutok Spring and the water supply from Lepenets wells..

Identified protected areas for the future Natura 2000 network on the territory of the Republic of North Macedonia

At the national level, the process of identifying future Natura 2000 sites began in 2016 and continues. According to the requirements of the Habitats and Birds Directives in the period 2016-2017, 10 sites have been identified as potential Natura 2000 sites in the country. Of these, four have been proposed as potential protected areas (SPAs) under the Birds Directive and six areas have been proposed as conservation areas (SACs) under the Habitats Directive, with a total area in 2019 listed below. The areas are the same from 2016 to 2019. The total area of the ten identified future Natura 2000 sites is 1043.86 km² or 104 386 ha. They cover about 4.06% of the country's territory:

- *Doiran Lake (SPA) - 2692 ha;*
- *Lake Ohrid (SPA) - 24,745 ha;*
- *Prespa Lake (SPA) - 19,849 ha;*
- *Golem Grad Island (SPA) -20 ha;*
- *Mavrovo (SCI) - 14,813 ha;*
- *Pelister (SCI) - 14,853 ha;*
- *Galichitsa (SCI) - 6883 ha;*
- *Yakupitsa (SCI) - 16,143 ha;*
- *Ovche Pole (SCI) - 2582 ha;*
- *Ubavitsa Cave (SCI) - 1806ha.*

D. Risk of flooding

➤ *Blagoevgrad and Kyustendil districts (Republic of Bulgaria)*

As a result of the revision and update of the Preliminary Flood Risk Assessment (PFRA) for the West Aegean Basin Management Area, 17 areas with significant potential flood risk (AWSPFR) have been identified in 2021, 3 of which are new compared to the first FRMP 2016 cycle. -2021. They are located in the three main valleys - the Struma River (10), the Mesta River (6) and the Dospat River (1).

The types of floods that are determined for the regions in the West Aegean RBU are 4 types: river, rain-torrential, rain-urban and infrastructural. Infrastructural floods are related to the study of

the threat of overflow or rupture of dam walls. One or more types of floods have been studied for each AWSPFR. A type of flood, such as infrastructural flood, can be studied in different dams / sites, ie. in more than one place in the same AWSPFR. River type floods are studied in almost all areas, namely in 16 of them. Rainstorms are in second place - in 6 areas, and rain-urban - in 1. Infrastructure floods are present in 3 AWSPFR. A list of AWSPFRs in the West Aegean Basin Management Region is presented in the table below. For infrastructural floods are indicated the specific dams that are the subject of study, and for rain-urban - settlements. No cross-border AWSPFRs have been identified in the West Aegean Basin Management Region.

Table 2.1.3.G-1 *List of AWSPFR in West Aegean RBU*

AWSPFR code	Name of AWSPFR	Type of flood, according to the source	Type of change from the previous FRA cycle
BG4_APSFR_DO_100	Dospat river - Dospat town	river, rain torrential, infrastructural (overflow of Dospat dam)	creation
BG4_APSFR_ME_01	Trapsko dere river - Satovcha village	river	change - both expansion and contraction
BG4_APSFR_ME_02	Glazne River - from the town of Bansko to the village of Banya	river	change - expansion
BG4_APSFR_ME_03	Bela r. - town of Razlog	river	change - both expansion and contraction
BG4_APSFR_ME_04	Mesta River - the town of Yakoruda	river	change - reduction
BG4_APSFR_ME_100	Nevrokopska river - the town of Gotse Delchev	rain-torrential	creation
BG4_APSFR_ME_101	Mesta River - Hadjidimovo	river, rain-torrential	creation
BG4_APSFR_ST_01	Sandanska Bistritsa River - Sandanski	river	change - reduction
BG4_APSFR_ST_02	Struma River - the village of Strumyani and the village of Mikrevo	river	change
BG4_APSFR_ST_03	Struma River - from the town of Kresna to the village of Slivnitsa	river	change - reduction
BG4_APSFR_ST_04	Struma River - from the town of Simitli to the village of Cherniche	river	change
BG4_APSFR_ST_05	Struma River and Blagoevgradska Bistritsa River - Blagoevgrad	river, rain torrents	change - expansion
BG4_APSFR_ST_06	Struma River - Nevestino village	river	change - expansion

AWSPFR code	Name of AWSPFR	Type of flood, according to the source	Type of change from the previous FRA cycle
BG4_APSFR_ST_07	German River - from the town of Dupnitsa to the village of German	river, rain torrents	change - both expansion and contraction
BG4_APSFR_ST_08	Banshtitsa River - from the town of Kyustendil to the village of Jabokrat	river	change - expansion
BG4_APSFR_ST_09	Struma River - the town of Zemen	river, infrastructural (overflow of Pchelina dam)	change - reduction
BG4_APSFR_ST_10	Struma River - from Studena Dam to Batanovtsi	river, rain (torrential and urban), infrastructural (overflow of Studena dam and destruction of the wall of Oslome dam and Yardzhilovtsi dam)	change - both expansion and contraction

FRMP priorities and objectives

Priority 1: Protection of human health.

Objective 1.1. Minimizing the number of people affected by floods;

Objective 1.2. Ensuring fast drainage of water during intense rainfall and floods from urban areas;

Objective 1.3. Restoration of normal living conditions;

Objective 1.4. Minimizing the number of affected social infrastructure sites;

Priority 2: Higher level of protection of critical infrastructure and business.

Objective 2.1. Improving the protection of sites from the technical infrastructure;

Objective 2.2. Improving the protection of significant economic and cultural-historical sites;

Priority 3: Improving environmental protection.

Objective 3.1. Improving the protection of sewerage systems;

Objective 3.2. Improving the protection of industrial sites - mainly IPPC and SEVESO sites;

Objective 3.3. Minimization of the affected water protection zones, protected territories and protected zones;

Objective 3.4. Improving the water holding capacity of agricultural, forest and riparian areas;

Priority 4: Improving the preparedness and reactions of the population.

Objective 4.1. Increasing the preparedness of the population for floods;

Objective 4.2. Improving the reactions of the population in case of floods;

Priority 5: Improving the administrative capacity for FRM.

Objective 5.1. Creation of modern normative regulation for spatial planning and FRM;

Objective 5.2. Providing operational information on FRM;

Objective 5.3. Improving the qualification of the staff engaged in FRM;

Objective 5.4. Minimize the risk of floods in the watercourse for the entire river basin;

Goal 5.5. Ensuring adequate response of public institutions in case of floods.

Measures in the FRMP of the Biodiversity Act. Annex №4 to the FRMP of Biodiversity

Act:

The planned measures set out below apply to the entire basin management region, and in particular to the Pernik and Kyustendil districts.:

- Initiatives for development of ordinances for determination of the preventive norms, construction - technical norms for the spatial planning of the territory, design, implementation and maintenance of the constructions;
- Updating the ordinances for maintenance and operation of small dams in order to safely conduct high waves caused by torrential floods;
- Establishment of a National Real-Time Water Management System;
- Expansion of "bottlenecks" such as bridges, etc., which lead to undermining of river flow;
- Development and implementation of regional and municipal programs for disaster risk reduction, incl. floods;
- Informing and providing wide access to information to the population through the use of modern methods and technologies;
- Capacity building of the competent authorities - RIEW or DB;
- Establishment of a mechanism for coordination of actions in case of flood risk, incl. in a cross-border area;
- Cooperation with the competent authorities for basin management and flood risk management of other countries;
- Conducting a training and information campaign on flood-related issues;
- Increasing the readiness of the population to react to floods;
- Cleaning of river sections and ravines to ensure the passage of high waves;
- Inspection of the technical and operational condition of the bridges;
- Annual inspection of the technical and operational condition of the dam walls and facilities to them;
- Preparation of guidelines for the development and readiness for the implementation of disaster protection plans, including floods;
- Reconstruction and repair of dams;
- Coordination and cooperation between all levels of government (national, basin and local) of the unified rescue system;
- Development and implementation of regional and municipal programs for disaster risk reduction, incl. floods;
- Documentation of events and assessment of flood damage;
- Development and updating of disaster protection plans, part of floods;
- Increasing the readiness of the population to react to floods;

- Preparation of a daily hydrometeorological bulletin. Issuance of warnings in case of flood danger to MEW and the Ministry of Interior.
- Cleaning and management of river beds within the boundaries of urbanized territory;
- Continuous monitoring of construction near flooded areas;
- Building new adjustments;
- Upgrading of dikes;
- Cleaning of river sections and ravines to ensure the passage of high waves;
- Cleaning and management of river beds within the boundaries of urbanized territory;
- Construction of earth embankment and combination;
- Effective management of water levels of dams and retention reservoirs. Prevention of overflow through the crown of dikes during torrential rains in relatively small catchment areas;
- Removal of illegal buildings, excavating facilities, fences, stored materials and others located within the river beds or ravines;
- Creation of manageable polders and small buffer pools in floodplains of rivers.

Cross-border coordination with the Republic of North Macedonia

According to the Flood Risk Assessment and Management Directive (FRA) 2007/60/EA, effective flood prevention and mitigation requires coordination and coherence between Member States when the river basin falls within the Community and cooperation with neighboring countries, when the river basin is not entirely within the Community (Article 5 and Article 8, item 2 and item 3 of the FRA). In the West Aegean region the main rivers Struma, Mesta and Dospat cross the state border and their flow continues through the territory of the Republic of Greece. The basins of the rivers Strumeshnitsa and Lebnitsa (tributaries of the river Struma) are cross-border between the Republic of Bulgaria and the Republic of North Macedonia. The draft of the Updated Preliminary Flood Risk Assessment for the West Aegean Basin Management Region does not identify the need to identify and coordinate a cross-border area with significant potential flood risk, as required by Article 5 of the FRA, and in accordance with Article 146c of the Water Act, for international water management regions.

Coordination with the Republic of North Macedonia is influenced by the political framework of bilateral relations. The First Meeting of the Joint Intergovernmental Commission for Economic Cooperation was held in Skopje on March 6-7, 2019. A representative of MEW is also included in the commission. Specific activities set out in the minutes of the meeting include "strengthening and developing cooperation in the field of water, in particular cross-border coordination under the Water Framework Directive and the Floods Directive and the UNECE Helsinki Convention". As a first result, on April 11, 2019 in Sofia was signed the Agreement for Cooperation between the Ministry of Environment and Water of the Republic of Bulgaria and the Ministry of Environment and Spatial Planning of the Republic of North Macedonia for cooperation in the field of environmental protection. and water (Agreement). This Agreement updates and builds on the Agreement signed on June 9, 2000 between the Ministry of Environment and Water of the Republic of Bulgaria and the Ministry of Environment of the Republic of North

Macedonia for cooperation in the field of environmental protection. The scope of the new Agreement also includes the activities for management and protection of water resources (Article 2, item 3). On June 10, 2019 in Sofia was held the First Meeting of the Joint Intergovernmental Commission between the Republic of Bulgaria and the Republic of North Macedonia, established on the basis of Art. 12 of the Treaty of Friendship, Good Neighborliness and Cooperation between the Republic of Bulgaria and the Republic of Macedonia, signed on August 1, 2017 in Skopje. The minutes of the meeting adopted a Biennial Program for 2019-2020 for the implementation of the Agreement between the Ministry of Environment and Water of the Republic of Bulgaria and the Ministry of Environment and Spatial Planning of the Republic of North Macedonia for cooperation in the field of environment and water, signed on April 11, 2019 in the city of Sofia. The first meeting of the Joint Commission for Cooperation in the Field of Environment and Water with the Republic of North Macedonia, scheduled for March 2020, has been postponed due to the COVID-19 pandemic. Project BG16M1OP002-4.005-0001 "FRMP - second cycle 2022-2027", with beneficiary Directorate "Water Management" at the Ministry of Environment and Water in partnership with the Basin Directorates of Water Management

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

Due to its geomorphology and climate, the Republic of North Macedonia is vulnerable to floods. Floods account for 44% of all disasters in the country. The basis for the flood risk assessment plan is the flood risk and the flood risk map, which have not yet been established. Existing maps partially show floodplains, but are not equivalent to flood hazard maps. Flood hazard maps address four criteria for floods: human health, the environment, cultural heritage and the economy. Due to the insufficient number of monitoring points, flood forecasting and detection is difficult. Therefore, precipitation measurement is used, which is basic but not sufficient to assess the risk. The load of the facilities on the plains increases the potential risk of flooding. In January and February 2015, the country was hit by floods. High rainfall has caused significant increases in rivers, dams and reservoirs, causing major flooding in 43 of the country's 80 municipalities. About 170,000 people were directly affected and about 965,569 people - about half of the population - were indirectly affected.

Flood modeling has been developed for the city of Skopje in accordance with Directive 2007/60/EC, which has not yet been transposed. In addition to the plans, a large number of control facilities - dams and reservoirs exist in the regions of Skopje, Pelagonia, Strumica and Struga. Some of the basic requirements of the Directive are met. According to the Water Act, programs for protection against dangerous effects of water have been prepared for some river basins, as an integral part of the RBMP.

Summary of water status:

Blagoevgrad and Kyustendil districts (Republic of Bulgaria)

According to the RBMP of the West Aegean Region (2016-2021), the West Aegean Basin Directorate covers 9.73% of the country's territory. All three main rivers in the region - Struma, Mesta and Dospat are transboundary - pass through the state borders of the Republic of Bulgaria and this determines the presence of transboundary surface water bodies in their valleys.

As a result of the application of the approaches within the territorial scope of the Biodiversity Act, 29 HMWBs have been definitively defined and no AWBs have been defined.

The analysis of the results of the assessment of the ecological status / potential of surface water bodies shows that 11 water bodies - 6% are in excellent condition / maximum potential, 103 bodies - 56% are in good condition/potential, 51 water bodies - 28% are in moderate condition/potential, 8 water bodies - 4% are in poor condition/potential and 5 water bodies - 3% are in very poor condition / potential.

The most common reasons for deteriorating ecological status of surface water bodies in the region are the following: exceedances of oxygen regime, BOD5, ammonium nitrogen, nitrate nitrogen, nitrite nitrogen, established EQS exceedances mainly for copper, zinc, cyanides.

Out of a total of 183 surface water bodies in the territorial scope of the West Aegean region, 63 water bodies - 34.4% are in good chemical status, 3 water bodies - 1.6% are assessed as lacking good chemical status and 117 water bodies - 64% are not have been evaluated and determined in an unknown chemical state.

Measured, in some cases, are high AAV values exceeding the EQS for the priority substances cadmium, lead, nickel.

The following are summarized as problems:

Based on the collected and analyzed information for the West Aegean region in the RBMP for the second planning period, the potential categories of pressure on surface waters have been determined: pressure from point sources of pollution; pressure from diffuse sources of pollution; pressure from physical changes/hydromorphological pressure; pressure from climate change.

They have been identified as point sources of pollution in the West Aegean region:

- Discharges of domestic wastewater from:
 - Urban wastewater treatment plants (UWWTP) in settlements (agglomerations) with more than and less than 2000 population equivalent (PE);
 - Urban sewerage networks (USN) of settlements (agglomerations) with above and below 2000 inhabitants;
 - Local domestic wastewater treatment plants (LWWTP).
 - Discharges of industrial wastewater with:
 - Permit under the Water Act (WA);
 - Complex permit (CoP), according to the Environmental Protection Act (EPA).
- Discharges of domestic wastewater - According to the criteria of importance, discharges from untreated urban wastewater in settlements below 2000 BC are considered a source of significant pressure only if they put pressure on the quality element, leading to lack of environmental goals. It is assumed that discharges from them individually are not significant pressure, but their accumulation can affect the overall state of the water body.
- Industrial sources of pressure:

Industrial sources of pressure are discharges of industrial wastewater from all sites of Annex № 5 of Ordinance № 6/2000 on emission standards for the permissible content of harmful and dangerous substances in wastewater discharged into water bodies within the territorial scope of the Biodiversity Act . There are three surface water bodies with significant pressure from the IPPC industry, all in the Struma River basin. There are 6 surface water bodies with significant pressure from the non-IPPC industry in the Struma River basin.

72 cases of surface water bodies with significant pressure from point sources of pollution have been identified, a significant part of which are within the scope of the CBCP. The point discharges of domestic wastewater predominate - 63, while the discharges of industrial sources are only 9.

The analysis shows that the discharges from the city sewerage network - GKM below and above 2000 BC. are the main point source of pollution, respectively 13.7% and 12.0%. The smallest percentage of the types of point sources of pollution with significant pressure is occupied by the discharges of domestic wastewater from UWWTP between 2000 and 10000 pe. and LWWTP discharges, 0.5% and 1.1%, respectively.

The most significant industrial source of the IPPC are identified the ferrous metallurgy and energy economy - thermal power plants. The most significant industrial source of non-IPPC are the following industries: construction materials production, food industry and textile industry. Discharges from livestock and fish farming are not significant point sources.

A small part (13%) of the surface bodies are subjected to a significant load from diffuse sources of pollution. The following have been identified and considered as diffuse sources of surface water pollution in the West Aegean region: landfills, settlements below and above 2000 BC. without constructed or partially constructed sewerage network in the catchment area of the river basins; agriculture and the accompanying activities in the catchment area of the surface water body /valley/;

Other types of pressure are:

- Erosion - review of the degree of susceptibility to erosion in the catchment area of the surface water body/valley/in the Biodiversity Act;
- Tourism and recreation;
- Transport - pollutants from road transport (highways and first-class roads) entering the catchment area of the surface water body/valley/in the Biodiversity Act.

Although the surface water body - BG4ST400R1072 Strumeshnitsa River from the border between Republic of Bulgaria and Republic of North Macedonia to the confluence with the Struma River, does not meet the criterion of 30% of the catchment area of the water body to fall into a vulnerable zone ", it is identified as affected by significant diffuse pressure the combined pressure on its catchment. The fact that it is transboundary is also taken into account, its waters are polluted even before entering Bulgarian territory. A nitrate-vulnerable zone has been identified in its catchment area. The surface water bodies affected by water abstraction in the territorial scope of the Biodiversity Act are 100 (55%) and are subject to pressure, which affects their hydrological parameters. There are no bodies under significant pressure.

Risk assessment for surface water bodies in the Biodiversity Act in the RBMP (2016 - 2021). The risk assessment is shown in Annex 4.1. by criteria: water bodies at risk due to significant pressure, water bodies at risk due to assessed poor environmental status, water bodies at risk due to poor chemical status, water bodies at risk due to significant pressure or assessed poor environmental or chemical status. water bodies probably at risk Their number in the Struma valley is 53, in the Mesta valley -20, in the Dospat valley-3 or in total in the Biodiversity Act 76.

Northeastern, Eastern and Southwestern regions (Republic of North Macedonia)

The biggest problem in populated areas is the insufficient amount of drinking water. The reason is the uncontrolled and unreasonable use of water, water losses in water supply systems in the amount of more than 50% due to their aging - more than 15 years, insufficient volume of tanks, treatment facilities and others. Also at the moment:

- Sewerage systems are not fully built - 80-100% are covered;
- Wastewater treatment plants are not built in agglomerations with more than 10,000 PE and agglomerations with 2,000 to 10,000 PE. Some of the existing treatment plants are inefficient, obsolete or very worn out;
- Existing WWTPs do not treat all wastewater due to lack of inlet collectors, insufficient treatment capacity and require reconstruction, modernization or improvement;
- Only septic tanks are used in rural areas;
- Drainage systems are in poor condition, increasing the risk of soil and groundwater contamination during transport;
- Absence of an integrated model for irrigation, surface water pollution;
- Degradation of surface water due to leaching of sediments,
- Increase in pollution from landfills, illegal landfills, inappropriate disposal of hazardous waste;
- Variable and reduced capacity of water sources;
- Uncontrolled and unreasonable use of water;
- Uncertain POPs around water sources, causing poor water quality.
- Untreated wastewater is discharged directly into surface water basins;
- Unauthorized discharge of industrial wastewater into surface water;
- Problems with wastewater treatment are typical of urban and rural areas where there are no treatment plants and economic activities involve risks to the environment;
- The condition of the existing sewerage networks is not always good - the networks are outdated and allow leakage/leaks;
- Pollution from agricultural sources - fertilizers and pesticides;
- There are unauthorized landfills for municipal waste, including within floodplains and river terraces;
- Various sources of pollution from industry - discharge of wastewater into water wells and circulating water, the presence of unauthorized landfills for industrial waste.

2.1.4. Condition of the earth's subsurface

➤ Blagoevgrad and Kyustendil districts (Republic of Bulgaria)

The earth's subsurface in southwestern Bulgaria are composed of diverse metamorphic, magmatic and sedimentary rock formations of different ages.

Precambrian metamorphic complexes

The Precambrian metamorphic groups (complexes; folds) occupy the largest territories of the geological space of the two river basins. They are represented by the monotonous formations of different types of gneisses, migmatites, gneissoschists, shales, leptinites, massive marbles, with layers of shales; variegated gneisses, amphibolites, shales, layers of marble, chalcopy, leptinites.

The oldest (archaic - Lower Proterozoic - P_ε AC) ultrametamorphic groups (named Belasishka = Strazhevskia group and Ograzhdenska = Ardennes group or Malashevsky gneiss-migmatite complex) are represented mainly by granitized gneisses, migmatites, amphibolites, .

The Rupcho group, comprising gneiss formations of various compositions of gneisses, migmatites, shales and variegated (Chepelarska and Vachanska) formations of gneisses, gneissoschists, amphibolites, marbles and other rocks, as well as the highest silicate Sitov group (with gneiss and leptin) build the metamorphic mantle of granite and granodiorite plutons in the massifs of Western Rila, Pirin and Western Rhodopes. Around the granite intrusion of the Osogovo Mountain the metamorphites are represented by gneisses and amphibolites of the Osogovo group. Among the metamorphic groups, the different types of gneisses are predominant.

Above the Sitovo gneiss-shale group in Pirin and the Western Rhodopes the metamorphic complex is crowned by massive and karstic marbles of the Asenovgrad group - the so-called Dobrostan retinue. The thickness of the formation forming the marble ring around the Teshovo granite pluton exceeds 1400m.

Magmatic granite and granodiorite plutons

Magmatic granite and granodiorite plutons (Paleozoic and Upper Cretaceous - Paleogene age) occupy large areas in the rivers Struma, Mesta and Dospat. They are introduced among the metamorphic groups and form the nuclei of the high mountains Rila, Pirin, Western Rhodopes and Osogovo. Small granitoid intrusions are also detected in the mountains Vlahina, Krupnishka, Malashevka, Ograzhdan and Belasitsa, Western Rila and other areas.

Paleozoic formations, including the diabase - the phylitoid complex (from the Vendicambrian to the Upper Permian) are distributed in fragments in numerous strips of areas and sections in the Krajina region - the upper Struma river basin.

Mesozoic - Triassic, Jurassic and Upper Cretaceous sediments are widespread in the Krajina and the West Highlands. Relatively large areas are occupied by aquifers cracked and karstified Middle Upper Triassic limestones, dolomite limestones and dolomites.

Sedimentary and volcanic - sedimentary formations

During the Paleogene and Neogene periods, as a result of deep faults and intense, differentiated tectonic movements along the Struma, Mesten and Dospat fault zones, graben sedimentary basins (ditches) are formed. Powerful continental sediments of breccia

conglomerates, sandstones, sands, clayey-sandy and clayey sediments with bituminous and coal have been deposited in them. The Oligocene Pernik and Bobovdol, Suhostrel and Brezhan coal basins were formed.

Tertiary volcanism is less pronounced in the Struma river valley. In a number of sections the Priabon-Oligocene volcanic bodies of rhyolites, rhyodacites and other volcanics are revealed in a number of sections of the Kraishidna and Ograzhdenska districts. One of the most recent volcanic bodies is the Neogene height "Kozhuh", in the very bed of the river Struma, which is still an area of intense hydrothermal and mofetic activity.

The maximum thickness of the Neogene river and lake molasses filling the Simitli and Sandanski basins exceeds 1000 m. The Tertiary Razlog and Gotse Delchev valleys (coal basins) and the Dospat graben are formed along the neighboring Local submeridional zone - along the fault zone of the same name.

Quaternary sedimentary complexes

The Quaternary cover is unevenly distributed. Alluvial and proluvial deposits of gravels, boulders and sands with interlayers and soil cover of sandy in places and swamp clays are deposited in the river beds, floodplains and floodplains, in the sediments and torrential cones, at the mouths of rivers and streams and mountain foothills. Their total thickness along the Rila River reaches 50 - 55 m; along Dupnishka Bistritsa - 100 m, along the river Petrichka - over 300 m, along the river Dospat - over 150 m. Proluvial and deluvial, unsorted, coarse-grained rock blocks, breccias, sands and clay deposits have accumulated at the foot of the mountains. Their thickness in the Blagoevgrad basin reaches 150 m.

In Rila and Pirin - in the valleys, in the glacial cirques and lakes there are moraine and river-glacial deposits with limited distribution.

Tectonics

The territory of Southwestern Bulgaria has "suffered" almost all neotectonic and magmotectonic events manifested during the long geological evolution of the Balkan Peninsula. The multiple geological processes and geotectonic activations in the region have formed the diversity of the rock formations and the complex geological, block structures, resp. hydrogeological structures, with diverse aquifers and anhydrous horizons.

The mountain block massifs and the basin basins belong to the following geostructural areas (zones): Western Srednogorie, Krajishte (Krajshtidi) and Rhodope massif with its continuation - the Serbian - Macedonian massif in the western outskirts.

The region of Kraishhte is distinguished by an extremely colorful and complex faulty, fold-block and dragged construction. The mosaic of Phanerozoic lithostratigraphically curved imorphothectonic structures also determines the great variety of hydrogeological conditions in the area. The region is characterized by particularly intense neotectonic activation in the modern era.

The differentiated vertical movements of the earthen blocks continue the high rise of the mountain (horst) massifs, the increased erosion and denudation, the deep infiltration of waters in the underground hydrosphere and the sinking of the intermountain graben valleys, where river

and slope waters accumulate. Numerous thermo-mineral springs have been discovered along the active fault zones of the Struma valley, including the hottest in the country - near the town of Sapareva Banya.

In the cross-border region of the Republic of Bulgaria, only one polymetallic deposit has been developed in the Osogovo ore region, Kyustendil region. Uranium mines are more widespread, all located in the Blagoevgrad region - Eleshnitsa, Simitli, Melnik and others.

Coal deposits have been exploited in Bobov Dol and Katrishte, Kyustendil region and in Oranovo, Brezhani and Ognyanovo - Blagoevgrad region.

The earth's interior is one of the components of the environment and is a non-renewable natural resource. Control over the protection and environmentally friendly use of subsoil and mineral resources, as well as environmental protection in activities of prospecting, exploration and extraction of mineral resources in the Republic of Bulgaria is regulated by the *Environmental Protection Act* (EPL) and the *Underground wealth Act* (UWA) and the bylaws to them. The search for and exploration of mineral resources begins after a decision of the Council of Ministers to grant a permit, permit and conclude a contract with the relevant competent ministry. Relevant projects are also prepared and coordinated in accordance with the provisions of the UWA.

The extraction of mineral resources is carried out after the granting of a concession in accordance with the provisions of the Concessions Act and UWA, as well as after the preparation and coordination of Comprehensive projects for extraction and reclamation of disturbed land for the duration of the concession.

According to the current legislation - *Law on Protection of Agricultural Lands and Ordinance № 26 on reclamation of disturbed terrains, improvement of low-yielding lands, removal and utilization of the humus layer*, technical and biological reclamation is mandatory on all disturbed terrains from mining activities.

Blagoevgrad District is characterized by the highest degree of seismic protection - the ninth degree on the scale of Medvedev-Sponhoer-Karnik. This poses a great danger and means that the buildings have to withstand until the ground starts to crack. The most threatening place is the beginning of the Kresna Gorge near Krupnik. It is known about the great Krupnik earthquake in 1904, when a large fissure opened, from which mud erupted, and the river Struma disappeared in a few days. It is no coincidence that there is a seismological station there, which constantly monitors the movement of the earth's crust. For Kyustendil district the degree of seismicity is VIII.

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

The geological structure of the territory of the Republic of North Macedonia has a significant impact on the conditions for the formation of groundwater. It is known from the literature that the geological structure is characterized by many specifics and phenomena that can rightly be treated as a rarity in the world scientific and cultural heritage. At a relatively short distance there are many different geological and geomorphological phenomena, which show that this region has undergone significant and very complex changes in geological history, ie. can be found from the oldest geological to the youngest rock masses (**Figure 2.1.4-1**).

Figure 2.1.4-2, in addition to the separated geotectonic units, also shows: Neotectonic valley-graben depressions (1) and Neogene-Quaternary volcanic areas (2). The lithological composition and structure of the units are created in several phases of tectonic activity. The most important stages of creation and development are the Proterozoic, Referee-Cambrian, Caledonian-Hercynian and Alpine orogenic phases.

The Serbo-Macedonian and Pelagonian massifs are the oldest geotectonic units that were formed by cracking of the earth's crust during the Riphean-Cambrian period. The oldest metamorphic and igneous rocks are eight hundred million to one billion years old. The beginning of the development of the Vardar and West Macedonian zones began within the so-called Tethys geosynclinal. Traces of sedimentation processes, magmatism, metamorphism and tectonic movements are preserved in the formations of the Riphean-Cambrian and Paleozoic complex of these units.

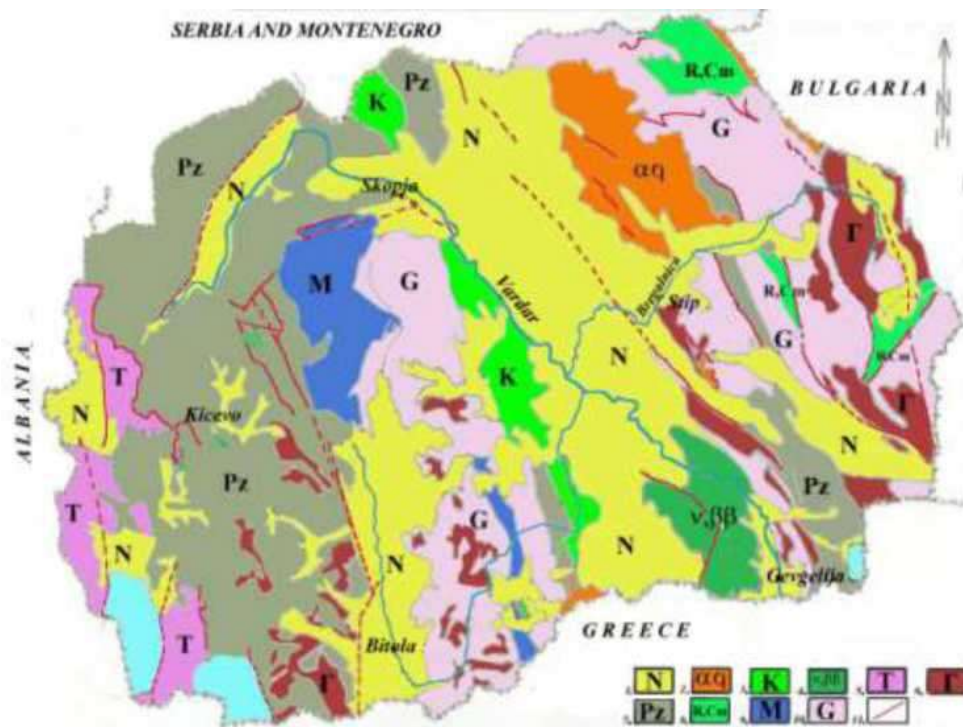


Figure 2.1.4-1. *Simplified geological map of the Republic of North Macedonia:*

- 1. Neogene - N 2. Volcanic phenomena - αq; 3. Chalk-K; 4. Gabbro and diabase-vββ; 5. Triassic-T; 6. Granites-G; 7. Paleozoic-Pz; 8. Cambrian Reef - RCm; 8. Marble-M; 10. Gneiss-G; 11. Faults*

In the so-called alpine stage of development is the discovery of ocean-type rocks of the Earth's crust in the Vardar area during the Jurassic period. This period is characterized by the formation of a thick mass of ophiolite rocks in the Vardar-Izmir-Ankara Ocean and Mirdita - the area in Albania. During the Upper Jurassic-Lower Cretaceous, it is considered that the occurrence of subduction in the east in the Vardar zone is relevant.

After the closure of the Vardar and Mirdita zones, the further development of the Balkan

region was controlled mainly by the subduction of the Adriatic (Puglia) plate in the east below the Dinarides-Elenids and the compression of the Messianic plate in the west. The following are the main characteristics of the main tectonic areas falling within the scope of the CBCP and TSIM, presented separately.

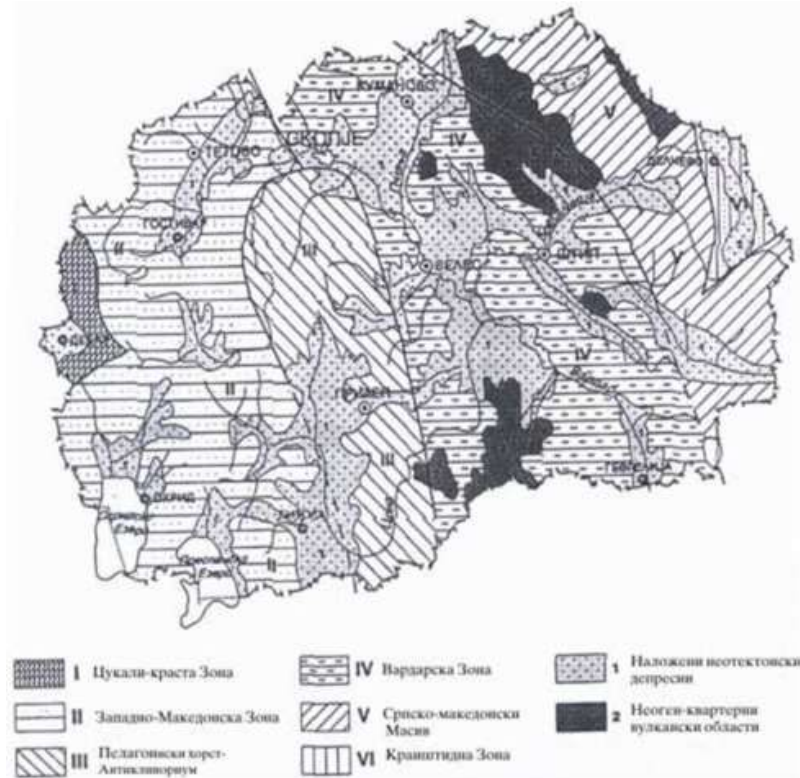


Figure 2.1.4-1. Map of the geotectonic regionalization of Macedonia (M. Arsovski, 1997)

Vardar area

The Vardar area is a very important tectonic unit. With its internal structure, presented tectonic structures, their relations and geological history, it stands out from other tectonic units not only in Republic of North Macedonia but also in the Balkans. It was first described by the Austrian geologist F. Kosmat, who discovered an intensely disturbed Cretaceous flysch and a system of shells from Paleozoic and Mesozoic complexes in the valley of the Vardar River. Today it is 60-80 km wide and stretches hundreds of kilometers from Belgrade in the north to the Gulf of Thessaloniki in the south. On the territory of Republic of North Macedonia it includes fragments of the Precambrian crust, then Paleozoic volcanic-sedimentary complex and acidic Mesozoic magmatism. Differentiated activity of tectonic movements in its different segments is strongly manifested in this zone. This determines the presence of structural-facial complexes of Mesozoic age. The development during the Iberian orogenic phase is particularly interesting when several regional roofs have formed in the eastern part of the Vardar area, which are present throughout the territory of the Republic of North Macedonia. In the neotectonic stage, the boundaries of the Vardar zone are characterized by intense manifestations of acidic and basic volcanism, whose activity continues

until the Quaternary. All this shows that this tectonic unit throughout geological history stands out as a highly labile zone. Modern tectonic movements are still present here today.

Serbian - Macedonian massif

The Serbian-Macedonian massif is a fragment of the Rhodope massif, which separates the orogenic systems of the Dinarides and Elenids, located on the western side of the Serbian-Macedonian massif and the Carpatho-Balkanids, located on its eastern side. Together, they are an integral part of the Alpine geosynclinal belt in the Mediterranean region. The Serbo-Macedonian massif on the territory of the Republic of North Macedonia is characterized by the presence of pre-Cambrian and Riphean-Cambrian complexes.

The former are represented by rocky complexes, where gneisses and Mikashists predominate. In certain areas there are also facies of green shale (chlorite-sericite shale, metagabro, metadiabases, albite green shale, etc.). Slightly, graphite shales from the Old Paleozoic are also found in the outer parts. During the Mesozoic and Paleogene, this massif was sometimes affected by transgression. In the late alpine stage, it is occupied by dividing smaller segments, which are separated from each other by transversely superimposed depressions. At the same time, there is a manifestation of young volcanism, both in its extreme parts and adjacent areas, and inside it.

Marginal area

The extreme eastern part of the Republic of North Macedonia is separated into a separate tectonic unit called the Peripheral Zone. In Republic of North Macedonia, it spreads in the border with Bulgaria and the upper reaches of the river Bregalnitsa, which includes the terrain of the tertiary Pianeki (Delchevo-Pehchevski) graben and the surrounding mountain ranges. The Golak massif is located to the west and the Vlayna mountain to the east.

It is characterized by the presence of Triassic and other alpine formations and has a special type of development of green shale formation. The green shale formation is represented by metagabri, metadiabases and green metasands, which "float" in the Hercynian aplitoid granitoids. The granites are of Lower Jurassic age.

During the Middle Alpine period the tectonic ditch of Pianets was formed here, in which Eocene flysch sediments and Pliocene-Quaternary molasses deposits were deposited. In the last alpine stage, starting from the Oligocene, intense acid volcanism is observed.

The neotectonic stage of development on the territory of the country is of great importance for the conditions of accumulation of groundwater, the emergence of geothermal energy and other aspects. In the neotectonic stage of development, the territory of the Republic of North Macedonia was exposed to intense destructive processes, manifested by fault disorders. Such processes were characteristic of the entire territory of the Balkan Peninsula. During this period, the territory of the Republic of North Macedonia was exposed mainly to the regime of dominant gravitational scattering and the emergence of rising and sinking morphostructures. Neotectonic faults are mostly of the gravitational type and only some are of the horizontal type. Such is, for example, the horizontal fault, which stretches from Kyustendil (Bulgaria) - Kriva Palanka - Kumanovo - Skopje

- Debar - Elbasan (Albania). Some of the active faults are marked by various forms of geothermal energy and the creation of neotectonic depressions.

A characteristic feature of the neotectonic stage is that in some stages there was a warm and humid climate (biological climatic optimum), which favored the development of vegetation and the formation of coal seams in most of our basins, where pressure zones occurred. .with frequent reinforced and artesian phenomena.

Even in the Upper Pliocene, the vertical tectonic movements are again very intense, which has affected the lake environment.

Under such conditions, rapid erosion of Pliocene sedimentary rocks occurs. It is assumed that in the Upper Pliocene the Taor Gorge began to form and the waters of Lakes Skopje and Polog withdrew to the south. Then comes the expansion of Veles and Tikvesh and the formation of Lake Raets. The main "dam" of this large aquatic environment was the Upper Jurassic limestones.

As the sinking in the Aegean continues, the general trend in our area is increasing. The withdrawal of lake waters to the Aegean Sea began in the Upper Pliocene and was fully completed in the Lower Pleistocene. The lake surfaces have been turned into valleys with local wetlands, along the periphery of which the river network and the erosive activity of the terrains are intensifying.

In the Lower Pleistocene, the "dam" of Lake Tikvesh was drilled through the Jurassic limestones and gabrodiabases near Demir Kapija, which began to form the final bed of the Vardar to the Aegean Sea. Today's appearance on the territory of the Republic of North Macedonia is gradually being formed. With the exception of the Ohrid, Prespa and Doiran ridges, where the deposition of lake sediments continued throughout the Pleistocene and to this day, erosive activity has been much more intense in other ridges than sedimentation. In the Pleistocene, the valleys accumulated mainly alluvial, proluvial and in some places glaciofluvial deposits.

During the glaciation of the high mountain peaks, widespread glacial masses and moraine material are formed. In warmer periods, moraine sediments are transported as glacial fluvial material to the valleys. Larger masses of glacial fluvial material accumulate and are stored in or on the periphery of the Pelagonia, Kichevo and Polog valleys, through the Bogomil field, etc.

Summary of the state of the earth's subsurface:

The geological and tectonic development of the territory in the cross-border regions of the Republic of North Macedonia and the Republic of Bulgaria have a similar character. The modern relief is mostly mountainous, with well-formed river valleys, valleys and lowlands. Erosion processes are characteristic of the raised parts of the relief, and the deposition of alluvial material takes place mainly in the valleys, lowlands and water basins.

As part of the Balkan Peninsula, the cross-border territories of the Republic of North Macedonia and the Republic of Bulgaria are highly endangered by the seismic activity of the earth's interior..

2.1.5. Soil condition

➤ Blagoevgrad and Kyustendil districts (Republic of Bulgaria)

The soils of the Republic of Bulgaria fall into two European soil-geographical areas: the Carpathian-Danube and the Mediterranean, which are the main parts of the Subboreal and Subtropical soil sectors of Europe. The Lower Danube Soil Subregion, which is part of the Carpathian-Danube Region, and the Balkan-Mediterranean Soil Subregion, part of the Mediterranean Region, are separated on the territory of Bulgaria.

The soils on the territory of Blagoevgrad and *Kyustendil districts* fall within the boundaries of the Balkan-Mediterranean soil subregion (**Figure 2.1.5-1**).



<p>I – LOWER DANUBE SOIL SUBREGION (within the Carpathian-Danube soil region) with provinces: 1-Western Lower Danube; 2-Middle Lower Danube; 3-Danube-Dobrudzha; 4-Ludogorska; 5-Provadiyska; 6-Werstern Predbalkan; 7- Middle Predbalkan; 8-Eastern Balkan; 9-Middle High Stara Planina; 10-High Stara Planina</p>	<p>II – BALKAN-MEDITERRANIAN SOIL SUBREGION (within the mediterranean region) with provinces: 11- Sofia-Kraishte; 12- Zadbalkanska; 13 – Srednogorska; 14-Srednothracian-Tundzha; 15-Struma-Mesta; 16-Eastern Rhodope-Sakar; 17-Strandzha; 18-Vitosha-Sredna gora; 19-Rila-Pirin; 20-Western Rhodopa; 21-Osogovo-Belasitsa; 22-High altitude (Vitosha, Rila, Pirin and Rhodopa)</p>
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Figure 2.1.5-1. Soil subregions in the Republic of Bulgaria

The following classes and types of soils are presented on the territory of Kyustendil and Blagoevgrad districts: Alluvial - Delluvial Fluvisols; Luvisols - Cinnamon forest soils (Chromic Luvisols); Metamorphic (Cambisols) - Brown forest soils (Dystric - Eutric Cambisols); Metamorphic (Cambisols) - Dark colored forest soils (Umbric Cambisols); Metamorphic (Cambisols) - Mountain meadow soils (Modic Cambisols); Primitive (Leptosols) - Lithosols, Regosols, Rancers and Rendzinas - **Figure 2.1.5-2 and Table 2.1.5-1**.

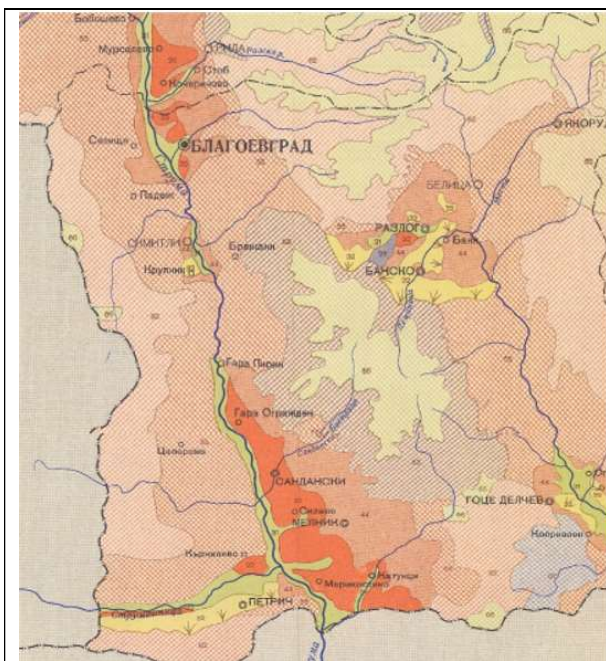


Figure 2.1.5-2. Soil map of Blagoevgrad district (Excerpt from the soil map of Bulgaria, M 1: 400000)

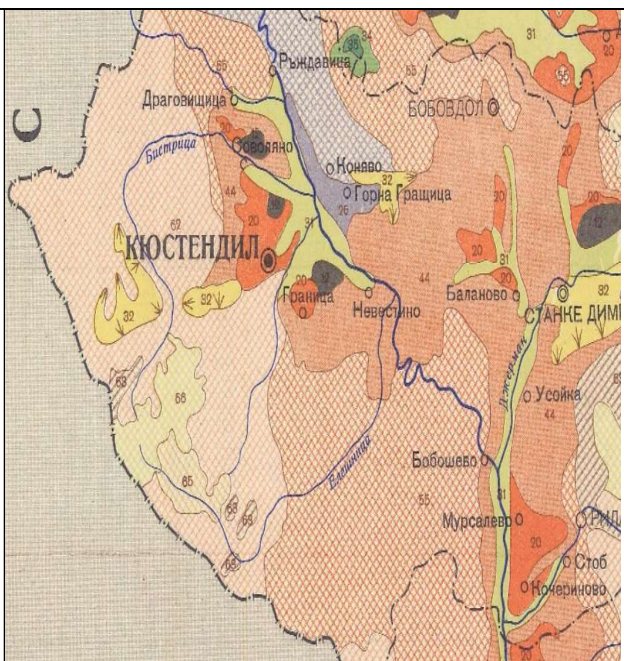


Figure 2.1.5-3. Soil map of Kyustendil district (Excerpt from the soil map of Bulgaria, M 1: 400000)

Table 2.1.5-1. Soil types in Blagoevgrad and Kyustendil districts

Areas	Class / Soil type (National Classification)	Class / Soil type (FAO)
Blagoevgrad and Kyustendil	Alluvial / Alluvial, Deluvial	Fluvisols/Alluvial Fluvisols
	Lesivirani / Cinnamon forest soils	Luvisols/Chromic Luvisols
	Metamorphic / Brown forest soils	Cambisols/Dystric-Eutric Cambisols
	Metamorphic / Dark colored forest soils	Cambisols/Umbric Cambisols
	Metamorphic / Plninsko meadow soils	Cambisols/Modic Cambisols
	Primitive / Rankers, Rendzini, Regosols, Lithosols	Leptosols/Rancers, Rendzinas, Lithosols, Regosols

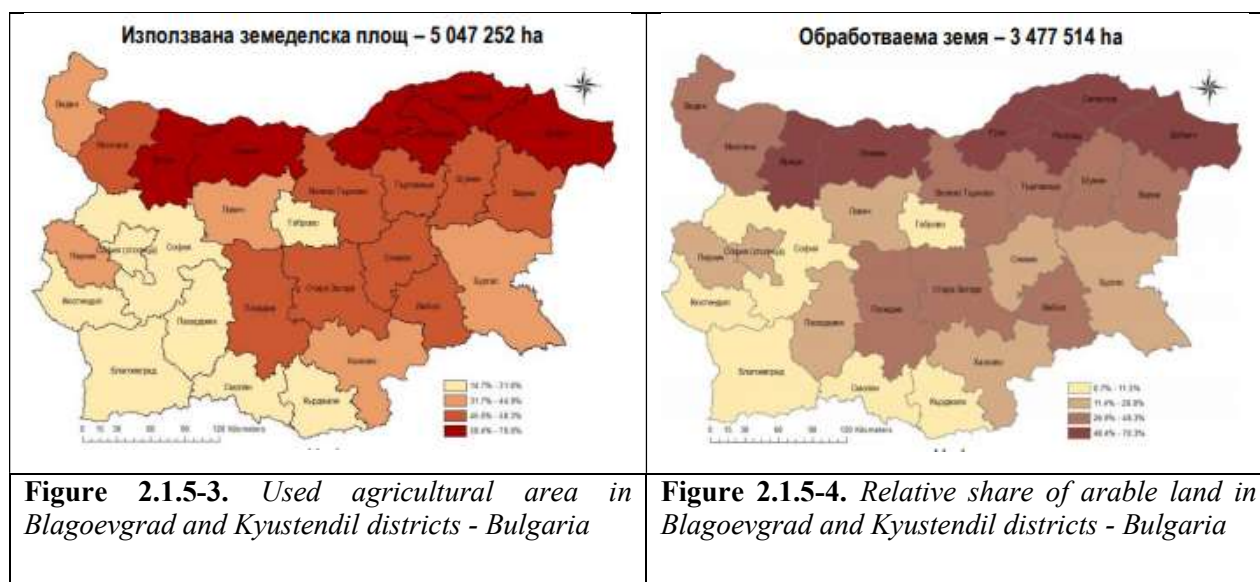
Land use

Blagoevgrad District falls within the "South-Western" statistical region - level 2 of the nomenclature of territorial statistical units (NUTS) of the European Union, according to Regulation (EA) №176 / 2008. According to "BANSIK: Employment and land use in 2020). The total area used for agricultural needs in the whole territory of Blagoevgrad and Kyustendil districts is 232,223 ha (38.88% of the area of the South-Western Statistical Region), of which the arable land is 57,449 ha (28.76% of the area of the South-Western Statistical Region).

Table 2.1.5-2. Main employment on the territory of Blagoevgrad district in 2020 (MAF Department of Agrostatics, Results and analyzes, № 381 - October 2020)

Основни категории/Райони и области	Зърнени (вкл. фураж)	Маслодайни	Технически	Зеленчуци и оранжерии	Ливади и едногодишни фуражни (без царевица)	Угари	Обработваема земя	Семейни градини	Постоянно затревен и ливади - овощни градини	Трайни насаждения	Използвана земеделска площ	Площ със селскостопанско предназначение
България	2037695	1008255	70649	63720	135630	161565	3477514	14231	1403988	151518	5047252	5227902
<i>Югозападен</i>	<i>99809</i>	<i>42826</i>	<i>1308</i>	<i>8368</i>	<i>14788</i>	<i>32620</i>	<i>199719</i>	<i>2663</i>	<i>375599</i>	<i>19230</i>	<i>597210</i>	<i>627594</i>
Благоевград	7533	1004	703	2109	4018	8839	24206	703	102248	8437	135594	153774
Кюстендил	13956	4264		1938	2617	10467	33243	1163	55050	7172	96629	100990

The amount of utilized agricultural area and arable land in **Blagoevgrad and Kyustendil districts** is presented in **Figure 2.1.5-3** and **Figure 2.1.5-4**.



Source: BANSIK, Results and Analysis, № 367-2019, MAF Department of Agrostatics“

Utilized agricultural area (UAA) is formed by arable land, perennials, nurseries - code 40, permanent grassland and family gardens. In 2020 there is an increase of 0.19% compared to the previous year.

The arable land includes the areas where crop rotation is applied, temporary meadows with cereals and legumes, fallow land and greenhouses. In 2020 there is an increase of 0.46% compared to the previous year.

The relative share of anthropogenically charged areas (infrastructure, settlements, industrial sites) in the South-West region for 2006 (according to the Executive Environment Agency based on data from the European project CORINE Landcover) is 4.51%, corresponding to 923,427 sq .km. from the territory of the region (out of a total of 20,468,794 sq. km). This is below the national average (5.03%). The territories of the districts of Sofia (capital) are the most anthropogenically loaded - 32.72% and Pernik - 9.97%, **and to a lesser extent** - the districts of Blagoevgrad (1.86%), Kyustendil (2.53%) and Sofia (3.69%).

According to the Executive Environment Agency, based on CORINE Landcover data for 2006, the ratio of urban, agricultural and forestry areas to the South-West is as follows: 4.51%,

30.32% and 64.03% of the total territory of the region. The average values for Bulgaria are 5.03%, 51.75% and 42.37%, respectively.

Soil degradation

The processes that damage the soil are: erosion; compaction; sealing; landslides; acidification; salinization; reduction of soil organic matter; pollution.

Erosion

The areas exposed to moderate and high erosion risk due to water erosion have significantly increased compared to previous years and are estimated at a total area of 2,010,223 ha. The data for the South-Western region show that a moderate to high (up to 20 t/ha/y amount of eroded soil) and high (up to 40 t/ha/y) risk of surface erosion exists in the **districts of Blagoevgrad and Kyustendil**.

According to data from the CORINE Landcover project in the South-West region, 59.33% of the territory is rated 4, ie. medium to strong susceptibility to erosion (for the country this value is 52.47%). 20.91% of the territory of the region has an average susceptibility to erosion (for Bulgaria - 18.45%). A little over 5.14% is the percentage of the territory with a strong or very strong susceptibility to erosion (for Bulgaria - 7.2%), and a little over 9.3% (for the country 15.77%) of the territory is with very low or low susceptibility to erosion.

In the period 2014–2017, the areas in the SWR affected by planar water erosion and related soil losses remained relatively constant. According to the map of the actual risk of planar water erosion for 2017 presented by the IAAC for the territory of the Republic of Bulgaria, the following conclusions can be made for the constituent areas of the South-West region:

- *Blagoevgrad district* is threatened by very strong water erosion mainly in the valley of the Struma River - in its lower course and especially on the western slope of the Pirin Mountain;
- *Kyustendil district* has highly endangered areas also along the valley of the Struma River, as well as on the fenced slopes of the Kyustendil valley.

The degree of impact of soils and watersheds in Blagoevgrad and Kyustendil districts are presented in **Tables 2.1.5-3 and 2.1.5-4**.

Table 2.1.5-3. Degree of susceptibility of the soil to erosion along the Dolna Struma and Mesta rivers

Degree of susceptibility	Dolna Struma River		Mesta River	
	acreage, ha	acreage, %	acreage, ha	acreage, %
Strong	1989.3	0.31%	2445.9	0.38
Very strong	4546.2	-	1483	0.23

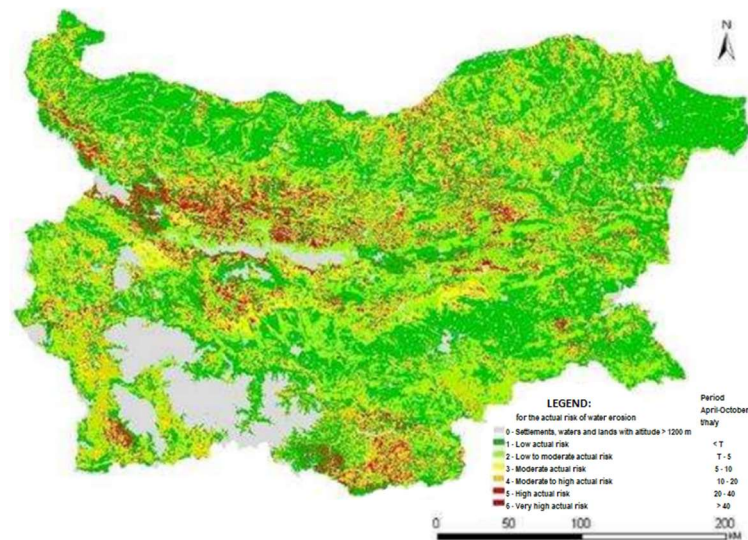
Table 2.1.5-4. Type of land use of the lands subject to water erosion along the Gorna Struma, Dolna Struma and Mesta rivers

Type of territory	Dolna Struma River	Mesta River
Fields	1.9% (25511.7 ha)	2.0% (15954.9 ha)

Perennials	3.7% (11084.7 ha)	6.7% (1552.6 ha)
Pastures	2.1% (43337.3 ha)	1.5% (5091.9 ha)
Other agricultural land	1.9% (44498.0 ha)	1.8% (43260.5 ha)
Total agricultural land	9.5% (124431.7 ha)	12.1% (65859.8 ha)
Forest areas	0.06% (185573.3 ha)	0.05% (46817.8 ha)

Water erosion of forest lands

The estimate of soil losses in forests for 2017 amounts to 1,107,679 t, which is 103,795 t less than the corresponding estimate for 2016. Forest areas with the lowest level of actual risk of planar erosion predominate (58.5%). In 2017, the afforested areas of state forest enterprises amounted to 1,745.4 ha, 10% less than the previous year. To protect forest areas from erosion and floods, in 2017 anti-erosion afforestation of 520.8 ha.



Source: EAE

Figure 2.1.5-5. *Actual risk of planar water erosion of the soil 2017*

Landslides

The territorial distribution of the areas affected by the landslide processes by districts is as follows: 644 landslides have occurred in the districts of Sofia (Sofia Municipality), Sofia District, Pernik, **Kyustendil**, **Blagoevgrad**, Pazardzhik, Plovdiv, Smolyan, Stara Zagora, Haskovo and Kardzhali (registered and monitored by Geozashtita Ltd - Pernik).

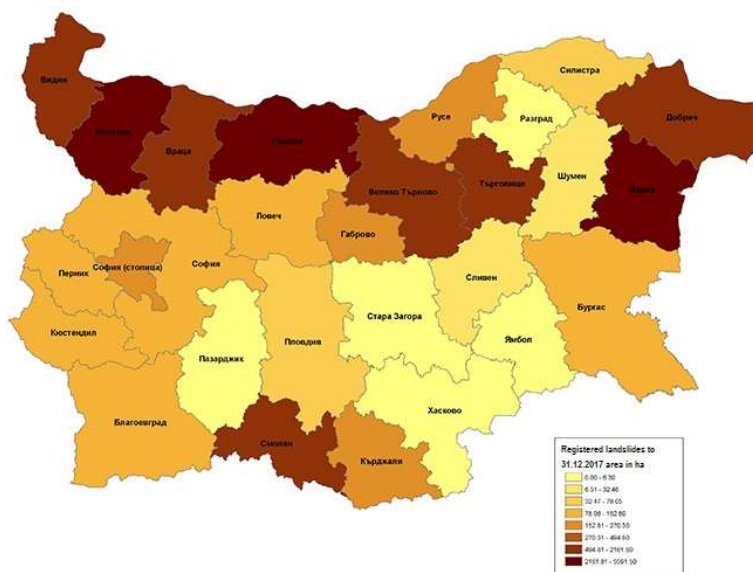


Figure 2.1.5-6. Areas affected by landslides by ha in areas at the end of 2017

Salinization and acidification

Regarding the salinization and acidification processes, the analysis shows that the soils in SWR are in good ecological condition.

IAAC data show that saline soils are prevalent in the SWR. These are found in several settlements in Blagoevgrad district - Sandanski and Hadjidimovo municipalities. The problems can be explained both by the hydromorphic differences and the suppressed natural conditions of drainage, and by the disturbance of the water regime of the soils under the influence of the intensive anthropogenic load.

Given that this degradation process is observed in limited areas with nearby mineralized groundwater or is secondary to improper fertilization and irrigation, it is not a significant problem for Bulgarian soils. (*National Program for Protection, Sustainable Use and Restoration of Soil Functions 2020-2030.*)

Reduction of soil organic matter (dehumidification)

The summary assessment of the humus condition of soils in Bulgaria shows that climatic, plant and other factors of soil formation in much of the country, especially in the plains and slightly hilly, where arable land is concentrated, are favorable for the formation of quality humus (*Artinova, N. 2014. Characteristics and grouping by content and composition of humus in the soils of Bulgaria by mathematical and statistical methods*), but the total amount of humus in Bulgarian soils is not high.

Figure 2.1.5-7 presents a map of the stock of soils with organic matter in kg / m² for the layer 0 - 100 cm.

The reason for the dehumidification is the widely used in Bulgaria stubble burning, which in addition to loss of soil fertility, leads to loss of biodiversity. Dehumidification is also associated

with other degradation processes and occurs as a result of secondary acidification and salinization of the soil. It is related to the removal of the surface soil layer due to the manifestation of erosion processes - water and wind erosion, oxidation of organic carbon due to high aeration during intensive tillage and degradation of soil structure during soil compaction (*National Program for Conservation, Sustainable Use and Restoration*). of soils 2020-2030.).

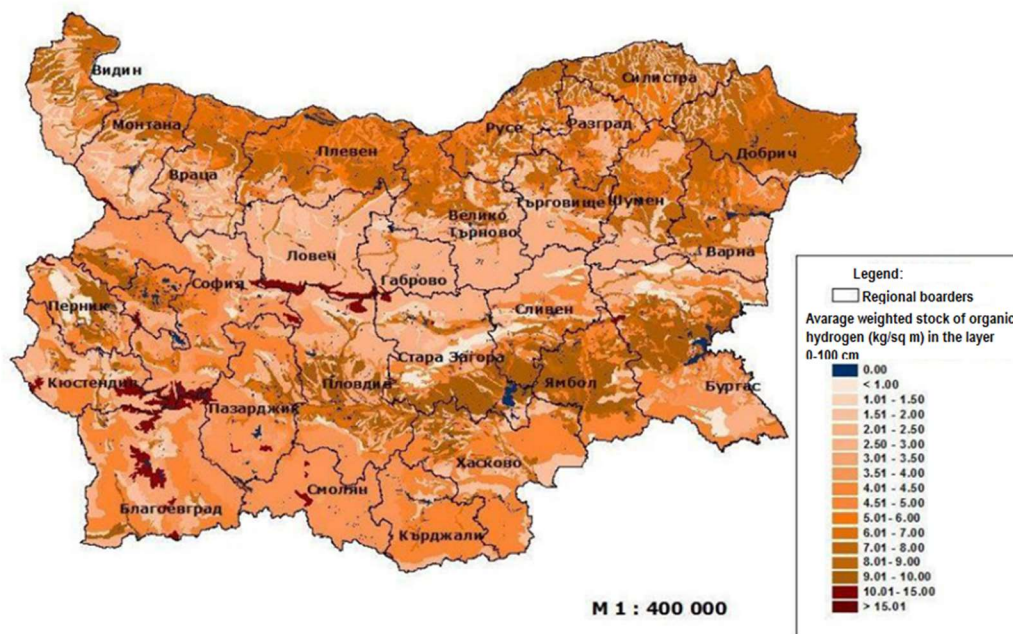


Figure 2.1.5-7. Map of the stock of soils with organic matter in a layer of 0-100 cm

Pollution

Pollution can seriously affect the ability of the soil to perform some of its basic ecosystem functions. In extreme situations, when pollutant levels exceed the critical threshold, the soil can be considered "functionally dead".

Contamination with heavy metals and metalloids

Soil pollution with heavy metals has various sources - atmospheric through dust and rain, industrial waste, automotive waste, from the chemicalization of agriculture, from irrigation of agricultural land with wastewater and others.

Excesses with **cadmium (Cd)** were observed on the territory of *Blagoevgrad district - Razlog municipality*; with **nickel (Ni)** - of *Hadjidimovo municipality*. A characteristic feature is that in contrast to the sites of active pollution, extensive ecologically clean areas are observed.

The soils in SWR are in good ecological condition, both in terms of nutrient supply and in terms of heavy metal and metalloid pollution. With regard to heavy metal pollution, it is stated that the intensity has decreased sharply as a result primarily of limited production activity. Contamination or destruction of the soil cover has a local (point) nature.

Radiation state

The summarized data in the SWR for the average annual values of the power at the equivalent dose of the gamma radiation background for 2018 do not differ from the typical ones for the region. The radiological monitoring of uncultivated soils does not reveal a change in the values of the natural and man-made radionuclides characteristic of the individual points in the samples analyzed in 2018. Areas with potential pollutants from

the territory of the SWR shall be subject to periodic inspections. In 2017, the following exceedances were identified by municipalities:

- Strumyani Municipality - Site-1 site, the measured specific activities of the natural radionuclides Ra-226 (743 Bq/kg) and Pb-210 (338 Bq/kg) exceed 12 times and 5 times the background values typical for the soils in area.

- Razlog Municipality - at the Kopitoto quarry and the former Zvezda plant from the Eleshnitsa site, activities of U-238 (213–745 Bq / kg), Ra-226 (768–618 Bq/kg) and Pb- 210 (472–340 Bq/kg), which exceed 4 to 12 times the background values for uranium, 12 times for radium, 7 times the background values for lead. The measured gamma radiation background is from 0.21 to 0.27 $\mu\text{Sv/h}$.

- Municipality of Melnik, with Lozenitsa, site Melnik - the measured activities of U-238 (845 Bq/kg), Ra-226 (380 Bq/kg) and Pb-210 (256 Bq/kg) exceeded by 12 times, 6 times and 3 times the background values.

Areas with potential polluters from the territory of the country are subject to periodic control. Until 1992, there were 48 operating uranium mines in Bulgaria and about 30 deposits in the process of research and development. In 2017, the following exceedances were established in Blagoevgrad District by municipalities:

- Strumyani Municipality (Site-1 site) - The measured specific activities of the natural radionuclides U-238 (107 Bq/kg), Ra-226 (593 Bq/kg) and Pb-210 (262Bq/kg), exceed respectively: for uranium-238 twice, for radium-226- ten times and for lead-210 - four times the background values characteristic of the soils in the area.

- Razlog Municipality - activities of U-238 (525-505 Bq/kg), Ra-226 (496-816 Bq/kg) and Pb were measured at the Kopitoto quarry and the former Zvezda plant from the Eleshnitsa site. - 210 (287-538 Bq/kg), which exceed ten times the background values for uranium, from 9 to 14 times for radium, from 3 to 10 times the background values for lead;

- Municipality of Melnik, with Lozenitsa - site Melnik, the measured activities are U-238 (164 Bq/kg), Ra-226 (560 Bq/kg) and Pb-210 (348 Bq/kg), which exceed by 2 times, 8 times and 5 times the background values typical for the region.

Construction of new industrial zones

On the territory of SWR it is planned to build new industrial zones on the territory of Blagoevgrad district (Blagoevgrad municipality), related to soil disturbance on lands with a total area of 612 dka, as follows:

- New industrial zone in Blagoevgrad, which will be on 115 dka of municipal land next to the main road E-79;

- Petrich Industrial Zone with an area of 497 dka.

Disturbed lands from mining concessions

According to the Municipal Development Plan of *Blagoevgrad Municipality 2014-2020*, *Public Register for the current concessions in the country and page of the Ministry of Energy in the Blagoevgrad district*:

- *Municipality of Blagoevgrad* - the disturbed territories by 2020 are from five existing concessions for extraction of mineral resources for inert construction materials. The order and the manner of reclamation of the disturbed terrains from this activity is determined in the Mineral Resources Act;

- *Simitli Municipality* - the disturbed territories are from two concessions for coal mining and one for inert construction materials;

- *Strumyani Municipality* - the disturbed territories are from one concession for extraction of construction aggregates and three concessions for extraction of marble;

- *Sandanski Municipality* - the disturbed territories are from four concessions for extraction of inert construction materials;

- *Gotse Delchev Municipality* - the disturbed territories are from two concessions for inert construction materials;

- *Municipality of Garmen* - the disturbed territories are from one concession for coal extraction, and two concessions for extraction of construction materials;

- *Hadjidimovo Municipality* - disturbed areas for extraction of minerals with an area of 200 da;

- *Kocherinovo Municipality* - the disturbed territories are from a concession for extraction of inert construction materials.

Violation of land - transport infrastructure

Given the key role of transport infrastructure as a basic condition for economic development, attracting investment, facilitating population mobility and access to periodic and sporadic services and the inclusion of all settlements in the SWR, it is necessary to improve and optimize it. Some of the directions of the main TEN-T network need to be completed and developed in order to meet the European requirements for quality and safety of international transport. In this regard, in the period 2021-2027 it is planned:

- We are completing the construction of the Struma Motorway;

- Construction of the Europe Motorway and the Gueshevo-Kyustendil-Radomir-Pernik-Sofia expressway;

- Construction of the Rila expressway in the direction Kyustendil-Dupnitsa-Samokov-p.v. Bogoroditsa – Trakia Motorway / Hemus Motorway, additionally included in the wide-ranging TEN-T network.

The planned optimization and reconstruction of roads as a continuous transport axis for integration of peripheral border areas along the southwestern border of Bulgaria and improving access of municipalities to their respective regional center in areas with registered worst accessibility in Bulgaria are associated with additional violations of agricultural land. fund (in many cases arable land) and the forest fund.

The project for Rehabilitation of existing and construction of new roads in both countries leading to CBC "Klepalo" is in an advanced stage of development. Part of the project for the Bulgarian territory is the repair and completion of road III-1008 Strumyani - CBC "Klepalo". A contract has been concluded by RIA with a contractor for the development of a technical project for rehabilitation of section 1 from km 0 + 000 (near the village of Strumyani) to km 0 + 650 (before the road junction of the Struma highway). The aim is to restore and improve the technical and operational qualities with the overhaul of the section, to increase the bearing capacity of the road surface and to improve the drainage. For section 2 is included the elaboration of a preliminary design for the construction of a new route on road III-1008 from km 22 + 000 (before the road diversion for the village of Kolibite) to the beginning of the CBC site "Klepalo".

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

Soils

In the regions of the Republic of North Macedonia under consideration, a mosaic of different soil types has been formed on the basis of the geological composition, the relief structure, climatic conditions, hydrographic features and characteristics of the vegetation and the wild nature. For river valleys are characterized by alluvial soils (Fluvisols), for the foothills - Litosols, for mountain hills - brown forest soils (Dystric - Eutric Cambisols) clean or in complexes with rankers (Rankers). High mountain pastures are characterized by Rankers or humus silicate soils).

Distribution of soil types and complexes

The formation, distribution and properties of soils are closely related to environmental conditions, ie. soil genesis is a function of geographical location and relief, hydrography, basic material, climate, vegetation, time period and human factor.

The most typical types of soils are:

Leptosols or rocks are most common in the highest parts of the mountains in the western part of the Republic of North Macedonia (Korab, Shar Mountain, Bistra, Suva Gora, Mokra Mountain, Yablanitsa, Galicica and Pelister), the area of Babuna Mountain, the mountain Selechka, Dren and the region of Mariovo.

Rankers or humus-silicate soils are formed mainly in the areas of high mountain pastures of Shar Mountain, Stogovo, Baba with Pelister and the higher parts of Osogovo and Maleshevo Mountains. They are found *in combination with brown forest soils and regosols* and as such predominate in Skopje Montenegro, Goleshnitsa, Yakupitsa, Babuna Mountain, Selechka Mountain, Busheva Mountain, Stogovo and Ilinska Mountain.

Brown forest soils (Dystric - Eutric Cambisols) are distributed mainly in the forest vegetation areas of Shar Mountain, Bistra, Dobra Voda (Celoica), the eastern slopes of Pelister, Mokra Mountain (especially on the branches Dautika, Yakupitsa and Goleshnitsa), Nidze, Kozuf, Konechka mountain, Belasitsa, Plachkovitsa, Ograzden, Maleshevo, Osogovo and German mountain with Bilina. They are found in almost the same areas *in combination with regosol and leptosol*, but this combination is more common in Busheva Mountain, the branches of Ilinska, Plakenska and Bigla Mountains and the northeastern part of Galichitsa.

Limestone-dolomite mulberry is a type of soil distributed on limestone fields, such as Bistra, Zeden, Suva Gora, Karadzhitsa, Dautika, western branches of Busheva Mountain (Baba Sach, Lyuben and Chersko Pole), Galichitsa and Yablanitsa.

Brown forest soil on limestones and dolomites is present in the lower parts of the mountains Karadzhitsa, Bistra, Baba Sah with Chersko Pole, Ilinska mountain and Galichitsa. More specifically - in the forested areas of the mentioned mountains.

Cinnamon forest soil (Luvisols) is present in the mountainous countries of Dobra Voda with Suva Gora, Bistra, Stogovo, the western slopes of Galichitsa, the northern parts of Plachkovitsa and on the western slopes of Mount Selechka.

Smolnitsa (*Vertisols*) is a type of soil that in the Republic of North Macedonia predominates in the Kumanovo valley (especially in the lower parts of the valley) and in *combination with regosol and cinnamon forest soils* is found in the northern parts of Ovche Pole.

Rendzina and the combinations of rendzina and regosol are soil types that predominate in the area of Tikvesh, Konechka Mountain and the southwestern branch.

Colluvial soils are characteristic of the foothills of the mountains, which are in contact with the larger fields in the Republic of North Macedonia. Such are, for example, the foothills of Shar Mountain with parts of the Polog plain, the foothills of Yablanitsa, Karaorman and Ilinska mountains in the Ohrid-Struga plain, the foothills of Galichitsa and Pelister in the Prespa valley, the foothills around the Pelagonia plain and the Osochovitsa foothills. in the Kochani valley, at the foot of Plachkovitsa, Ograzden, Belashitsa and Smrdesh in the Strumica-Radovish valley and at the foot of the Dolin Clana.

Fluvisols are characteristic of areas along larger rivers and plains in valleys. They are present in the plains of Polog, Kichevo Pole, Struga Pole, Prespa Pole, Pelagonia Plain, Skopje Pole, Ovche Pole, Kochansko Pole, Strumishko Pole, Valandovo Pole, Gevgelija Field despite the flow of the Vardar and Cherna Rivers in Tikvesh.

Hydrogen mulberry is found in the plain of Prilep field.

In the flat parts of the territory of Prilep and the Bitola field in Pelagonia there is fluvial meadow soil.

Wetlands in the Republic of North Macedonia are found in the coastal parts of Prespa, Struga, larger parts of the Bitola field, Doiran field,

Monospitovo swamp in Strumica, Katlanovo swamp and wetlands in Debarka.

The saline soils are found in Ovche Pole and in Prilep and Bitola Pole (especially on the western slopes of Selechka Mountain).

There are other types of soils such as peat soils, leached soils and others.

In the Republic of North Macedonia there are a number of other soil types and their combinations (www.maksoil.ukim.mk/masis), which are present in smaller enclaves throughout the territory.

The soils in the regions: Northeast, East and Southeast are represented mainly of the following classes and types: Alluvial - Alluvial - Delluvial Fluvisols; Chernozems - Chernozems; Luvisols - Cinnamon forest soils (Chromic Luvisols); Metamorphic (Cambisols) - Brown forest

soils (Dystric - Eutric Cambisols); Metamorphic (Cambisols) - Dark colored forest soils (Umbric Cambisols); Metamorphic (Cambisols) - Mountain meadow soils (Modic Cambisols); Primitive (Leptosols) - Lithosols, Regosols, Rancers and Rendzinas – **Figure 2.1.5-8.**

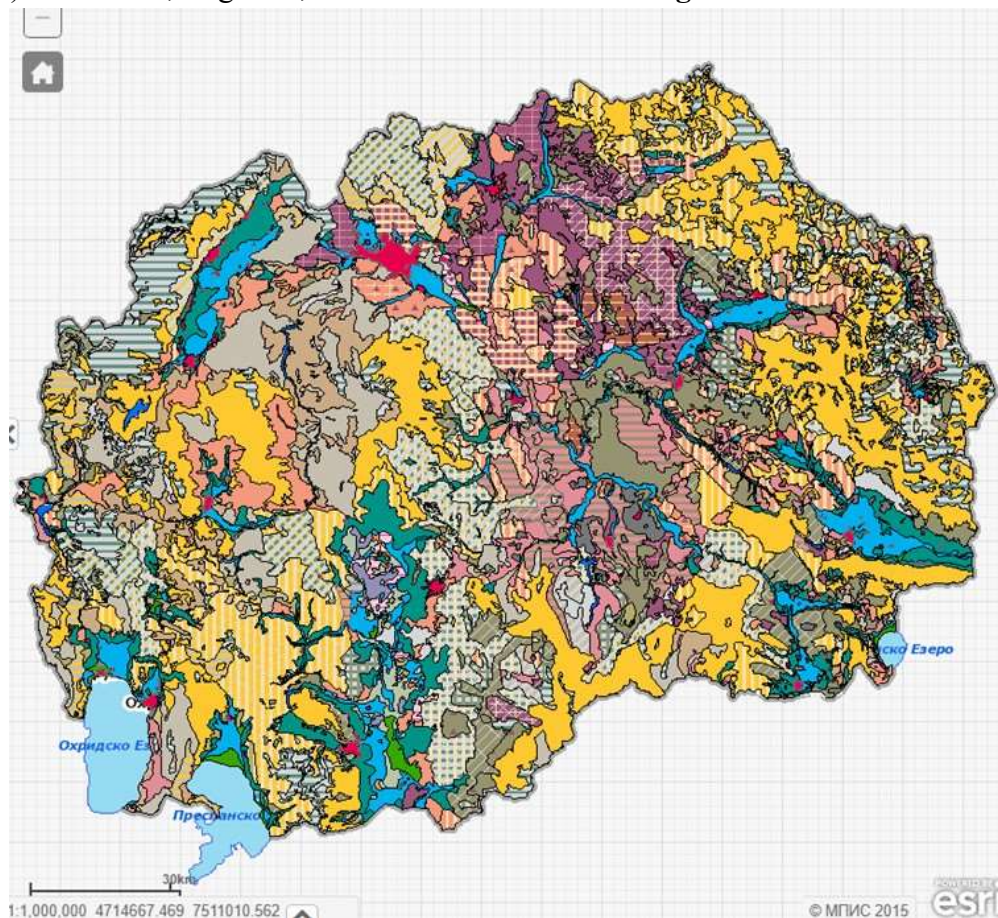




Figure 2.1.5-8. Soil map of the Republic of North Macedonia

Legend

 Варовничко-доломитна црница и Кафеава почва врз варовници и доломити	Complex of Rendzic Leptosol and Chromic Leptic Luvisol on hard limestones	 Рендзина и Регосол	Complex of Humic Calcic Regosol and Regosol
 Варовничко-доломитна црница	Complex of Rendzic Leptosol and Chromic Leptic Luvisol on hard limestones	 Рендзина, Регосол и Лептосол	Complex of Humic Calcic Regosol and Regosol and Leptosols
 Варовничко-доломитна црница и Лептосол		 Рендзина, Регосол и Смолница	Complex of Humic Calcic Regosol and Regosol and Vertisols
 Кафеава почва врз варовници и доломити	Chromic Leptic Luvisol on hard limestones	 Рендзина	Humic Calcic Regosol
 Кафеава шумска почва	Cambisol	 Смолница	Vertisol
 Кафеава шумска почва и Лептосол	Complex of Cambisol and Leptosol	 Смолница и Рендзина	Complex of Vertisol and Humic Calcic Regosol
 Кафеава шумска почва и Регосол	Complex of Cambisol and Regosol	 Смолница, Регосол и Лептосол	Complex of Vertisol, Regosol and Leptosol
 Кафеава шумска почва, Ранкер и Регосол	Complex of Cambisol, Humic Eutric and Umbric Regosol and Regosol	 Смолница, Рендзина и Регосол	Complex of Vertisol and Humic Calcic Regosol and Regosol
 Кафеава шумска почва, Лептосол и Регосол	Complex of Cambisol, Leptosol and Regosol	 Смолница, Циметна шумска почва и Регосол	Complex of Vertisol, Chromic Luvisol on saprolite and Regosol
 Кафеава шумска почва, Ранкер и Регосол	Complex of Cambisol, Humic Eutric and Umbric Regosol and Regosol	 Солена почва	Complex of Solonchak and Solonetz
 Колувијална почва	Kolluvial Fluvisol	 Тресетна почва	Histosols
 Лептосол	Leptosol	 Флувијатилна и Колувијална почва	
 Лептосол врз варовници и доломити		 Флувијатилна и Мочурливо-глејна почва	
 Лесивирана почва	Albic Luvisol	 Флувијатилна и Флувијатилно-ливадска почва	
 Лесивирана почва и Регосол	Complex of Albic Luvisol and Regosol	 Флувијатилна почва	Fluvisol
 Мочурливо-глејна почва	Gleysol	 Циметна шумска почва	Chromic Luvisol on saprolite
 Ранкер	Complex of Humic Eutric and Umbric Regosol	 Циметна шумска почва и Колувијална почва	
 Ранкер и Лептосол	Complex of Rankers and Leptosols	 Циметна шумска почва и Регосол	Complex of Chromic Luvisol on saprolite and Regosol
 Ранкер и Лесивирана почва		 Циметна шумска почва и Лесивирана почва	Complex of Chromic Luvisol on saprolite and Albic Luvisol
 Ранкер и Регосол	Complex of Humic Eutric and Umbric Regosol and Regosol	 Циметна шумска почва, Лесивирана и Регосол	
 Ранкер, Регосол и Лептосол	Complex of Humic Eutric and Umbric Regosol, Regosol and Leptosol	 Циметна шумска почва, Регосол, Рендзина и Смолница	
 Регосол	Regosol	 Циметна шумска почва, Рендзина и Регосол	Complex of Chromic Luvisol on saprolite, Humic Calcic Regosol and Regosol
 Регосол и Колувијална почва	Regosol and Fluvisol	 Циметна шумска почва, Рендзина и Смолница	
 Регосол и Лептосол	Complex of Regosol and Leptosol	 Црвеница	
 Регосол и Смолница	Regosol and Vertisol	 Црвеница и кафеава почва врз варовници и доломити	
		 Чернозем и Рендзина	
		 Чернозем, Рендзина и Смолница	Complex of Chernozem, Humic Calcic Regosol and Vertisol
		 Рендзина и Лептосол	Complex of Humic Calcic Regosol and Leptosol

Source: Project Title: Capacity development on digital soil mapping and development of the Macedonian Soil Information System (MASIS)

Soil fertility

The soil data in the country were obtained from the Macedonian Soil Information System (MASIS), which was developed with financial and technical support from the FAO in 2015, as part of the FAO Technical Cooperation Program. MASIS includes different layers for the country's soils based on historical research and limited sampling in the area. The main soil fertility indicators were determined: soil depth (**Figure 2.1.5-9**), mechanical composition (**Figure 2.1.5-10 a, bc**), reaction of the soil solution (**Figure 2.1.5-11**), CaCO₃ content (**Figure 2.1.5-12**) and organic matter content (**Figure 2.1.5-13**).

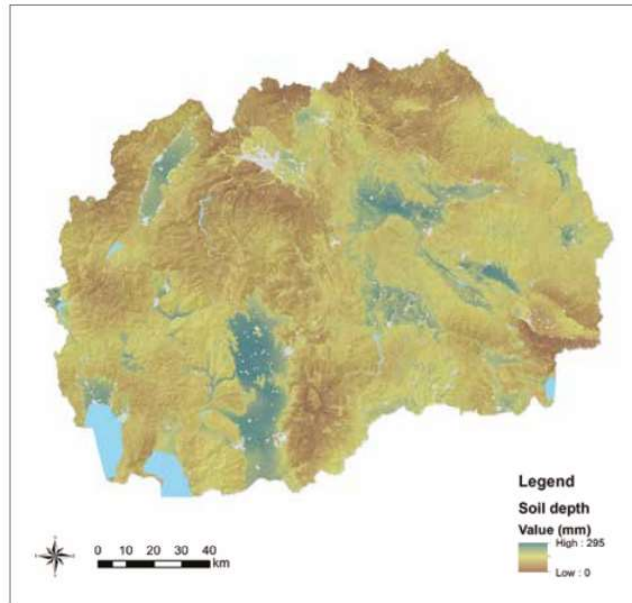


Figure 2.1.5-9 *Depth of soil*

Source: Ivan Mincev (FAO). Map conforms to UN world map, February 2019. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

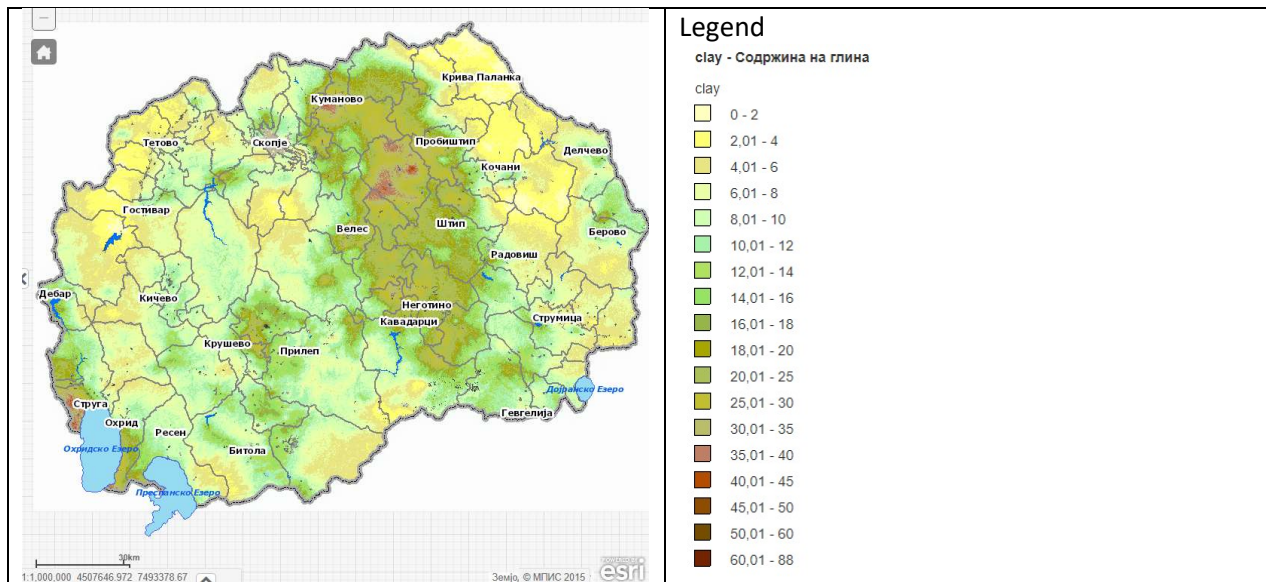


Figure 2.1.5-10 a *Mechanical composition - clay content (%) in soils*

Source: The agro-ecological atlas of the Republic of North Macedonia, 2020

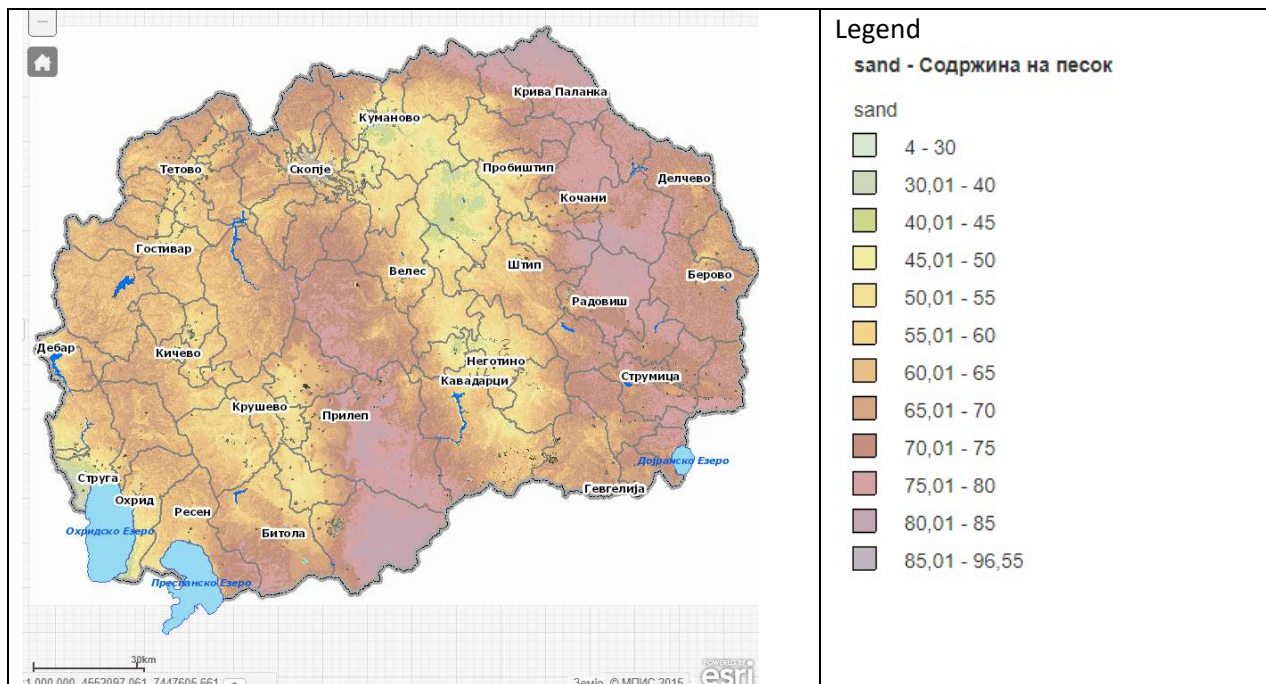


Figure.1.5-10 b Mechanical composition - sand content (%) in soils

Source: The agro-ecological atlas of the Republic of North Macedonia, 2020

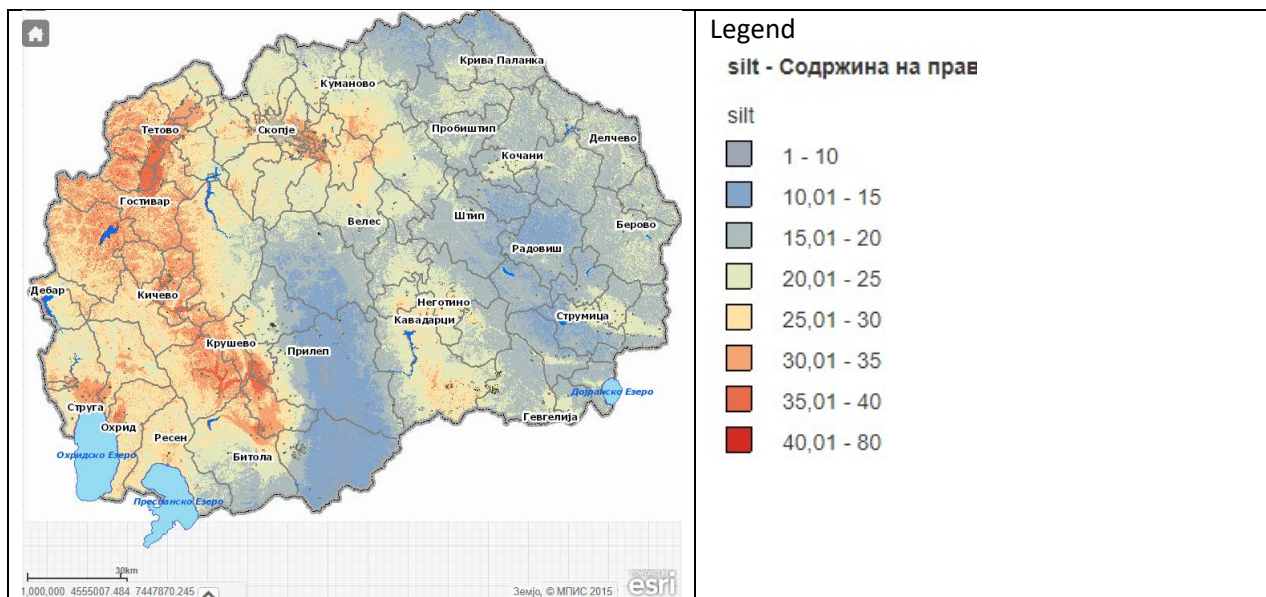


Figure 2.1.5-10 c Mechanical composition - dust content (%) in soils

Source: The agro-ecological atlas of the Republic of North Macedonia, 2020

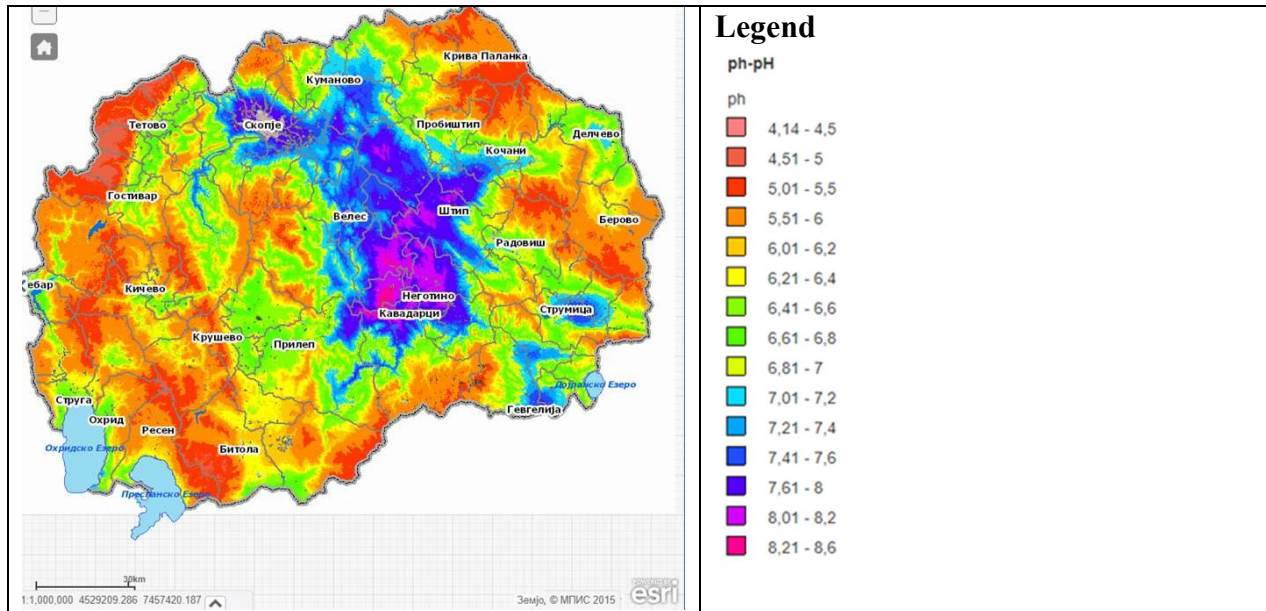


Figure 2.1.5-11 Reaction of soil solution (pH)

Source: The agro-ecological atlas of the Republic of North Macedonia, 2020

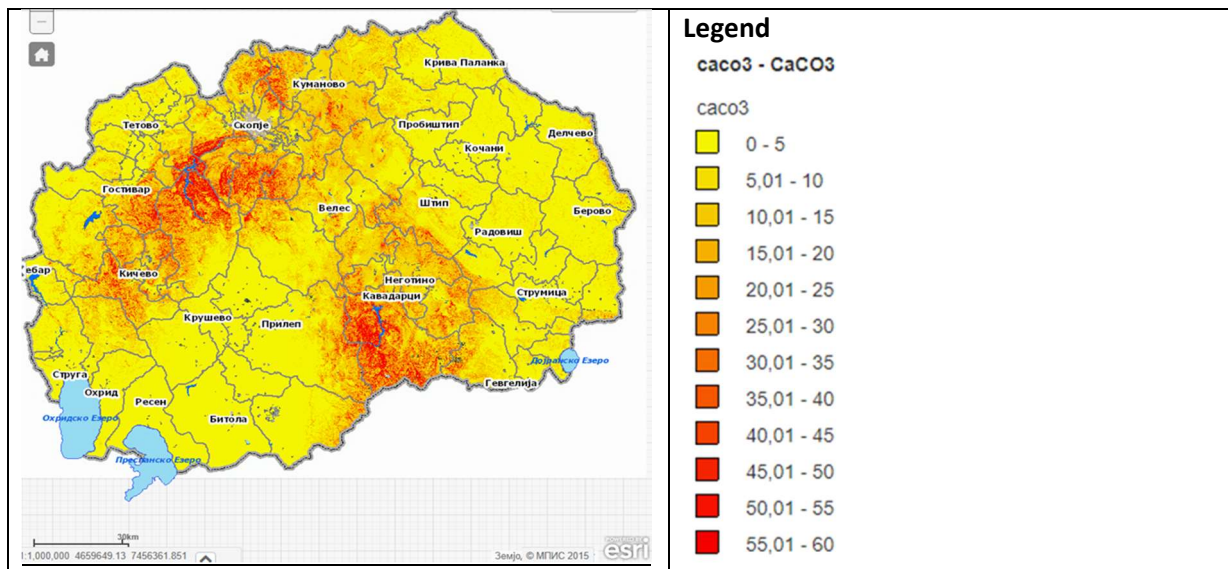


Figure 2.1.5-12 Content of carbonates (CaCO₃) in the soil

Source: The agro-ecological atlas of the Republic of North Macedonia, 2020

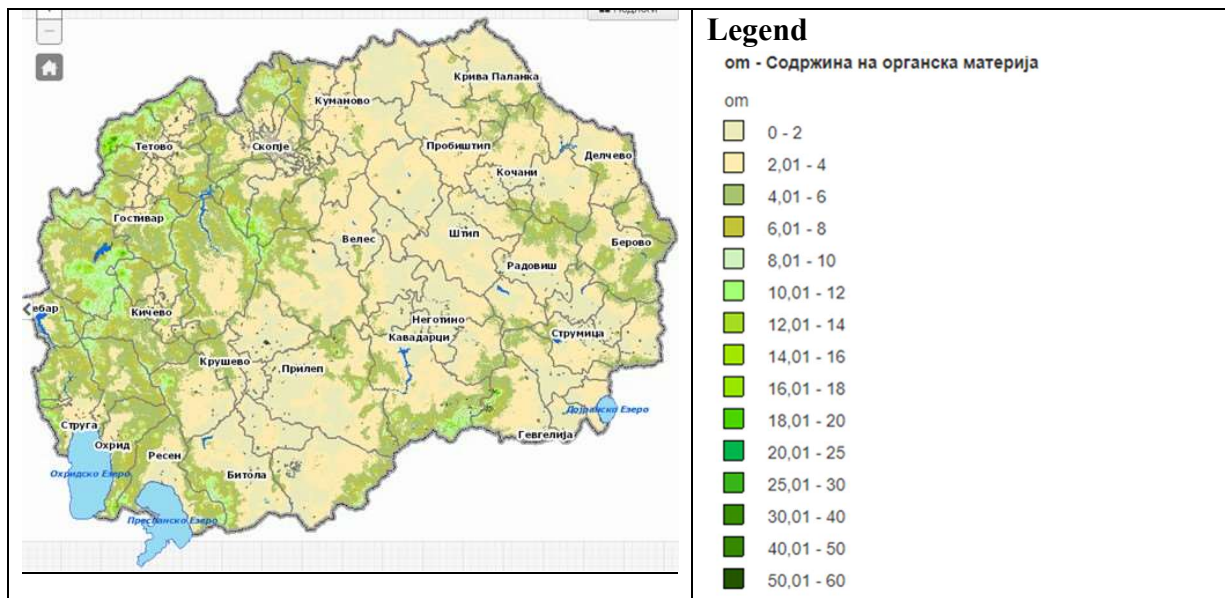


Figure 2.1.5-13 Content of organic matter in the soil

Source: The agro-ecological atlas of the Republic of North Macedonia, 2020

According to data from the *Northeast Planning Region Development Program 2015-2019*, the following soil types are present in the Northeast Planning Region: Vertisols, Alluvial and Delluvial Fluvisols with an average humus content of 1 to 3%. . They are quite poor in phosphorus, but suitable for growing all crops, horticultural crops, as well as for fruit growing and viticulture.

Soil degradation

According to data from the *Northeast Planning Region Development Program 2015-2019*, the deterioration of soil quality in the region is mainly due to:

- Open mines and deposition of ore residues in a large area;
- Inadequate cultivation in agricultural areas, cultivation of crops with intensive application of mineral fertilizers and pesticides;
- Increased and uncontrolled use of pesticides;
- Destruction of soil layers, erosion, destruction of forests and excessive grazing;
- Changes in the physico-chemical structure of soils under the influence of existing industrial facilities, as well as the deposition of sludge from polluted water used for irrigation;
- Use of polluted water for irrigation;
- Inadequate management of waste and wastewater;
- Industrial pollution, etc.

Erosion

Soil erosion is one of the most important environmental problems in the Republic of North Macedonia. The combination of sloping terrain, soil structure and heavy rains, inadequate land use (destruction of natural flora, conversion of pastures for intensive agricultural production, creation of large plots by destroying buffer zones) and agricultural practices (excessive grazing, use of

monocultures, limited application of organic matter, plowing on steep slopes, lack of production techniques for soil protection, insufficient use of land for winter crops) contributes to accelerating the erosion process.

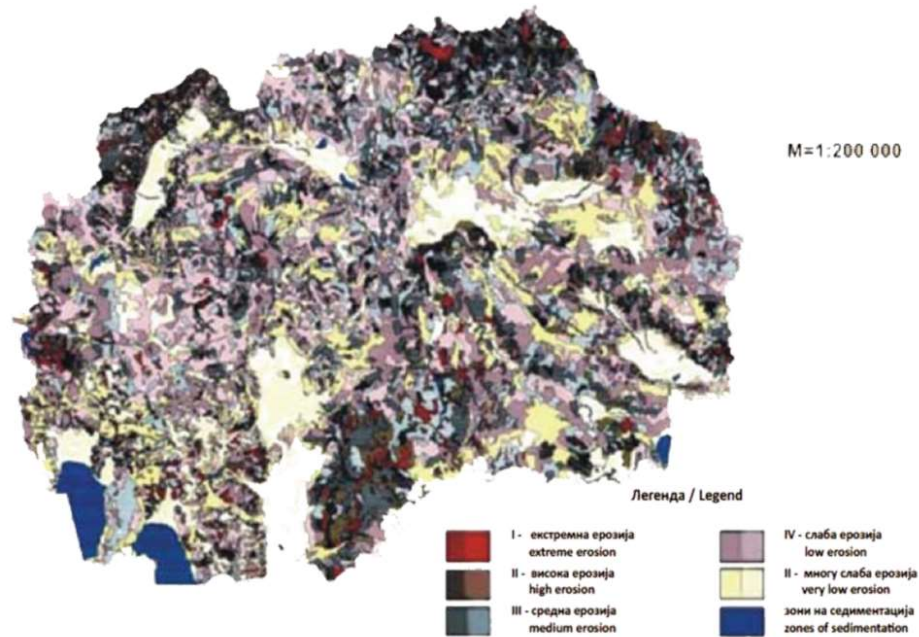


Figure 2.1.5-14 Soil erosion map

Source: Ministry of Environment and Spatial Planning

It is currently estimated that 37% of the country experiences moderate to extreme erosion, with a total annual soil loss of about 17,100,000 m³. As a result of soil erosion, large amounts of sediment fall into artificial and natural reservoirs, leading to reduced storage or flow of water capacity and damage to critical hydraulic infrastructure. Water erosion dominates in the Republic of North Macedonia, as the country is one of the most erosively endangered territories in the Balkans. According to a 1995 report by the European Environment Agency, the Republic of North Macedonia is placed in the so-called *Red Water Erosion Zone in Europe*.

In the Republic of North Macedonia, the largest amount of eroded sediments is in the water management area of Pcinja. The total annual amount of eroded sediments is 2285278 m³/y), while the amount of intercepted sediments is 84555337.0 m³/y. The percentage of sludge collected is 37%.

One of the most famous erosive catchments is the Kamenicka River with an annual production of erosive material of 150,000 m³. According to the erosion map of the Republic of North Macedonia, the territory is divided into 5 classes according to the intensity of erosion - from class I, which is extreme erosion to class V - very low erosion.

Landslides

There are three active landslides in the area of Kratovo, and one active landslide in the area of Kochani. There are three torrential points in the area of Kriva Palanka, and four in the area of

Delchevo. There are dangers in the northeastern region from fires mainly in the area of Kratovo and Kriva Palanka, but also in the area of Kumanovo-Lipkovo.

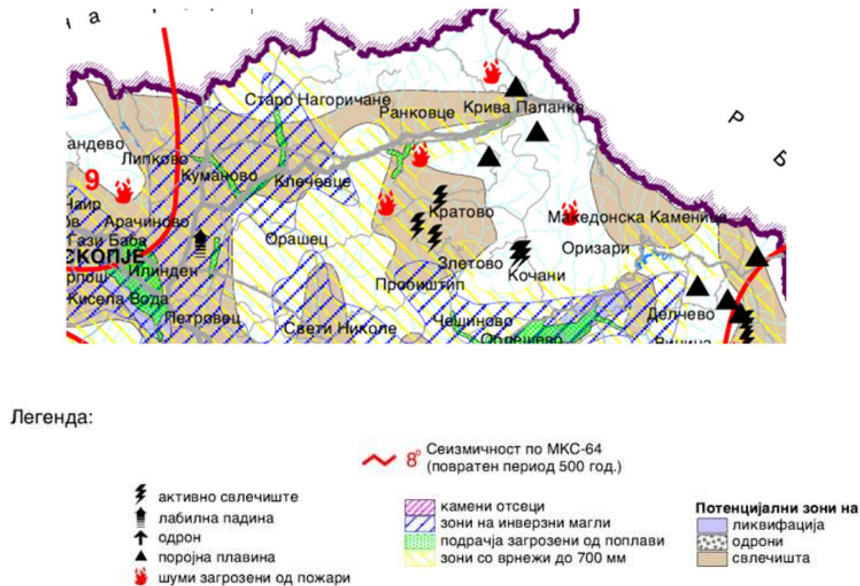


Figure 2.1.5-15 Potential of natural hazards in the northeastern planning region

Mines discovered and ore deposits deposited in a large area

Taking into account the geological characteristics of the Osogovo Mountain in the region, in the Northeast region there are several deposits of lead-zinc ore, which are exploited, as they are a source of soil contamination with heavy metals (Pb, Zn).

Acidification and salinization

Acidification as a type of soil degradation in the Republic of North Macedonia is insignificant. It is very poorly studied, with no data on the effects of acid rain on soils.

Due to climatic conditions and other factors related to soil acidification, this type of soil degradation (salinization) is insignificant. In the driest region of Ovce Pole there are (eastern northern Macedonia) 11,000 hectares of naturally saline soils. It is a fact that irrigation, especially in dry areas, leads to increased salinity, but due to the lack of monitoring or research, the intensity, amount and condition of salinity cannot be precisely determined.

Desertification

As a result of climate change, about 75.6% of the territory of the Republic of North Macedonia shows signs of drought or semi-drought. This leads to desertification, loss of biodiversity and increased erosion processes (**Figure 2.1.5-16**).

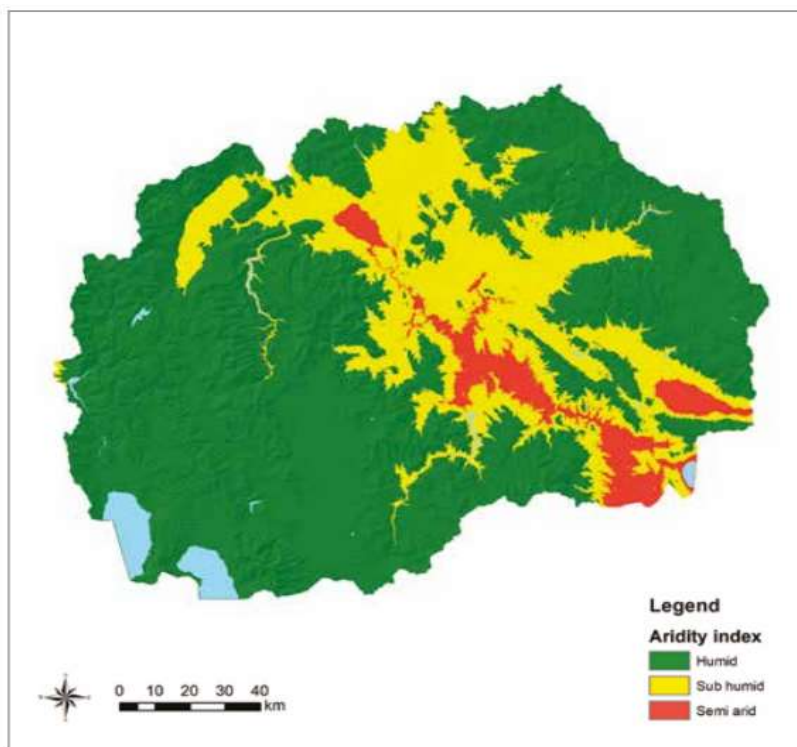


Figure 2.1.5-16 Soil drought index

Source: Ivan Mincev (FAO). Map conforms to UN world map, February 2019. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement

Violation of land - transport infrastructure

The new CBC "Klepalo" has been built to a significant extent, incl. the complex of engineering infrastructure and buildings, as well as the access road have been built.

Deforestation

With the destruction of forests in northern Republic of North Macedonia, pastures, arable land, but also bare lands are being created. An important component in this type of soil degradation is the reduction of plant residues, humus and nutrients and the reduction of natural soil fertility.

Pollution

In terms of economic activities that contribute to soil pollution, expressed as a percentage, the share of mining and metallurgy is the largest with 31.25%, followed by the biochemical industry and energy production with 12.5%, and refining of oil and leather industry by 6.25% (**Figure 2.1.5-17**).

There is a possibility of soil contamination as a result of the use of fertilizers and pesticides, organic pollutants, heavy metals and oils in the various branches of the farm, but the official sources do not contain information on a permanent and long-term soil monitoring system. Pollution from household, industrial and hazardous waste is mentioned. However, even in this case, research and data are lacking in order to more accurately assess the situation and problems with the level of soil pollution.

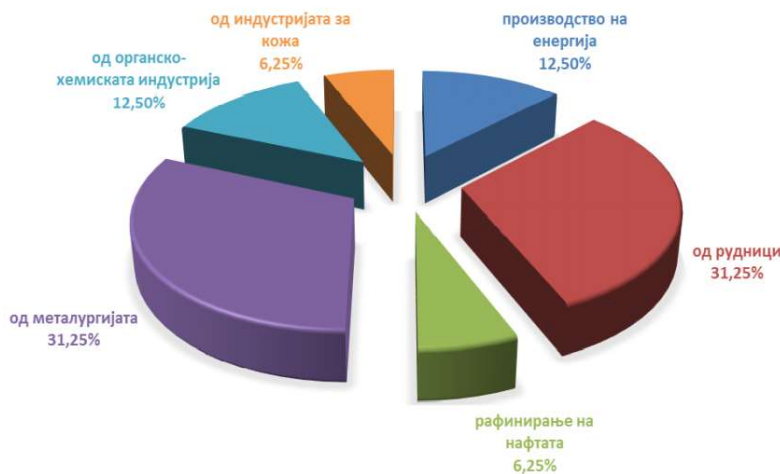


Figure 2.1.5-17 *Percentage share of economic activities in soil pollution*
Source: Ministry of Environment and Spatial Planning

Industry

Industry generates large amounts of waste. This is especially true for ferrous and non-ferrous metal processing plants and solid fuel combustion units (thermal power plants).

According to data from „*Strategic Environmental Assessment Report for the Energy Development Strategy in the Republic of North Macedonia until 2040*“ sources of soil freezing with ash and slag depots.

Activities after combustion of excavated fuels in the assemblies of mining and energy plants Bitola and Osłome lead to the generation of waste from blue ash and slag. These wastes are deposited in areas close to the generation site (power plants).

The ash and slag depot of the Bitola Mining and Energy Combine covers an approximate area of about seven square kilometers. On average, more than 1,000,000 tons of ash and slag are generated annually during the operation of the three blocks and so much is wasted annually on this site. According to the work plans, the rehabilitation is carried out as soon as possible, when the final contours of the depot are formed. From 2017 by the end of 2025 The volume of the ash will reach about 9 000 000 t.

The ashes from TPP "Osłomej" - Kicevo are deposited on a depot - solid, located 400 meters north of TPP "Osłomej", where the old and the new depot are settled. Annually 100 000 - 150 000 t of ash and slag are generated. The old depot borrows 10 hectares, while the new depot was built on 18 hectares. The expanded new depot is with an area of 27 ha. The depot has a capacity of 3.5 million. m³. The existing method of ash deposition is not as effective as the high dust emissions due to the inclination of the depot, nor with respect to the stability of the inclination.

Industrial activities generate liquid waste, often in the form of high-oil oils and emulsions. There is no clear waste management policy.

Several places have been identified as sources of waste. The quantity of waste generated and the sources of waste waste should be determined in order to plan vigilant activities for their proper disposal and management.

Acquisition of useful excavations has a negative and sloping negative effect on the soil, expressed by complete destruction of the productive functions of the soil, creation of negative and positive relief forms with actively resisting erosion processes and contamination.

Industrial hotspots have been identified as probable sources of soil freezing, but lack of information on species and concentrators of freezers.

Two industrial "hot spots" have been identified in the Northeast region:

- Intended complex facility - chrome/antimony mine "Lojne" in the municipality of Lipkovo, with a total of 1,000,000 m³ of waste deposited and a floor area of 95,000 m². This industrial hotspot is categorized as medium risk for the surrounding environment;
- Intended tangled object - lead and zinc mine Toranica in Kriva Palanka, which is all categorized as a hotspot with medium risk for the surrounding Wednesday. From the distribution of the hot spots by regions it can be noted that in the northeast, east and lowest-regions there are 2 hot spots each.

One hotspot has been identified in the North-East region.

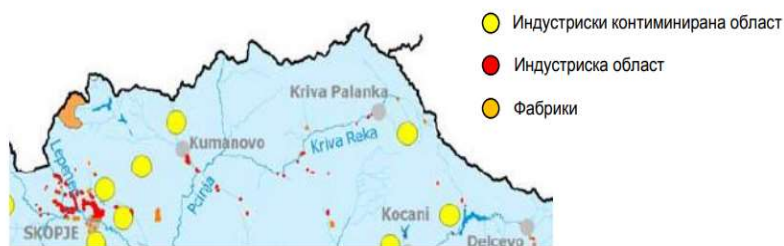


Figure 2.1.5-18 *Industrial freezing in the Northeast region*

The following industrially polluted sites have been identified in the East region - "hot spots":

- Lead / zinc mine in Toranica, municipality of Probistip;
- Zletovo lead / zinc mine municipality Probisip;
- Municipality of Makedonska Kamenica, Sasa lead / zinc mine.

Summary information on industrial sources of soil pollution by regions is presented in Figure Summary information on industrial sources of soil pollution by regions is presented in **Figure 2.1.5-19**:



Source: Sectoral Analysis of Animal Environment 2020

Figure 2.1.5-19 Industrial hotspots by region in the Republic of North Macedonia

No specific data are available on the levels of soil contamination with heavy metals, metalloids, RAS, petroleum products.

The Radovish-Kone micro-region of the South-East region is characterized and known for its deposits and use of mineral non-metallic raw materials such as decorative stones used for construction and decoration. This material is recognizable and used throughout the country.

Among the mineral raw materials in the municipality of Radovish there is iron-zinc ore, copper, gold, silver, chromium and uranium, and in the municipality of Kontse there is limestone, marble and copper. The Buchim mine in the Radovish region has total reserves of 120 million tons and an annual production of 50,000 tons of copper concentrate and one ton of gold. In 2021, the Buchim 2 mine in Borov Dol, Konetz should start operating.

In the Strumica micro-region, the Hamzali fieldwork mine with an annual production of 40,000 tons is sodium in nature and is the only one in the Republic of North Macedonia and the Balkans. The Memeshli marble limestone mine is one of the few in the country that exploits this type of mineral.

In recent years, numerous studies have been carried out on the Ograzhden mountain near the village of Ilovitsa and deposits of copper and gold have been discovered.

According to (*SEIS Country Report Republic of Macedonia, final version. June 2018*) there is no systematic measurement, monitoring and control of the condition, quality and changes in the soil as an environment for the environment in the Republic of North Macedonia. There is no comprehensive strategy and national policy for the management of contaminated sites or specific legislation to regulate the investigation and clean-up of contaminated sites.

According to the *National Strategy for Nature Protection (2017-2027)*, Ministry of Environment and Spatial Planning of the Republic of North Macedonia, there are a number of threats to the soils from the territory of the Republic of North Macedonia.:

- **Exploitation of mineral resources**

- Opening new or expanding existing mines for metallic or non-metallic ores, quarries, coal mines, exploitation of mineral and thermo-mineral waters, etc.);
- Transport and processing of mineral raw materials (deposition of dust emissions containing heavy metals and toxic elements);
- Filtering of harmful materials from landfills and sludge storages (tailings);
- Major accidents at landfills / sludge / tailings;
- Wet deposits of polluted air;
- Spills of polluted surface waters;
- Negative impact on soil quality in the wider areas around the mines;
- Activation of erosion processes and landslides.

- **Illegal exploitation of mineral resources**

The illegal approach to the exploitation of mineral resources (sand and gravel) has many negative effects not only on geological reserves but also on soil. As a result of such exploitation, *disturbances of natural river or lake shores occur, which are associated with losses of land (soil), activation of erosion processes and landslides on coastal lands.*

- **Construction of landfills**

- Landfills as waste storage facilities pose a significant threat to soils;
- Construction of landfills near arable land.

- **Immersion or burial**

As a result of the formation of artificial reservoirs or facilities for storage of mining waste (tailings ponds, sludge storages) on lands with high fertility.

- **Abandoned mines or tailings ponds**

- Leaving some mines after the end of the period of operation and their improper closure (reclamation) can have a strong negative impact on the soil;
- The same threat comes from leaving old tailings, sludge and inert landfills without reclamation activities.

- **Exploitation (legal or illegal) of wood resources**

- Destruction and loss of soil resources as a result of full or excessive exploitation (legal or illegal) of wood resources and activation of erosion processes.

In general, the numerous soil threats listed cause the following adverse effects:

- Degradation (mechanical disturbance, immersion or destruction of natural soils). In many cases, these processes are irreversible, ie. the loss of land and soil is permanent. These consequences are mainly related to construction and technical (construction of roads, dams, facilities) and operational threats (mines, mines, quarries), but also

to threats from tourism (tourist centers, ski and other trails), geohazards , avalanches, floods), etc.

- Acceleration of the intensity of erosion and accumulation of sediments (eroded sediment) with the appearance of anthropogenic relief forms, leading to complete removal or burial (burial) of soils.

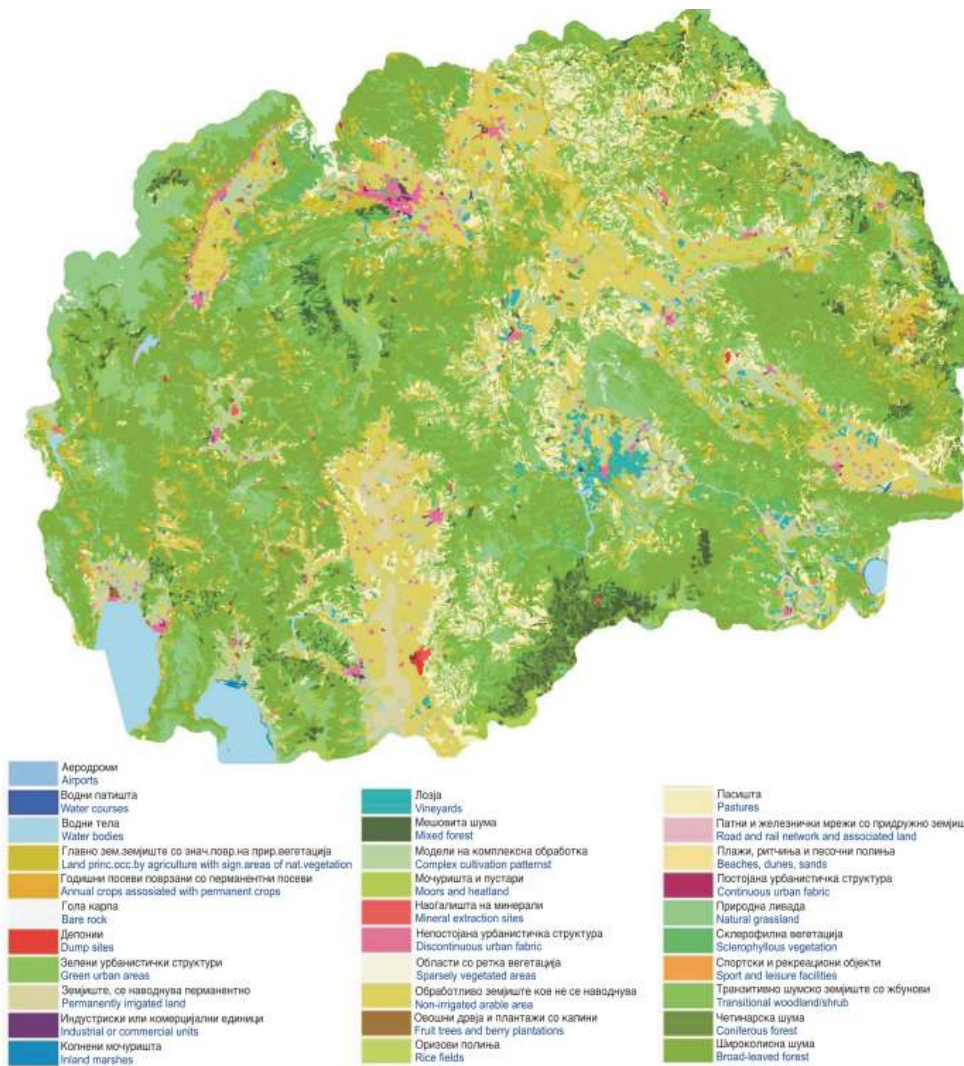
These processes are widespread in the Republic of North Macedonia and have a significant negative impact not only on nature (particularly soil), but also on socio-economic and demographic conditions..

Land use

According to the nomenclature of CORINE Land COVER, the highest percentage is of forest and semi-natural areas, covering 15,770 km², or 61.3% of the total area. Agricultural lands occupy 9,248 km² or 36% of the total area, water bodies - 577 km² or 2.2% of the total area, urban areas occupy 464 km² or 1.8% of the total area and the smallest area is occupied by swamps - 22 km² or 0.1% of total area - **Figure 2.1.5-20**.

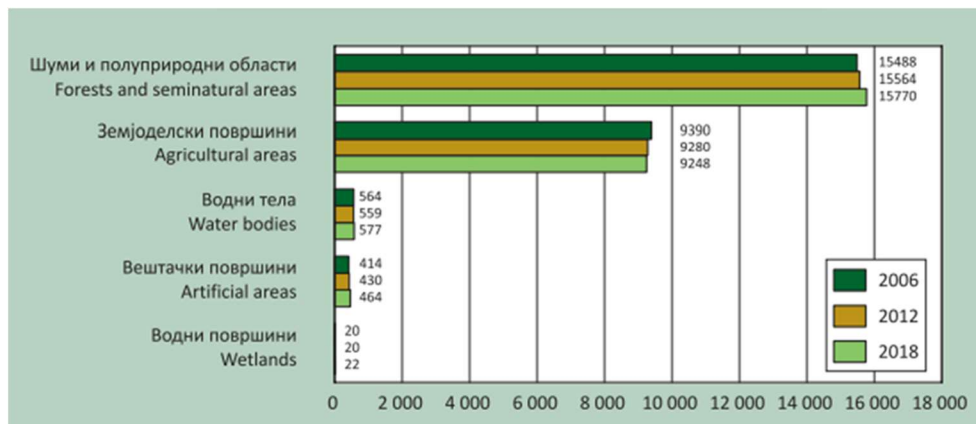
For the period 2012-2018, a territory of about 28,985 ha or approximately 1.13% of the total territory has been utilized in the country. For the period 2002-2018, the main changes are related to urban areas, as they have increased by 2,302 ha.

Another negative trend is the reduction of the area of agricultural land by 1,996 ha. The other changes are insignificant - reduction of water bodies by 24 ha, increase of wetlands by 32 ha and reduction of forest areas and semi-natural lands by 288 ha - **Figure 2.1.5-21**, which shows the areas in km², level 1 of the nomenclature , compared to 2000, 2006, 2012 and 2018.



Извор: Министерство за животна средина и просторно планирање
Source: Ministry of Environment and Physical Planning

Figure 2.1.5-20 *Distribution of land cover on the territory of the Republic of North Macedonia*



Source: Ministry of Environment and Spatial Planning

Figure 2.1.5-21 *Areas of the types of land cover according to level 1 of the nomenclature, in km²*

The distribution of land by categories of use shows that throughout the period (reference years 2000, 2006 and 2018) there is a constant decrease in natural areas, mainly agricultural, 64% of total changes and forest land, 33% of total changes, while in the same time at their expense there is a constant increase in artificial surfaces (**Figure 2.1.5-22**).

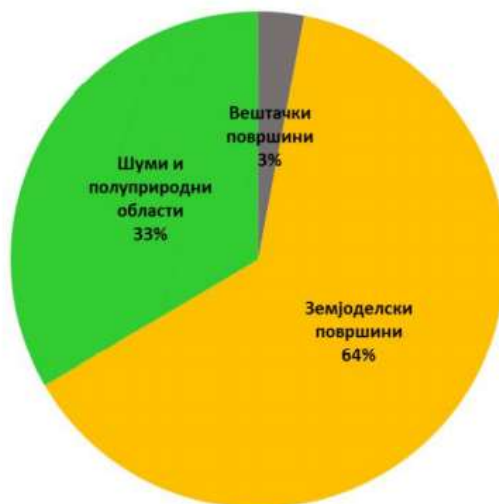


Figure 2.1.5-22. Percentage of level 1 categories transformed into urban and other construction (2012-2018.)

Source: Indicator report on the environment of the Republic of North Macedonia. Skopje, 2020

Suitability of land - agriculture and forestry

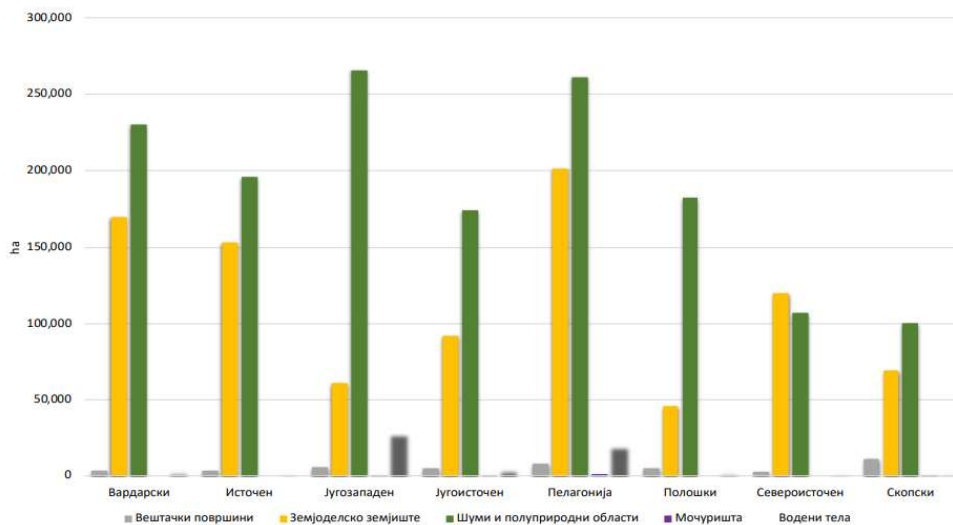


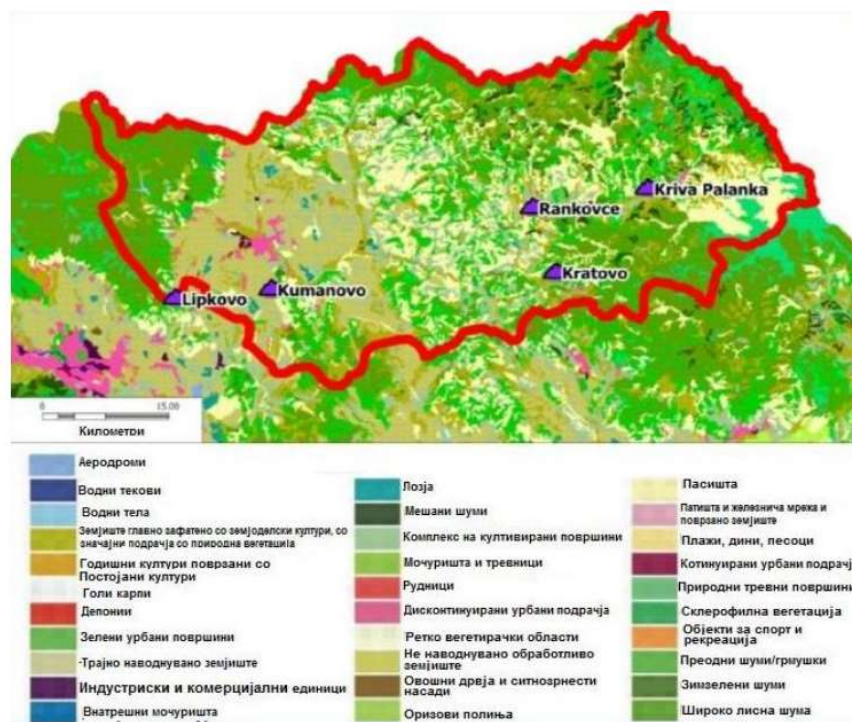
Figure 2.1.5-23. Land area by statistical regions (NUTS3) according to the nomenclature of CORINE land COVER, ha

Within the **Northeast region** there are a total of 143,693 ha of agricultural land, of which 54.56% or 78,405 ha are arable land, while 45.44% or 65,281 ha are pastures. The total arable land consists mainly of arable land and gardens (82.15%) or 64,410 ha, 1.68% orchards or 1321 ha, vineyards 1.92% or 1508 ha and meadows 14.24% or 11,166 ha (**Figure 2.1.5-24, Table 2.1.5-6**).

Compared to other regions, the North-East region is in second place in terms of total arable land, behind the Pelagonia Region, only 221 ha more than the East Region, which is in third place. This in fact shows that the north-eastern region has a large arable land that can serve as a strong potential for agricultural development.

Table 2.1.5-6. Land use in the "East", "North East" and "East" regions, 2016 - Republic of North Macedonia)

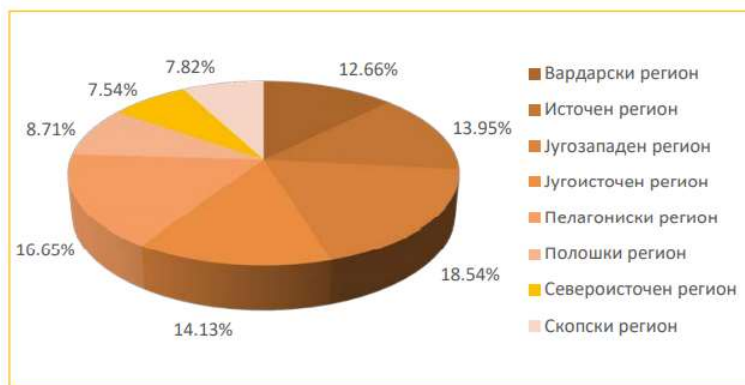
Region	Number of individual agricultural holdings	Total area	Used agricultural land				Other lands
			Total used land	Owned land	Leased for use	Unused land	
Total for the country	178.125	366.462	320.738	217.557	103.181	23.826	21.898
Eastern	26.003	56.205	46.949	34.386	9.563	4.639	7.618
(%)	14.60	15.34	14.64	15.81	9.27	19.47	34.79
Southeast	25.323	38.813	32.995	22.452	10.543	4.39	1.428
(%)	14.22	10.59	10.29	10.32	10.22	18.43	6.52
Northeast	22.083	49.313	43.263	33.396	9.867	3.37	2.68
(%)	12.40	13.46	13.49	15.35	9.56	14.14	12.24



Source: North East Planning Region Development Program 2015-2019

Figure 2.1.5-24 Land use in the Northeast region

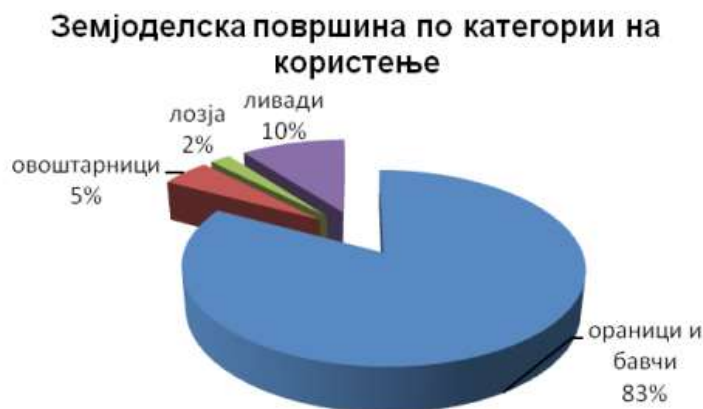
The share of mountains in the territory of the Northeast region is insignificant, as it covers the mountainous areas, compared to other regions it is only 7.54%. This places the Northeast region at the last place in the mountainous regions, directly following the region of Skopje, which is 7.82% (Figure 2.1.5-25).



Source: State Statistical Office and own calculations

Figure 2.1.5-25 Forest area by region in 2019 in ha

The eastern region covers the territories of the plains in Kochani and Shtip and the surrounding municipalities, as well as the mountainous regions of Malesh and Pianets. There are a total of 177,633 ha of agricultural land, of which 43.26% or 76,818 ha are arable land, and 56.74% or 100,784 ha are pastures. Predominantly in this region the arable lands are arable land and gardens 63 621 ha, orchards - 3710 ha, vineyards 1562 ha and meadows 7925 ha. The distribution of agricultural land by categories of use is shown in **Figure 2.1.5-26** and in **Table 2.1.5-6**.



Source: State Statistical Office

Figure 2.1.5-26 Ground floor by categories of use

The agricultural land in the **southeastern region** covers an area of 115,517 ha or 9.1% of the total area of the site. The pastures cover 54,695 ha, ie. borrow 47.3% of the individual land in the region or 7.4% of the total area under pastures in the country.

The landowners and gardens participate in the structure of the cultivation with 82%.

Favorable pedoclimatic conditions allow the development of horticulture, especially the cultivation of early vegetable crops.

Areas under forest and forest lands in the east planning area borrow 144 067 ha or 52% of the total territory of the region, ie. 14.13% of the total area under the mountains on the side. Separately, the share of the broadleaf mountains is the largest, with contributions of 16.3% at the state level. At the level of the Eastern region, broadleaf forests dominate with 67.3%, followed by mixed forests with 22.1%.

The percentage of agricultural land in the *southeastern region* is shown in **Table 2.1.5-6**.

According to data from *Environmental Indicator Report of the Republic of North Macedonia, Skopje 2020* in the Republic of North Macedonia, migration between villages and towns leads to rapid urbanization, rapid expansion of some settlements, as there is no control over what land is used to build certain facilities. Namely in the period from 2000. by 2018 there is an increase in urban areas by 15%, which leads to permanent sealing of the land. In addition, there was a decrease in agricultural land by 8.4%, a decrease in forest and semi-natural areas by 6.6% and water bodies by 10.6%.

The changes of natural surfaces from one to another and especially the change from natural to artificial surfaces and vice versa there are several factors that must be taken into account:

- Agricultural areas are mostly close to urban areas and are therefore most vulnerable to their spread.
- Due to the transformation of agricultural areas from large properties into smaller private properties, some of the areas, mainly due to non-cultivation, are modified into forest areas and / or in their transitional stages.
- The reduction of forest areas is largely due to strategic infrastructure facilities, mainly public roads, so measures are taken to reduce environmental impact in such situations.

The legal framework for nature protection is enshrined in the Constitution of the Republic of Macedonia (Official Gazette of the Republic of North Macedonia № 52/91 and amendments I-XXXII). The Constitution provides for the right to a healthy environment (Article 43 (1)); every citizen has a duty to promote and protect the environment and nature (Article 43 (2)); and defines the natural resources of the earth, flora and fauna as goods of general interest which have special protection (Article 56 (1)); and certain goods of common interest to the country may be disposed of in a manner and under conditions determined by law (Article 56 (3)).

Framework Law on the Environment (Official Gazette of the Republic of North Macedonia № 53/05, 81/05, 24/07, 159/08, 83/09, 48/10, 124/10, 51/11, 123/12, 93/13, 187/13, 42/14, 44/15, 129/15, 192/15, 39/16) includes basic principles for environmental protection, on the basis of which the appropriate procedures for environmental management are regulated.

Summary of the condition of soils and land use:

The soils of Blagoevgrad and Kyustendil districts are in good ecological condition, both in terms of nutrient reserves and in terms of pollution with heavy metals and metalloids. Increased

urbanization is reflected in the destruction of agricultural land for non-agricultural purposes. Contamination or destruction of the soil cover has a local (point) nature.

The soils in the Northeastern, Eastern and Southeastern regions of the Republic of North Macedonia are very diverse. They are subject to various types of influences, such as: destruction of non-agricultural land as a result of increased urbanization, industry / energy, transport; erosion, soil pollution (landfills, agriculture, mining), tourism, floods, forest fires, etc. The consequences of them are: sealing of the soil and changes in soil functions; soil erosion; local and diffuse pollution; soil acidification; desolation.

2.1.6. Biodiversity status

➤ Blagoevgrad and Kyustendil districts (Republic of Bulgaria)

General data on biodiversity in Bulgaria

The characteristic geographical position of the country, in combination with the complex paleogeographical and paleoclimatic past, the diverse relief and climate, the presence of freshwater basins and the Black Sea outlet, as well as the formed diverse landscapes and geosystems are the main determining factors for the rich diversity and natural habitats in Bulgaria. According to the adopted in connection with the requirements of Directive 92/43 / EEC (Habitats Directive) and the Emerald Network established under the Berne Convention biogeographical zoning of Europe, the territory of Bulgaria falls within the Alpine, Continental and Black Sea biogeographical regions.

The great diversity of climatic, geological, topographic and hydrological conditions in Bulgaria predetermines one of its first places in Europe in terms of richness of biological diversity, which is represented by:

- *Lower plants*. The analysis of the scientific works and the published data on the algae flora of Bulgaria for the period 2014-2018 shows that new data have been accumulated on the composition and distribution of algae in the country, which lead to an increase in the number of established taxa; a total of 5,493 species of algae, varieties and forms of 777 genera and 9 divisions have been identified. The number of taxa of algae included in the Red List of Microalgae represents 14% of their total biodiversity in Bulgaria, and together with the taxa of the Red List of Macroalgae, all conservationally important species of algae in the country make up 15% of the total biodiversity;

- *Moss flora*. The Bulgarian moss flora numbers 705 species, which is over 40% of the moss flora of Europe, of which 83% are found in Rila and Pirin. Of these, 251 species are included in the Red List of mosses in Bulgaria;

- *Higher flora*. According to current data, a total of 4064 species of higher plants belonging to 921 genera and 159 families have been identified in Bulgaria. As a result of the floristic researches conducted in the last years, 127 species have been registered in the country (51 of them are foreign) and 11 species have been described, which are new for science. Seventeen subspecies have also been reported for the first time to the country, two of which are new to science. The largest in number of species are the family Asteraceae (Compositae) with about 480 species, Poaceae with about 330 species, Fabaceae - about 290, Caryophyllaceae - 260, Rosaceae- about 210, Brassicaceae - 183, Scrophulariaceae - 156. The genus Hieracium s.l. (Runyanka) differs from the plant genera in our country with a special species richness of about 80 species, Carex (Ostritsa) with about 66 species, Centaurea - about 65, Trifolium -60, Silene - 50, Verbascum (Lopen) - 45, and others. (Petrova et al., 2005). The largest number of species in our flora, about 3330, are spontaneously

distributed in the plains and mountains of the country in more or less natural or man-made habitats. They form the group of indigenous plants. More than 500 species of 93 families, mainly perennial herbaceous plants, shrubs and trees of this group, are dominant and subdominant in plant communities. These are mainly representatives of the families of cereals, sour grasses, legumes, complex flowers, roses and others. (Apostolova, Slavova, 1997). With a small number of species, but with a decisive role as dominants and edificators in mountain ecosystems, are tree representatives of the families Aceraceae, Fagaceae, Pinaceae, Tiliaceae with the participation of co-dominants and assectators from Betulaceae, Cornaceae, Oleaceae, Rosaceae, Salicaceae, Ulmaceae and others. The biological spectrum of the Bulgarian flora is dominated by herbaceous perennials and annuals, a total of about 3540 species. Trees (88 species), shrubs (236 species) and semi-shrubs (35 species) form the group of phanerophytes. Stara Planina and the Rhodopes have the richest phanerophytic flora with 210 species each, or 58% of the variety of trees and shrubs in the country is represented in these mountains. The phanerophytes in Rila are 164 species, in Vitosha - 148 species. In the mountains, the greatest species richness of trees and shrubs in the belt of xerothermic, mesophilic and xeromesophilic oak and hornbeam forests, whose upper limit reaches about 900 (1000) m above sea level (Including Strandzha, Sakar and Eastern Rhodopes, which are within the scope of the considered program).

The largest number of species in our flora, about 3330, are spontaneously distributed in the plains and mountains of the country in more or less natural or man-made habitats. They form the group of indigenous plants. More than 500 species of 93 families, mainly perennial herbaceous plants, shrubs and trees of this group, are dominant and subdominant in plant communities. These are mainly representatives of the families of cereals, sour grasses, legumes, complex flowers, roses and others.

Slightly more than 500 species of trees, shrubs and herbaceous plants are limited in the Bulgarian flora. Some of them are Bulgarian or Balkan endemics, others are rare plants, a remnant of ancient flora or species whose main habitats are outside Bulgaria. In our country they have a small number of populations, sometimes in single localities, often in the border floral regions of the country or in the high mountains. Many of these species included in this edition are protected by the Biodiversity Act in Bulgaria. The specificity of the Bulgarian flora is largely determined by the Bulgarian and Balkan endemic plants. These are 498 species or 12.8% of the species richness of the country. The Bulgarian endemics are 186 species, the Balkan - 312. Particularly rich in endemic species are the larger families, such as: Asteraceae, Scrophulariaceae, Caryophyllaceae, Poaceae, Borraginaceae, Liliaceae, Ranunculaceae and others. (Petrova et al., 2005). With a relatively large number of endemics are genera such as Anthemis, Arenaria, Centaurea, Chamaecytisus, Colchicum, Erysimum, Festuca, Poa, Verbascum, as well as genera characterized by wide intraspecific and interspecific variability with local processes of introgressive hybridization in polyploid and agamic complexes, such as: Achille, Alchemilla, Hieracium, Viola, Taraxacum and others. Most endemics have small habitats, some species are very limited in distribution, with small populations and a high degree of threat. Most Bulgarian and Balkan endemics are found in the Rhodopes, Pirin, Rila, Stara Planina. Endemic plants are an emblematic symbol of the Bulgarian flora and one of the most sensitive and vulnerable units in the natural ecosystems of the country.

The Red List of Higher Plants in Bulgaria includes 801 species (almost 20% of the higher flora), of which 557 species are included in Annex 3 of the BDA.

Another group of plants, about 560 species, are weeds and ruderals, most widespread in places altered by human activity. Some of them are in their present habitats for millennia, associated with the development of human culture since the early settlement of the Bulgarian lands. Others, such as *Datura stramonium*, *Galinsoga parviflora*, *Impatiens glandulifera*, *Malcolmia africana*,

Oxalis dillenii, *Xanthium spinosum* result of the relocation and migration of people and animals, the development of trade and tourism, processes that continue today. The latter category also includes the so-called invasive species, which migrate rapidly and occupy free habitats or displace indigenous species.

- *Fungal organisms*. Fungal-like organisms (oomycetes, hyphochitrids, etc.) are isolated in the kingdom *Straminipila* on the basis of the structure of the cell wall, flagellate apparatus, mitochondria, biochemical traits and molecular biological data. True fungi (chitrids, zygomycetes, glomerulomycetes, non-lichenized and lichenized marsupial fungi and basidiomycetes) are included in the kingdom of *Fungi*. Fungi can be characterized as eukaryotic, heterotrophic organisms that absorb nutrients from the environment in dissolved form. Due to the specifics of their diet, they are closer to the animal kingdom than to the plant kingdom (Denchev et al., 2005).

The table below presents the assessment of mycota in Bulgaria by taxonomic groups.

Table 2.1.6-1 Assessment of mycota in Bulgaria by taxonomic groups

Evaluation of the mycosis of Bulgaria	
Taxonomic groups	Species, number
Oomycetes, hyphochitrids, hytrids, zygomycetes	> 180
Ascomycetes (non-lichenized and lichenized)	> 1 600
Basidiomycetes	around 1 600
Urediniomycetes	374
Ustilaginomycetes	118
Anamorphic fungi	> 1 000
Commonly identified species	> 4 870

Vulnerable, 14 species almost endangered and 19 species with insufficient data) are included in the second edition of the Red List of Fungi as conservationally important species. The number of conservationally significant species of mushrooms, which are included in the Red Book of the Republic of Bulgaria, is 149 species, of which 37 are critically endangered, 104 are endangered and vulnerable -8.

- *Invertebrates*. Currently, more than 30,360 species belonging to 251 orders and more than 1,740 families have been identified in Bulgaria. It is estimated that these are about 50% of invertebrates in the country. In the Red Book are included with separate articles and 51 species of invertebrates, of which 39 species are "Critically Endangered", and in Annex 3 of the BDA are included about 40 species. In general, the Bulgarian invertebrate fauna is insufficiently well studied. Only some unicellular (shell rhizopods), some parasitic worms (trematodes, cestodes, nematodes, acanthocephali), vertebrates, crustaceans, arachnids, millipedes, mollusks and individual orders of insects, beetles, roaches, butterflies, etc.). The number of species, classes and classes of the different types of invertebrates found so far in Bulgaria is presented in the table below:

Table 2.1.6-2 Faunistic diversity of invertebrates in Bulgaria

Types*	Classes(Qty)	Category (Qty)	Types (Qty)
Sarcomastigophora	8	28	~ 580
Labyrinthomorpha	1	1	3
Sporozoa	1	5	~ 270
Microspora	2	4	27

Ascetospora	1	1	2
Myxozoa	1	1	47
Ciliophora (Infusoria)	3	19	~ 680
Spongia (Porifera)	1	3	29
Cnidaria	3	5	32
Ctenophora	2	3	3
Platyhelminthes	4	21	~ 830
Gastrotricha	1	2	40
Nematoda	2	14	~ 970
Rotifera (Rotatoria)	3	4	~ 290
Nematomorpha	1	1	8
Acanthocephala	3	6	52
Kinorhyncha	1	2	4
Entoprocta (Kamptozoa)	1	1	2
Annelida	5	15	~ 240
Ectoprocta (Bryozoa)	2	3	25
Phoronida	1	1	1
Nemertea	1	2	26
Tardigrada	2	4	34
Arthropoda	9	62	~ 24 720
Mollusca	3	18	445
Echinodermata	1	2	4
Chaetognatha	1	1	3
Hemichordata	1	1	1
Total	65	230	~ 30 000

- *Vertebrates*. About 800 vertebrate species are known in Bulgaria: 2 species of round-mouthed fish, 4 species of cartilaginous fish, 213 bony fish, 19 species of amphibians, 37 reptiles, 430-435 species of birds and 97 species of mammals. In recent years - 2014-2018 the species composition has been supplemented and updated - a new species of bony fish - *Serranus hepatus* in the Black Sea has been described. As a result of proving two new species of frogs for the country (*Pelophylax lessonae* and *Pelophylax bedriagae*), as well as due to the taxonomic changes, it can be considered that the modern species composition of the class Amphibians includes at least 24 species of two orders - tailed amphibians are represented with 8 or 9 species (the only known population of *Triturus macedonicus* in our country has an unclear species affiliation), and frogs - with 16 species. Class Reptiles includes a total of 37 species - turtles are 5 species (one of them - the red-eared turtle is not an indigenous species, lizards are 16, species of 4 families, snakes are also 16 species of 5 families.

A total of 442 species of animals are categorized in the Red Book of the Republic of Bulgaria. With the status of "Extinct" (EX) are included 30 species, 87 species are categorized as "Critically Endangered" (CR), 107 species as "Endangered" (EN), 137 species as "Vulnerable" (VU), 14 species are categorized as 'Near Threat' (NT), 42 species as 'Least Concern' (LC) and 25 species as 'Data Deficient' (DD). Annex 3 of the BDA includes 444 species (including birds).

- *Plant communities*. From a plant-geographical point of view, the vegetation cover of Bulgaria is a complex of communities with boreal, Central European (most widespread), degree (second in distribution), Arctic, Alpine, Balkan (including Mediterranean) and local character. Vegetation is built by representatives of all ecological groups in terms of water factor. The species

varies widely in terms of heat factor and edaphic conditions. The acidity of the main rock and soils in some cases is among the primary conditions for the development of one or another plant species and determines the structure of phytocenoses. In the mountains of Bulgaria are developed all the belts, separated in Central Europe, except the nival one. According to the available sources of information and the existing phytosociological data regarding the syntaxonomic diversity of the vegetation in the school of Braun-Blanquet (Braun-Blanquet 1964) in Bulgaria can be identified 39 classes, 67 orders, 94 unions, 218 associations, 48 sub-associations and 36 communities. Of these, 90 natural habitats are subject to protection according to Annex 1 of the BDA (respectively Annex I of the Habitats Directive) - 92 according to the latest reporting of Bulgaria under Art. 17 of that Directive (not yet included in Annex I of the BDA).

The phytocenoses of the South Euxinian species, located in the Eastern Stara Planina in Strandzha, which falls within the scope of the considered program, have a special place in the vegetation cover of Bulgaria. The forests of *Fagus orientalis* and *Quercus polycarpa* are a complex of *South Euxinian and Central European species: Rhododendron ponticum, Laurocerasus officinalis, Daphne pontica, Vaccinium arctostaphylos, Trachystemon orientalis, Calluna vulgaris, Festuca drymeja, Acer betanoilia, Acer platanoides Quercus cerris, Crataegus monogyna, Poa nemoralis* and others.

Blagoevgrad and Kyustendil districts

The territory of Bulgaria belongs to the Holarctic floristic kingdom, and based on the spectrum of floral elements, belongs to three plant-geographical areas: European deciduous forest area, Eurasian steppe and forest-steppe region and Mediterranean sclerophilous forest area with 5 provinces, 28 districts and 80 regions.

According to the geobotanical zoning (Iv. Bondev, 1997 - **Figure 2.1.6-1**) of the three plant areas in which the Republic of Bulgaria falls, the territory falling within the scope of PTGS and TSIM falls into two of them - European deciduous forest area (in green in the figure) and Mediterranean sclerophilic forest area (in dark yellow in the figure).

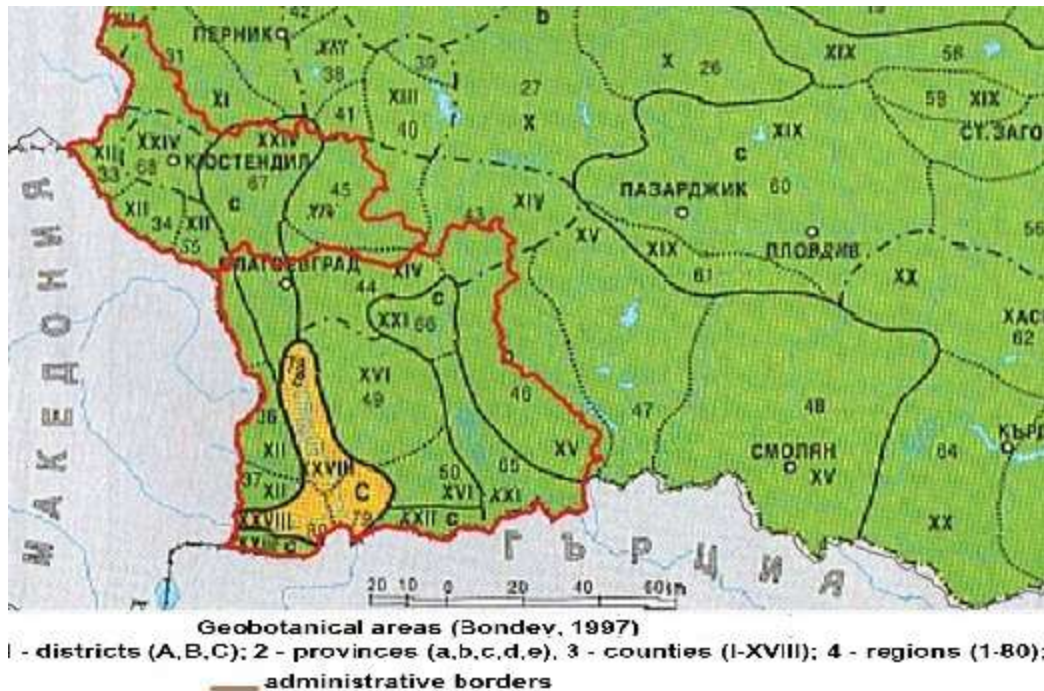


Figure 2.1.6-1 Geobotanical zoning (according to Bondev, 1997)

The European deciduous forest area is characterized by vegetation of the temperate zone, with main root vegetation represented by deciduous, summer green, deciduous forests in winter, mainly of European and Eurasian origin. Blagoevgrad and Kyustendil districts fall into the *Illyrian* and *Macedonian-Thracian* provinces.

The Illyrian province occupies mainly mountainous areas, being divided into a total of 13 geobotanical districts. It falls within the considered territory:

- **Western Bulgarian border mountain district.** It is divided into six geobotanical regions, and the territorial scope of the program includes three of them: Osogovski, Vlahinski and Maleshevski, respectively, which are located next to the country's border with Republic of North Macedonia. There are about 65 species of Balkan endemics, 4 species of Bulgarian endemics - *Verbascum anisophyllum*, *Tulipa urumoffii* and others. Forests of Moesian beech (*Fagus sylvaticasubsp. Moesiaca*), common sessile oak (*Quercus dalechampii*), Turkey oak (*Quercus cerris*), hornbeam (*Quercus frainetto*), in some places and coniferous forests predominate. The Osogovo region occupies the territory of the Bulgarian part of the Osogovo Mountain. Beech and sessile forests predominate in some places and with hornbeam. In the northern part of the region there is a preserved coniferous forest of spruce, and in the central part - remnants of pine, and in the southern part - mostly black pine (*Pinus nigra*). In the highest parts of the mountain (*Ruen Peak*) there are alpine floral elements such as the *Sesleria comosa*, *Festuca airoides*, *Sibbaldia procumbens*, *Poa cenisia*, etc., where they form small phytocenoses. The subalpine zone is dominated by Siberian and small juniper bushes (*Juniperus pygmaea*), and especially large areas are occupied by the Balkan juniper (*Chamaecytisus absinthoides*). In the lowest parts of the region, xerothermic formations of hornbeam and Turkey oak, and rarely of hairy oak, are preserved in separate sections. In many

places, however, the xerothermic forests have degraded and the hornbeam has gradually settled in them. In the northwestern part of the region the relict species of Hop-hornbeam is a majority. The Vlach region includes the Vlach mountain and the easternmost part of the Osogovo mountain. There is a very uniform vegetation cover. Gorun forests predominate with little participation in the vegetation cover of the beech formation. Cherborov forests are preserved in the area, some of which are in the Gabra reserve. In some places there are fragments of xerothermic forests with a predominance of hairy oak, less often on the hornbeam. The relict species of Hop-hornbeam (*Ostrya carpinifolia*) is also found. The Malashev region is characterized by quite diverse vegetation with a predominance of beech and sessile oak. In the lower parts there are xerothermic forests of hornbeam with Turkey oak, and above the Kresna gorge - and secondary forests of hornbeam (*Carpinus orientalis*). In the highest parts near the border with Republic of North Macedonia there are natural pine forests.

- *Rila district*, where alpine and arcto-alpine vegetation is formed in the highest parts. In some places, rocky-scrub vegetation has been formed from quarries (*Sanifraga sp.div.*). The subalpine belt has a well-defined formation of dwarf pine (*Pinus mugo*), mountain alder (*Alnus viridis*), willows (*Salix carpeta*, *Salix cinerea*, *Salix silesiaca*);
- *Rhodope region* - dominated by the formations of beech and Moesian beech, sessile oak. Hornbeam, maple, Norway maple, Hop-hornbeam, etc. also participate. In many places there are mixed forests - coniferous and deciduous. There are over 90 species of Balkan endemics, 58 species of Illyrian and 32 species of Macedonian-Thracian in the district.;
- *Pirin district* - the coniferous belt is dominated by the formations of spruce, white pine, white fir, less black pine and black fir. Of the deciduous, beech predominates. There are 84 species of Balkan endemics.

The vegetation in the ***Macedonian-Thracian province*** is diverse, represented mainly by xerothermic species - hornbeam, Turkey oak, hairy oak, virgil oak and Oriental hornbeam. Part of the territory falls in the Local District, where the xerothermic forests of hornbeam and hairy oak are represented, and in its northern parts - xeromesophytic forest coenoses of sessile oak, hornbeam, Moesian beech, black pine, Hop-hornbeam. The province includes eight geobotanical districts, and the territorial scope of the program includes mainly *Belasitsa* and *Gornostrum districts*.

- *Belasitsa district* - occupies the Bulgarian part of Belasitsa. It is characterized by subalpine vegetation, composed mainly of secondary shrubs of Siberian juniper, blueberries and others, as well as grassy vegetation of *Agrostis capillaris*, *Nardus stricta*, etc. In the past, the subalpine belt was covered with dwarf pine. The upper part of the forest is made of beech forests - common and Moesian beech, and the lower parts - of forests of the relict species of chestnut. In the valleys to the upper border of the forest the beech forests are mixed with *Abies alba ssp. borisii-regis*, and in some places there are separate fir forests. Compared to Slavyanka, this district is poorer in floral elements. A total of 30 diagnostic species have been identified, 13 Illyrian floral elements, of which 11 are Balkan endemics: *Silene waldsteinii*, *Hypericum degenii*, *Chamaecytisus absinthioides*, *Trifolium pignanii*, *Acer heldreichii*, *Thymus jankae*, *Scrophularia aestivalis*, *Digitalis viridiflora*,

Verbascum adamovicii, *Peucedanum oligophyllum*, *Cirsium appendiculatum*, two Bulgarian endemics - *Semprivum erythraeum* и *Campanula moesiaca*. The Macedonian-Thracian floral elements are 13 species, 12 of which are Balkan endemics: *Minuartia saxifraga*, *Silene gigantea*, *S. frivaldskyana*, *Linum thracicum*, *Polygala rhodopaea*, *Viola stojanovii*, *V. speciosa*, *Achillea depressa*, *Cirsium candelabrum*, *Knautia ambigua*, *Crocus olivieri* and *Iris suaveolens*, and a Bulgarian endemic - *Rosa bulgarica*. Steppe floral elements are also found in the district - *Scutellaria orientalis*, *S. altissima*, *Phlomis herbaventis ssp. pungens* и *Pulmonaria mollis*. The county is not divided into districts;

- *Gornostrum district*, which is divided into two geobotanical regions - Blagoevgrad and Kyustendil. Occupies the valley of Struma river on the north of the Kresna Gorge to the Kyustendil plain, including the area between Dupnitsa and Bobovdol. Most of it is occupied by arable land. The rest of the area is covered by residual xerothermic forest, bush and grass formations dominated by hairy and virgil oak (*Querceta virgiliana*), hornbeam and Turkey oak, mixed with hornbeam, and in the deep valleys on the northern slopes in places in the forests the relict species also participates. hop-hornbeam (*Ostrya carpinifolia*). The shrub communities are built mainly of red juniper and *Paliurus*, and the grass cover on the dry slopes - mostly of bulbous meadow and *Dichanthium*, in places of *Chrysopogon gryllus* with the participation of many annual grasses (therophytes). In terms of floristics, the county is not very rich. Only 17 diagnostic floral elements have been identified - 12 Illyrian, 1 Macedonian-Thracian and 4 steppe species. Of the Illyrian species, 11 are Balkan endemics: *Minuartia rhodopaea*, *M. bosniaca*, *Dianthus pelviformis*, *Hypericum degenii*, *H. rumeliacum*, *Roripa lippizensis*, *Alyssoides bulgarica*, *Sempervivum leucanthum*, *Trifolium trichopterum*, *Stachys plumosa*, *Orobanche serbica* and 1 is a Bulgarian endemic - *Sedum tuberiferum*. Степните видове са: *Salsola rutenica*, *Scutellaria orientalis*, *S. altissima*, *Paliurus spina-christi*. The Blagoevgrad region is characterized by residual forests of hairy and virgil oak and less often by Hungarian oak and Oriental hornbeam, shrubs of red juniper and *Paliurus*, and the northern part with xerothermic grass communities of *Dichanthium*, *Chrysopogon gryllus*, bulbous meadow and others. The Kyustendil region occupies the Kyustendil field, where only in some places there are small areas with forests of xerothermic species of oak and Oriental hornbeam.

The diagnostic plant species specific to the Macedonian-Thracian province are mainly Macedonian-Thracian floral elements, such as *Quercus thracica*, *Q. mestensis*, *Herinaria olympica* and others. Balkan and Bulgarian endemics.

The Mediterranean sclerophilous forest area is characterized by sclerophilic evergreen forest formations, mostly rock oak, olive. It includes the **Eastern Mediterranean province** - it includes about 20 endemic genera and many endemic plant species. In the Srednostrum district (which is divided into three geobotanical regions - Kresna, Sandanski and Petrich) of the diagnostic species are most widespread Balkan endemics of the Macedonian-Thracian group of floral elements *Silene scorpii*, *Trifolium dalmaticum*, *Stachys serbica*, *Thymus atticus*, *Valeriana discorides*, *Cephalaria flava*, *Trachelicum rumelianum*, *Senecio macedonicus*, *Colchicum diampolis*, *C. doercleri*, *Fritillaria scorpii*, *F. pontica*, *Crocus olivieri* and others. Of the Mediterranean species are common *Piptatherum holciforme*, *Minuartia attica*, *Silene cretica*, *S. graeca*, *Dephimum balcanicum*, *Papaver apulum*, *Platanus orientalis*, *Trifolium tenuifolium*, *Sideritis lanata*, *Achnatherum bromoides*. There are 6 types of steppe elements: *Salsola rutenica*, *Paliurus spina-christi*, *Scutellaria orientalis*, *S. altissima*, *Tamarix ramosissima*,

Centaurea chrysolepis, a Euxine species - *Aegilops geniculata*, and two species are from the Illyrian Balkan endemics - *Sempervivum leocanthum* and *Stachys plumosa*. In addition to these floral elements, there are a number of other species characteristic of this district, such as *Ephedra fragilis ssp. campylopoda*, *Asparagus acutifolius*, *Colchicum bivonae*, *Medicago bondevii*, *M. constricta*, *Cnicus benedictus*, *Andrachne telephioides*, *Pistacia terebinthus*. The district is divided into three regions - Kresna, Sandanski and Petrich, as the only ephedra deposit in our country. (*Ephedra fragilis ssp. campylopoda*) is located in the Sandanski region.

Plants and fungi found in the area of both areas, included in the **Red Data Book of the Republic of Bulgaria** (2015 edition, Volume 1 Plants and fungi):

Of the **algae** included in the Red Book, one species has been described - *Thorea hispida*, **critically endangered**. Negative factors are: habitat destruction by capturing springs, anthropogenic pollution and correction of rivers and direct collection by fishermen, tourists and holidaymakers

Of the **mosses**, 40 species have been described, of which **9 species are critically endangered** (*Cephalozia loitesbergeri*, *Cephaloziella hampeana*, *Fossombronina husnotii*, *Mannia androgyna*, *Riccia crostata*, *Ctenidium procerrimum*, *Syntrichia pagorum*, *Timmia norvegica*, *Tortella humilis*), **21 species are endangered** (*Calypogeia fissa*, *Cephalozia catenulate*, *Mania triandra*, *Nardia geoscyphus*, *Ptilidium ciliare*, *Riccia crystallina*, *Riccia papillosa*, *Scapania verrucosa*, *Aulacomnium androgynum*, *Buxbaumia aphylla*, *Calliergon giganteum*, *Divranum viride*, *Hypnum fertile*, *Microbryum starckeanum*, *Philonotis marchica*, *Scleropodium touretii*, *Sphagnum cuspidatum*, *Syntrichia papillosa*, *Tortula canescens*, *Tortula protobryoides*, *Ulota hutchinsiae*) **and vulnerable are 10** (*Barbilophozia kunzeana*, *Bazzania flaccida*, *Calypogeia sphagnicola*, *Frullania fragilifolia*, *Campylium polygamum*, *Drepanocladus sendtneri*, *Hamatocaulis vernicosus*, *Sphagnum subfulvum*, *Sphagnum subnitens*, *Tortula cuneifolia*). For most species as limiting and negative factors are climate drought, logging, pollution, successional changes, changes in the regime and use of habitats, etc.

There are 4 species of **ferns**, all of which are included in Annex 3 of the Biodiversity Act - **three of them are critically endangered**: venus hair fern (*Adiantum capilis-veneris*), Marsilea quadrifolia (*Marsilea quadrifolia*) and Royal fern (*Osmunda regalis*) **and one species is endangered** - lake quillwort (*Isoetes lacustris*) – **glacial relict**.

Angiosperms are the most numerous, among them there are species included in Annex № 3 of the Biodiversity Act (Biodiversity Act), Berne Convention (Berne Convention), Directive 92/43 / EEC (HABITATS DIRECTIVE), CITES, IUCN:

- **Regionally extinct - 1 species**: the fen orchid (*Liparis loeselii*) – included in Biodiversity Act, Berne Convention, HABITATS DIRECTIVE (II6), CITES(2);
- **Critically endangered** – 56 species:
 - *Ephedra* (*Ephedra fragilis* Desf. subsp. *campylopoda*) – Biodiversity Act, RB (CR),
 - *Alchemilla bandericensis* - Biodiversity Act, IUCN(V), Balkan endemic;
 - (*Alyssum orbelicum*) - Biodiversity Act, Bulgarian endemic, Glacial relict;
 - (*Amigdalus delipavlovii*) – Biodiversity Act;
 - (*Anchusa davidovii*) - Biodiversity Act, Bulgarian endemic;
 - (*Anchusa stylosa*) – Biodiversity Act;
 - (*Asperula suberosa*) – Biodiversity Act, Tertiary relict;
 - (*Astragalus dasyanthus*) – Biodiversity Act, IUCN(R);
 - (*Astragalus physocalux*) – Biodiversity Act, IUCN (Ex/E), BK, Tertiary relict;
 - (*Centranthus kellereri*) – Biodiversity Act, IUCN(R), Berne Convention, Bulgarian endemic;

- (*Cicerbita pancicii*) – Biodiversity Act , Balkan endemic;
- (*Cicerbita plumieri*) – Biodiversity Act ;
- (*Colchicum diampolis*) – Biodiversity Act , IUCN(R), Bulgarian endemic;
- (*Convolvulus holosericeus*) – Biodiversity Act ;
- (*Corynephorus divaricatus*);
- (*Crepis bithynica*) – Biodiversity Act, IUCN(R);
- (*Crepis schachtii*) – Biodiversity Act, Bulgarian endemic;
- (*Delphinium albiflorum*) – Biodiversity Act, Balkan endemic;
- (*Dianthus drenowskyanus*) – Biodiversity Act, Balkan endemic;
- (*Dracunculus vulgaris*) – Biodiversity Act;
- (*Fritillaria drenovskii*) – Biodiversity Act, BK, IUCN(V), Balkan endemic;
- (*Galium procurrens*) – Biodiversity Act, Balkan endemic, Tertiary relict;
- (*Gemtianella crispata*) – Biodiversity Act;
- (*Geranium aristatum*) – Biodiversity Act, Balkan endemic;
- (*Goniolimon dalmaticum*) – Biodiversity Act, Balkan endemic;
- (*Groenlandia densa*) – Biodiversity Act;
- (*Haplophyllum balcanicum*) - Biodiversity Act, IUCN(R), Balkan endemic;
- (*Knautia dinarica*) – Biodiversity Act;
- (*Laserpitium aschangelica*) – Biodiversity Act;
- (*Lathytus saxatilis*);
- (*Ligularia glauca*) – Biodiversity Act;
- (*Ligularia sibirica*) – Biodiversity Act;
- (*Lilium albanicum*) – Biodiversity Act, Balkan endemic;
- (*Linaria brachyphylla*) – Biodiversity Act, Balkan endemic;
- (*Merendera attica*) - Biodiversity Act, IUCN(R);
- (*Minuartia stojanovii*) – Biodiversity Act, Balkan endemic;
- (*Oxytropis kozuharovii*) – Bulgarian endemic, Glacial relict;
- (*Parvotrisetum myrianthum*);
- (*Potentilla montenegrina*) – Biodiversity Act, Balkan endemic;
- (*Quercus mestensis*) – Biodiversity Act, Bulgarian endemic;
- (*Rheum rhaponticum*) – Biodiversity Act, BC, IUCN(R), Bulgarian endemic, Glacial relict;
- (*Rhodiola rosea*) – Biodiversity Act;
- (*Saussurea discolor*) – Biodiversity Act;
- (*Sedum magellense*) – Biodiversity Act;
- (*Sedum zollicoferi*) – Biodiversity Act, Bulgarian endemic;
- (*Senecio subalpinus*) – Biodiversity Act;
- (*Thymus stojanovii*) – Biodiversity Act, Balkan endemic;
- (*Tulipa prirnica*) – Biodiversity Act, Bulgarian endemic;
- (*Valeriana simplicifolia*) – Biodiversity Act;
- (*Verbascum anisophyllum*) – Biodiversity Act, IUCN(V), Balkan endemic;
- (*Verbascum davidoffii*) – Biodiversity Act, Bulgarian endemic;
- (*Verbascum jankaeanum*) – Biodiversity Act, Bulgarian endemic;
- (*Viola delphinantha*) – Biodiversity Act, HD, BC, IUCN(R), Balkan endemic;
- (*Viola palustris*) – Biodiversity Act;
- (*Viola speciosa*) – Biodiversity Act, IUCN(R), Balkan endemic;
- (*Viola stojanovii*) – Biodiversity Act, IUCN(R), Balkan endemic;

- **Endangered** – 123 species:
 - (*Achillea chrysocoma*) – Balkan endemic;
 - (*Alchemilla catachnoa*) - Balkan endemic;
 - (*Alchemilla fissa*);
 - (*Alchemilla heterophylla*);
 - (*Alchemilla pyrenaica*);
 - (*Alchemilla straminea*);
 - (*Alkanna stojanovii*) – Bulgarian endemic;
 - (*Alkanna tinctoria*) – Biodiversity Act;
 - (*Alyssum pirinicum*) – Biodiversity Act, Bulgarian endemic, Glacial relict;
 - (*Andrachne telephioides*);
 - (*Anthemis auriculata*);
 - (*Anthemis Gaudium-solis*) – Biodiversity Act, Bulgarian endemic;
 - (*Anthemis macrantha*) – Biodiversity Act;
 - (*Anthemis orbelica*) - Biodiversity Act, IUCN(R), Bulgarian endemic;
 - (*Anthemis sancti-johannis*) - Biodiversity Act, IUCN(R), Bulgarian endemic;
 - (*Apera interrupta*);
 - (*Arabis collina*) – Biodiversity Act;
 - (*Arabis ferdinandi-coburgii*) - Biodiversity Act, IUCN(R), Bulgarian endemic;
 - (*Arenaria cilata*) – Biodiversity Act, Glacial relict;
 - (*Arenaria cretica*) – Biodiversity Act, Balkan endemic;
 - (*Arenaria pirinica*) – Biodiversity Act, Bulgarian endemic, Glacial relict;
 - (*Aristolochia rotunda*) – Biodiversity Act;
 - (*Artemisia eriantha*) – Biodiversity Act, Glacial relict;
 - (*Asterolinon linum-stellatum*);
 - (*Astragalus sesameus*);
 - (*Aubrieta columnae*) – Bulgarian endemic;
 - (*Betonica scardica*) – Biodiversity Act, Balkan endemic;
 - (*Bromus parilicus*) – Bulgarian endemic;
 - (*Campanula cochlearifolia*);
 - (*Campanula transsilvanica*) - Biodiversity Act, IUCN(R);
 - (*Castanea sativa*);
 - (*Centaurea achtarovii*) – Biodiversity Act, Bulgarian endemic;
 - (*Centaurea immanuelis-loewii*) – Biodiversity Act, HD, Balkan endemic;
 - (*Centaurea mannagettae*) - Biodiversity Act, IUCN(R), Balkan endemic;
 - (*Centaurea parilica*) – Biodiversity Act, Balkan endemic;
 - (*Cladium mariscus*);
 - (*Colchicum bivonae*) – Biodiversity Act;
 - (*Colchicum doefleri*) – Balkan endemic;
 - (*Crassula tillaea*) – Biodiversity Act;
 - (*Crucianella latifolia*);
 - (*Dactylorhiza incarnata*) – Biodiversity Act, CITES(2);
 - (*Danthoniastrum compactum*);
 - (*Daphne cneorum*);

- (*Delphinium balcanicum*) – Balkan endemic;
- (*Delphinium peregrinum*);
- (*Digitalis laevigata*) – Biodiversity Act, Balkan endemic;
- (*Draba karabensis*) - Biodiversity Act, Balkan endemic;
- (*Draba siliquosa*);
- (*Echinophora sibthorpiana*);
- (*Empetrum nigrum*) – Biodiversity Act;
- (*Epipactis palustris*) - Biodiversity Act, CITES(2);
- (*Erianthus ravennae*) – Biodiversity Act;
- (*Erodium abstinthoides*) – Biodiversity Act;
- (*Erysimum slavjankae*) – Biodiversity Act, Bulgarian endemic;
- (*Euphorbia aleppica*) – Biodiversity Act;
- (*Festuca thracica*) – Balkan endemic;
- (*Galanthus elwesii*) – Biodiversity Act;
- (*Gallium aegeum*) – Balkan endemic;
- (*Gallium demissum*) – Biodiversity Act;
- (*Gentiana frigida*) – Biodiversity Act, Tertiary relic;
- (*Gentiana lutea*) – Biodiversity Act;
- (*Gentiana nivalis*);
- (*Gentiana punctata*) – Biodiversity Act;
- (*Gerranium bohemicum*) – Biodiversity Act;
- (*Geranium tuberosum*);
- (*Helichrysum plicatum*) – Biodiversity Act;
- (*Hieracium villosum*) – Glacial relict;
- (*Hypocoum ponticum*) – Balkan endemic;
- (*Ilex aquifolium*) – Biodiversity Act, Tertiary relic;
- (*Imperata cylindrica*);
- (*Inula spiraeifolia*) – Biodiversity Act;
- (*Kobresia myosuroides*);
- (*Lathyrus grandiflorus*);
- (*Leontopodium alpinum*) – Biodiversity Act;
- (*Linum elegans*) - Biodiversity Act, IUCN(R), Balkan endemic;
- (*Lloydia serotina*) – Biodiversity Act, Glacial relict;
- (*Medicago carstiensis*);
- (*Medicago constricta*);
- (*Medicago coronata*);
- (*Menyanthes trifoliata*) – Biodiversity Act;
- (*Onosma rhodopea*) - Biodiversity Act, IUCN(R), Balkan endemic;
- (*Pedicularis oederi*);
- (*Perydictyon sanctum*) - IUCN(R), Balkan endemic;
- (*Petkovia orphanidea*) – Biodiversity Act, Balkan endemic;
- (*Petrorhagia alpina*) – Biodiversity Act;
- (*Petrorhagia thessala*) – Biodiversity Act, Balkan endemic;
- (*Plantago tenuiflora*);

- (*Polygala amarella*) – Biodiversity Act;
- (*Polygala carniolica*);
- (*Pritzelago alpina*) – Biodiversity Act;
- (*Pulsatilla slaviankae*) – Biodiversity Act, Balkan endemic;
- (*Pulsatilla vernalis*) – Biodiversity Act;
- (*Quercus coccifera*) – Biodiversity Act;
- (*Ranunculus fontanus*) – Biodiversity Act, BC;
- (*Rhamnus alpina*) – Biodiversity Act;
- (*Rhinanthus javorkae*) – Bulgarian endemic;
- (*Roemeria hybrida*);
- (*Salix retusa*) – Biodiversity Act, Glacial relict;
- (*Saxifraga spruneri*) – Balkan endemic;
- (*Sibbaldia procumbens*) – Glacial relict;
- (*Sideritis lanata*);
- / (*Sideritis scardica*) – Biodiversity Act, Balkan endemic;
- (*Silene graeca*) – Biodiversity Act, Balkan endemic;
- (*Stachys leucoglossa*) – Balkan endemic;
- (*Stipa lessingiana*);
- (*Streptopus amplexifolius*);
- (*Swertia perennis*) – Glacial relict;
- (*Taraxacum bithynicum*);
- (*Thlapsi bellidifolium*) – Balkan endemic;
- (*Thymelaea bulgarica*) – Bulgarian endemic;
- (*Thymus perinicus*) - Biodiversity Act, Balkan endemic;
- (*Urticularia minor*);
- (*Valeriana dioscoridis*) – Biodiversity Act;
- (*Valeriana montana*) – Biodiversity Act;
- (*Verbascum pseudonobile*) – Biodiversity Act, Balkan endemic;
- (*Vicia amphicarpa*);
- (*Vicia incisa*);
- (*Viola crinita*) – Balkan endemic;
- (*Viola gracilis*) – Biodiversity Act, Balkan endemic;
- (*Viola grisebachiana*) – Biodiversity Act, Balkan endemic;
- (*Viola perinensis*) - Biodiversity Act, IUCN(R), Balkan endemic;
- (*Viola pyrenaica*) – Biodiversity Act;
- (*Vulpia unilateralis*).
 - **Vulnerable** – 21 species
 - (*Acer heldreichii*) – Biodiversity Act, Balkan endemic;
 - (*Anchusa macedonica*) – Biodiversity Act, Balkan endemic;
 - (*Anthemis rumelica*) - Biodiversity Act, IUCN(R), Bulgarian endemic;
 - (*Aubrieta gracilis*) – Biodiversity Act, Balkan endemic;
 - (*Brassica jordanoffii*) – Biodiversity Act, Balkan endemic;
 - (*Campanula jordanovii*) - Biodiversity Act, Balkan endemic;
 - (*Campanula lanata*) - Biodiversity Act, BC, IUCN(R), Balkan endemic, Tertiary relict;

- (*Carduus tracicus*) - Biodiversity Act, IUCN(R), Balkan endemic;
- (*Chondrilla urumoffii*) - Biodiversity Act, Balkan endemic;
- (*Dianthus simulans*) – Balkan endemic;
- (*Echium rissicum*) – Biodiversity Act, HD;
- (*Himantoglossum caprinum*) - Biodiversity Act, HD (Ib), BC, CITES(2);
- (*Hypericum thasium*) - Biodiversity Act, Balkan endemic;
- (*Oxytropis urumovii*) – Bulgarian endemic, Glacial relict;
- (*Papaver degenii*) – Biodiversity Act, Bulgarian endemic, Glacial relict;
- (*Poa pirinica*) - IUCN(R), Balkan endemic;
- (*Primula deorum*) - Biodiversity Act, BC, IUCN(R), Bulgarian endemic, Glacial relict;
- (*Sedum kostovii*) - Biodiversity Act, IUCN(R), Bulgarian endemic,
- (*Tozzia alpina*) – Biodiversity Act, HD(II);
- (*Trachelium rumelianum*) - Biodiversity Act, IUCN(R), Balkan endemic;
- (*Viola orbelica*) - Biodiversity Act, Balkan endemic.

Of the **fungi** included in the Red Book, for the region of Kyustendil and Blagoevgrad districts are described:

- **Critically endangered** - 11 species: *Boletopsis leucomelaena*, *Boletus luteocupreus*, *Catathelasma imperiale*, *Clitopilus giovanellae*, *Graceous reddish-brown*, *Haasiella venustissima*, *Lentinellus ursinus*, *Leucopaxillus compactus*, *Sarcodon leucopus*, (*Tricholoma colossus*);
- **Endangered** – 28 species: (*Agaricus essettei*), (*Agaricus macrocarpus*), (*Albatrellus pes-carpae*), (*Amylocystis lapponicus*), (*Antrodia heteromorpha*), (*Antrodia juniperina*), (*Arachnopeziza aurelia*), (*Auriscalpium vulgare*), (*Boletus depilatus*), (*Boletus persicolor*), (*Boletus pulverulentus*), (*Bondarzewia mesenterica*), (*Clitocybe vermicularis*), (*Cortinarius bulliardii*), (*Cortinarius violaceus*), (*Discina leucoxantha*), (*Hericium flagellum*), (*Hydnellum suaveolens*), (*Leucocortinarius bulbiger*), (*Pachyella babingtonii*), (*Phylloporus pelletieri*), (*Plyporus umbrellatus*), (*Pyrofomes demidoffii*), (*Russula amethystina*), (*Sparassis crispa*), (*Suillus sibiricus*), (*Tremiscus helvelloides*), (*Tuber aestivum*);
- **Vulnerable** – 5 species: (*Boletus regius*), (*Boletus satanas*), (*Gomphus clavatus*), (*Helvella atra*), (*Mutinus caninus*).

The figure below shows the distribution of conservationally significant plants and fungi in the Bulgarian part of the territorial scope of the program - Kyustendil and Blagoevgrad districts. As can be seen from it, the largest number of species of conservation value are concentrated in Rila, Pirin, Kresna Gorge, the southern border mountains and some others.

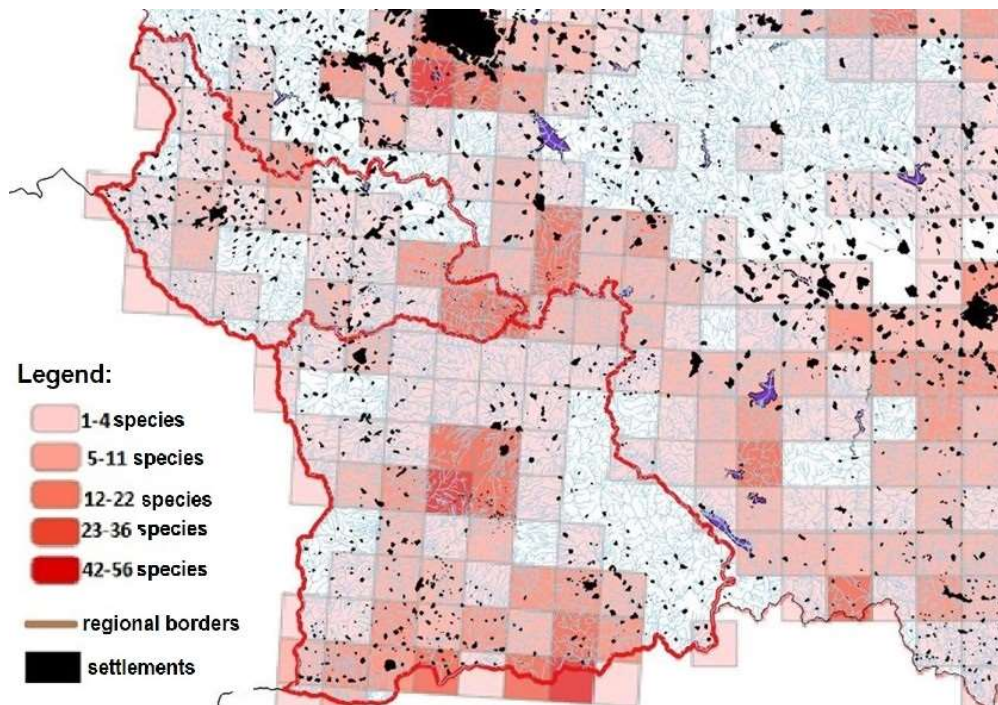
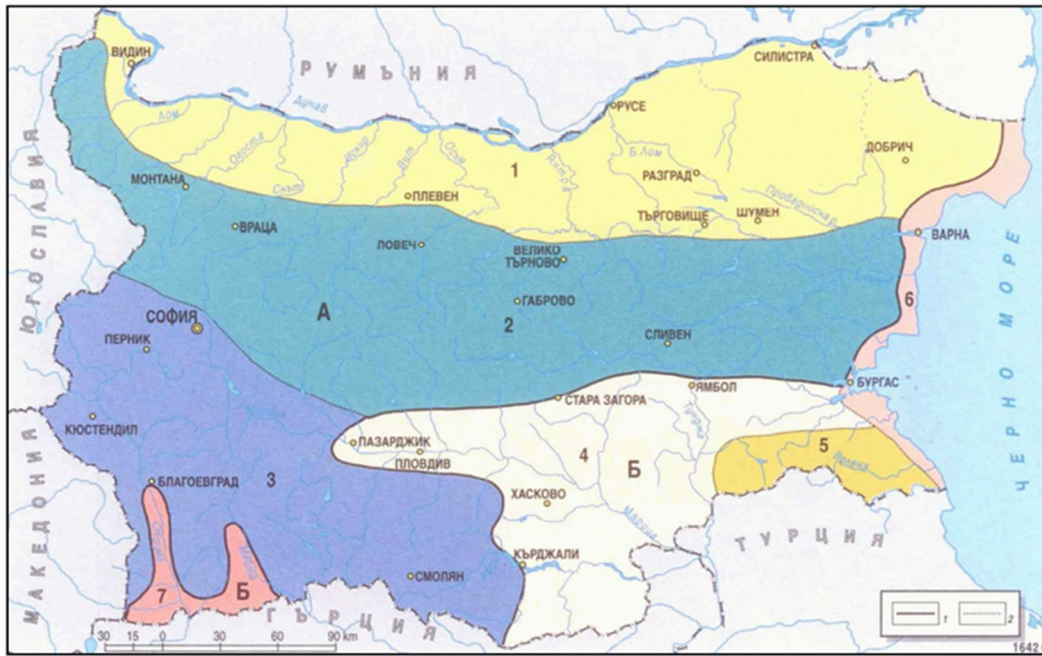


Figure 2.1.6-2 UTM distribution map 10 km grid of plant and mushroom species from the Red Book of the Republic of Bulgaria.

Regarding the condition of the vegetation, species and their populations in the considered area, the main limiting and limiting factors are the human activity leading to direct / destruction / and indirect / change of environmental conditions and fragmentation / impact of species (soil sealing related to construction of Berne Conventions and infrastructure, pollution, change in water regime due to drainage or construction of reclamation facilities). As there are developed tourist conventions in the area, the tourist flow is also not an insignificant factor that has a negative impact on the plant world. The consequences of climate change - drought, forest fires and other extreme weather events - are becoming increasingly important.

Fauna in the Blagoevgrad and Kyustendil regions

In zoogeographical terms, the terrestrial fauna of Bulgaria belongs to the Palearctic zoogeographical region of the Holarctic Kingdom. Due to the fact that Bulgaria is located mainly in the Eurosibirsk zoogeographical subregion, but also borders the Mediterranean zoogeographical subregion, there are two main zoogeographical complexes in the country: northern (Eurosibirsk), formed by cold-resistant species, and southern (Mediterranean), including many species. , as the considered territory falls entirely in the Euro-Siberian subregion - **Figure 2.1.6-3:**



1 - border between the Eurosyberian (A) and Mediterranean (B) territory; 2 - border between the zoological geographical regions: 1. Danube region; 2. Stara planina region; 3. Rila-Rhodope region; 4. Thracia region; 5. Strandzha region; 6. Black sea region; 7. Struma-Mesta region.

Figure 2.1.6-3 Zoogeographical regions (after Georgiev, 1980.)

Of the northern complex, the most widespread are the cholarctic species that live in the Northern Hemisphere, both in Europe and Asia, and in North America. Holarctic species in the Bulgarian fauna are the bear, the fox, the weasel, the red deer, the bald eagle, the marsh owl and others. Palearctic species are widely represented in the country, which also live north of the tropics, but only in Europe, Asia and North Africa. Such are the otter, the white stork, the field lark, the big tit, the big (brown) toad and others. Euro-Siberian animal species are the most numerous. They are more cold-resistant and have penetrated the Bulgarian lands of North Asia and Europe and for many of them Bulgaria is the southern border of distribution. This zoogeographical category includes the squirrel, the wood vole, the badger, the roe deer, the capercaillie, the partridge, the meadow lizard and others. The Central European faunal elements have similar ecological requirements to the Euro-Siberian fauna. Such representatives in our country are the small water shrew, the underground vole, the alpine newt, the red-bellied bumblebee and others. From the northern zoogeographical complex in Bulgaria there are, although more limited, steppe species (laluger, jumping mouse, degree of ferret, bustard), arctoalpine species (white-throated thrush) and boreomontan species (live-bearing lizard, viper).

According to the figure, Blagoevgrad and Kyustendil districts fall into two districts: Rila-Rhodope and Strumsko-Mestenski:

- **Rila-Rhodope region.**

These include the Ripa, Pirin, Slavyanka, Western Rhodope Mountains, the Osogovo-Belasitsa mountain range, the Kraishite, Vitosha and Lyulin mountains, as well as the valleys and

valley depressions located between them. Here, Euro-Siberian and European species the Mediterranean. Only in the Kyustendil valley, on the slopes of Osogovo and Konyavska mountains, the Mediterranean influence on the fauna is well expressed through the neighboring Struma-Mestenski region. Therefore, compared to the Euro-Siberian and European species of rodents found there, 19% are Mediterranean. To the north, this southern influence gradually diminished and almost disappeared in the vicinity of Trun. The Rhodope region has the most relict invertebrates. In Rila they are 96 species, in Vitosha - 85, in Pirin - 71, in the Western Rhodopes - 49. Most of them are glacial relicts, all of which are typical arcto-alpine elements. The largest number of them are found in Rila - 39, in Pirin - 19 and in Vitosha - 18. The number of rare species of invertebrates is significant. It is also interesting that with regard to nesting birds in general in this region the percentage of Euro-Siberian species is the highest for all of Bulgaria - 27.7%. A characteristic feature of the region is its high endemism. While in butterflies it is at the subspecies level, in snails and beetles it is at the subgenus and genus level. Most endemic invertebrates are known from Pirin - 235 species and subspecies, from the Western Rhodopes - 232, from Rila - 225. -runners of Trechinae is over 50%. In terms of endemics among the underground fauna, the region is in second place in Bulgaria: the Balkan endemics are 6 and the Bulgarian - 28. The closest similarity of the typical underground fauna is with the Thracian region - 9.5%. The number of endemics varies from one mountain to another. Most of them are in the Western Rhodopes, and about twice as many as in any other of the high mountains in the region. In the fauna of Rila and Pirin there are many common endemics, while in the Western Rhodopes they are quite different.

- **Struma-Meste region.**

It covers the middle reaches of the rivers Struma and Mesta (respectively from Simitli and the beginning of the gorge Momina Klisura to the Bulgarian-Greek border), the valley of the river Strumeshnitsa and the whole Sandanski-Petrich valley. In this area the influence of the Mediterranean climate is more significant than in other zoogeographical regions. For this reason, a significant number of Mediterranean species enter here. The surroundings of Petrich are an illustrative example in this respect - among the snout beetles (*Curculionidae*) these species are 44%, among the ants - 47%, among the semi-hard-winged insects True bugs (*Heteroptera*) - 53% and among the apoid wasps and bees (*Apoidea*) - 55%. A very good example are the Jewel beetles (*Buprestidae*) - while in the Gotse Delchev valley the Mediterranean species are 46.4%, in the Sandanski-Petrich valley they reach 49%. Even among nesting birds, the Mediterranean species is 26.5%, or significantly more than in any other zoogeographical region. The avifauna is more similar only to the Thracian region (81.3%), although the two regions are separated by high mountains. The valley of the Struma River is characterized by the presence of about 360 species of rare invertebrates living only there. Many species of subtropical, Iranian-Turanian or Mediterranean origin (eg terrestrial woodlice, arachnids, locusts, beetles, butterflies) are typical of the whole Struma-Mesten region. The number of endemics is also significant - 170 species of invertebrates, mainly from the aboveground fauna (millipedes, primarily wingless insects, flies, beetles). Among the Harvestmen Spider (*Opilionida*), half of the species are endemic. There is only one endemic spider in the subterranean fauna, but this is due to the extremely small number of karst caves and precipices in

this area. The underground fauna in general has similarities only with the underground fauna in the Rila-Rhodope region and this is mainly due to their neighborhood. The region is the northern border for the habitats of many typical Mediterranean species and given their high percentage, if not for part of the Mediterranean zoogeographical subregion, then at least for a separate region with a transitional type to it.

In general, a significant number of Mediterranean species are observed in the CBCP and TSIM area. Of the invertebrates, 44% are octopus beetles, 47% are ants, 53% are semi-hard-winged and 55% are cyclo-winged insects. Among the nesting birds, the Mediterranean species are 26.5%. A characteristic feature of the region is the high endemism.

Representatives of animal species included in the **Red Book of the Republic of Bulgaria** (2015 edition, Volume 2 Animals) on the territory of both districts are:

- **Extinct species:**

- 3 species of **Birds** – Bearded vulture (*Gypaetus barbatus*) – Biodiversity Act-II, III, BD, BC-II, CITES-II, BoC-II; Ring-necked Pheasant (*Phasianus colchicus colchicus*) – BC-III; Common crane (*Grus grus*) – Biodiversity Act-III, BD-I, BC-II, CITES-II, BoC-II;
- 1 species of **Fish**: European sea sturgeon (*Acipenser sturio*) – Biodiversity Act-II-III, IUCN[CR], BC-II, CITES-I, HD-II, IV;
- 1 species **Invertebrates**: Subarctic damer (*Aeshna subarctica*).

- **Critically endangered species:**

- 1 species of **Mammals**: Lynx (*Lynx lynx*) – Biodiversity Act-II, III, BC-III, HD-II, IV;
- 8 species of **Birds**:
 - Tundra swan (*Cygnus columbianus*) – Biodiversity Act-III, BC-II, BoC-II, BD-I;
 - Greater spotted eagle (*Aquila clanga*) - Biodiversity Act-II, III (I), IUCN- vulnerable, BD-II, BC-II, CITES-II, BoC-II;
 - Osprey (*Pandion haliaetus*) - Biodiversity Act-III, IUCN- vulnerable, BD-I, BC-II, CITES-I, BoC-I,II;
 - Далматински сокол (*Falco biarmicus*) – Biodiversity Act-III, BD, BC-II, CITES-II, BoC-II;
 - Saker falcon (*Falco cherrug*) – Biodiversity Act-III, IUCN- endangered, BD-II, BC-III, CITES-II, BoC-II;
 - Lesser kestrel (*Falco naumanni*) - Biodiversity Act-II, III, IUCN- vulnerable, BD-I, BC-II, CITES-II, BoC-II;
 - Red-footed falcon (*Falco tinnunculus*) - Biodiversity Act-III, endangered, BC-II, CITES-II, BoC-II;
 - Great spotted cuckoo (*Clamator glandarius*) - Biodiversity Act-III, BC-II;
- 9 species of **Invertebrates**: Upland summer mayfly (*Ameletus inopinatus*) – Glacial relict, Spot-tailed Mayfly (*Serratella maculocaudata*), Neophemera

maxima (*Neophemera maxima*), little striped dragonfly (*Cordulegaster insignis*), Northern emerald (*Somatochlora arctica*), White-faced darter (*Leucorrhinia dubia*), Selysiothemis nigra (*Selysiothemis nigra*), Turkmen Grasshopper (*Pallasiella turcomana*), Pachycarus (*Pachycarus cyaneus*) – Balkan endemic,

• **Endangered species:**

- 3 species of mammals: Bown bear (*Ursus arctos*) - Biodiversity Act-II, III, HD-II, IV, BC-II, CITES-II; European pine marten (*Martes martes*) - Biodiversity Act-II, III, HD-II, V; Wildcat (*Felis silvestris*) – Biodiversity Act-III, BC-II, CITES-II, HD-IV;
- 26 species of **Birds**:
 - Eurasian bittern (*Botaurus stellaris*) – Biodiversity Act-II, III, BD-I, BC-I, BoC-I;
 - Little bittern (*Ixobrychus minutus*) - Biodiversity Act-II, III, BD-I, BC-II, BoC-II;
 - Purple heron (*Ardea purpurea*) - Biodiversity Act-II, III, BD-I, BC-II, BoC-II;
 - White-headed duck (*Oxyura leucocephala*) - Biodiversity Act-II, III, BD-I, BC-II, BoC-I/II, CITES-III;
 - Egyptian vulture (*Neophron percnopterus*) - Biodiversity Act-II, III, BD-I, BC-II, BoC-II, CITES-II;
 - Griffon vulture (*Gyps fulvus*) - Biodiversity Act-II, III, BD-I, BC-II, BoC-II, CITES-II;
 - Northern goshawk (*Accipiter gentilis*) - Biodiversity Act-III, BC-II, BoC-II, CITES-II;
 - Eurasian sparrowhawk (*Accipiter nisus*) - Biodiversity Act-III, BC-II, BoC-II, CITES-II;
 - Eleonora's falcon (*Falco eleonora*) - Biodiversity Act-II, III, BC-II, BoC-II, CITES-II;
 - Peregrine falcon (*Falco peregrinus*) - Biodiversity Act-II, III, BD-I;
 - Western capercaillie (*Tetrao urogallus*) - Biodiversity Act-II, BD-I, BC-III;
 - Chukar (*Alectoris chukar*) - Biodiversity Act-IV, BD-II/2, BC-III;
 - Rock partridge (*Alectoris graeca*) - Biodiversity Act-II, BD-II;
 - Spotted crane (*Porzana porzana*) - Biodiversity Act-II, III, BC-II, BoC-II, BD-I;
 - Eurasian woodcock (*Scolopax rusticola*) - Biodiversity Act-IV, BD-II,III, BC-II;
 - Green sandpiper (*Tringa ochropus*) - Biodiversity Act-III, BD-I, BC-II, BoC-II;
 - Common tern (*Sterna hirundo*);

- Stock dove (*Columba oenas*) – Biodiversity Act-III;
- Eurasian eagle-owl (*Bubo bubo*) - Biodiversity Act- II, III, BD-I, BC-II, CITES-II;
- Eurasian pygmy owl (*Glaucidium passerinum*) - Biodiversity Act- II, III, BD-I, BC-II, CITES-II;
- Grey-headed woodpecker (*Picus canus*) - Biodiversity Act-II, III, BD-I, BC-II;
- White-backed woodpecker (*Dendrocopos leucotos lilfordi*) - Biodiversity Act-II, III, BD-I, BC-II;
- Eurasian three-toed woodpecker (*Picoides tridactylus*) - Biodiversity Act-II, III, BD-I, BC-II;
- Calandra lark (*Melanocorypha calandra*) - Biodiversity Act-II, III, BD-I, BC-II;
- Cetti's warbler (*Cettia cetti*) - Biodiversity Act-III, BD-I, BC-I-III, BoC-II;
- Garden warbler (*Sylvia borin*) - Biodiversity Act-II, BC-II, BoC-II;
- 5 species of **Reptiles**: Hermann's tortoise (*Eurotestudo hermanni boettgeri*) - Biodiversity Act-II, III, HD-II, IV, BC-II, IUCN, CITES-II; Greek tortoise (*Testudo graeca iberica*) - Biodiversity Act-II, III, HD-II, IV, BC-II, IUCN, CITES-II; Javelin sand boa (*Eryx jaculus*) – Biodiversity Act-III, BC-III, CITES-II, HD-IV; Four-lined snake (*Elaphe quatuorlineata*) - Biodiversity Act-II, III, HD-II, IV, BC-II; European ratsnake (*Zamenis situla*) - Biodiversity Act-II, III, HD-II, IV, BC-II, IUCN;
- 3 species of **Fish**: European eel (*Anguilla anguilla*) – IUCN; Dnieper chub (*Petroleuciscus borysthenticus*) – IUCN; weatherfish (*Misgurnus fossilis*) – Biodiversity Act-II, IUCN, BC-III, HD-II;
- **Vulnerable species:**
 - 14 species of **Mammals**:
 - Mediterranean horseshoe bat (*Rhinolophus euryale*) – Biodiversity Act-II, III, IUCN, BC-II, III, BoC-II, HD-II,IV;
 - Blasius's horseshoe bat (*Rhinolophus blasii*) - Biodiversity Act-II, III, IUCN, BC-II, III, BoC-II, HD-II,IV;
 - Mehely's horseshoe bat (*Rhinolophus mehelyi*) - Biodiversity Act-II, III, IUCN, BC-II, III, BoC-II, HD-II,IV;
 - Bechstein's bat (*Myotis bechsteinii*) - Biodiversity Act-II, III, IUCN, BC-II, BoC-II, HD-II-IV;
 - Long-fingered bat (*Myotis capaccinii*) - Biodiversity Act-II, III, IUCN, BC-II, III, BoC-II, HD-II,IV;
 - Geoffroy's bat (*Myotis emarginatus*) - Biodiversity Act-II, III, IUCN, BC-II, BoC-II, HD-II-IV;

- Western barbastelle (*Barbastella barbastellus*) - Biodiversity Act-II, III, IUCN, BC-II, BoC-II, HD-II-IV;
- Greater noctule bat (*Nyctalus lasiopterus*) - Biodiversity Act-II, III, IUCN, BC-II, BoC-II, HD-II-IV;
- Lesser noctule (*Nyctalus leisleri*) - Biodiversity Act-II, III, IUCN, BC-II, BoC-II, HD-II-IV;
- Common bent-wing bat (*Miniopterus schreibersii*) - Biodiversity Act-II, III, IUCN, BC-II, III, BoC-II, HD-II-IV;
- European ground squirrel (*Spermophilus citellus*) - Biodiversity Act-II, IUCN, BC-II, HD-II-IV;
- Wolf (*Canis lupus*) - Biodiversity Act-II, IV, BC-II, HD-II-IV, CITES-II;
- Marbled polecat (*Vormela peregusna*) - Biodiversity Act-II, III, IUCN, BC-II, HD-II-IV;
- European otter (*Lutra lutra*) - Biodiversity Act-II, IUCN, BC-II, HD-II-IV;
- 38 species of **Birds**:
 - Little grebe (*Tachybaptus ruficollis*) - Biodiversity Act-III, BC-II;
 - Grey heron (*Ardea cinerea*) - Biodiversity Act-III, BC-II;
 - Black stork (*Ciconia nigra*) - Biodiversity Act-II, III, BC-II, BD-I, CITES-II, BoC-II;
 - White stork (*Ciconia ciconia*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II;
 - Garganey (*Anas querquedula*) - Biodiversity Act-IV, BC-III, BD-II/I, BoC-III;
 - European honey buzzard (*Pernis apivorus*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II, CITES-II;
 - Black kite (*Milvus migrans*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II, CITES-II, IUCN;
 - Short-toed snake eagle (*Circaetus gallicus*) - Biodiversity Act-II, BC-II, BD-I, BoC-II, CITES-II;
 - Montagu's harrier (*Circus pygargus*) - Biodiversity Act-III, BC-II, BD-I, BoC-II, CITES-II;
 - Levant sparrowhawk (*Accipiter brevipes*) - Biodiversity Act-II, BC-II, BD-I, BoC-II, CITES-II;
 - Long-legged buzzard (*Buteo rufinus*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II, CITES-II, IUCN;
 - Lesser spotted eagle (*Aquila pomarina*) - Biodiversity Act-III, BC-II, BD-I, BoC-II, CITES-II;
 - Golden eagle (*Aquila chrysaetos*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II, CITES-II;

- Booted eagle (*Hieraaetus pennatus*) - Biodiversity Act-III, BC-II, BD-II, BoC-II, CITES-II, IUCN;
- Eurasian hobby (*Falco subbuteo*) - Biodiversity Act-II, III, BC-II, BoC-II, CITES-II;
- Corn crake (*Crex crex*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II;
- Eurasian stone-curlew (*Burhinus oedicephalus*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II;
- Little ringed plover (*Charadrius dubius*) – Biodiversity Act- III;
- Barn owl (*Tyto alba*) - Biodiversity Act-II, III, BC-II, CITES-II;
- Boreal owl (*Aegolius funereus*) - Biodiversity Act-II, III, BC-II, BD, CITES-II;
- European roller (*Coracias garrulus*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II, IUCN;
- Black woodpecker (*Dryocopus martius*) - Biodiversity Act-II, III, BC-II, BD-I;
- Greater short-toed lark (*Calandrella brachydactyla*) - Biodiversity Act-II, III, BC-II, BD-I;
- Horned lark (*Eremophila alpestris*) - Biodiversity Act-III, BC-II;
- Alpine accentor (*Prunella collaris*) - Biodiversity Act-III, BC-II;
- Common redstart (*Phoenicurus phoenicurus*) - Biodiversity Act-II, BC-II, BoC-II;
- Blue rock thrush (*Monticola solitarius*) - Biodiversity Act-II, III, BC-II;
- Olive-tree warbler (*Hippolais olivetorum*) - Biodiversity Act-II, III, BC-II, BD-I, BoC-II;
- Western Orphean warbler (*Sylvia hortensis*) - Biodiversity Act-III, BC-II, BoC-II;
- Red-breasted flycatcher (*Ficedula parva*) - Biodiversity Act-II, III, BC-II, BD-I;
- Semicollared flycatcher (*Ficedula semitorquata*) - Biodiversity Act-II, BC-II, BoC-II;
- Western rock nuthatch (*Sitta neumayer*) - Biodiversity Act-III;
- Wallcreeper (*Tichodroma muraria*) - Biodiversity Act-III;
- Eurasian penduline tit (*Remiz pendulinus*) - Biodiversity Act-III, BC-III;
- Masked shrike (*Lanius nubicus*) - Biodiversity Act-III, BC-III, BD-I;
- Alpine chough (*Pyrrhocorax graculus*) - Biodiversity Act-III;
- Rosy starling (*Sturnus roseus*) - Biodiversity Act-III;
- Eurasian siskin (*Carduelis spinus*) - Biodiversity Act-III, BC-II.

- 3 species of **Reptiles**: Balkan pond turtle (*Mauremys rivulata*) - Biodiversity Act-II, III, BC-II, HD-II, IV, IUCN; European Legless Lizard (*Pseudopus adopus*) - Biodiversity Act-III, BC-II, HD-IV; European cat snake (*Telescopus fallax*) - Biodiversity Act-III, BC-II, HD-IV.
- 2 species of **Amphibians**: Alpine newt (*Ichthiosaura alpestris*) - Biodiversity Act-II, III, BC-III, IUCN; Greek smooth newt (*Lissotriton graecus*) - Biodiversity Act-III, BC-III, IUCN;
- 4 species of **Fish**: Asp (*Aspius aspius*) - Biodiversity Act-II, BC-III, HD-II, IUCN; Macedonian vimba (*Vimba melanops*); Balkan Spined Loach (*Sabaneiewia balcanica*) - Biodiversity Act-II, BC-III, HD-II, IUCN; Barbatula bureschi (*Barbatula bureschi*) - Biodiversity Act-II, IUCN;

The animal world is exposed to various limiting and risk factors related, as in the case of vegetation, mainly to human activity. The main adverse impacts are environmental and habitat change, anxiety, population fragmentation, direct catches and poaching, and the effects of climate change.

Natural habitats

Given the current trends in conservation biology and ecology, the protection of habitats and habitats plays a key role in the conservation of species. In this regard, the latest edition of the Red Book of the Republic of Bulgaria from 2015 includes a separate Volume 3. *Natural habitats*, in which habitats are divided into 4 categories of endangerment, as follows: critically endangered - a total of 28. for the country, endangered - a total of 71 for the country, vulnerable - a total of 47 for the country and potentially endangered - a total of 20 for the territory of the country. The following of them fall in the area of Blagoevgrad and Kyustendil districts (legend: C-Inland reservoirs, E - Grass communities and communities of mosses and lichens, F-Shrub communities, G-Forests, H-Inland rock habitats):

- **Critically endangered – 10 :**
 - 18C3 Mediterranean high-grass communities along rivers and dune depressions - Biodiversity Act, HD;
 - 21E4 Alpine calciphilous grass communities near melting precipices - Biodiversity Act, HD;
 - 02F2 Alpine calciphilous shrub communities near melting precipices;
 - 06F2 Juniper bushes (*Juniperus sabina*);
 - 07F2 High mountain ericoid communities of black empetrum (*Empetrum nigrum*) and blueberries (*Vaccinum spp.*) - Biodiversity Act, HD;
 - 23F5 Shrubs and lowland forests of *Quercus coccifera*;
 - 20G1 Rila oak forests (*Quercus protoroburoides*) - BC;
 - 39G3 Juniper forest (*Juniperus excelsa*) - Biodiversity Act, BC, HD;
 - 13H3 Pyramidal formations in fluvioglacial deposits (*Stob pyramids*);
 - 16H3 Wet carbonate rocks with Venus hair (*Adiantum capillus-veneris*)
- **Endangered - 37:**

- 03C1 Commodity algae communities in standing water - Biodiversity Act, HD;
- 04C1 Natural or semi-natural mesotrophic to eutrophic lakes and swamps with macrophytic vegetation - Biodiversity Act, BC, HD;
- 05C1 Shallow drying ponds with floating vegetation;
- 06C1 Dystrophic lakes - Biodiversity Act, HD;
- 08C2 Karst springs and streams with ore formations - Biodiversity Act, BC, HD;
- 14C2 Slow-flowing rivers without macrophytic vegetation;
- 15C2 Slow-flowing rivers with macrophytic vegetation - Biodiversity Act, HD, BC;
- 19C3 Isoetes lacustris - Biodiversity Act, HD, BC;
- 01D2 Peatlands dominated by oyster and cereal grasses - BC;
- 02D2 Wetlands with moss around soft water springs;
- 03D2 Transitional marshes and floating peatlands - Biodiversity Act, HD, BC;
- 04D4 Alkaline marshes and wetlands - Biodiversity Act, HD, BC;
- 06E1 Serpentinite steppes - BC;
- 12E1 Mountain pastures - Biodiversity Act, HD, BC;
- 15E2 Lowland hay meadows - Biodiversity Act, HD, BC;
- 17E3 Wet riparian meadows with clover (*Trifolium spp.*) - Biodiversity Act, HD;
- 20E4 Alpine acidophilic grasslands near melting precipices - Biodiversity Act, HD;
- 24E4 Alpine open calciphilous grass communities exposed to strong winds - Biodiversity Act, HD;
- 25E4 Alpine and subalpine open calciphilous grass communities - Biodiversity Act, HD;
- 28E5 Highland grasslands in the plains - Biodiversity Act, HD;
- 01F2 Alpine acidophilic communities of *Salix herbacea* - Biodiversity Act, HD;
- 09F2 Alpine communities of bearberry (*Actostaphylos uva-ursi*) - Biodiversity Act, HD;
- 10F2 Mountain communities of silver (*Dryas octopetala*) - Biodiversity Act, HD;
- 13F2 Mountain shrubs of green alder (*Alnus viridis*);
- 14F2 Subalpine willow communities (*Salix spp.*) - Biodiversity Act, HD;
- 29F7 Narrow-leaved wedge communities (*Astragalus angustifolius*) - Biodiversity Act, HD, BC;
- 31F9 Riverside communities of *Tamarix spp.* - Biodiversity Act, HD, BC;

- 07G1 Eastern plane tree forests (*Platanus orientalis*) - Biodiversity Act, HD, BC;
- 13G1 Thracian forests of hairy oak (*Quercus pubescens*) - Biodiversity Act, HD, BC;
- 16G1 Thracian mixed thermophilic oak forests - Biodiversity Act, HD, BC;
- 22G1 Acer monspessulanum - BC;
- 24G1 Forests of chestnut (*Castanea sativa*) - Biodiversity Act, HD;
- 28G1 Mixed forests on screes, steep slopes and mountain gorges - Biodiversity Act, BC, HD;
- 31G1 White alder forests (*Alnus incana*);
- 32G3 Abies alba subsp. alba - Biodiversity Act, Dx, BC;
- 33G3 Abies alba subsp. borisii-regis - Biodiversity Act, BC, HD;
- 38G3 White fir forests (*Pinus peuce*) - Biodiversity Act, BC, HD.
- **Vulnerable - 36:**
 - 01C1 Oligotrophic mountain lakes - Biodiversity Act-I, BC, HD;
 - 11C2 Mountain streams and fast-flowing rivers - Biodiversity Act, HD;
 - 12C2 Waterfalls;
 - 13C2 Vegetation of oligotrophic fast-flowing mountain rivers and streams - Biodiversity Act, HD;
 - 03E1 Sub-Mediterranean petrophytic steppes - Biodiversity Act, HD;
 - 10E1 Sub-Mediterranean pseudo-steppes of annual grasses - Biodiversity Act, BC, HD;
 - 16E2 Mountain hay meadows - Biodiversity Act, HD;
 - 19E3 Mountain meadows with pigeon molinia (*Molinia caerulea*) - Biodiversity Act, HD, BC;
 - 22E4 Alpine acidophilic grasslands - Biodiversity Act, HD;
 - 23E4 Alpine and subalpine closed calciphilous grass communities - Biodiversity Act, HD;
 - 26E4 Subalpine acidophilic mesophytic communities mainly of cartels (*Nardus stricta*) - Biodiversity Act, HD;
 - 27E4 Subalpine acidophilic xerophytic grass communities - Biodiversity Act, HD;
 - 29E5 Highland grasslands in the mountains - Biodiversity Act, HD;
 - 03F2 Alpine communities of blueberries (*Vaccinium uliginosum*) - Biodiversity Act, HD;
 - 16F2 Squid bushes (*Pinus mugo*) - Biodiversity Act, HD;
 - 20F3 Lilac shrubs (*Syringa vulgaris*);
 - 21F3 Gentista rumelica and G. lydia;
 - 26F5 Influenza bushes (*Phillyrea latifolia*);
 - 03G1 White alder mountain galleries (*Alnus incana*) - Biodiversity Act, BC, HD;

- 04G1 Riverside forests of alder (*Alnus spp.*) and mountain ash (*Fraxinus excelsior*) - Biodiversity Act, BC, HD;
- 06G1 Willow-poplar galleries in Southern Bulgaria - Biodiversity Act, HD;
- 08G1 Acidophilic forests of beech (*Fagus sylvatica*) - Biodiversity Act, HD, BC;
- 21G1 Hornbeam forests (*Ostrya carpinifolia*) - BC;
- 36G3 Black pine forests (*Pinus nigra subsp. pallasiana*) - Biodiversity Act, BC, HD;
- 40G3 Swamp coniferous forests and shrubs - Biodiversity Act, BC, HD;
- 01H1 Entrance parts of the caves - Biodiversity Act, BC, HD;
- 02H1 Ground caves - Biodiversity Act, BC, HD;
- 04H1 Art galleries;
- 05H2 Mountain silicate screes - Biodiversity Act, HD;
- 06H2 Mountain limestone screes - Biodiversity Act, HD;
- 07H3 Silicate rocks with chasmophytic vegetation - Biodiversity Act, HD;
- 08H3 Limestone rocks with chasmophytic vegetation - Biodiversity Act, HD;
- 09H3 Silicate rocks with pioneer grass vegetation - Biodiversity Act, HD;
- 10H3 Silicate steep rocks with lichen vegetation - Biodiversity Act, HD;
- 11H3 Limestone steep cliffs with lichen vegetation - Biodiversity Act, HD;
- 14H3 Pyramidal formations in sandy-clay rocks;
- **Potentially endangered - 19:**
 - 09C2 Thermal springs;
 - 01E1 Pioneering thermophilic grass communities in calcareous rocky and stony places - Biodiversity Act, HD, BC;
 - 11E1 Xerothermic meadows and pastures of chrysopogon (*Chrysopogon gryllus*), whiteness (*Bothriochloa ischaemum*) and Welsh fescue (*Festuca valesiaca*) - Biodiversity Act, HD, BC;
 - 05F2 Siberian juniper bushes (*Juniperus sibirica*) - Biodiversity Act, HD;
 - 08F2 Bruckenthalia spiculifolia - Biodiversity Act, BC, HD;
 - 11F2 Mountain communities of blueberries (*Vaccinium spp.*) - Biodiversity Act, HD;
 - 12F2 Mountain shrubs from the Balkan chamaecytisus absinthioides - Biodiversity Act, HD;
 - 17F3 Juniper bushes (*Juniperus communis*) - Biodiversity Act, HD;
 - 24F5 Juniper bushes (*Juniperus oxycedrus*) - Biodiversity Act, HD;
 - 25F5 Balkan pseudo-maquis;
 - 27F6 Sub-Mediterranean garrigue;
 - 09G1 Neutrophil Beech Forests - Biodiversity Act, HD, BC;
 - 10G1 Moesian beech forests - Biodiversity Act, BC, HD;
 - 11G1 Calciphile forests of common beech (*Fagus sylvatica*) - Biodiversity Act, HD, BC;

- 25G1 White birch (*Betula pendula*) forests;
- 27G1 Mountain forests of hornbeam (*Carpinus betulus*) and sessile oak (*Quercus dalechampii*) - Biodiversity Act, HD;
- 34G3 Spruce forests (*Picea abies*) - Biodiversity Act, BC, HD;
- 35G3 White pine forests (*Pinus sylvestris*) - Biodiversity Act, HD, BC;
- 37G3 Black fir forests (*Pinus heldreichii*) - Biodiversity Act, BC, HD.

The diversity of habitats, including those in the Red Book of the Republic of Bulgaria, shows the need for a specific approach to the management of the territory in question, in order to preserve the habitats and valuable ecosystems they maintain. Habitats, especially in the highlands, are most vulnerable to changing climates, with many isolated, sensitive to anthropogenic pressures and impacts.

Migration routes of migratory birds Via Aristotelis

One of the main migration routes of migratory birds passes through the two districts in Bulgaria, as well as in the west, in the border territory of the Republic of North Macedonia: *Via Aristotelis* (Trans-Balkan Road) - through the Struma River Valley, Sofia Field and Iskar Gorge.



Figure 2.1.6-4 *Migratory route of migratory birds Via Aristotelis (in red)*

It is the main route of migration of birds from Europe to Africa, passing through Western Bulgaria and the second largest number of migratory birds after *Via Pontica*.

The road connects the Danube with the White Sea, starting from the northwestern corner of the country in the Vidin region, passing through the Vratsa Balkans. From there, through the Iskar gorge, it crosses the Balkan Mountains and descends to the Sofia plain. From here along the valley of the river Struma it reaches the White Sea. The Mesta river valley is often cited as a branch of the *Via Aristotelis*.

About 50 species of birds cross the migration route. Along the Struma River during the seasonal migrations there is a special concentration of birds in the areas of Rupelski, Kresnenski, Oranovski, Boboshevski, Zemenski prolom, where they find suitable conditions for rest and finding food that allows migratory birds to regain strength. you are.

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

General data on biodiversity in the Republic of North Macedonia

Although being small (25713 km²) and landlocked country, with its position in the centre of the Balkan Peninsula, the Republic of North Macedonia is one of the hotspots for biodiversity in Europe. Geomorphology and relief are characterized by domination of hilly terrains (almost 80% of the territory) and valleys are connected with deeply incised canyons and gorges. The country could be categorized among medium rich in waters. In the southern lowland areas, the climate is sub-Mediterranean, it is continental throughout the country and mountainous on altitudes above 1500 m a.s.l. The average annual temperature varies between -0.4 and 14.2°C. According to the EUNIS classification (with necessary modifications) 28 most important (key) ecosystem types/groups (some of them with anthropogenic origin but with some importance for biodiversity) have been identified, which equals to 177 habitat types of level 3 (according to the same classification), indicating high diversity of ecosystems in the Republic of North Macedonia. Forests cover about 38.5% (988.835 ha) of the country's land surface, deciduous forests are dominant forest types (58%) followed by the mixed forests (30 %), coniferous (7%) while the degraded forests (5%) are the least present. About 90 % of the forests are state-owned. Agricultural land covers about 45% of the country (1.268.000 ha) of which 510.000 ha are cultivated land (81% arable land and gardens, 12% meadows, 4% vineyards and 3% orchards). Pastures of high quality are located in almost all high mountain areas, especially in the western part of the country. Grassland ecosystems occupy a large part of the country, occurring often as secondary habitats primarily caused by the historical degradation of forest phytocenoses and re-colonization of abandoned farmland by grassland species.

About 2095 species of algae, 3200 vascular plants and 500 mosses, over 2000 fungi and 450 lichens, 13000 invertebrates, 85 fishes, 14 amphibians, 32 reptiles, 335 birds and 90 mammals are recorded, being the major portion of yet insufficiently studied biodiversity. The endemism among these groups is large, with at least 200 endemic taxa among the algae, over 110 endemic plants and approximately 550 endemic animal taxa. Among the vertebrates, the fishes are particularly rich group, with 17 endemic species. The 3.5 million years old Lake Ohrid is the center of the endemism (with 212 endemic species), being one of the global centers for endemism as well.

According to the analyses of biodiversity, the Republic of North Macedonia is at the top of the list of states called "European Hotspots". The great biodiversity of the Republic of North Macedonia is a result of its long historical development. The differentiation of indigenous species, as well as the invasion of other area migrants, played a significant role in its genesis. Naturally, not all species once living in the area have survived. Many species disappeared due to unfavorable living conditions. Therefore, the recent biodiversity has to be studied, not only from a genetic but also from a historical point of view. General data for the species:

- *Diversity of algae.* Knowledge of algae diversity in the Republic of North Macedonia is sparse (totally 2095 species, varieties and taxons are known nowadays). According to existing data (period following the production of the First National Report on Biological Diversity Status on the territory of the Republic of North Macedonia in 2003), we may conclude that the largest known diversity is identified in the group of silicate algae. Other groups are poorly explored, data is old and it probably does not reflect the real picture of diversity. Reasons lie primarily in the lack of researchers (there has been no research of the flora of other algae for the last 40 years).

- *Diversity of fungi and lichens.* the Republic of North Macedonia is mycologically well studied. Based on the research conducted so far, presence of more than 2000 species of fungi (without lichens) has been confirmed so far. Among those, more than 200 species belong to the phylum Ascomycota (sac fungi), and more than 1800 species to phylum Basidiomycota (club fungi). From the latter, the highest number of species has been registered from the orders Aphyllophorales (450) and Agaricales (550). The number of known lichen species, which area relatively less studied, is around 450. For the purpose of fungi conservation, in 2000, a preliminary Red List of Fungi was published, comprising rare and threatened species in the Republic of North Macedonia. This list of species served as supplement in the development of the basic Red List of Fungi of Republic of North Macedonia in 2012. This List contains 213 species belonging to phyla Ascomycota and Basidiomycota. Species are categorized in accordance with the criteria of IUCN, and category of critically endangered (CR) has 21 species, endangered (EN) – 30 species, vulnerable (VU) – 71 species, near threatened (NT) – 40 species, least concern (LC) – 9 species and data deficient (DD) – 42 species.

- *Diversity of flora.* Brioflora of the the Republic of North Macedonia consists of over 500 taxa, more than 400 taxa of which are true mosses (Musci), while around 100 taxa are representatives of the class Hepaticae. Further research is necessary of the taxonomy and horology of the taxa of this group in the the Republic of North Macedonia, to conclude the information of the real number of taxa on its territory. With reference to vascular plants, several monograph publications have been issued, elaborating 27 families with 544 taxa in total. In the past period, around 2800 taxa have been analyzed, and it has been estimated that around 1470 taxa have remained, including 39 families that should be elaborated further. Numerous Balkan endemites and local North Macedonian endemic plant species growing on the territory of the the Republic of North Macedonia are of particular importance – around 120 local endemic species are known. Some of the endemites are characterized with great evolution age, they are of Tertiary origin and are denoted as paleendemites (endemorelicts), such as: *Thymus oehmianus*, *Viola kosaninii*, *Crocus cvijici*, *Crocus scardicus*, *Colchicum macedonicum*, *Narthecium scardicum*, etc. Important floristic data has been also obtained through research of the vegetation of steppe in Republic of North Macedonia, forest vegetation on the mountain of Galichica and flora on the mountain of Suva Gora. Furthermore, 42 smaller or larger Important Plant Areas have been identified on the territory of the the Republic of North Macedonia, and initial assessment of the threats affecting the survival of plant species and habitats on these areas has been made. Based on the established methodology, identification of important species and habitats was made for each of the prior identified Important Plant Areas. New localities have been detected for more than 80 rare species in the flora of the the Republic of North Macedonia. The IUCN Global Red List contained 70 taxa from the the Republic of North Macedonia (19 of which local endemites). Among them, 1 had the status of “extinct” (EX) – *Thymus oehmianus*.

- *Diversity of invertebrate fauna.* The Study of the Status of Biological Diversity in the the Republic of North Macedonia states that the number of invertebrate species is 8833. Later, this information was supplemented and it was estimated that the number of invertebrates amounted to 9706 (excluding the 113 species of Protozoa). On the other hand, the overall number of animal

species (invertebrate and vertebrate) from Republic of North Macedonia in the Fauna Europaea (www.faunaeur.org) is 10635. These three sources of information, together with around 200 more scientific papers published during the last ten years, served as basis for the assessment of invertebrate diversity in the Republic of North Macedonia. The next table shows the status of the number of invertebrates in the Republic of North Macedonia.

Table 2.1.6-3 *Number of invertebrates in the Republic of North Macedonia*

Taxonomic category (group)	Republic of North Macedonia	% of European fauna
Phylum Porifera	10	55,6
Phylum Cnidaria	3	5,6
Phylum Platyhelminthes	229	7,4
Phylum Nematoda	~600	14,7
Phylum Nemertea	1	8,3
Phylum Rotifera	20,9	
Phylum Acanthocephala	8	5,7
Phylum Nematomorpha	2	2,9
Phylum Annelida	175	15,9
Phylum Mollusca	320	~9
Phylum Arthropoda	11 781	10,7
Total	13379	~11

At the moment, the overall number of invertebrates in Republic of North Macedonia is over 13000 species. One may safely say that this number is underestimated, because many scientific works, especially papers published before 2000, have not been taken into account. Furthermore, this estimate does not include diversity of subspecies, which is a gap requiring greater attention in the future. During the last period, 56 invertebrate species and subspecies from Macedonia have been described. Ohrid Lake is one of the biggest hotpots of aquatic invertebrate diversity and endemism so it is well studied. Lesser attention has been devoted to Prespa Lake compared to Ohrid Lake, and therefore no sufficient data base has been developed to enable more comprehensive picture of the overall biological diversity and individual diversity within taxonomic groups. Underground fauna of Republic of North Macedonia is poorly explored and according to existing data, it is poorer than the fauna of Western Balkan countries, but still, it is characterized by high extent of endemism reaching 90%. The situation is slightly better when it comes to stygobionts (troglohydrobionts), where 57 species are known.

- *Diversity of vertebrate fauna.* The vertebrate fauna in the Republic of North Macedonia is much better explored than the invertebrate fauna. According to the latest estimates, there are 552 vertebrate species in the Republic of North Macedonia, 28 of which are native. The next table shows the status of the number of vertebrates in Republic of North Macedonia.

Table 2.1.6-4 *Number of vertebrates in the Republic of North Macedonia*

Group	Total	Native	Non-native
Lampreys	2	2	0

Fish	85	66	19
Amphibians	14	14	0
Reptiles	32	32	0
Birds	334	333	1
Mammals	85	77	8
Total	552	524	28

The most numerous are birds with 334 species (64% of the species regularly found in Europe), followed by mammals with 77 native species (34% of the European native terrestrial mammals) and fish with 66 native species (around 12% of the fauna of freshwater fish in Europe or around 20% if introduced species are taken into account). Fauna of lampreys is represented with only 2 species (from among 13 in Europe), amphibians with only 14 species (19% of the European batrachofauna), and reptiles are represented by 32 species (21% of the European herpetofauna).

The assessment of the real status of fish diversity in the Republic of North Macedonia is aggravated by series of unsolved taxonomic problems, especially among trout (Salmonidae). Presence of several species in the Republic of North Macedonia is problematic: *Squalius squalus* (Ohrid Lake), *Pungitius platygaster* (Vardar River watershed), *Acipenser sturio*, etc. Among the native species, three are considered critically endangered (*Acipenser sturio*, *Anguilla anguilla* and *Alburnus macedonicus*), two are endangered (*Pelagus prespensis* and *Salmo peristericus*), 10 are vulnerable, one near threatened and 10 are data deficient with regard to their level of threat (IUCN 2014). Under the national legislation, 10 fish species are strictly protected, and 20 protected (two species have been included in both lists).

Amphibians are relatively small faunal group in the Republic of North Macedonia for which we may arbitrarily say that it counts only 14 species: 9 tailless (frogs) and five tailed (salamanders and newts). Fauna in Republic of North Macedonia has two Balkan endemites (*Triturus macedonicus* and *Rana graeca*) and subspecies level as taxa of limited Balkan natural range, we distinguish *Lissotriton vulgaris raecus*, *Pelobates syriacus balcanicus* and *Bombina variegata scabra*. There are no globally threatened species among amphibians in the Republic of North Macedonia (IUCN 2014), seven are listed in Appendix 2 of the Bern Convention, while the remaining eight are included in Appendix 3.

Latest data reveals information on the distribution of 32 reptile species (four chelonian species, 12 lizard species and 16 snake species). Among these, 11 species have wide distribution in the country, 10 species are limited to individual habitats and regions, and the rest of 11 are of very limited range. Three Balkan endemites (*Podarcis erhardii*, *Algyroides nigropunctatus* and *Hierophis gemonensis*) are present. Orsini's viper is considered a globally vulnerable species (IUCN 2014), and is listed in Appendix 1 to CITES. Near threatened species include European pond terrapin *Emys orbicularis*, Hermann's tortoise *Testudo hermanni* and four-lined snake *Elaphe quatuorlineata*. 24 species are included in Appendix 2 to the Bern Convention, and the rest of eight are included in its Annex 3. According to the national lists of strictly protected and protected wild species, Orsini's viper is strictly protected species, and 22 other species are protected.

Bird fauna in Republic of North Macedonia counts 334 species (10 of which are considered uncertain). Number resident nesting and migratory nesting bird species is 215 species. Subspecies diversity is modest – only 14 species have more than one subspecies or total of 348 taxa has been registered. As expected, there are no taxa that are national endemites. Minimum eight nesting species are fully extinct from the Republic of North Macedonia, and at least seven more (and probably 12-15 species) are lost as nesting species from the fauna of the Republic of North Macedonia. Two species (Egyptian vulture *Neophron percnopterus* and saker falcon *Falco cherrug*) are globally threatened, and two more that are regularly present (Dalmatian pelican *Pelecanus crispus* and Imperial eagle *Aquila heliaca*) have been categorized as vulnerable (IUCN 2014). Fifteen species are included in Appendix 1 to the Bonn Convention. Four species (Dalmatian pelican, white-tailed eagle, imperial eagle and peregrine falcon) are listed in Appendix 1 to the CITES. The national lists of strictly protected and protected wild species include 28 and 79 species, respectively, but there is a lot of room for improvement to the content of these lists. At national level, critically endangered species is at least the *Egyptian vulture*. Number of griffon vultures *Gypsus fulvus* and lesser kestrels *Falco naumanni plummetts*, whereas sparse (albeit stable) are the populations of the imperial eagle *Aquila heliaca*, golden eagle *Aquila chrysaetos*, peregrine falcon *Falco peregrinus*, several species of herons and ducks, and the number of species with national population below 100 couples is high. For many species, including priority ones for conservation on national level (lesser spotted eagle *Aquila pomarina*, ural owl *Strix uralensis*), there is no quantitative data on the number and the trend.

Published data exists on 83 mammal species, and two more bat species were registered in 2011 and 2013 (*Pipistrellus pygmaeus* and *Myotis bechsteini*, I. Budinski, A. Pušić & M. Hođić). Of these, eight are considered non-native and 77 species of mammals are native for the fauna in Republic of North Macedonia. According to the data, there are no strictly national-level endemic species, though four species that are endemic for the Balkan Peninsula (*Apodemus epimelas*, *Dynaromis bogdanovi*, *Microtus felteni* and *Talpa stankovici*) have large parts of their natural ranges within Republic of North Macedonia borders, and two more Balkan (near) endemites (*Spalax leucodon* and *Spermophilus citellus*) have localized distribution in the Republic of North Macedonia. Endemism is also high on subspecies level, with two localized subspecies of Soudan, *Spermophilus citellus gradojevici* and *S. c. karamani*, core population of the *Balkan lynx* *Lynx lynx balcanicus* and Balkan chamois *Rupicapra rupicapra balcanica*. Species diversity is the highest in the mountains of western in Republic of North Macedonia. On subspecies level, five mammalian species registered in the Republic of North Macedonia are regarded vulnerable (IUCN 2014): *Rhinolophus mehelyi*, *Myotis capaccinii*, *Vormela peregusna*, *Spermophilus citellus* and *Dinaromys bogdanovi*. Four other native species are considered near threatened (*Rhinolophus euryale*, *Barbastella barbastellus*, *Miniopterus schreibersii* and *Lutra lutra*). On subspecies level, Balkan lynx is considered critically endangered, with an overall estimated population in the Balkans of around 22-40 adult individuals. Thirty species are included in Appendix 2 to the Bern Convention and additional 25 in Appendix 3. Twenty-five species (all bats) are included in Appendix 2 to Bonn Convention. According to the national lists of strictly protected and

protected wild species, 10 mammal species are protected, and the category of strictly protected species includes: *Felis silvestris*, *Lynx lynx*, *Lutra lutra*, *Ursus arctos*, *Spermophilus citellus* and *Dinaromys bogdanovi*.

- *Ecosystem diversity*. A total of 28 basic sets of habitats have been identified in the Republic of North Macedonia. Some of these habitats are of anthropogenic origin, but still have certain significance for biological diversity and are therefore part of this classification. The number of thus generalized ecosystem types reflects great ecosystem diversity in the Republic of North Macedonia as follows: Lake ecosystems (ecosystems of surface standing water bodies,; River ecosystems (ecosystems of surface running water bodies, including streams); Mountainous peaty ecosystems (acid peats); Mountainous fen ecosystems (base peats); Marsh and swamp ecosystems (including saline marshes); Ecosystems of dry montane grasslands; Ecosystems of mesophilous and seasonally wet grasslands and meadows; Ecosystems of mountainous grasslands (including subalpine and alpine grasslands, as well grasslands on rocky grounds); Saline steppe ecosystems; Alpine dwarf scrub ecosystems; Alpine scrub ecosystems; Degraded forest ecosystems (including pseudomacquis, arborescent matorral, Thermo-Mediterranean thickets and garrigues); Ecosystems of phrygana and hedgehog-heaths; Riparian and fen scrub ecosystems; Anthropogenic scrub ecosystems; Deciduous forest ecosystems (broadleaved wood-lands); Coniferous forest ecosystems; Mixed deciduous and coniferous forest ecosystems; Cave ecosystems (including water bodies therein); Rocky and stone ground ecosystems (including rocks, rocky terrains and screes); Ecosystems without or with sparse vegetation (including eroded areas); Farming agro-ecosystems; Aquatic agro- ecosystems (fishponds); Urban ecological systems; Ecological systems of rural settlements; Ecological systems of mining and industrial excavations; Ecological systems of entirely artificial water bodies; Ecological systems of waste deposits and landfills; In conclusion could be said that the flora and fauna of Republic of North Macedonia are amazingly heterogeneous. Due to the impressive diversity of plant and animal species, many of which are endemic, many areas have been placed under different forms of protection.

Flora data in the Northeast, East and Southeast regions

Four phytogeographic regions can be distinguished in the Republic of North Macedonia, characterized by their different climates and elevations and, consequently, by their different flora and fauna:

- *Sub-Mediterranean Region* (40 percent of Republic of North Macedonia territory). It is characterized by the presence of common tree species (*Ostria carpinifolia* and *Carpinus orientalis* with Mediterranean plants dominating) and it is spread out mainly up to 600 m. Almost all human settlements are located in this region.

- *Sub-Continental Region* (37 percent of Republic of North Macedonia territory). It is spread out mainly from 600 to 1,200 m and is characterized by the predominance of Quercion- frainetto Ht. Alliance (still some Mediterranean influence, not completely continental).

- *Sub-Humid Region* (22 percent of Republic of North Macedonia). It comprises two belts: one belt with lower beech forest spread out between 900 and 1,250 m and a higher belt with mountainous beech forest (*Fagetum montanum*) and mixed beech and fir forest up to 1,700 m.

- *Sub-Alpine Region* (only 1 percent of the Republic of North Macedonia). It is spread out on the high mountains, the highest peaks of which may be characterized as a real alpine region (above 2,200 m on average).

In general, the considered areas of the program cover the eastern part of the Republic of North Macedonia (over 1/3 of its territory), which is why elements of all four phytoregions are presented in this scope. In this case, the border area between Bulgaria and the Republic of North Macedonia is almost entirely mountainous, with the mountains along the border covering varying degrees of territory from both countries. Thus, the northeastern part of the Osogovo mountain is located on Bulgarian territory, and the larger southwestern part - on the northern part of Republic of North Macedonia. Its highest point is Mount Ruen - 2252 meters, which is located on the border between the two countries. Vlahina Mountain or Vlayna is also a border mountain between Bulgaria and Republic of North Macedonia, part of the Osogovo-Belasitsa Mountain Group. It stretches from north to south for about 50 km and its width varies from 12 km north to 30 km south, most of which falls in Bulgaria. Malashevka Mountain, also part of the Osogovo-Belasitsa Mountain Group, occupies territories in southwestern Bulgaria and northern part of Republic of North Macedonia. To the east, its slopes descend steeply to the Kresna gorge of the Struma River and the northern part of the Sandanski-Petrich valley, which separate it from Pirin. To the west it encloses the historical-geographical region of Maleshevo from the southeast, south and southwest, and to the west of the Republic of North Macedonia village of Vladimirovo it connects with a high saddle to Plachkovica Mountain (medium high mountain located in the eastern part of Republic of North Macedonia). The next mountain is surrounded by the Osogovo-Belasitsa mountain group located on both sides of the border, and is almost equally divided between the two countries. The highest point of the mountain is Ograzhdenets peak (1747.6 m), located on territory of Republic of North Macedonia, about 3 km west of our state border. In the Bulgarian part the highest peak is Bilaska Chuka (1643.6 m), about 2 km north of the village of Baskaltsi. The last mountain located on both sides of the border is Belasitsa, which is divided between Greece (about 45%), Republic of North Macedonia (about 35%) and Bulgaria (about 20%). The mountain stretches in an east-west direction, with a length of 63 km and an average width of 7-9 km. To the north it borders the Strumica and Sandanski-Petrich fields, which separate it from the Ograzhden mountain. The highest point of Belasitsa is Radomir peak (2029.2 m). Other high peaks are: Kongur or Golyam Kongur (1951.3 m), Punkova Skala (1973.9 m), Debelo Bardo (1950.6 m), Lozen (1897.6 m) and Tumba (1880.3 m), where the borders of the countries Bulgaria, Greece and Republic of North Macedonia meet. Given this, it can be assumed that in general the floral elements characteristic of the Western Bulgarian border mountain floristic district (Osogovo, Vlach and Malashev districts) and Belasitsa floristic district in Bulgaria are found in the range of Republic of North Macedonia these mountains, as well as in those located on west of them - the mountain Plachkovitsa (peak Lisets -1754 m), the mountain Golak (peak Chavka - 1538 m), the hills Beyaz Tepe and some others. It should also be borne in mind that these mountains cover a very large part of the territorial scope of the program in the Republic of North Macedonia. In the scope of the program in Republic of North Macedonia, as identifying important plant areas (IPAs) on the side of Republic of North Macedonia, it is necessary to mention "Osogovo", "Skopje Montenegro", "Plačkovica", the area "Judovi livadi" (east from Pehchevo),

where the common Russian woman is found, Bogdantsi, Ovche Pole-Bogoslovets, Krivolak, Demir Kapiyska Klisura, Negorski Bani, Monospitovskoto Blato, Doyransko Ezero, Belasitsa”.

Some more or less interesting or conservationally important plant species (included in the annexes to international conventions or lists, or endemic), which in addition to the Bulgarian border area in the scope of the program can be found in the border region of Republic of North Macedonia region (the mountains listed above) are: *Acer heldreichii*, *Achillea depressa*, *Alkanna tinctoria*, *Alyssoides utriculata ssp. bulgarica*, *Amygdalus delipavlovii*, *Amygdalus webbii*, *Anacamptis pyramidalis*, *Anchusa macedonica*, *Anemone narcissiflora*, *Anemone sylvestris*, *Angelica pancicii*, *Anthemis macrantha*, *Aquilegia nigricans*, *Arctostaphylos uva-ursi*, *Asterolinon linum-stellatum*, *Astragalus dasyanthus*, *Astragalus physocalyx*, *Aulaconium androgynum*, *Barbarea balcana*, *Betonica scardica*, *Bisserula pelecinus*, *Bupleurum apiculatum*, *Cephalanthera damasonium*, *Chamaecytisus absinthioides ssp. rhodopaeus*, *Cistus incanus*, *Colchicum bivonae*, *Corynephorus divaricatus*, *Crassula tillaea*, *Crassula tillaea*, *Crocus olivieri*, *Crocus pallasii*, *Crocus veluchensis*, *Crucianella graeca*, *Cyclamen hederifolium*, *Daphne oleoides*, *Digitalis laevigata*, *Digitalis viridiflora*, *Dracunculus vulgaris*, *Ephedra fragilis ssp. campylopoda*, *Festuca riloensis*, *Festuca valida*, *Fossombronina hustonii*, *Fritillaria gussichiae*, *Galanthus nivalis*, *Geum rhodopaeum*, *Happalophyllum suaveolens*, *Hieracium pannosum*, *Hypericum rumeliacum*, *Ilex aquifolium*, *Iris reichenbachii*, *Iris suaveolens*, *Jasione bulgarica*, *Jasminum fruticans*, *Knautia ambigua*, *Lathyrus grandiflorus*, *Lilium albanicum*, *Lilium jankae*, *Linaria brachyphylla*, *Linaria genistifolia*, *Linum thracicum*, *Lupinus graecus*, *Medicago carstiensis ssp. belasicae*, *Neottia nidus-avis*, *Orchis elegans*, *Orchis purpurea*, *Orchis simia*, *Osmunda regalis*, *Paeonia peregrina*, *Parvotricetum myrianthum*, *Peucedanum oligophyllum*, *Polygala rhodopaea*, *Polypodium cambricum*, *Polypodium interjectum*, *Polypodium x mantoniae*, *Pulmonaria mollis*, *Quercus coccifera*, *Rochelia disperma*, *Romulea bulbocodium*, *Romulea linaresi*, *Scleropodium tonretii*, *Scrophularia aestivalis*, *Sempervivum erythraeum*, *Senecio pancici*, *Senecio subalpinus*, *Sesleria latifolia*, *Sibbaldia parviflora*, *Silene frivaldszkyana*, *Silene gigantea*, *Silene graeca*, *Silene waldsteinii*, *Sorbus aria*, *Spiranthes spirallis*, *Symphyanthra wanneri*, *Taxus baccata*, *Trifolium pignantii*, *Trinia glauca*, *Trollius europaeus*, *Verbascum jankaeum*, *Verbascum pseudonobile*, *Verbascum pseudonobile*, *Viola gracilis*, *Viola orbelica*, *Viola pyrenaica*, *Viola speciosa*, *Viola stojanovii*. Potential species from Annex II of the Habitats Directive (Directive 92/43/EEC), which are also found in the Bulgarian part near the border, are *Himantoglossum caprinum* u *Centaurea immanuelis-loewii*.

Fauna data in the Northeastern, Eastern and Southeastern regions

Republic of North Macedonia receives influences from many biogeographic territories. Frequent changes in global ecological conditions in geological history have greatly contributed to the occurrence of exceptionally heterogeneous fauna. It has made this area a center of speciation for many groups of organisms. As a result of this process, a high level of endemism is present within most animal groups. With around 550 endemic faunistic taxa, the the Republic of North Macedonia, with its small territory, is one of the most important centers of faunistic endemism in Europe. Of the group of sponges, there are 6 known endemic taxa. Of the type Mollusca, there are 92 known endemics – 88 of the class of Gastropoda (snails) and four of the Bivalvia class (shells). Within the

Annelida type, 38 endemics of the Oligochaeta class have been registered, and 11 endemics of the Hirudinea class, all limited to Ohrid Lake. Of the type Arthropoda – the Pseudoscorpiones orders with 16 endemics, Opiliones with 19 endemics and Chelicerata with 60 endemics have a markedly high degree of endemism. The Crustacea class is represented with 113 endemics, with the degree of endemism being most pronounced in benthic organisms. Eighteen endemics are known of the Diplopoda order (Myriapoda class). One of the largest centers of endemism of aquatic invertebrates are the Ohrid Lake and the Prespa Lake but this water objects are outside of the territorial range of the program.

As stated in the description of the flora, in general the considered areas of the program cover the eastern part of the Republic of North Macedonia (over 1/3 of its territory), and the border area between Bulgaria and Republic of North Macedonia is almost entirely mountainous, as the mountains along the border cover to varying degrees territories from both countries entirely within the Osogovo-Belasitsa mountain group - the mountains Osogovska, Vlahina, Malashevska, Ograzhden and Belasitsa. In view of this, it can be assumed that in general the animal species characteristic of the Rila-Rhodope faunal region in Bulgaria (which includes the Osogovo-Belasitsa group) are widespread in the Republic of North Macedonia range of the listed mountains, as well as in those located immediately west of them - Plachkovitsa mountain, Golak mountain, Beyaz hill and some others. It should also be borne in mind that these mountains cover a very large part of the territorial scope of the program in Republic of North Macedonia. Accordingly, as significantly conservative species of the region (in their respective biotopes) of the program in question in Republic of North Macedonia (most included under different regimes in the annexes of some international conventions on biodiversity conservation, as well as in the Red List IUCN, including endemic species for the region) need to be identified:

Invertebrates: *Apatura ilia*, *Apatura iris*, *Apatura metis*, *Brachydesmus herzogowinensis trifidus*, *Brenthis hecate*, *Calosoma sycophanta*, *Carabus cavernosus*, *Coenonympha rhodopensis*, *Colias caucasica*, *Duvalis beshkovi*, *Empusa fasciata*, *Erebia medusa*, *Erebia pronoe*, *Formica rufa*, *Glaucopsyche alexis*, *Hipparchia senthes*, *Isophya andreevae*, *Limenitis populi*, *Lithobius lakatnicensis*, *Lycaena ottomana*, *Maculiena arion*, *Mantispa perla*, *Melitaea aurelia*, *Melitaea trivialis*, *Molops piceus osogovensis*, *Molops rufipes belasicensis*, *Nedroledon anatolicus*, *Neptis rivularis*, *Neptis sappho*, *Nevrorthus apatelios*, *Nymphalis xanthomelas*, *Parnassius apollo*, *Parnassius mnemosyne*, *Pieris ergane*, *Plebeius sephirus*, *Pseudophilotes vicrama*, *Pterostichus brevis*, *Pterostichus vecors*, *Pyrgus cinarae*, *Raphidia ulrikae*, *Scolitantides orion*, *Tapinopterus balcanicus bureschi*, *Thymelicus acteon*, *Trechus priapus*, *Zerynthia polixena*. Of the species included in Annex II to Directive 92/43/EEC (Habitats Directive) it is necessary to indicate: *Austropotamobius torrentium*, *Carabus menetriesi pacholei*, *Cerambyx cerdo*, *Coenagrion ornatum*, *Cordulegaster heros*, *Cucujus cinnaberinus*, *Erannis ankeraria*, *Eriogaster catax*, *Euplagia quadripunctaria*, *Lucanus cervus*, *Lycaena dispar*, *Morimus funereus*, *Ophiogomphus cecilia*, *Osmoderma eremita*, *Paracaloptenus caloptenoides*, *Polyommatus eroides*, *Probatiscus subrugosus*, *Rosalia alpina*, *Rosalia alpina*, *Unio crassus*. Some endemic species for Republic of North Macedonia, mainly in the Doiran Lake region, are also *Eunapius carteri dojranensis*, *Graecoanatolica macedonica*, *Isochaeta dojranensis*, *Branchiobdella capito*, *Cambarincola*

dojranensis, *Pterodrilus prion*, *Xironodrilus crassus*, *Microcyclops varicans dojranensis*, *Physocipria inverse*, *Niphargus pancici dojranensis*, *Liposcelis macedonicus*.

Fish: *Alburnoides bipunctatus*, *Alburnus alburnus*, *Anguilla anguilla*, *Barbatula bureschi*, *Chondrostoma vardarense*, *Gobio gobio*, *Leuciscus cephalus*, *Oxynoemacheilus bureschi*, *Phoxinus phoxinus*, *Salmo macedonicus*, *Salmo trutta fario*, *Vimba melanops*. Of the fish included in Annex II of the Habitats Directive, they need to be listed: *Aspius aspius*, *Barbus cyclolepis*, *Cobitis taenia*, *Rhodeus sericeus ammarus*, *Sabanejewia aurata*. It is endemic to Republic of North Macedonia from the Doyran Lake region *Sabanejewia doiranica*.

Amphibians: *Bufo viridis*, *Hyla arborea*, *Pelobates syriacus*, *Rana dalmatina*, *Rana graeca*, *Rana temporaria*, *Triturus alpestris*. From amphibians included in Annex II of the Habitats Directive it is necessary to indicate *Bombina variegata* and *Triturus karelinii*.

Reptiles: *Ablepharus kitaibelii*, *Coluber caspius*, *Coluber najadum*, *Coronella austriaca*, *Elaphe longissima*, *Lacerta trilineata*, *Lacerta viridis*, *Natrix tessellata*, *Podarcis erhardii*, *Podarcis muralis*, *Podarcis taurica*, *Vipera ammodytes*. Of the reptiles included in Annex II of the Habitats Directive, it is necessary to indicate: *Elaphe quatuorlineata*, *Elaphe situla*, *Emys orbicularis*, *Mauremys caspica*, *Testudo graeca*, *Testudo hermanni*.

Mammals: *Eptesicus serotinus*, *Felis silvestris*, *Hypsugo savii*, *Martes martes*, *Myotis daubentonii*, *Nyctalus leisleri*, *Nyctalus noctula*, *Pipistrellus nathusii*, *Pipistrellus pipistrellus*, *Tadarida teniotis*. Of the mammals included in Annex II of the Habitats Directive, they need to be listed: *Barbastella barbastellus*, *Canis lupus*, *Lutra lutra*, *Lynx lynx*, *Mesocricetus newtoni*, *Miniopterus schreibersii*, *Myotis bechsteinii*, *Myotis blythii*, *Myotis capaccinii*, *Myotis emarginatus*, *Myotis myotis*, *Rhinolophus euryale*, *Rhinolophus ferrumequinum*, *Rhinolophus ferrumequinum*, *Rhinolophus hipposideros*, *Spermophilus citellus*, *Ursus arctos*, *Vormela peregusna*.

Birds: *Alauda arvensis*, *Athene noctua*, *Carduelis cannabina*, *Carduelis chloris*, *Corvus monedula*, *Emberiza cirulus*, *Emberiza melanocephala*, *Erithacus rubecula*, *Fringilla coelebs*, *Galerida cristata*, *Hirundo rustica*, *Jynx torquilla*, *Luscinia megarhynchos*, *Miliaria calandra*, *Monticola saxatilis*, *Monticola solitarius*, *Oenanthe hispanica*, *Oriolus oriolus*, *Otus scops*, *Parus caeruleus*, *Parus lugubris*, *Picus viridis*, *Pyrrhocorax graculus*, *Regulus regulus*, *Saxicola torquata*, *Sitta neumayer*, *Sylvia atricapilla*, *Sylvia cantillans*, *Sylvia melanocephala*, *Turdus merula*, *Turdus philomelos*, *Turdus torquatus*. Of the birds included in Annex II of the Habitats Directive, they need to be listed: *Accipiter brevipes*, *Accipiter gentilis*, *Accipiter nisus*, *Actitis hypoleucos*, *Aegolius funereus*, *Aegyptius monachus*, *Alcedo atthis*, *Alectoris graeca graeca*, *Anas platyrhynchos*, *Anas querquedula*, *Anthus campestris*, *Aquila chrysaetos*, *Aquila heliaca*, *Aquila pomarina*, *Ardea cinerea*, *Ardea purpurea*, *Ardeola ralloides*, *Bonasa bonasia*, *Botaurus stellaris*, *Bubo bubo*, *Burhinus oedicnemus*, *Buteo buteo*, *Buteo rufinus*, *Calandrella brachydactyla*, *Caprimulgus europaeus*, *Charadrius dubius*, *Chlidonias hybridus*, *Ciconia ciconia*, *Ciconia nigra*, *Circaetus gallicus*, *Circus aeruginosus*, *Circus cyaneus*, *Circus macrourus*, *Circus pygargus*, *Coracias garrulus*, *Crex crex*, *Dendrocopos syriacus*, *Dryocopus martius*, *Egretta alba*, *Egretta garzetta*, *Emberiza hortulana*, *Falco cherrug*, *Falco eleonora*, *Falco peregrinus*, *Falco subbuteo*, *Falco tinnunculus*,

Falco vespertinus, Ficedula semitorquata, Gallinago gallinago, Gallinula chloropus, Grus grus, Gyps fulvus, Haliaeetus albicilla, Hieraaetus pennatus, Hippolais olivetorum, Ixobrychus minutus, Lanius collurio, Lanius minor, Lanius minor, Lanius nubicus, Larus cachinnans, Larus ridibundus, Lullula arborea, Melanocorypha calandra, Merops apiaster, Milvus milvus, Neophron percnopterus, Nycticorax nycticorax, Pelecanus crispus, Pelecanus onocrotalus, Pernis apivorus, Phalacrocorax carbo, Phalacrocorax pygmeus, Philomachus pugnax, Picoides tridactylus, Picus canus, Platalea leucorodia, Plegadis falcinellus, Porzana porzana, Rallus aquaticus, Recurvirostra avosetta, Riparia riparia, Sylvia nisoria, Tringa glareola, Tringa ochropus, Vanellus vanellus.

Some of the more interesting species that are distributed at different times of the year (depending on their migratory dynamics) in the area of Doyran Lake (one of the most important Ramsar sites in the area, including ornithologically important place – OIP) ca: *Chroicocephalus ridibundus, Sterna hirundo, Phalacrocorax pygmeus, Phalacrocorax carbo, Pelecanus crispus, Egretta garzetta, Cygnus columbianus, Acrocephalus arundinaceus, Aythya ferina, Aythya nyroca, Aythya fuligula, Tachybaptus ruficollis, Mergellus albellus, Podiceps cristatus Fulica atra Rallus aquaticus Tringa ochropus Larus michahellis Circus aeruginosus Circus cyaneus Anthus spinoletta Remiz pendulinus Emberiza schoeniclus Ardea alba Alcedo atthis Cygnus olor Anas crecca Chlidonias hybrida Gavia arctica Mareca penelope Acrocephalus palustris Recurvirostra avosetta Ciconia ciconia Anser albifrons, Branta ruficollis Aythya marila Ixobrychus minutus Ardea purpurea Acrocephalus scirpaceus* и други.

Summary of the state of biological diversity:

The considered cross-border area is extremely rich in plant and animal species, incl. with high conservation status at national and international level, incl. not a small number of endemics and relics (glacial and tertiary).

The main threats to its biological diversity are the change in the natural conditions of the environment as a result of future development of road and other connecting infrastructure, pollution, changes in water regime, logging, tourism, poaching, poisoning baits to kill large predators, redevelopment in some areas intended or intended for resort purposes and others that are related to habitat change and affect habitat-specific animal species.

2.1.6. Protected zones and protected areas

➤ Blagoevgrad and Kyustendil districts (Republic of Bulgaria)

Protected areas of the European ecological network Natura 2000

Natura 2000 is a pan-European network of protected areas aimed at ensuring the long-term survival of Europe's most valuable and endangered species and habitats in accordance with the main international agreements in the field of environmental protection and biodiversity.

It must be established in all member states of the European Union and is a requirement for the accession of candidate countries of the union.

The sites belonging to the ecological network are determined in accordance with two main environmental directives of the European Union - Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (hereinafter referred to as the Habitats Directive) and Directive 2009/147/EA on the conservation of wild birds (hereinafter referred to as the Birds Directive).

The process of creating the Natura 2000 ecological network in Bulgaria began in 2002 with the adoption of the Biodiversity Act, which introduces the norms of the two European directives. Currently the network of protected areas in Bulgaria includes:

- 120 protected areas for protection of wild birds, covering 23.1% of the territory of Bulgaria;
- 233 protected areas for protection of natural habitats, covering 30.3% of the territory of Bulgaria

In general, the Bulgarian part of the European ecological network Natura 2000 amounts to 34.4% of the territorial scope of the country, which ranks us one of the first places in Europe in this regard.

The process of issuing orders under the Biodiversity Act to declare protected areas for the protection of wild birds has been completed ("Special Protected Areas" - SPAs), and currently Bulgaria is in the process of concluding the issuance of orders to declare protected Habitat areas - areas without warrants are designated as "Areas of Community Importance" (AoCM) and areas with completed ordering processes are designated as "Special Conservation Areas (SCA).

The territory of both districts includes all or part of a total of 40 protected areas of the ecological network "Natura 2000", data for which are presented in the two figures below and in the table below:

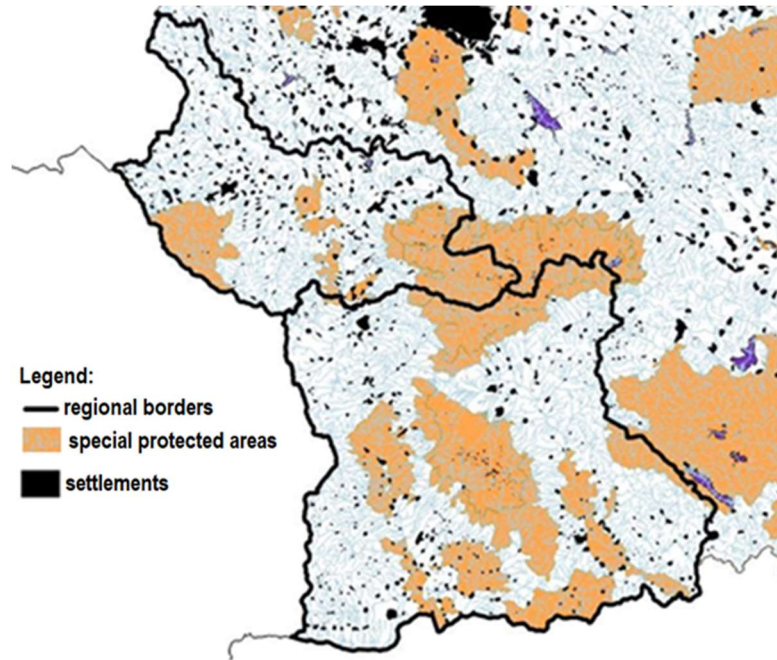


Figure 2.1.7-1 *Map of SPAs in Kyustendil and Blagoevgrad districts*

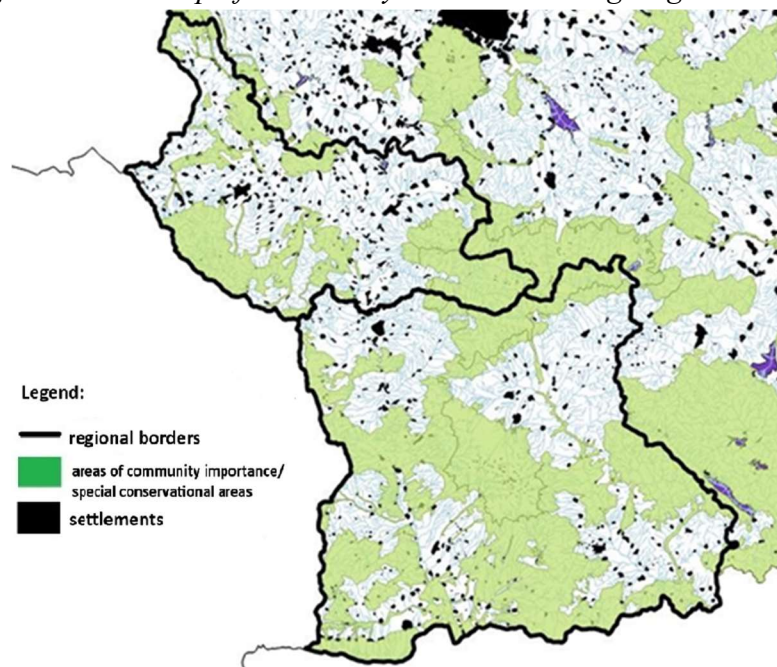


Figure 2.1.7-2 *Map of AoCM and SCA in Kyustendil and Blagoevgrad districts*

In general, the main objectives of declaring protected areas for birds are as follows:

- Conservation of the habitats of the bird species subject to protection in the protected areas, their populations and distribution within the zones in order to achieve and maintain their favorable condition;

- Improving the habitats of the species of birds subject to protection in the areas for which it is necessary to achieve a favorable condition;
- Maintenance of the habitats of other species of birds subject to protection in the zones.

The main objectives of declaring protected areas under the Habitats Directive are as follows:

- Conservation and maintenance of the types of natural habitats and species subject to protection of the zones, including their populations and distribution within the zones, in order to achieve and maintain their favorable conservation status;
- Conservation of the area of natural habitats and habitats of species and their populations subject to protection within protected areas;
- Preservation of the natural state of the natural habitats and the habitats of species subject to protection within the protected areas, including the natural species composition of these habitats, characteristic species and environmental conditions;
- Restoration, if necessary, of the area and natural state of priority natural habitats and habitats of species, as well as populations of species subject to protection within protected areas;
- Improving, if necessary, the structure and functions of natural habitats and improving the habitats of species for which this is necessary;
- If necessary, improvement of the condition or restoration of types of natural habitats and habitats of species and their populations for which it is necessary;
- The species of birds that are protected in the above areas and are respectively included in Annex I of Directive 2009/147/EA and Annex 2 of the Biodiversity Act and the types of natural habitats that are protected in the above areas and are respectively included in Annex I of Directive 92/43/EEC and Annex I of the Biodiversity Act, as well as the protected species included in Annex II of the same Directive and Annex 2 of the Biodiversity Act are presented in Natura 2000 Standard Zone Forms, which are publicly available in the Information System for protected areas of the Natura 2000 ecological network on a web address <http://natura2000.moew.government.bg/>. In addition to the forms in the system, the decisions of the Council of Ministers for the acceptance of the zones, their declaring orders, digital borders and other important information are also published..

Table 2.1.7-1 Natura 2000 protected areas on the territory of Blagoevgrad and Kyustendil districts ⁶²

№	Code, Name Directive (HD/BD)	Location	Order or other act of declaration/approval/acceptance
1	BG0000167 "Belasitsa" in HD	in lands of settlements of Petrich municipality, Blagoevgrad district	Announced by Order № RD-266 / 31.03.2021 of the Minister of Environment and Water (promulgated, SG No. 43/2021)
2	BG0002107 "Boboshevo" according to BD	- in lands of settlements of:	Announced by Order № RD-781 / 29.10.2008 of the Minister of Environment and Water (SG No. 104 / 05.12.2008)
3	BG0000308 "Verila" in HD	in lands of settlements of: - municipalities of Dupnitsa and Sapareva Banya, -Kyustendil district; - Radomir municipality, Pernik district; -Samokov municipality, Sofia district.	Announced by Order № RD-337 / 31.03.2021 of the Minister of Environment and Water (SG No. 54/2021)
4	BG0002100 "Dolna Koznitsa" according to BD	in lands of settlements of Bobov dol and Nevestino municipalities, Kyustendil district	Announced by Order № RD-810 / 06.11.2008 of the Minister of Environment and Water (SG No. 108/2008)
5	BG0000295 "Dolni Koriten" in HD	in the lands of settlements on the territory of Kyustendil municipality and Treklyano municipality, Kyustendil district	Announced by Order № RD-385 / 15.05.2020 of the Minister of Environment and Water (SG No. 50/2020)
6	BG0000220 "Lower Places" in HD	in lands of settlements of Satovcha and Hadjidimovo municipalities, Blagoevgrad district	included in the list of protected areas, adopted by Decision № 802 / 04.12.2007 of the Council of Ministers (SG No. 107 / 18.12.2007), amended by Decision of the Council of Ministers № 588 / 06.08.2021.
7	BG0002063 "Western Rhodopes" according to BD	in lands of settlements of: - municipalities of Bansko, Garmen and Satovcha, Blagoevgrad district; - municipalities of Batak, Bratsigovo, Velingrad and Rakitovo, Pazardzhik district; - Borino municipality, Dospat municipality, Smolyan district.	announced by Order № RD-835 / 17.11.2008 of the Minister of Environment and Water (SG No. 108 / 19.12.2008), amended by RMS № 335 / 26.05.2011 (SG No. 41 / 31.05.2011) and with Order № RD-890 / 26.11.2013 (promulgated SG, issue 107/2013)
8	BG0001012 "Earth" in HD	in lands of settlements of: - municipalities of Kyustendil and Treklyano, district of Kyustendil;	Announced by Order № RD-328 / 31.03.2021 of the Minister of Environment and Water (SG No. 53/2021)

⁶² <http://natura2000.moew.government.bg/>

№	Code, Name Directive (HD/BD)	Location	Order or other act of declaration/approval/acceptance
		- municipalities of Zemen, Kovachevtsi, Radomir and Trun, district of Pernik.	
9	BG0000625 "Izvor" in HD	on the land of the town of Razlog, Razlog municipality, Blagoevgrad district	Announced by Order № RD-378 / 15.05.2020 of the Minister of Environment and Water (promulgated SG, issue 50/2020)
10	BG0000298 "Konyavska planina" on HD	in lands of settlements of: - municipalities of Bobov dol and Kyustendil, district of Kyustendil; - Radomir municipality, Pernik district	included in the list of protected areas, adopted by Decision № 122 / 02.03.2007 of the Council of Ministers (SG No. 107/2007), amended by Decision of the Council of Ministers № 588 / 06.08.2021 (promulgated SG , No. 67/2021)
11	BG0002099 "Kocherinovo" according to BD	in lands of settlements of: - municipalities of Rila and Kocherinovo, district of Kyustendil; - Blagoevgrad municipality, Blagoevgrad district.	announced by Order № RD-770 / 28.10.2008 of the Minister of Environment and Water (SG No. 102/2008)
12	BG0002003 "Kresna" according to BD	in lands of settlements of municipalities Kresna, Sandanski, Simitli and Strumyani, district Blagoevgrad	announced by Order № RD-748 / 24.10.2008 of the Minister of Environment and Water (promulgated SG No. 97/2008)
13	BG0000366 "Kresna - Ilindentsi" in HD	in lands of settlements of municipalities Kresna, Sandanski, Simitli and Strumyani, district Blagoevgrad	announced by Order № RD-264 / 31.03.2021 of the Minister of Environment and Water (promulgated SG, issue 41/2021)
14	BG0000626 "Pear" on HD	on the land of the town of Razlog, Razlog municipality, Blagoevgrad district	announced by Order № RD-379 / 15.05.2021 of the Minister of Environment and Water (promulgated SG, issue 50/2020)
15	BG0001017 "Bloodstone" in HD	in lands of settlements of: - Treklyano municipality, Kyustendil district - Trun municipality, Pernik district	Announced by Order № RD-347 / 31.03.2021 of the Minister of Environment and Water (promulgated SG, issue 57/2021)
16	BG0000294 "Karshalevo" in HD	in lands of settlements of Kyustendil municipality, Kyustendil district	included in the list of protected areas, adopted by Decision № 122 / 02.03.2007 of the Council of Ministers (SG No. 107 / 18.12.2007), amended by Decision of the Council of Ministers № 588 / 06.08.2021 (promulgated SG, issue 67/2021)
17	BG0002072 "Melnik Pyramids" according to BD	in lands of settlements of Sandanski municipality, Blagoevgrad district	announced by Order № RD-283 / 16.03.2010 of the Minister of Environment and Water (SG No. 51 / 06.07.2010)
18	BG0002076 "Places" according to BD	in lands of settlements of municipalities Bansko, Gotse Delchev, Garmen, Satovcha, Hadjidimovo, district Blagoevgrad	announced by Order № RD-532 / 26.05.2010 of the Minister of Environment and Water (SG No. 51/2010)

№	Code, Name Directive (HD/BD)	Location	Order or other act of declaration/approval/acceptance
19	BG0000636 "Low Rila" in HD	in lands of settlements of: - municipalities of Blagoevgrad, Belitsa, Razlog, Simitli, Yakoruda, Blagoevgrad district; - municipalities of Boboshevo, Dupnitsa, Rila, Sapareva Banya, Kyustendil district; - Belovo municipality, Pazardzhik district; - municipalities of Dolna Banya, Kostenets, Samokov, Sofia region.	included in the list of protected areas, adopted by Decision № 177 / 03.04.2019 of the Council of Ministers (promulgated SG No. 29/2019);
20	BG0000224 "Ograzhden-Maleshevo" in HD	in lands of settlements of Strumyani municipality, Blagoevgrad district	announced by Order № RD-310 / 31.03.2021 of the Minister of Environment and Water (SG No. 50/2021)
21	BG0001022 "Oranovski prolom-Leshko" in HD	in lands of settlements of Blagoevgrad municipality and Simitli municipality, Blagoevgrad district	announced by Order № RD-348 / 31.03.2021 of the Minister of Environment and Water (SG No. 57/2021)
22	BG0002079 "Osogovo" according to BD	in lands of settlements of Nevestino and Kyustendil municipalities, Kyustendil district	announced by Order № RD-780 / 29.10.2008 of the Minister of Environment and Water (SG No. 103/2008)
23	BG0001011 "Osogovo Mountain" in HD	in lands of settlements of Nevestino and Kyustendil municipalities, Kyustendil district	announced by Order № RD-304 / 31.03.2021 of the Minister of Environment and Water (SG No. 49/2021)
24	BG0000209 "Pirin" according to BD	in lands of settlements of Razlog, Bansko, Gotse Delchev, Sandanski, Strumyani, Kresna and Simitli municipalities, Blagoevgrad district	announced by Order № RD-572 / 08.09.2008 of the Minister of Environment and Water (promulgated SG, issue 84/2008) and amended and supplemented by Order № RD-284 / 31.03.2021 of The Minister of Environment and Water (promulgated in the State Gazette, issue 45/2021)
25	BG0000209 "Pirin" in HD	in lands of settlements of Razlog, Bansko, Gotse Delchev, Sandanski, Strumyani, Kresna and Simitli municipalities, Blagoevgrad district	announced by Order № RD-572 / 08.09.2008 of the Minister of Environment and Water (promulgated SG, issue 84/2008) and amended and supplemented by Order № RD-284 / 31.03.2021 of The Minister of Environment and Water (promulgated in the State Gazette, issue 45/2021)
26	BG0002126 "Pirin Buffer" according to BD	in lands of settlements of municipalities Bansko, Gotse Delchev, Kresna, Sandanski, Hadjidimovo, Simitli and Strumyani, Blagoevgrad district	announced by Order № RD-352 / 11.04.2013 of the Minister of Environment and Water (SG No. 48/2013)

№	Code, Name Directive (HD/BD)	Location	Order or other act of declaration/approval/acceptance
27	BG00010216 "River Places" in HD	in lands of settlements of municipalities Bansko, Belitsa, Gotse Delchev, Garmen and Razlog, district Blagoevgrad	announced by Order № RD-353 / 31.03.2021 of the Minister of Environment and Water (SG No. 58/2021)
28	BG0000495 "Rila" in HD	in lands of settlements of: - municipalities of Blagoevgrad, Simitli, Razlog, Belitsa and Yakoruda, Blagoevgrad district; - Belovo municipality, Pazardzhik district; - municipalities of Kostenets, Dolna Banya and Samokov, Sofia district; - Sapareva Banya and Dupnitsa municipalities, Kyustendil district.	announced by Order № RD-764 / 28.10.2008 of the Minister of Environment and Water (promulgated SG, issue 100/2008) and amended by Order (RD-259 / 31.03.2021 of the Minister of the environment and the waters (promulgated in the State Gazette, issue 40/2021)
29	BG0000495 "Rila" according to BD	in lands of settlements of: - municipalities of Blagoevgrad, Simitli, Razlog, Belitsa and Yakoruda, Blagoevgrad district; - Belovo municipality, Pazardzhik district; - municipalities of Kostenets, Dolna Banya and Samokov, Sofia district; - Sapareva Banya and Dupnitsa municipalities, Kyustendil district.	announced by Order № RD-764 / 28.10.2008 of the Minister of Environment and Water (promulgated SG, issue 100/2008) and amended by Order (RD-259 / 31.03.2021 of the Minister of the environment and the waters (promulgated in the State Gazette, issue 40/2021)
30	BG0002129 "Rila Buffer" according to BD	in lands of settlements of: - municipalities of Blagoevgrad, Belitsa, Razlog, Simitli and Yakoruda, Blagoevgrad district; - municipalities of Boboshevo, Dupnitsa, Rila and Sapareva Banya, Kyustendil district; - municipalities of Belovo and Velingrad, district of Pazardzhik; - municipalities of Dolna Banya, Kostenets and Samokov, Sofia district.	announced by Order № RD-229 / 11.03.2020 of the Minister of Environment and Water (promulgated SG, issue 24/2020)
31	BG0000496 "Rila Monastery" according to BD	in lands of settlements of Rila municipality, Kyustendil district	announced by Order № RD-886 / 25.11.2013 of the Minister of Environment and Water (promulgated SG, issue 107/2013) and amended by Order (RD-283 / 31.03.2021 of the Minister of Environment and Water (promulgated in the State Gazette, issue 45/2021)
32	BG0000496 "Rila Monastery" in HD	in lands of settlements of Rila municipality, Kyustendil district	announced by Order № RD-886 / 25.11.2013 of the Minister of Environment and Water (promulgated SG, issue 107/2013) and amended

№	Code, Name Directive (HD/BD)	Location	Order or other act of declaration/approval/acceptance
			by Order (RD-283 / 31.03.2021 of the Minister of Environment and Water (promulgated in the State Gazette, issue 45/2021)
33	BG0001030 "Rhodopes - Western" in HD	in lands of settlements of: - municipalities of Bansko, Garmen, Razlog, Satovcha, Hadjidimovo, Blagoevgrad district; - municipalities of Batak, Bratsigovo, Velingrad, Peshtera, Rakitovo, Sarnitsa, Pazardzhik district; - municipalities of Asenovgrad, Krichim, Rhodopes, Plovdiv district; - municipalities of Borino, Devin, Dospat, Rudozem, Smolyan, Chepelare, Smolyan region	announced by Order № RD-278 / 31.03.2021 of the Minister of Environment and Water (promulgated SG, issue 45/2021)
34	BG0002098 "Holes" according to BD	in lands of settlements of Petrich and Sandanski municipalities, Blagoevgrad district	announced by Order № RD-282 / 16.03.2010 of the Minister of Environment and Water (promulgated SG, issue 28/2010)
35	BG0001023 "Rupite-Strumeshnitsa" in HD	in lands of settlements of Petrich and Sandanski municipalities, Blagoevgrad district	announced by Order № RD-349 / 31.03.2021 of the Minister of Environment and Water (promulgated SG, issue 57/2021)
36	BG0002108 "Chest of drawers" according to BD	in lands of settlements of municipalities Bobov dol, Boboshevo, Nevestino, Kyustendil district	Announced by Order № RD-782/2008 of the Minister of Environment and Water (promulgated SG, issue 104/2008)
37	BG0001013 "Screen" in HD	in lands of settlements of: - municipalities of Bobov dol, Nevestino, Kocherinovo, Boboshevo, Kyustendil district; - Blagoevgrad municipality, Blagoevgrad district;	included in the list of protected areas, adopted by Decision № 611 / 16.10.2007 of the Council of Ministers (SG No. 85 / 23.10.2007), amended by Decision of the Council of Ministers № 881 / 16.11.2010 No. 96 / 07.12.2010) and by Decision of the Council of Ministers № 588 / 06.08.2021 (promulgated SG No. 67/2021)
38	BG0002078 "Slavyanka" according to BD	in lands of settlements of Hadjidimovo and Sandanski municipalities, Blagoevgrad district	announced by Order № RD-751 / 24.10.2008 of the Minister of Environment and Water (SG No. 97/2008)
39	BG0001028 "Middle Pirin - Alibotush" in HD	in lands of settlements of municipalities Gotse Delchev, Petrich, Sandanski, Hadjidimovo, district Blagoevgrad	announced by Order № RD-350 / 31.03.2021 of the Minister of Environment and Water (SG No. 57/2021)
40	BG0000134 "Choklyovo swamp" in HD	in lands of settlements of: - Radomir municipality, Pernik district - Kyustendil municipality, Kyustendil district	announced by Order № RD-377 / 15.05.2020 of the Minister of Environment and Water (SG No. 50/2020)

Protected areas under the Protected Areas Act (PAA)

Since 1933, when the first protected area in Bulgaria was declared - the reserve "Silkosa" in Strandzha, and in 1934 the first national park on the Balkan Peninsula - "Vitosha", a consistent policy of expanding and strengthening the network of protected areas. .

At present, 1,017 protected areas have been declared in Bulgaria, covering approximately 5.27% of the country's territory. According to the PAA, protected areas fall into 6 categories: reserves (55), national parks (3), natural landmarks (344), maintained reserves (35), nature parks (11) and protected areas (569).

Protected areas and their effective protection contribute to the fulfillment of the requirements of a number of international conventions and agreements to which Bulgaria is a party:

Bulgaria was among the first countries to accede to the Ramsar Convention on Wetlands, signed without obligation to ratify pursuant to Council of Ministers Decision № 389 of 18 November 1974, in force for the country on 24 January 1976, as amended by Protocol , signed in Paris on December 3, 1982 and entered into force for Bulgaria on February 27, 1986.

In the list of the Convention on Wetlands of International Importance (Ramsar sites), Bulgaria is represented by 11 wetlands, representing approximately 0.45% of the country's territory, and in this case none of them falls within the scope of Kyustendil District and Blagoevgrad District.

The figure below shows the location of all categories of PAs in the territorial scope of the two districts, followed by their list.

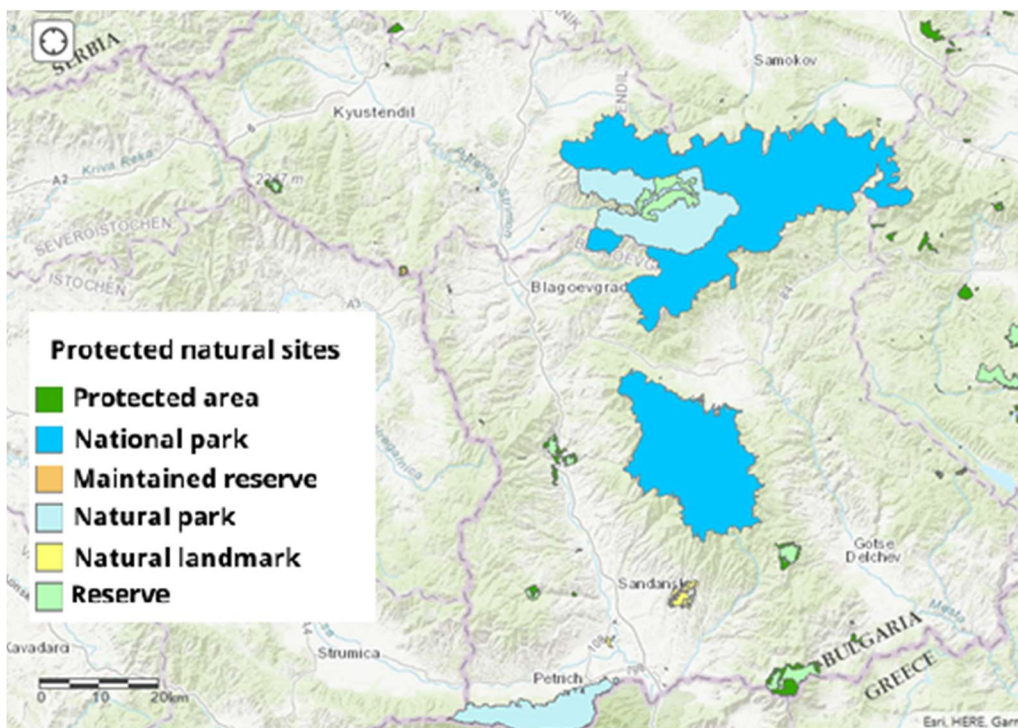


Figure 2.1.7-3 *Map of the categories of protected areas in Blagoevgrad and Kyustendil districts*

A total of 58 **protected areas under the Protected Areas Act** fall within the territory of **Blagoevgrad District** ⁶³:

1. **ALI BOTUSH** Category: Reserve
Location: 1. **District:** Blagoevgrad, **Municipality:** Sandanski, **Locality:** Goleshovo 2. **District:** Blagoevgrad, **Municipality:** Hadjidimovo, **Locality:** Nova Lovcha, Paril;
2. **BABITE** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Petrich, **Locality:** Petrich
3. **BAYOVI DUPKI-DJINJIRICA** Category: Reserve
Location: 1. **District:** Blagoevgrad, **Municipality:** Bansko, **Locality:** Bansko 2. **District:** Blagoevgrad, **Municipality:** Razlog, **Locality:** Razlog
4. **BELASICA** Category: Natural Park
Location: **District:** Blagoevgrad, **Municipality:** Petrich, **Locality:** Petrich, Belasitsa village, Gabrene village, Kamena village, Klyuch village, Kolarovo village, Samuilovo village, Skrut village, Yavornitsa village
5. **BELACITE** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Yakoruda, **Locality:** Buntsevo
6. **BESLET** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Garmen, **Locality:** Kovachevitsa
7. **BLATOTO** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Blagoevgrad, **Locality:** Obel
8. **THE WATERFALLS ON THE RIVER SANDANSKA BISTRITSA** Category: Natural landmark
Location: **District:** Blagoevgrad, **Municipality:** Sandanski, **Locality:** Lilyanovo
9. **THE WATERFALLS ON THE RIVER TUFCHA** Category: Natural landmark
Location: **District:** Blagoevgrad, **Municipality:** Gotse Delchev, **Locality:** Breznitsa
10. **NATURAL HABITAT OF PLANE TREES** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Kresna, **Locality:** Gorna Breznitsa
11. **NATURAL HABITAT OF PLANE TREES - BUYNA** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Kresna, **Locality:** Gorna Breznitsa, **Municipality:** Kresna, **Locality:** Gorna Breznitsa
12. **NATURAL HABITAT OF PLANE TREES - KUCHARINKA** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Kresna, **Locality:** Gorna Breznitsa
13. **JINGOV BRIAST** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Hadjidimovo, **Locality:** Gaitaninovo
14. **KARTALETS** Category: Protected area
Location: **District:** Blagoevgrad, **Municipality:** Petrich, **Locality:** Kulata
15. **KAYALI ROCKS** Category: Natural landmark
Location: **District:** Blagoevgrad, **Municipality:** Garmen, **Locality:** Kovachevitsa

⁶³ <http://eea.government.bg/zpo/bg/result2.jsp>

16. **KOJUHA** Category: Natural landmark
Location: District: Blagoevgrad, Municipality: Petrich, Locality: Rupite, Starchevo
17. **ONGURAKO** Category: reserve
Location: District: Blagoevgrad, Municipality: Petrich, Locality: Petrich
18. **KONSKI DOL** Category: Maintained reserve
Location: District: Blagoevgrad, Municipality: Satovcha, Locality: Pletena, Satovcha
19. **KREHNENSKO DEFILE** Category: Protected area
Location: District: Blagoevgrad, Municipality: Kresna, Locality: Kresna, Gorna Breznitsa
20. **KIOSHKATA** Category: Natural landmark
Location: District: Blagoevgrad, Municipality: Razlog, Locality: Razlog
21. **LUJICATA** Category: Protected area
Location: District: Blagoevgrad, Municipality: Gotse Delchev, Locality: Dobrotino, Luzhnitsa
22. **LIUBINA SKALA** Category: protected area
Location: District: Blagoevgrad, Municipality: Sandanski, Locality: Krastiltsi
23. **MANASTIRISHTETO** Category: Protected area
Location: 1. Area: Blagoevgrad, Municipality: Гърмен, Locality: The village of Kovachevitsa 2. Area: Blagoevgrad, Municipality: Satovcha, Locality: the village of Pletena
24. **MELNIK PYRAMIDS** Category: Natural landmark
Location: Area: Blagoevgrad, Municipality: Sandanski, Locality: Melnik, the village of Gorna Sushitsa, the village of Karlanovo, the village of Rozhen, the village of Sugarevo
25. **MORAVSKA** Category: Protected area
Location: Area: Blagoevgrad, Municipality: Kresna, Locality: town of Kresna, village of Gorna Breznitsa
26. **LOCATION OF ERODIUM ABSINTHOIDES WILLD** Category: Protected area
Location: Area: Blagoevgrad, Municipality: Blagoevgrad, Locality: The village of Logodazh
27. **LOCATION OF AMYGDALUS WEBII** Category: Protected area
Location: Area: Blagoevgrad, Municipality: Strumyani, Locality: The village of Palat
28. **LOCATION OF JOINT PINE** Category: Protected area, Location: Area: Blagoevgrad, Municipality: Petrich, Locality: The village of General Todorov
29. **LOCATION OF LASERPITIUM ARCHANGELICA WULFEN IN THE AREA OF KRUSHE** Category: Protected area
Location: Area: Blagoevgrad, Municipality: Razlog, Locality: rp. Razlog
30. **LOCATION OF GERANIUM** Category: Protected area
Location: Area: Blagoevgrad, Municipality: Simitli, Locality: The village of Sushitsa
31. **LOCATION OF CONVULVULUS HOLOSERICEUS M.BIEB.** Category: Protected area
Location: Area: Blagoevgrad, Municipality: Petrich, Locality: The village of Dolno Spanchevo

32. **ORELOK** Category: Reserve
Location: Area: Blagoevgrad, **Municipality:** Gotse Delchev, **Locality:** The village of Dobrotino, the village of Lazhnitsa
33. **ORLITE** Category: Natural landmark
Location: Area: Blagoevgrad, **Municipality:** Kresna, **Locality:** с. Влахи
34. **THE RANLIOVA DEPRESSION** Category: Protected area
Location: Area: Blagoevgrad, **Municipality:** Hadjidimovo, **Locality:** Ilinden village, Lucky village
35. **PARANGALICA** Category: Reserve
Location: Area: Blagoevgrad, **Municipality:** Blagoevgrad, **Locality:** The village of Bistritsa
36. **CAVE IN THE AREA OF BOYCHOVA SKALA** Category: Natural landmark
Location: Area: Blagoevgrad, **Municipality:** Blagoevgrad, **Locality:** The village of Logodazh
37. **GRANITE PYRAMID IN MUITNOSTA MOMINA SKALA** Category: Natural landmark
Location: Area: Blagoevgrad, **Municipality:** Simitli, **Locality:** Krupnik village
38. **PIRIN** Category: National Park
Location: 1. Area: Blagoevgrad, **Municipality:** Bansko, **Locality:** Bansko, town of Dobrinishte, village of Kremen, village of Obidim 2. Area: Blagoevgrad, **Municipality:** Gotse Delchev, **Locality:** the village of Breznitsa, the village of Kornitsa 3. Area: Blagoevgrad, **Municipality:** Kresna, **Locality:** The village of Vlahi, the village of Stara Kresna 4. Area: Blagoevgrad, **Municipality:** Razlog, **Locality:** Razlog 5. Area: Blagoevgrad, **Municipality:** Sandanski, **Locality:** Gorna Sushitsa village, Lilyanovo village, Pirin village, Ploski village, Sugarevo village 6. Area: Blagoevgrad, **Municipality:** Simitli, **Locality:** the village of Brezhani, the village of Gradevo, the village of Senokos 7. Area: Blagoevgrad, **Municipality:** Strumyani, **Locality:** The village of Ilindentsi
39. **PIRIN TULIP** Category: Protected area
Location: Area: Blagoevgrad, **Municipality:** Hadjidimovo, **Locality:** The village of Koprivlen
40. **PIRASTIYATA** Category: Natural landmark
Location: Area: Blagoevgrad, **Municipality:** Gotse Delchev, **Locality:** The village of Mosomishte
41. **PIRASTIYATA** Category: Natural landmark
Location: Area: Blagoevgrad, **Municipality:** Bansko, **Locality:** The village of Obidim
42. **RILA** Category: National Park
Location: 1. Area: Blagoevgrad, **Municipality:** Belitsa, **Locality:** Belitsa 2. Area: Blagoevgrad, **Municipality:** Blagoevgrad, **Locality:** Bistrica village 3. Area: Blagoevgrad, **Municipality:** Razlog, **Locality:** Bachevo village, Godlevo village, Gorno

Draglishte village, Dobarsko village, Dolno Draglishte village
4. Area: Blagoevgrad, **Municipality:** Simitli, **Locality:** the village of Gorno Osenovo, the village of Dolno Osenovo

5. Area: Blagoevgrad, **Municipality:** Yakoruda, **Locality:** Yakoruda

6. Area: Kyustendil, **Municipality:** Dupnitsa, **Locality:** The village of Bistritsa, the village of Samoranovo

7. Area: Kyustendil, **Municipality:** Sapareva Banya, **Locality:** rp. Sapareva Banya, The village of Ovcharts, the village of Resilovo

8. Area: Pazardzhik, **Municipality:** Belovo, **Locality:** town of Belovo, village of Gabrovitsa, village of Sestrimo

9. Area: Sofia, **Municipality:** Dolna Banya, **Locality:** Dolna Banya

10. Area: Sofia, **Municipality:** Kostnets, **Locality:** Kostenets

11. Area: Sofia, **Municipality:** Samokov, **Locality:** the town of Samokov, the village of Beli Iskar, the village of Govedarts, the village of Madjare, the village of Mala Tsarkva, the village of Raduil

43. **RUPITE** **Category:** Protected area

Location: **Area:** Blagoevgrad, **Municipality:** Petrich, **Locality:** The village of Rupite, the village of Starchevo

44. **THE ROCK FORMATION GOAT STONE** **Category:** Natural landmark

Location: **Area:** Blagoevgrad, **Municipality:** Gurmen, **Locality:** The village of Kovachevitsa

45. **THE ROCK FORMATION KUPENA** **Category:** Natural landmark

Location: **Area:** Blagoevgrad, **Municipality:** Gotse Delchev, **Locality:** The village of Breznitsa

46. **ROCK FORMATION THE WEDDING** **Category:** Natural landmark

Location: **Area:** Blagoevgrad, **Municipality:** Bansko, **Locality:** The village of Osenovo

47. **THE ROCK FORMATION THE BLACK ROCK** **Category:** Natural landmark

Location: **Area:** Blagoevgrad, **Municipality:** Bansko, **Locality:** The village of Osenovo

48. **SLAVYANKA** **Category:** Protected area

Location: **1. Area:** Blagoevgrad, **Municipality:** Sandanski, **Locality:** The village of Goleshovo

2. Area: Blagoevgrad, **Municipality:** Hadjidimovo, **Locality:** The village of Nova Lovcha, the village of Paril

49. **SOKOLATA** **Category:** Reserve

Location: **Area:** Blagoevgrad, **Municipality:** Strumyani, **Locality:** The village of Igralishte

50. **TISATA** **Category:** Reserve

Location: **Area:** Blagoevgrad, **Municipality:** Kresna, **Locality:** town of Kresna, village of Gorna Breznitsa

51. **TOPLISHTE** **Category:** Protected area

Location: **Area:** Blagoevgrad, **Municipality:** Petrich, **Locality:** The village of Kolarovo

52. **TUMNA GORA** Category: Maintained reserve

Location: Area: Blagoevgrad, **Municipality:** Gurmen, **Locality:** The village of Kovachevitsa

53. **HILL THE ROCK** Category: Protected area

Location: Area: Blagoevgrad, **Municipality:** Sandanski, **Locality:** Levunovo village

54. **CHESTENSKI WATERFALL IN THE AREA OF CHESTENSKO USOE** Category: Natural landmark

Location: Area: Blagoevgrad, **Municipality:** Yakoruda, **Locality:** Yakoruda

55. **CHETIRINADESET CHINARA** Category: Natural landmark

Location: Area: Blagoevgrad, **Municipality:** Petrich, **Locality:** The village of Mendovo

56. **CHUKARO** Category: Protected area

Location: Area: Blagoevgrad, **Municipality:** Струмьяни, **Locality:** с. Игралище

57. **THE SHARALIYA CAVE** Category: Natural landmark **Location:** Area: Blagoevgrad, **Municipality:** Strumyani, **Locality:** The village of Ilindentsi

58. **YULEN** Category: Reserve

Location: Area: Blagoevgrad, **Municipality:** Bansko, **Locality:** Bansko, town of Dobrinishte

The protected areas within the *Kyustendil area* are 23:

1. **CENTURY BEECH FOREST IN THE HOLY FOREST - MONASTERY OF ST. LUKA** Category: Protected area

Location: Area: Kyustendil, **Municipality:** Kyustendil, **Locality:** The village of Granitsa

2. **GORTISAWATERFALL** Category: Natural landmark

Location: Area: Kyustendil, **Municipality:** Sapareva Banya, **Locality:** The village of Ovcharts, the village of Resilovo

3. **WATERFALL IN THE AREA OV ST. YANA** Category: Natural landmark

Location: Area: Kyustendil, **Municipality:** Nevestino, **Locality:** Smolichano village

4. **GABRA** Category: Maintained Reserve

Location: Area: Kyustendil, **Municipality:** Nevestino, **Locality:** The village of Tsarvaritsa

5. **SEQUOI GROUP IN YUCHBUNAR** Category: Natural landmark

Location: Area: Kyustendil, **Municipality:** Kyustendil, **Locality:** The village of Bogoslov

6. **GREEN REED** Category: Protected area

Location: Area: Kyustendil, **Municipality:** Kyustendil, **Locality:** Sazhdenik village, Red Apple village

7. **THE ZEMEN ROCKS** Category: Natural landmark

Location: Area: Kyustendil, **Municipality:** Kyustendil, **Locality:** The village of Polska Skakavitsa

8. **KORIA –THE VILLAGE OF DOBRI DOL** Category: Natural landmark

Location: Area: Kyustendil, **Municipality:** Treklyano, **Locality:** the village of Dobri Dol

9. **MANLOVOTO** Category: Protected area

Location: Area: Kyustendil, **Municipality:** Nevestino, **Locality:** The village of Tsarvaritsa

10. LOCATION OF VERBASCUM ANISOPHYLLUM – THE VILLAGE OF CRVENYANO

Category: Protected area

Location: Area: Kyustendil, **Municipality:** Kyustendil, **Locality:** The village of Crvenyano

11. LOCATION OF VERBASCUM ANISOPHYLLUM - VUKOVO VILLAGE

Category: Protected area **Location:** Area: Kyustendil, **Municipality:** Boboshevo, **Locality:** Vukovo village

12. LOCATION OF MARSH CLUBMOSS - S. DRAGOYCHINTSI

Category: Protected area **Location:** Area: Kyustendil, **Municipality:** Treklyano, **Locality:** The village of Dragoychintsi

13. LOCATION OF ASTRAGALUS DASYANTHUS - BOBOSHEVO

Category: Protected area

Location: Area: Kyustendil, **Municipality:** Boboshevo, **Locality:** Boboshevo

14. LOCATION OF CENTAUREA FINAZZERI **Category:** Protected area

Location: Area: Kyustendil, **Municipality:** Kyustendil, **Locality:** The village of Polska Skakavitsa

15. LOCATION OF TURKISH HAZEL IN THE AREA OF CASANA

Category: Natural landmark **Location:**

Area: Kyustendil, **Municipality:** Boboshevo, **Locality:** The village of Skrino

16. CAVE IN RUDINA AREA **Category:** Natural landmark

Location: Area: Kyustendil, **Municipality:** Nevestino, **Locality:** The village of Ilia

17. RILA **Category:** National Park

Location: 1. **Area:** Blagoevgrad, **Municipality:** Belitsa, **Locality:** Belitsa

2. **Area:** Blagoevgrad, **Municipality:** Blagoevgrad, **Locality:** The village of Bistritsa

3. **Area:** Blagoevgrad, **Municipality:** Razlog, **Locality:** Bachevo village, Godlevo village, Gorno Draglishte village, Dobarsko village, Dolno Draglishte village

4. **Area:** Blagoevgrad, **Municipality:** Simitli, **Locality:** the village of Gorno Osenovo, the village of Dolno Osenovo

5. **Area:** Blagoevgrad, **Municipality:** Yakoruda, **Locality:** Yakoruda

6. **Area:** Kyustendil, **Municipality:** Dupnitsa, **Locality:** The village of Bistritsa, the village of Samoranovo

7. **Area:** Kyustendil, **Municipality:** Sapareva Banya, **Locality:** Sapareva Banya, The village of Ovcharts, the village of Resilovo

8. **Area:** Pazardzhik, **Municipality:** Belovo, **Locality:** town of Belovo, village of Gabrovitsa, village of Sestrimo

9. **Area:** Sofia, **Municipality:** Dolna Banya, **Locality:** Dolna Banya

10. **Area:** Sofia, **Municipality:** Kostenets, **Locality:** Kostenets

11. **Area:** Sofia, **Municipality:** Samokov, **Locality:** the town of Samokov, the village of Beli

Iskar, the village of Govedartsi, the village of Madjare, the village of Mala Tsarkva, the village of Raduil

18. **RILOMANASTIRSKA GORA** Category: Reserve

Location: Area: Kyustendil, **Municipality:** Rila, **Locality:** Rila Monastery

19. **RILA MONASTERY** Category: Natural Park

Location: Area: Kyustendil, **Municipality:** Rila, **Locality:** Rila Monastery, the village of Padala, the village of Pastra

20. **SKAKAVITSA** Category: Reserve

Location: Area: Kyustendil, **Municipality:** Sapareva Banya, **Locality:** Sapareva Banya

21. **THE SKAKAVISA WATERFALL** Category: Natural landmark

Location: Area: Kyustendil, **Municipality:** Kyustendil, **Locality:** The village of Polska Skakavitsa

22. **THE STOB PYRAMIDS** Category: Natural landmark

Location: Area: Kyustendil, **Municipality:** Kocherinovo, **Locality:** The village of Stob

23. **TSURNA RIVER** Category: Reserve

Location: Area: Kyustendil, **Municipality:** Kyustendil, **Locality:** The village of Sazhdenik

Ramsar sites

The territorial scope of CBCP and TSIM includes two potential Ramsar sites - Choklyovo marsh (protected area), part of which is located in the village of Bunovo, Kyustendil municipality, and the Seven Rila Lakes (within the Rila National Park), also located in Kyustendil district, which should also be taken into account in order to prevent adverse effects, in the implementation of the program and strategy.

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

Proposed protected areas of the European ecological network Natura 2000 (Emerald network and ornithologically important places - OIP)

As mentioned above, Natura 2000 is a pan-European network of protected areas aimed at ensuring the long-term survival of Europe's most valuable and endangered species and habitats in accordance with the main international agreements in the field of environmental protection and biological protection. diversity. It must be established in all member states of the European Union and is a requirement for the accession of candidate countries of the union. As Republic of North Macedonia is not a member of the union, there are no officially established and adopted by EC decisions lists of Natura 2000 protected areas, but as a candidate member it is preparing for the process of identifying and proposing such by preparing relevant proposals. In this regard, the country has adopted the approach of using mostly the established areas of the Emerald Network (Emerald Network - Ecological network to conserve wild flora and fauna and their natural habitats of Europe), the identified ornithologically important sites on Birdlife (IBAs) similarly of Bulgaria, as well as the identified important plant sites (IPAs), as they largely overlap.

Emerald network is a network of areas of special conservation interest designated to preserve the network of natural habitats and it is developed on the territory of the Parties to Bern

Conventions. The main motive behind the development of this network is to contribute to the ecological network Natura 2000 in countries that are not member states of the European Union, using as much as possible similar methodological approach. Activities towards development of the national Emerald network in the the Republic of North Macedonia is started back in 2002, and full identification is finalized in 2008. Total of 35 areas are included in the national Emerald network covering total area of 752.223 ha, which is around 29% of the territory of the the Republic of North Macedonia (MoEPP 2008). 20 of these areas are located in alpine biogeographical region (Western part of Republic of North Macedonia), and the rest of 15 in continental region (Eastern part of Republic of North Macedonia) according the next Figure. In the territorial range of the program are included: “Pchinja – German”, “Osogovo”, “Ovche Pole Bogoslovec”, “Bregalnica Gorge”, “Maleshevo”, “Belasica” and “Dojran”.

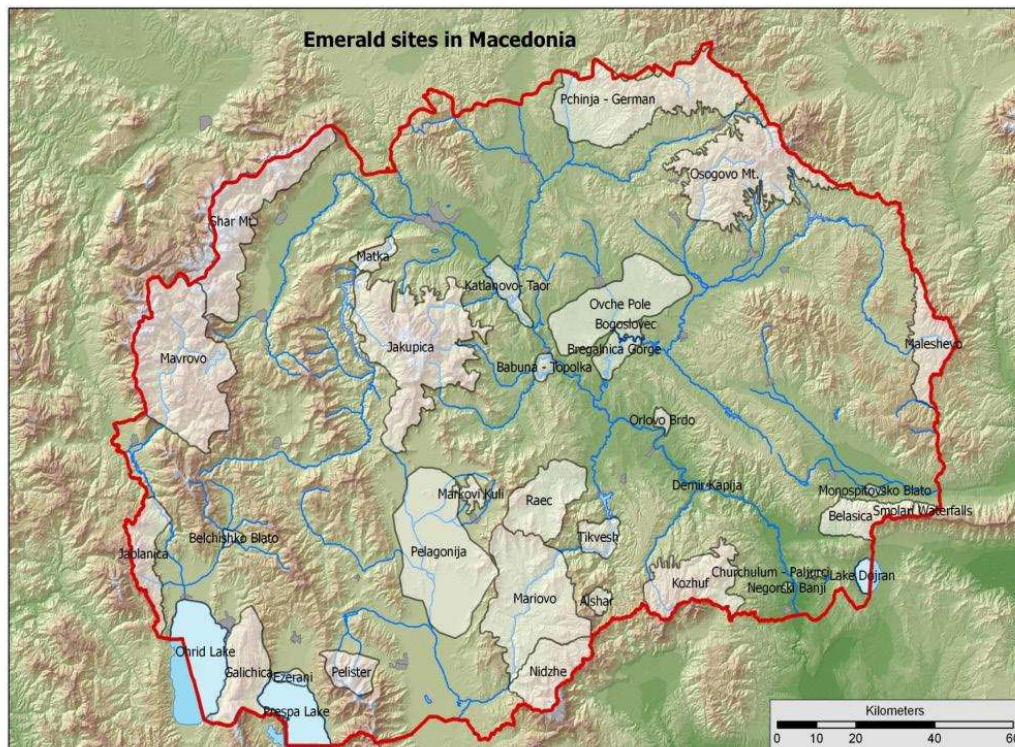


Figure 2.7.1-4 National Emerald Network (2011 GEF/UNDP/MoEPP Project “Strengthening the Ecological, Institutional and Financial Sustainability of National Protected Areas System Republic of North Macedonia ”)

12 Emerald areas are fully, two partially protected on national level within the boundaries of existing protected areas, while the rest is outside the network of protected areas.

In the process of integration into European Union (upon awarded candidate country status in 2005), the the Republic of North Macedonia is obliged and committed to respond to the requirements of the EU, including implementation of the two most important directives on nature - Habitats Directive and Bird Directive which are the grounds for the establishment of the Natura 2000 network. Sectoral Strategy for approximation in the segment of nature and forestry (prepared in the frames of the CARDS 2006 Project “Strengthening of environmental management in the Republic of North Macedonia”) included detailed gap analysis on the basis of which actions

necessary for full legal transposition and practical implementation of the two Directives were defined. So far, activities have focused on directives transposition into national legislation through implementation of several projects by MoEPP, as well as non-governmental organizations, and identification of Natura 2000 sites has not started yet. Identified important areas for birds (IBAs), plants and butterflies and Emerald areas can certainly serve as good basis for their implementation.

The programme for IBAs is initiative carried out by BirdLife International on global level in order to provide conservation of areas that are important for the conservation of globally endangered bird species and species of European interest for conservation, areas for migratory birds which gather in high number, areas for birds specific to a small region and areas where groups of species specific to a given biome can live (Heath & Evans 2000). The latest review of the Important Bird Areas in the Republic of North Macedonia was made in the course of 2010 resulting in identification of 24 IBAs covering an area of 6907 km² or 26.9% of the national territory (Velevski et al. 2010). The network of IBAs includes 80-100% of the national populations of globally threatened species, while the coverage of other species ranges between 7% and 100%, reaching above 40% for most of the species. Protection of these areas on national level is insufficient only few areas are fully protected (Prespa Lake, Tikvesh Lake, Demir Kapija and Radika River Basin), and most of them lack any measure for protection. The network of IBAs overlaps with the network of protected areas in only around 10%, which is insufficient to preserve priority species of birds. Additional challenge is the need for precise determination of IBAs for forest bird species.

In the territorial range of the program are included: MK014 Pcinja - Petrosnica - Kriva Reka Rivers, MK016 Osogovo Mountains, MK012 Zletovska River Valley, MK015 Preod – Gjugjance, MK019 Ovce Pole, MK028 Kocani Rice Fields, MK022 Lake Mantovo and Kriva Lakavica River, MK020 Topolka - Babuna - Bregalnica Rivers, MK021 Gradsko - Rosoman – Negotino, MK008 Demir Kapija Gorge, MK013 Tikves Region, MK 10 Lake Dojran, MK029 Dolen tek na reka Vardar Lower Vardar.

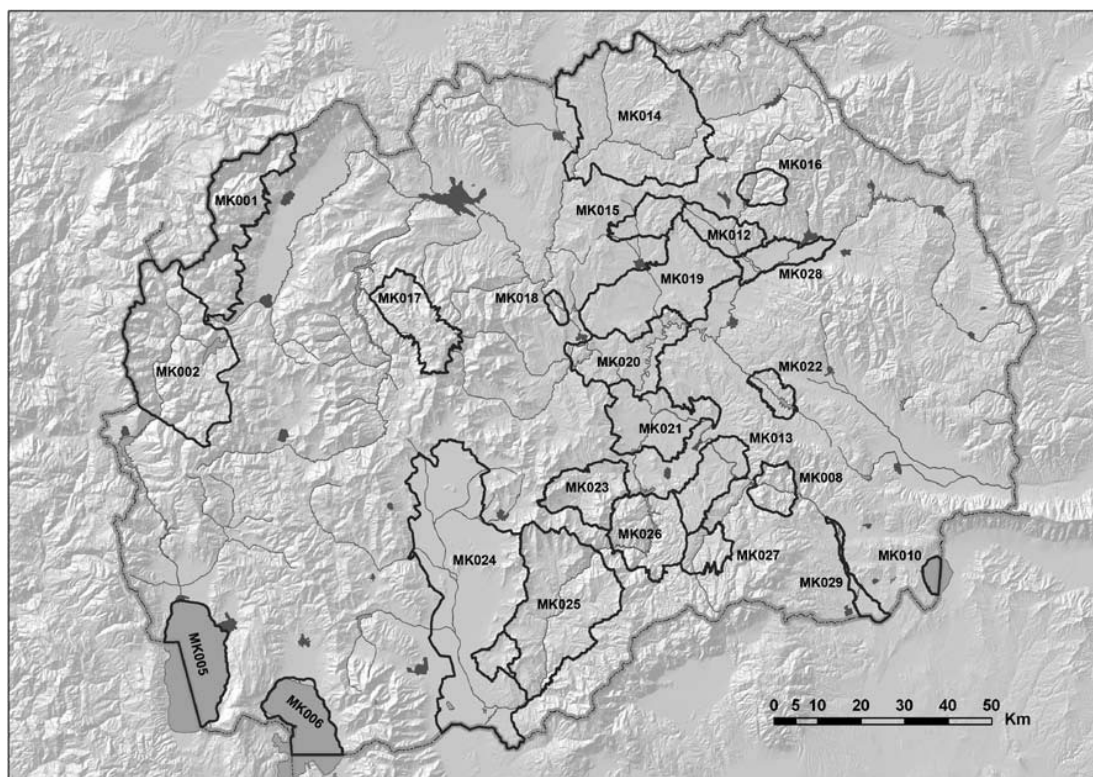


Figure 2.7.1-5 Map of IBA sites in Republic of North Macedonia – the proposal of 2008

It should be borne in mind that the final adoption of the lists of protected areas proposed by the candidate countries by the EC takes place within the discussions during the so-called biogeographical seminars, which are part of the so-called Natura 2000 Biogeographical Process. Representatives of the scientific community from the EU Member States (MS), representatives of the line ministries of the MS, representatives of some responsible European institutions (European Thematic Center for Biological Diversity at the European Environment Agency) take part in these discussions with opinions and proposals, and other stakeholders. In these discussions, the lists of proposed PAs may undergo significant adjustments due to changes in the boundaries of the proposed areas or as a result of dropping existing or including new ones. In view of this, at this stage, the areas discussed above with the potential for inclusion in the future ecological network Natura 2000 of Republic of North Macedonia should not be considered as final, but only as hypothetical.

Protected areas under the national legislation of the Republic of North Macedonia

The categorization of protected areas in the the Republic of North Macedonia has been prescribed in the Law on Nature Protection, more or less harmonized with IUCN. The names of categories have been retained as those under IUCN categorization, maybe slightly modified or entirely changed. According to Ornat & Reines (2007), categories of protected areas in Republic of Republic of North Macedonia are classified as level 2 of harmonization with IUCN categorization, or categories are practically identical to those of IUCN, though IUCN is not referred to specifically in the national law. At present, the network of protected areas in the Republic of North Macedonia comprises 86 areas proclaimed under under the appropriate IUCN category as follows:

Table 2.1.7-2 Number and area of protected areas in different category of protection (Source: MoEPP, CDDA 2014)

Category of protection according to IUCN	Number of sites	Coverage (ha)	% of the country territory
Ia. Strict Nature Reserve	2	7787	0,3
Ib. Wilderness Area	-	-	-
II. National Park	3	114870	4,48
III. Natural Monument	67	78967.5	3,0
IV. Park of Nature	12	3045	0,12
V. Protected landscape	1	108	0,004
VI. Multipurpose Area	1	25305	0,98
Total	86	230083	8.9

Thus, currently the designated area network comprises 86 areas, with total area of 230083 ha or 8.94% of the territory of the Republic of North Macedonia.

Most of it falls into the category national parks with around 4.47%, then natural monuments with 3.07% and the multipurpose area Jasen with 0,97% of the national territory. A map of the currently existing national protected areas is given on the next figure.

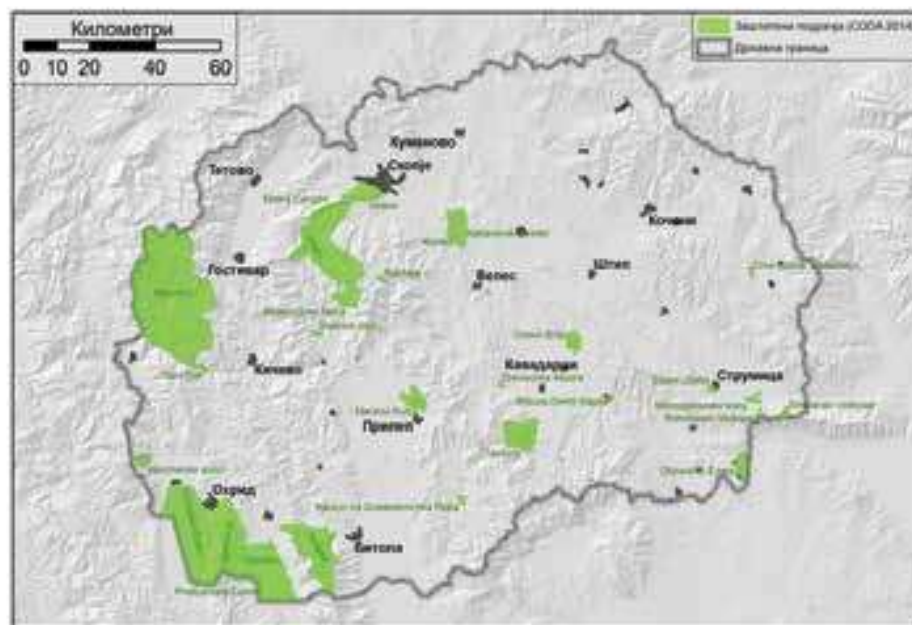


Figure 2.1.7-6 Map of the current National network of protected areas in the Republic of North Macedonia

As it could be seen from the above map the most of the national protected areas (including the area of their total territorial range) are located in the west part of the country and only a few areas with very small territorial range are located in the east part where is the territory of the program.

Current network of protected areas is not efficient and copes with many challenges: the areas are proclaimed under different categorizations; the process of re-proclamation is going on very slowly; there is notable difference in the position of protected areas between eastern and western parts of the Republic of North Macedonia; major part of the areas do not have management entities or nominated entities have insufficient capacity or fail to implement any measure/activity (nominated only on paper); management plans have been prepared only for the national parks and few other areas; besides the legal grounds for funds allocation from the central budget, protected areas are still self-financing.

In this regard in 2010 detailed analysis was made of all protected and proposed for protection areas included in the Study of the Natural Heritage under the Spatial Plan of the Republic of North Macedonia (adopted in 2004) and other documents, as part of the UNDP/GEF project Strengthening of ecological, institutional and financial sustainability of the system of protected areas in the the Republic of North Macedonia and “Representative National network of protected areas and areas proposed for protection” was proposed as a result (according to next Figure) that will contribute to more efficient conservation of species, habitats and ecosystems of national and global importance. Representative national network of protected areas includes 99 areas. It covers an area of around 20% of the national territory and is in accordance with the goals of the Convention on Biological Diversity by 2020. Even more important, the network includes areas of different natural values (marshes, mountain areas, alpine, forest areas, lowland and even semi-natural ecosystems) compared to the old system of protected areas (legally not existing yet) which was oriented more to forest, alpine and lake ecosystems.

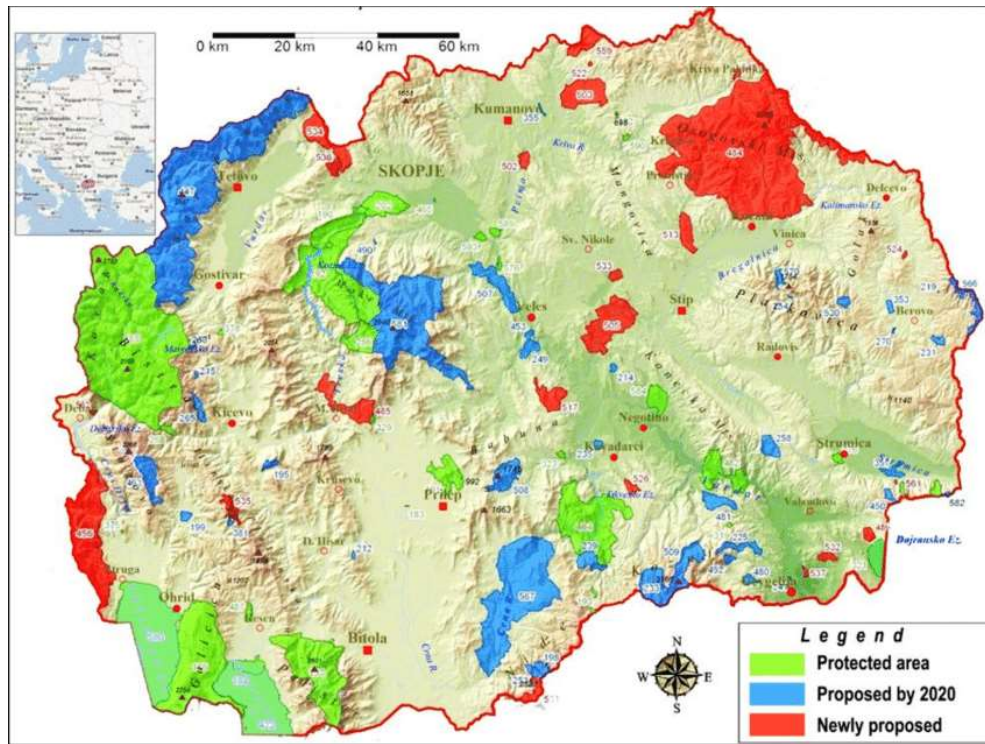


Figure 2.1.7-7 Map of the potentially future National network of protected areas in the Republic of North Macedonia

By important protected areas with international protection regime - Ramsar sites.

In accordance with the obligations of the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar, 1971), the Ramsar List includes two protected areas of the the Republic of North Macedonia: Prespa Lake (1995) and Dojran Lake (2007). The second is located within the territorial scope of the program and it is separated between the Republic of North Macedonia and Greece.

Figure...

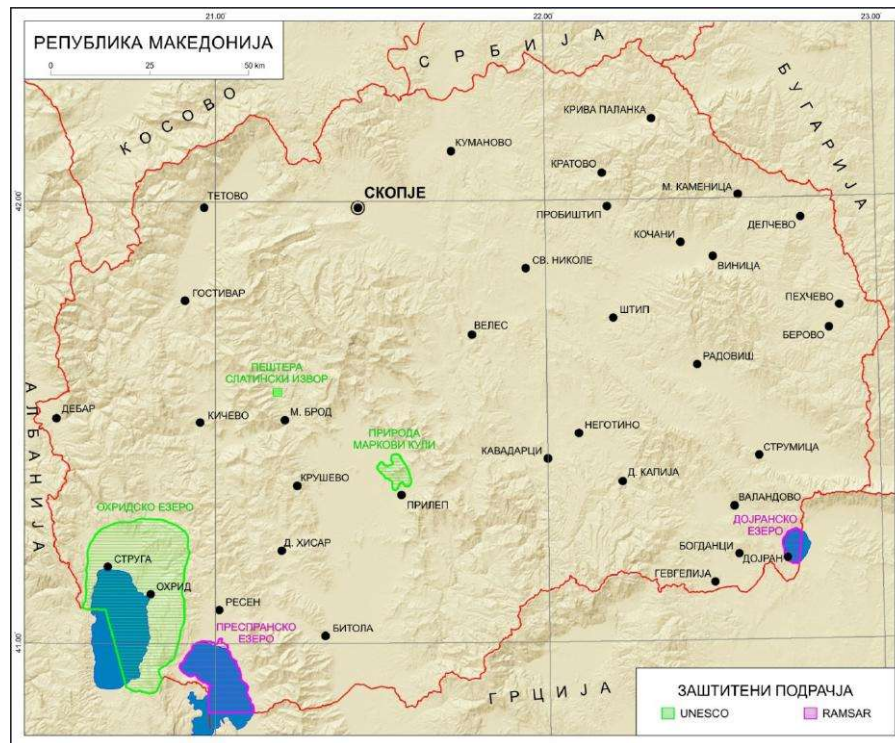


Figure 2.1.7-8 Ramsar sites in the Republic of North Macedonia

Summary of the condition of protected areas and territories:

The territory of the cross-border area is extremely rich in valuable natural areas under legal protection. All activities should be in accordance with the management regimes according to the normative regulation, the normative and administrative acts for the declaration of the protected territories and zones, as well as with their management plans.

2.1.7. Landscape condition

In addition to national legislation, the European Landscape Convention plays an important role in the protection of the landscape. The main objective of the Convention is to preserve Europe's cultural and natural heritage, which defines the appearance of the pan-European landscape. Another aim of the convention is to demonstrate that the natural and cultural components of the landscape can be protected and strengthened without being declared monuments. The two main aspects of the convention are:

- recognizing the value of all components of the landscape and their importance in ensuring the quality of life of people and their identity;
- the active role of society in the perception and assessment of the landscape.

The characteristics of the landscape in the cross-border area are as follows:

➤ **Blagoevgrad and Kyustendil districts (Republic of Bulgaria)**

According to the Landscape Zoning according to G. Petrov, 1997, the region of the two districts falls into the South Bulgarian mountain-valley region, occupying parts of the Krayshche, Osogovo-Srednostrum, South Stream, Rila and Pirin subregions. As classes of landscapes, valleys and mountains predominate.

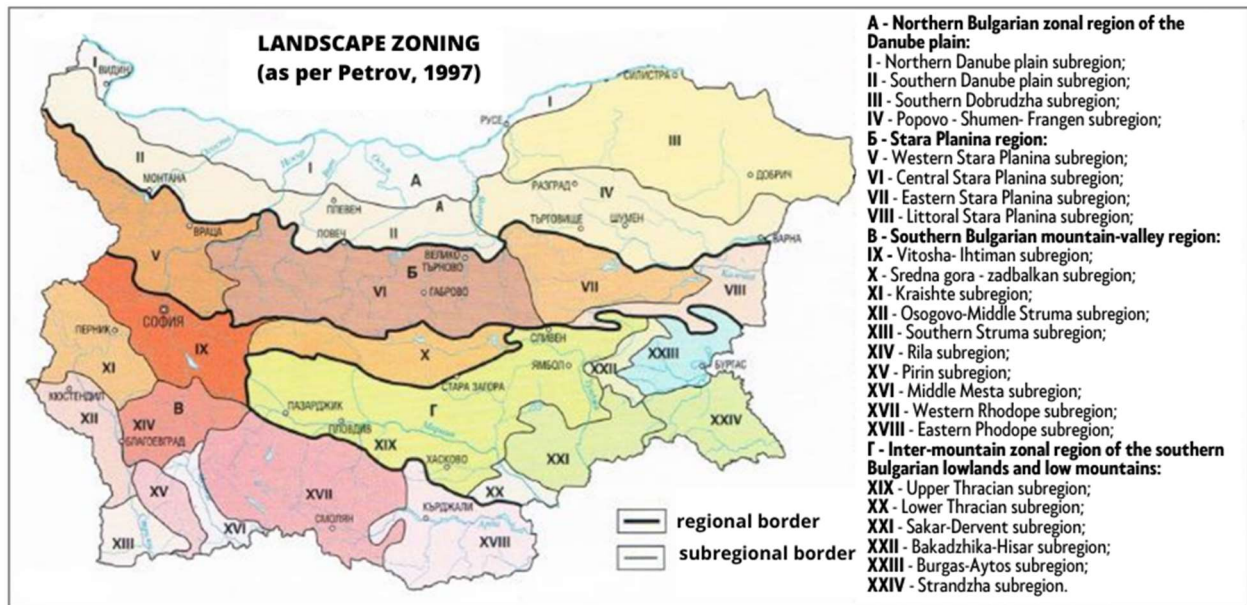
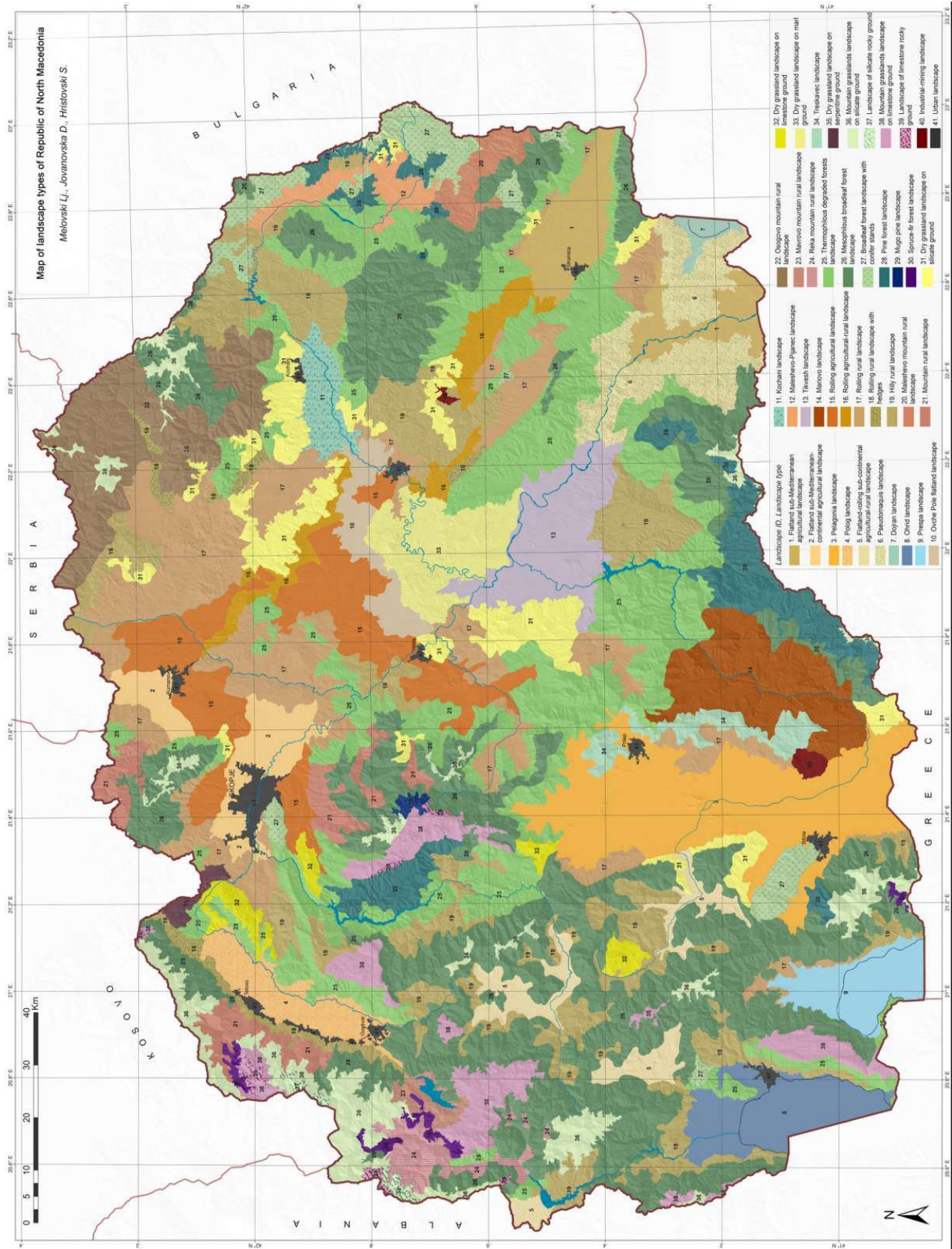


Figure 2.1.8-1 Map of the landscape zoning (according to Petrov 1997.)

➤ **Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)**

According to previous research, there may be eight main groups of landscapes in Republic of North Macedonia (National Nature Conservation Strategy 2017-2027), with almost all types (except without lake landscape types) represented in the areas covered by the TSG and TSIM:

- Urban and industrial mining landscapes;
- Agricultural landscapes;
- Rural areas;
- Landscapes of hilly pastures;
- Forest landscapes;
- Landscapes of alpine pastures;
- Alpine landscapes with rock base and rocky sections.



➤ **Landscapes in the border area - condition**

In **the northern part** of the border area, the groups of landscapes of the high mountain subalpine meadows and bushes on intrusive rocks, landscapes of the middle mountain deciduous forests on carbonate-free sedimentary rocks, landscapes of the mid-mountain steppe deciduous on unmixed Quaternary deposits with a high degree of agricultural utilization, landscapes of mountain rocks and screes in the structural-erosive relief of carbonate rocks, landscapes of alpine coniferous forests on intrusive rocks, landscapes of mid-mountain coniferous conifers, coniferous conifers forest-meadow-steppe hills of massive and metamorphic rocks among the flat bottoms of intermountain valleys with a relatively low degree of agricultural utilization, landscapes of mid-mountain coniferous-deciduous forests on carbonate-free sedimentary rocks, landscapes of mid-mountain deciduous forests on massive and metamorphic rocks, landscapes of mid-mountain coniferous-deciduous forests on limestone rocks, landscapes of high mountain rare and low-stem forests on crystalline shales and gneisses, landscapes of meadow-steppe sloping high degree of agricultural utilization, landscapes of forest-meadow-steppe hills among the flat bottoms of intermountain valleys of massive and metamorphic rocks with relatively low degree of agricultural utilization, landscapes of high mountain rare and low-stemmed forests on marbles, landscapes rocks with a relatively low degree of agricultural utilization.

In **the southern part** of the border zone the groups of landscapes of the middle mountain coniferous-deciduous forests on massive and metamorphic rocks, landscapes of mountain rocks and screes in structural-erosion relief of intrusive rocks, landscapes of forest-steppe landscapes hollows of massive and metamorphic rocks with relatively low degree of agricultural utilization, landscapes of meadow-steppe bottoms of inland mountain valleys with unconnected Quaternary deposits and high degree of agricultural utilization, landscapes of meadow-steppe bottoms of inland mountainous and alluvial clayey shallow clay pile with a high degree of agricultural utilization, landscapes of lowland xerophytic shrub forests on Mesozoic and Paleogene clay-sandy deposits with relatively low degree of agricultural utilization, landscapes of high mountain coniferous forests on crystalline shale and gneisses our forests on marbles, landscapes of the moderately moist mountain open karst in metamorphosed limestones, landscapes of the lowland xerophytic oak forests on metamorphic rocks with a relatively low degree of agricultural utilization.

The condition of the landscape is described as a complex of natural components and anthropogenic factors, and is a result of the condition of the components and environmental factors described in the other sub-items of **item 2.1** of the EAR.

Each landscape has its own aesthetic capacity, determined by its external structure and ecological capacity, determined by its internal structure. Aesthetic capacity is determined by the boundary at which the visual unity and aesthetic harmony in the landscape is preserved. Ecological capacity is determined by the preservation of the mechanisms of self-regulation of the landscape, ensuring the preservation of the existing ecological balance.

При съвременните ландшафти е важно да се вземе предвид степен на изменение на ландшафта от намесата на антропогенния фактор, предизвикващ понякога нарушаване на естественото равновесие и необходимост от опазване и възобновяване на природните

дадености в съответния ландшафт. На тази база ландшафтите могат да се поделят най-общо на:

- *natural landscapes* – they are formed under the influence of natural factors and do not fall under the influence of human activity. As can be seen from the analysis of biodiversity, protected areas and territories within the cross-border area, it is home to extremely diverse natural habitats, with a specific, valuable natural landscape - in most cases - with a specific legal conservation status.

- *anthropogenic landscapes* – they are the result of human activity, which changes to some extent some of the natural components, forming their specific character and structure. Anthropogenic landscapes include most of the modern landscapes of the earth, incl. in the cross-border area in question.

Of the anthropogenic ones, the most represented are agricultural and mainly pasture landscapes. In the eastern region of the Republic of North Macedonia, there are significant areas with a developed lead-zinc industry, given the developed deposits (which lead to the most significant and adverse impact on the landscape), described as "industrial hotspots". On the territory of the Republic of Bulgaria are also most affected the territories in which mining activity is / is carried out. Only the mid-mountain and high-mountain landscapes are weakly affected by the anthropogenic activity in the cross-border area - for the most part these are forest areas - the most common are pine, oak and beech. The problem for the territory of the Republic of North Macedonia is the intensive deforestation of oak forests, due to which these forests are currently in the phase of formation of young nurseries with different densities.

Sensitive landscapes are defined as areas along rivers, protected areas, wetlands and areas of the European ecological network Natura 2000, protected areas for nature protection and ecosystem diversity, cultural heritage sites. Any interference in them could have irreversible consequences on the sustainability of landscape complexes. As mentioned above in the case of natural landscapes, the cross-border area is rich in such sensitive landscapes, which places high demands and many restrictions on the activities that can be carried out in this area.

Summary of the state of the landscape:

The location, the relief and the climatic features of the cross-border area contribute to the presence of its great landscape diversity. Mountain and valley landscapes predominate, as well as anthropogenic compared to natural landscapes. Specifically in the border area, the absorption of the territory and the degree of urbanization is significantly lower than in the direction of the interior of the two countries. The richness of the area of natural, incl. sensitive landscapes, sets high requirements and many restrictions on the activities that can be carried out in this area.

2.1.8. Status of tangible assets

Land/land use and constructed sites and infrastructure are considered as tangible fixed assets. Land use is discussed in detail in **item 2.1.5** of the EAR. The main types of infrastructure in the cross-border region related to CBCP and TSIM are:

1. *Cultural infrastructure;*
2. *Transport infrastructure*

3. *Eurovelo 13*
4. *Communal infrastructure;*
5. *Building stock (public, including educational, health, social and other infrastructure);*
6. *Urban infrastructure, including pedestrian and bicycle infrastructure; parks and playgrounds; sports infrastructure.*
7. *Information and communication technologies.*
8. *Tourism*

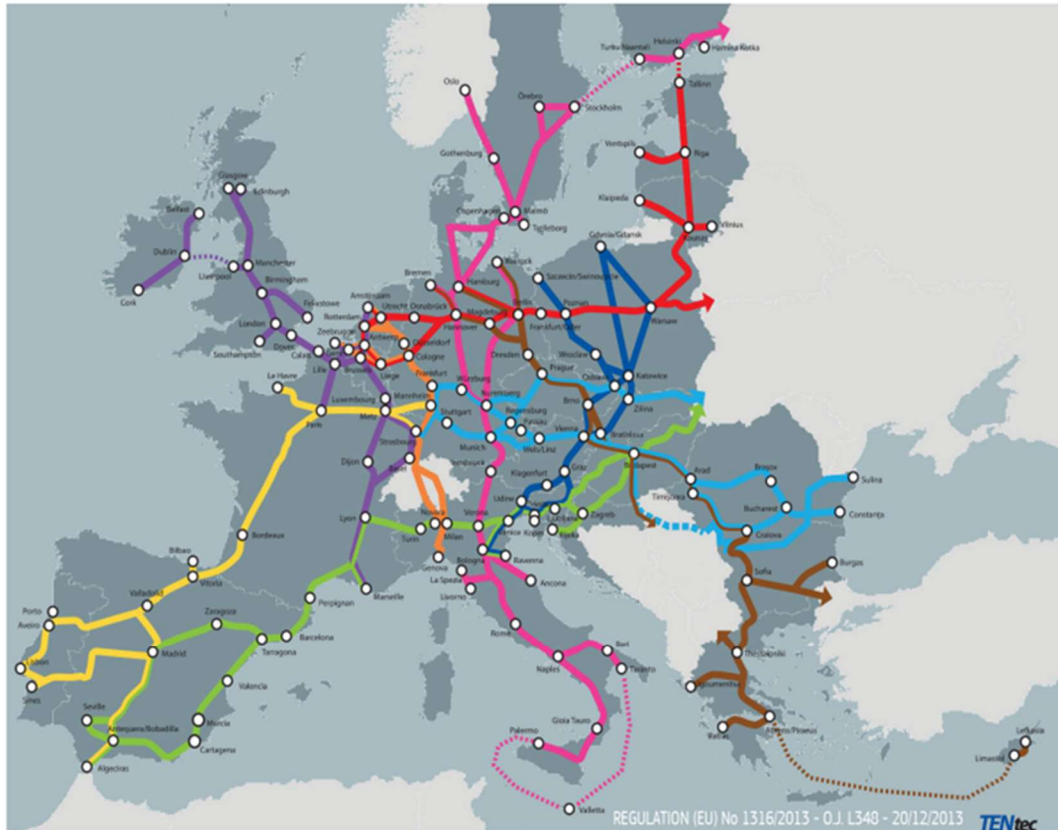
➤ ***Cultural infrastructure:***

Culture is one of the most important factors in cross-border cooperation, as it gives a clear picture of commonalities and provides a common identity for the region. This is a prerequisite for an attractive tourism product and can also be easily used as an engine for regional development and prosperity. Cultural heritage encompasses tangible and intangible movable and immovable heritage as a set of cultural values that carry historical memory, national identity and have scientific or cultural value. Characterization of the cultural heritage in the cross-border area is made in **item 2.1.10** of the EAR.

➤ ***Transport infrastructure***

Important for achieving the goals and priorities of PTS and TSIM are transport connections and connectivity between the Republic of Bulgaria: 2 NUTS III districts: Blagoevgrad and Kyustendil and the Republic of North Macedonia: 3 NUTS III regions: Northeast, East and Southeast.

The mobility system, which connects Bulgaria with the Republic of North Macedonia, is served mainly by road: three major international routes pass through it: Sofia-Kulata-Thessaloniki (part of European Corridor № 4), Sofia-Kyustendil-Gueshevo-Skopje (part of European Corridor № 8) and Kumanovo-Veles-Gevgelija (part of European Corridor № 10).



Atlantic, Baltic sea - Adriatic sea, Mediterranean, North sea - Baltic sea, North sea - Mediterranean, Orient - Eastern Mediterranean, Rhine - Alps, Rhine-Danube, Scandinavia - Mediterranean
Source: European commission

Figure 2.1.9-1 *The main road network of the European Union*

The districts of Kyustendil and Blagoevgrad fall within the South-Western Development Region, through which passes the corridor of the main TEN-T network of the EU "Orient / Eastern-Mediterranean", part of which, important for the territory under consideration, is the railway and road route Sofia. - the border of Republic of North Macedonia ". As part of the main TEN-T network, some of them need to be completed and developed in order to meet the European requirements for quality and safety of international transport - Struma Motorway, Europa Motorway, Gueshevo Highway Kyustendil-Radomir-Pernik-Sofia».

According to another main European classification, the **Trans-European Transport Corridor № 8** passes through Kyustendil district in the direction: Bari/Brindisi – Otranto/Otranto Strait - Port of Drach/Port of Vlora - Tirana - Elbasan - Kafasan - Struga - Kichevo - Skopepi - Gostivar Kumanovo - Kriva Palanka - Deve Bair - Kyustendil - Sofia - Plovdiv - Burgas/Varna (Figure 2.1.9-1), some of which overlap with the corridor of the main TEN-T network of the EU "Orient / Eastern Mediterranean".

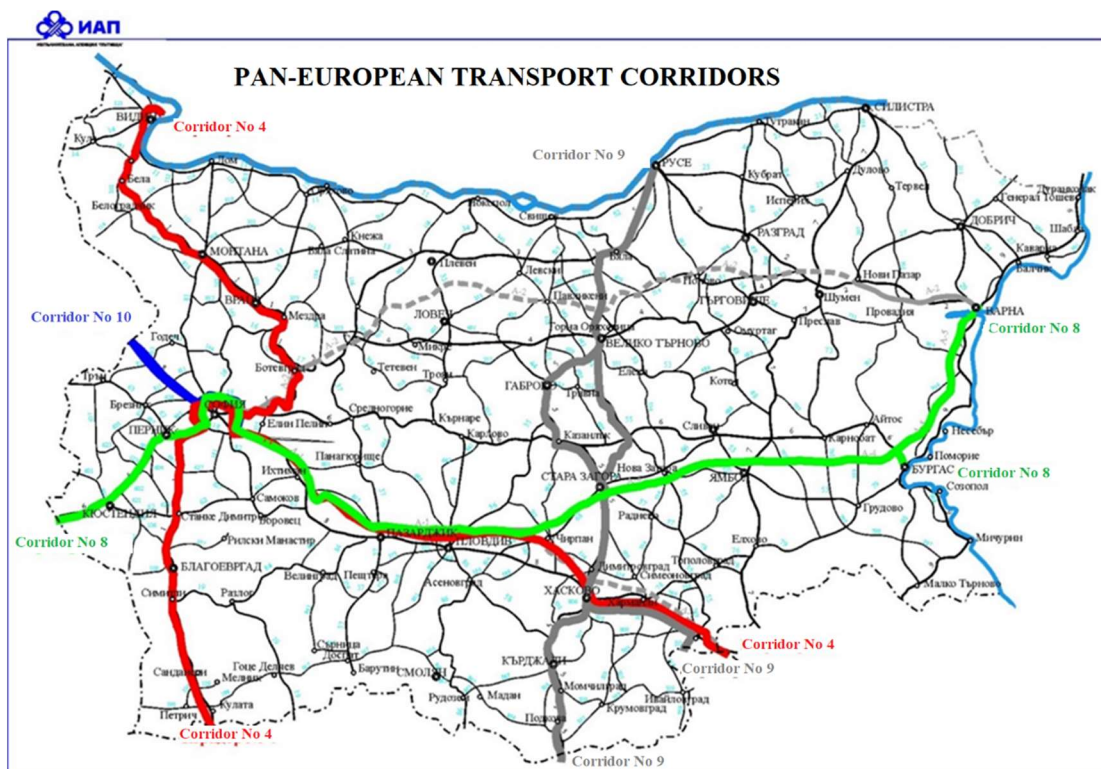


Figure 2.1.9-2 Pan-European transport corridors on the territory of the Republic of Bulgaria

According to NSI data as of 31.12.2020. 621 km have been built on the territory of Kyustendil district. road network, of which:

- **Struma Motorway**, with a length of the territory of the district - 44 km.
- **Republican first class road I-6**, which in the section from CBC Gueshevo to Pernik coincides with European road E 871, starts from the border with Republic of North Macedonia, passes through the villages of Kyustendil: Gueshevo, Kamenichka Skakavitsa, Ranentsi, Garlyano, Vratsa, Zhilentsi, it bypasses the town of Kyustendil to the north and passes through the villages of Crvenyano and Yabalkovo. The length of the road on the territory of Kyustendil district is 85 km.
- **Republican second class road II-62** passes through the territory of the district with a length of 54 km, the road deviates at km 25.7 of the Republican first class road I-6 northeast of Kyustendil, after the village Piperkov Chiflik passes through the villages Bagrentsi and Novi Chiflik.
- **The republican third-class roads** through Kyustendil district have a total length of 438 km.

According to NSI data as of 31.12.2020. 121 km have been built on the territory of Kyustendil district. railway lines, of which 64 km are electrified. The main railway line for service of the district with railway transport is railway line 6 Voluyak-Razmenna-Batanovtsi and Radomir-Gueshevo (border with the Republic of North Macedonia), which is underdeveloped for

intermodal/combined transport services. The line is part of the main TEN-T network-*Orient/Eastern-Mediterranean* corridor.

On the territory of Kyustendil district a checkpoint with Republic of North Macedonia was built - CBC Gueshevo-Deve Bair.

The transport connection of Blagoevgrad District is not sufficiently "open" to the Republic of North Macedonia. The corridor of the main TEN-T network of the EU "*Orient/Eastern-Mediterranean*" - railway (railway line 5 Sofia - Vladaya - Radomir - Dupnitsa - Kulata) and a road route in the direction Vidin-Sofia-Kulata passes through the territory of the district. Part of this route is the Struma Motorway (Sofia-Pernik-Blagoevgrad-Greek border), with a planned length of 169 km, of which 100 km have been built, which is the main direction for connection with the Republic of Greece. The complete completion of the highway will ensure a significant improvement of the road network in Southeast Europe and will create conditions for enhanced cooperation between the countries in the southern Balkans, incl. with Republic of North Macedonia. The route of the Struma Motorway overlaps part of the **Trans-European Transport Corridor № 4** from Northwestern Europe to Greece (*Dresden/Nuremberg - Prague - Vienna - Bratislava - Gyor - Budapest - Arad - Bucharest - Constanta/Craiova - Sofia - Thessaloniki/Plovdiv - Haskovo - Istanbul*). This is the busiest route through Bulgaria in the north-south direction.

According to NSI data as of 31.12.2020. 716 km have been built on the territory of Blagoevgrad district. road network, of which:

- **Struma Motorway**, with a length of 49 km.
- **Republican first-class road I-1**, which is part of the European road E-79 "Oradea - Craiova - Vidin - Sofia - Thessaloniki" and part of the **transport corridor №4**. The road is interrupted by the constructed section of the Struma Highway, which in the future should replace it in the southern part of its route. The length of the road on the territory of Blagoevgrad district is 75 km.
- **Republican second-class road II-19**, passing entirely on the territory of Blagoevgrad District. The road deviates from the Republic Road I-1 near the town of Simitli and reaches CBC Ilinden - Exohi. The length of the second-class road network on the territory of the district is 152 km.
- **The republican third-class roads** through Blagoevgrad district have a total length of 440 km. Important for the region are:
 - Republican road III-106, with a length of 25.3 km, which deviates at 363.2 km of the Republican road I-1 in the northwestern part of Blagoevgrad and reaches CBC Logodazh.
 - Republic road III-198, with a length of 94.7 km, which deviates at 87.7 km on the Republic road II-19 in the eastern part of the town of Gotse Delchev and reaches CBC Zlatarevo - Novo Selo.
 - Republican road III-1008, with a length of 35.9 km, which deviates at 417.1 km on the Republican road I-1 in the village of Strumyani. The road was built

to the village of Klepalo. The completion of the road from the village of Klepalo to the planned new CBC Klepalo on the border with the Republic of North Macedonia on the ridge of Maleshevska Mountain is forthcoming.

According to NSI data as of 31.12.2020. 161 km have been built on the territory of Blagoevgrad district. railway lines of which 104 km are electrified. The main railway The line for servicing the district with railway transport is the railway line "Sofia - Thessaloniki - Athens".

There are two checkpoints with the Republic of North Macedonia on the territory of the district:

- CBC Logodazh (old name CBC Stanke Lisichkovo - Delchevo), built near the village of Logodazh, about 20 kilometers west of Blagoevgrad and 10 kilometers east of town of Delchevo, Republic of North Macedonia.
- CBC Zlatarevo - Novo Selo, built near Novo Selo, about 20 km west of Petrich and about 25 km east of Strumica.

The mobility system, which connects Bulgaria with Republic of North Macedonia, is served by road transport: three major international routes pass through it: Sofia-Kulata-Thessaloniki (part of European Corridor № 4), Sofia-Kyustendil-Gueshevo-Skopje (part of European Corridor № 8) and Kumanovo-Veles-Gevgelija (part of European Corridor № 10).

There are currently 3 operational checkpoints:

- *CBC Gueshevo-Deve Bair* – The transport access is on the Republic Road I-6 from the Republic of Bulgaria and enters Republic of North Macedonia by road № 2.
- *CBC Logodazh* (old name CBC Stanke Lisichkovo - Delchevo). It is located near the village of Logodazh, about 20 km west of Blagoevgrad and 10 km east of the town of Delchevo, Republic of North Macedonia. From the Bulgarian side, the checkpoint is reached by the Republic Road III-106, from where it continues in the Republic of North Macedonia on the road № 5 of the Republic of North Macedonia road network. On the side of Republic of North Macedonia, the checkpoint is the end point of the A3 road (future highway) connecting Ohrid with the Bulgarian border through Bitola, Prilep, Veles, Shtip, Kochani and Delchevo.
- *CBC Zlatarevo – Novo Selo*. On the Bulgarian side CBC Zlatarevo - Novo Selo is located near Novo Selo, about 20 km west of Petrich and about 25 km east of Strumica. On the Bulgarian side, the checkpoint is reached by the Republic Road III-198, from where it continues in Republic of North Macedonia on № 6 of the road network of Republic of North Macedonia. On the side of Republic of North Macedonia, the checkpoint is the end point of the A4 road, which connects Skopje (via Shtip, Radovish and Strumica) with the Bulgarian border.

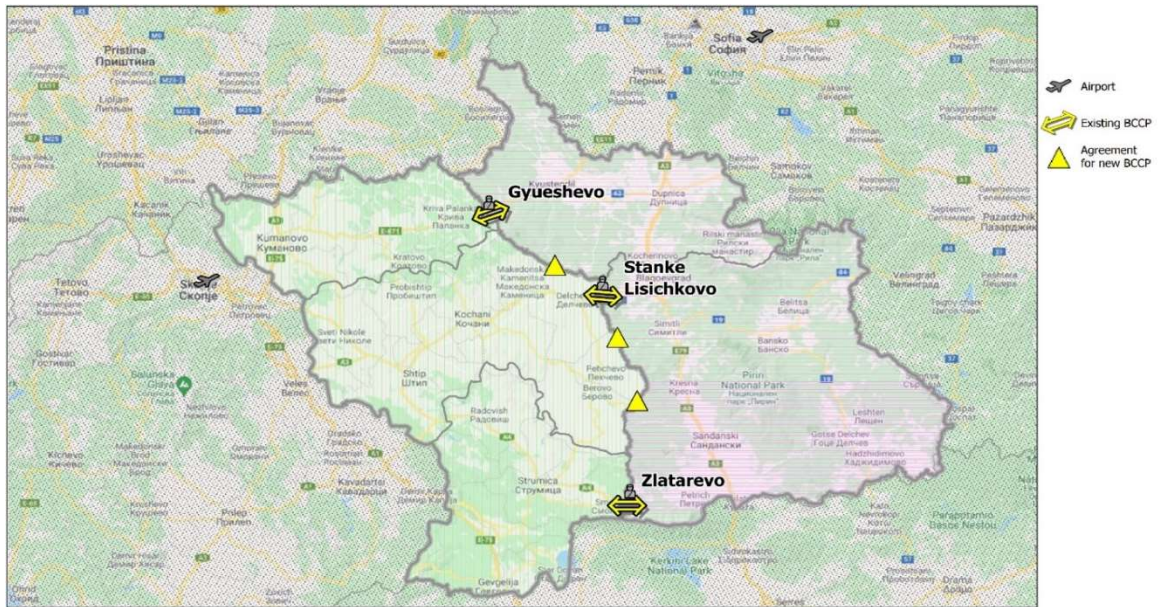


Figure 2.1.9-3 CBC between the Republic of Bulgaria and the Republic of North Macedonia (constructed and planned)

As a landlocked country, the **Republic of North Macedonia** is particularly dependent on a well-developed road and rail network for its economic and social development. The key elements of this network are also part of the Trans-European Transport Network. Two of the pan-European transport corridors Sofia-Kyustendil-Gueshevo-Skopje (part of European Corridor № 8) and Kumanovo-Veles-Gevgelija (part of European Corridor № 10) pass through the regions of The Republic of North Macedonia, which fall within the scope of PTS and TSIM. which makes them very strategic in terms of transport links. The following figure shows the road network and the connection to other modes of transport.

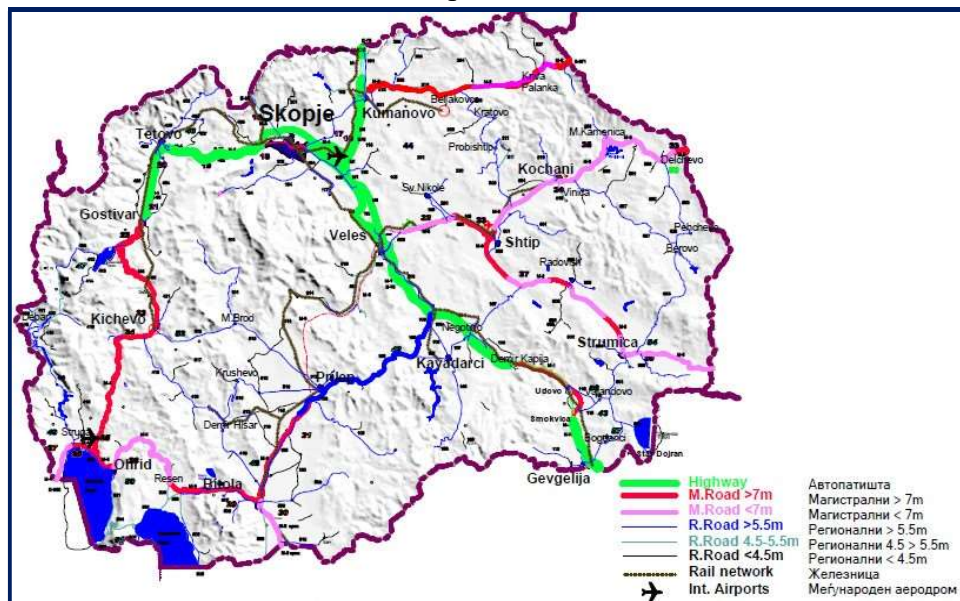


Figure 2.1.9-4 Road network in the Republic of North Macedonia and connection with other modes of transport

The road infrastructure in the **northeastern region** of Republic of North Macedonia consists of 888 km local road, 370 km regional and 99 A road network (Skopje - Kumanovo border with Serbia) and A2 (Kumanovo - Kriva Palanka - Border with Bulgaria). The main traffic infrastructure in the region is the road Kumanovo-Kriva Palanka - Deve Bair and the regional road to Kratovo and Sveti Nikole. The condition of the main road infrastructure and local roads is unsatisfactory. In the municipality of Kriva Palanka about 90% of the settlements are not connected by asphalt roads.

CBC Gueshevo-Deve Bair is located on the territory of the northeastern region - The transport access from the Republic of North Macedonia is on the A2 highway.

The Trans-European Transport Corridor № 8 passes through the north-eastern region with the direction: *Bari/Brindisi - Otranto/Strait of Otranto - Port of Drach/Port of Vlora - Tirana - Elbasan - Kyafasan - Struga - Kichevo - Gostivar - Tetovo - Skopje - Kumanovo - Kriva Palanka - Deve Bair - Kyustendil - Sofia - Plovdiv - Bourgas* and part of the core TEN-T *Orient/Eastern Mediterranean* network. The Republic of Bulgaria does not yet have a railway connection with the Republic of North Macedonia. The construction of a high-speed railway line Sofia-Gueshevo will contribute to facilitating the connection between the capitals of the two countries. The designed railway connection Kumanovo - the border with the Republic of Bulgaria has a total length of 96.8 km, with a speed of 100 km / h - 130 km / h, providing combined traffic (both passenger and freight). The project is divided into two parts:

- Renovation and reconstruction of the railway section Kumanovo - Belyakovtse. The section is 28.6 km long and about 65% of the construction works have been completed.
- Construction of the railway section Belyakovtse - Deve Bair, including many tunnels (about 55) and more than 35 bridges.

The construction of the railway is a high priority - both with a view to connecting the railway networks of the two neighboring countries and to ensure the proper functioning of the EU TEN-T corridor.

There are no Trans-European Transport Network roads in the **Eastern Region**. The road network in the region is moderately developed, as the condition of some of the regional roads M-5: *Veles - Shtip - Kochani - Makedonska Kamenica - Delchevo*, R-523: *Delchevo - Pehchevo - Berovo*, R-527: *Kochani - Vinica - Berovo* and R-603: *Radovish-Berovo*, is bad. The road sections Kochani - Ponikva, Vinica - Berovo, Delchevo - border checkpoints (Stanke Lisichkovo) and Berovo - border checkpoint (Klepalo) have been partially reconstructed.

Ha the territory of the Eastern region is located CBC Logodazh (old name CBC Stanke Lisichkovo - Delchevo). It is located 10 km east of the a town of Delchevo, Republic of North Macedoni. From the Republic of North Macedonia, the checkpoint is reached by road № 5 of the road network of Republic of North Macedonia, and the checkpoint is the end point of the A3 road (future highway) connecting Ohrid with the Bulgarian border through Bitola, Prilep, Veles, Shtip, Kochani and Delchevo.

A new CBC Klepalo is to be opened in this region, and the new CBC, as well as the road to access it, were built in 2001 on the territory of Republic of North Macedonia.

The development of the railway network in the eastern region can be assessed as low. Part of the Veles-Kochani railway line (70 km) passes through the region, as the settlements that are connected by railway transport are Shtip and Kochani.

The southeastern region has good road infrastructure. Out of a total of 14,395 km of road network on the entire territory of the Republic of North Macedonia, 1,557 km, or 10.82% of the road network is located in this region. The road infrastructure connects the country with the European road network (international corridors), the main importance being the A4 highway from Miladinovtsi - Sveti Nikole - Shtip, with a total length of 47.1 km. The motorways and motorways (A1 and A4) that pass through the region are in relatively good condition. The section of the A1 highway Demir Kapiya - Smokvitsa (connection with A2) is under construction.

On the territory of the southeastern region is CBC Zlatarevo - Novo Selo, built near Novo Selo, about 25 km east of the town of Strumica. CBC is the end point of the A4 road, which connects Skopje (via Shtip, Radovish and Strumica) with the Bulgarian border. The condition of the section of the road Strumica - the border with the Republic of Bulgaria is bad, both due to the condition of the roadway and in terms of horizontal and vertical signals.

➤ **Communal infrastructure:**

Energy infrastructure and RES

The electricity transmission network **in the Republic of Bulgaria** is part of the unified transmission network of the countries of continental Europe and development and is closely related to the development of the networks of neighboring countries, and for this purpose interconnections have been established. They are built:

- Substation "Chervena Mogila" 400/110 kV on the territory of the municipality of Radomir (Pernik district) was built for the needs of the former plant for heavy machinery "ZTM Radomir". An interconnection power line for connection with the Republic of North Macedonia was built from it;
- Substation "Blagoevgrad" 400/110 kV is the main source of electricity for the southwestern part of the country. An interconnection power line for connection with the Republic of Greece was built from it.

On the territory of the cross-border region there is one thermal power plant - TPP "Bobov Dol", supplying electricity produced in the 220 kV system, and many hydroelectric power plants, mainly in Blagoevgrad, connected to the 110 kV network.

The gas transmission network for transit transmission passes through the territory of the cross-border region, as well as the southern branch of the national gas transmission network. Deviations from the national gas pipeline supply the regional cities of Blagoevgrad, Kyustendil and other larger cities in the considered territory.

Given the natural conditions in the cross-border region, the long-established RES facilities are mainly based on hydropower, most located in the municipality of Sandanski (Blagoevgrad district).

The cross-border region of the **Republic of North Macedonia** is relatively poor and dependent on energy opportunities. Renewable energy sources also play an important role in providing electricity and heat. Two small hydroelectric power plants have been built - Kalimantsi and Zrnovtsi, but the construction of a large investment in the Zletovitsa hydro system continues. This would provide water for the population, water for irrigation of fertile land and electricity production through the small hydroelectric power plants in the Zletovitsa system, Bregalnitsa River and its tributaries: Orizarska, Zrnovska and Kochanska rivers. There is potential for the construction of small hydropower plants, and such initiatives should take into account climate change trends and risks.

In addition to hydropower, solar energy, geothermal energy, biomass and wind have a symbolic share in terms of energy production.

W&S infrastructure

On the territory of the **Republic of Bulgaria** there is a well-developed water supply and sewerage infrastructure, which through group urban water supply systems provides access to drinking water to 99.4% of the population.

In Blagoevgrad district only two municipalities have a high percentage of non-supplied water. These are the municipality of Yakoruda, in which half of the 8 settlements are not supplied with water, but one fifth of the population lives in it, and the municipality of Garmen, where 4 of the 16 settlements are not supplied with water and the non-supplied population is 16%. The municipalities of Petrich (21) and Sandanski (13) have a much larger number of non-supplied water, but with a limited relative share of the population living in them - 2.15% and 0.87%, respectively, which is understandable given the specifics of the dispersed settlement system in them.

Most settlements in the two districts - both agglomerations with more than 10,000 pe and settlements with up to 2,000 pe have built and functioning WWTP.

On the territory of **the Republic of North Macedonia** built water supply and sewerage infrastructure is available mainly in the urban centers of the municipalities. Coverage for the urban population varies from 80% to 100%, while in rural areas it varies from 0% to 80%. Some rural areas do not have suitable sewage systems or septic tanks. 6 WWTPs have been built in the region.

In general, the available water supply and sewerage infrastructure is characterized by losses of both drinking water on the network to reach consumers and leakage of wastewater during transportation, which increases the risk of soil and groundwater contamination.

Waste management infrastructure

Information on waste management and related infrastructure is presented in **item 2.1.12** of the EAR.

Eurovelo – European network for bicycle routes

In addition to the TEN-T network in the CBC area passes one of the European cycling routes, namely EuroVelo 13 Iron Curtain Trail - with a length of over 9,950 km. It provides an opportunity to visit 20 countries starting in Northern Finland, passing near the Baltic Sea, Germany, the Czech

Republic, Slovakia-Bratislava, Romania and ending in the Republic of Bulgaria in the small Black Sea town of Rezovo.

Eurovelo routes have a tourist purpose, so they do not connect big cities, but strive for places with important natural or cultural heritage. Unfortunately, none of the segments of the Eurovelo corridor, passing through the Republic of North Macedonia and the Republic of Bulgaria, is developed or at least with available signals.



Figure 2.1.9-5 Map of EUROVELO 13 Iron Curtain Trail - European cycling route network

Public building stock and urban infrastructure

The settlements in the districts and regions within the scope of CBCP and TSIM are provided with buildings of educational, health and social infrastructure.

Places for public use, green areas as part of the green system of municipalities, sports infrastructure, incl. pedestrian and bicycle infrastructure; parks and playgrounds; playgrounds, sports halls, etc.

According to the analysis of the condition of the infrastructure, not a small part of it is depreciated and unmaintained due to lack of funds, especially in the peripheral border areas.

Information and communication technologies.

In 2017, about 67% of households in the *Republic of Bulgaria* have access to the Internet, and 63% have a desktop computer, laptop or tablet. Almost 67% of households have a fast and reliable broadband connection, which in addition to a fixed cable connection also includes an Internet connection through the network of mobile operators. In the period 2013-2017, the relative share of households with Internet access increased by 13.6 percentage points, and the use of broadband access increased by 13.3 percentage points.

Despite the positive trend in recent years, broadband coverage in the Republic of Bulgaria is still below the EU 28 average and there is an imbalance between densely populated and sparsely populated areas..

In **the Republic of North Macedonia**, the use of broadband and mobile broadband is highest in the Northeast region - showing a share of 90%, while the share of persons (aged 15 to 74) who used the Internet in 2018, is registered in the region is 93%. The eastern region demonstrates that the share of household units that had access to the Internet in 2018 was 77%, while the share of persons (aged 15 to 74) who used the Internet in 2018 reached 85%. The situation is similar in the South-East region, where the figures are very close to the East, respectively 77% of households that had access to the Internet and 84% of persons (aged 15 to 74) who used the Internet in 2018. .

With the exception of the North-East region, in all other districts/regions the share of households with internet access is below the national and EU average 28.

Although still below the EU 28 average, both the Republic of Bulgaria and the Republic of North Macedonia in the period 2014-2018 show a significant increase in the share of households with Internet access, reporting an increase of 5% in 2018 alone. compared to 2017.

Tourist infrastructure ⁶⁴

The lasting upward development of the national tourism in the **Republic of Bulgaria** is satisfactory, but at the same time there are serious negative factors that threaten the sustainable development of the established and new destinations. These include population aging, high unemployment in peripheral areas, poverty, crime, climate change, increased pressure on natural resources and political instability in the region.

In 2017, the EU countries continued to be the most important generating market for international tourism in the Republic of Bulgaria with a relative share of 61.4% and a total volume of 5,450,280 tourist visits (growth of 8.2%). The forecast of the UN World Tourism Organization until 2030 predicts a stable upward development of tourism in the region.

Based on the territorial concentration and tourist resources, the Republic of Bulgaria is conceptually divided into nine tourist regions. The division of tourist regions helps the formation of regional tourist products and the implementation of regional marketing and promotion. The concentration and quality of tourist resources by region, as well as the inherited characteristics of the product determine the main and extended specialization of the regions.

In the context of tourist zoning, the territory of the program on the Bulgarian side falls into the following tourist regions:

- Sofia region (popular for business and cultural tourism)
- Rila-Pirin region (popular for mountain and religious tourism)

B their scope includes: Rila and Pirin National Parks, Vitosha, Rila Monastery and Belasitsa Natural Parks, many reserves and natural landmarks.

All of them represent invaluable potential for the development of tourism and for the protection of the rich biodiversity of national and European importance. In addition to these factors, the diversity of historical periods and relevant cultural values is added. They are a prerequisite for

⁶⁴ http://www.ipa-cbc-007.eu/sites/ipacbc-bgmk-105.gateway.bg/files/draft_analysis_bg-rnm.pdf

socialization and valorization through tourism products that integrate not only the cultural and historical heritage, but also the natural resources in the region.

The Rila and Pirin mountains have a well-developed tourist infrastructure. There are many resorts that offer very good conditions for rest.

The two major resorts in Blagoevgrad - Bansko and Sandanski offer annual accommodation and provide a relatively well-developed tourist infrastructure (ski and spa), which is in the process of further renovation. Outside these resorts, accommodation is mainly provided by family hotels, houses and guest rooms, while mountain huts and shelters are in poor technical condition. In the national and natural parks a tourist infrastructure has been built along the routes of ecotourism. With few exceptions, in the other mountains there is practically no developed tourist infrastructure.

The diversity of natural and cultural landmarks in *the Republic of North Macedonia* has significant potential for determining the targeted tourist offer. On the other hand, the analysis shows a lack of defined tourism products, both at national and regional level. Tourism supply is created spontaneously by tourism service providers, without guidance and support from the government. As a result, it includes mainly basic tourism products, while more attractive services and tourism arrangements are not being developed. The need for improvement of the sector is established, mainly related to the definition and establishment of national priorities for future development of tourism in the country, both for domestic and foreign tourism.

The number of tourists in the Republic of North Macedonia is increasing every year. The average annual increase of tourists is 15%, while only in April 2018 it increased by 21.4% compared to the same period last year. Domestic tourists increased by 10.8%, while foreign tourists increased by 23%.

The border diversity of tourist resources of the Republic of North Macedonia is also hidden in its natural heritage, enriched with diverse reliefs and climate. In terms of contribution to the development of tourism, the South-East region has the highest share compared to the other two regions, while in 2018 the lowest percentage of tourists and overnight stays was registered in the North-East region. Potential analyzes include identifying existing strengths for tourism development in border regions and show that the main assumptions for tourism are closely related to the existence of natural values and attractiveness, cultural heritage, social and economic development of regions, transport communications and accessibility of regions.

Summary of the condition of tangible assets:

The condition of tangible assets shows the need for targeted measures to overcome the following main shortcomings:

- Insufficiently developed and maintained infrastructure for access to cultural and historical sites and natural landmarks;
- Insufficient joint actions in the field of cultural heritage exchange;
- Insufficiently developed infrastructure referring to environmentally friendly, alternative and green solutions for improving the urban and rural environment and meeting the needs of the region for a high standard of living
- Insufficient information and communication connectivity and digitalization

- Differences in administrative systems and approaches to the protection of natural and cultural heritage;
- Low level of information security and awareness;

On the other hand, the analysis shows the presence of exceptional potential for the development of cross-border infrastructure and the establishment of areas with different functions - culture, environment, tourism and recreation, sports, health, social services, labor and employment, ie. potential for developing cross-border multifunctional areas in support of a more connected and competitive region.

2.1.9. Cultural and historical heritage, including architectural and archaeological heritage

Analysis of the cultural heritage, its condition and potential for development is made in the *Territorial analysis of the cross-border region of the Republic of Bulgaria and the Republic of North Macedonia*⁶⁵.

➤ Blagoevgrad and Kyustendil districts (Republic of Bulgaria)

On the territory of Blagoevgrad and Kyustendil districts in the Republic of Bulgaria are registered 2 922 immovable cultural values (NCC) of the tangible immovable cultural heritage, as follows:

- For Kyustendil District 1,159 NCC and
- For Blagoevgrad district - 1,763 NCC.

with their belonging to a certain historical period such as prehistoric, ancient, medieval, Renaissance, modern and modern times, as well as scientific and cultural value such as archaeological, historical, architectural, artistic, urban, cultural landscapes with cultural layers of the interaction of man and the natural environment, park and garden art, ethnographic, cultural routes.

Cultural values in the cross-border region with a category of "national importance" include 99 sites - 43 in Kyustendil and 56 in Blagoevgrad, among which are:

- The town of Melnik and the Rozhen Monastery;
- The ancient and medieval town of Pautalia-Velbuzhd, Kyustendil;
- Kovachevitsa village, Blagoevgrad region;
- Dolen village, Blagoevgrad region;
- National Museum "Rila Monastery and its environment", Kyustendil region;
- Ancient and late antique town of Nikopolis ad Nestum, Garmen village, Blagoevgrad region.

The following site of tangible cultural heritage is on the UNEUCO World Heritage List in the Kyustendil region.:

⁶⁵ http://www.ipa-cbc-007.eu/sites/ipacbc-bgmk-105.gateway.bg/files/draft_analysis_bg-rnm.pdf

- Rila Monastery (1983): property 11 ha, protection zone 1 290 ha, exceptional universal value. Criterion (VI): The Rila Monastery is a symbol of the Bulgarian Revival from the XV-XIX centuries, plays an important role in the development of culture and arts of all Christian nations with its architecture, frescoes, masterpiece of the creative genius of the Bulgarian people. attempt to restore continuous historical continuity, symbolizes the awareness of Slavic cultural identity over the centuries.

Monuments included in the indicative list of Bulgaria for the UNESCO World Heritage List are the Town of Melnik and the Rozhen Monastery.

In addition, the immovable cultural heritage of national importance in the territory of the considered areas includes the following reserves:

- Town of Melnik, Blagoevgrad District, Decision of the State Committee for Construction and Architecture;
- The ancient and medieval town of Pautalia-Velbuzhd in the center of Kyustendil, Kyustendil region, Order of the Bureau of the Council of Ministers to declare the ancient and medieval town of Pautalia-Velbuzhd in the center of Kyustendil an architectural and archaeological reserve;
- Village of Kovachevitsa, district of Blagoevgrad, Order of the Council of Ministers to declare the villages of Kovachevitsa and Dolen villages for historical and architectural reserves;
- Village of Dolen, district of Blagoevgrad, Order of the Council of Ministers to declare the village of Kovachevitsa and the village of Dolen to be historical and architectural reserves;
- The National Museum "Rila Monastery and its environment", Rila, Kyustendil region;
- Ancient and late antique city "Nikopolis ad Nestum" - Garmen village, Garmen municipality - archeological reserve.

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

Североизточният регион е богат на исторически и културни обекти, сред които са:

- St. Joachim Osogovski Monastery Complex in Kriva Palanka;
- Monastery of the Mother of God near the village of Mateyce (XIV);
- Monastery of the Most Holy Mother of God;
- Karpin Monastery near the village of Orah;
- Churches of St. Nicholas (1851) and the Holy Trinity, in Kumanovo;
- Church "St. Georgie" in the village of Staro Nagorichino (XIV).

Other important architectural sites are the Aiduk Bazaar, Kratovo towers and bridges in Kratovo, the National Museum in Kumanovo and others. Due to their historical and cultural significance, the Kratovo towers are protected by the Law on Nomination of the Old Town of Kratovo on Cultural Heritage with a Special Sign.

In the Eastern region we can define as important cultural and historical sites:

- the ancient city of Astibo (today Shtip).
- Shtip Municipality: Bargala Archaeological Site;
- Municipality of Vinitsa: Vinitsa Fortress;
- Municipality of Probishchip: Monastery "St. Gavril Lesnovski ", " St. Spiridon "in Zletovo, Kostomar area and the ancient settlement of Karlukovo;
- Municipality of Berovo: Monastery "St. Archangel Michael ", located in the southern part of the city; The church "St. The Mother of God "; the old Christian church "St. Elijah "by Mitrashintsi; the old clock tower in the city center, etc.
- Cheshinovo-Obleshevo Municipality: Archangel Michael Church in the village of Spanchevo; the old frescoes of the "Great Entrance" and the "Virgin of the Wide Sky"; The Monastery Church above the village of Sokolartsi.

In the South-Eastern region in terms of cultural and historical sites differ:

- the ancient city of Tiberiopolis, today Strumica
- Church of the Holy Fifteen Martyrs of Tiberias, Strumica
- Velyusha Monastery, Strumica
- Vardarski rid archeological site near Gevgelija
- Archaeological site "Isar" near Valandovo

In terms of cultural institutions, there are 2 cinemas, 2 museums in the region; 1 professional theater. This shows the need to expand the supply of cultural facilities in the region.

➤ ***Cross-border cultural corridors and arteries***

The Diagonal Road Cultural Corridor (connecting Southeast Europe with Asia) runs through the cross-border region. This cultural corridor is one of the most ancient arteries, transcontinental, even of global importance. Starting from Central Europe to Slovenia, passing successively through Croatia, Bosnia and Herzegovina, Serbia, the Republic of North Macedonia, the Republic of Bulgaria and Turkey, continuing to the Far East. Its numerous branches are on the one hand geographically determined (passing through the valleys of large rivers, the lowlands between mountain ranges, convenient passes), tending to the Bosphorus.

The Sofia-Ohrid road is a cultural corridor passing through the Republic of Bulgaria and the Republic of North Macedonia, connecting the monastery agglomerations around the two historic cities and the religious cultural region of Metohija in Serbia and Montenegro. The Sofia-Ohrid road is a kind of religious axis along which cultural influences flow to the great pilgrimage road Via Egnatia. The corridor connects the monasteries and churches of St. Sophia, the Metohija region and those around Lake Ohrid, as well as World Heritage sites: Boyana Church-Republic of Bulgaria, Stari Ras and Sopočani, Decani Monastery-Serbia-Montenegro, Ohrid Churches-Republic of North Macedonia.

➤ ***State of cultural values***

The analysis of the state of cultural values shows:

- low level of attendance of cultural heritage sites in the cross-border region;
- insufficient joint actions in the field of exchange of experience;
- insufficiently developed infrastructure for access to cultural and historical sites;
- different administrative structures of the two countries, which hinders joint actions for the protection of cultural heritage;
- insufficient financial resources;
- low level of integration of cultural heritage sites in the development of tourism products.

Summary of the state of cultural heritage:

The cross-border area is rich in cultural values, for which adequate protection and maintenance should be ensured. They determine the high potential for the development of cultural tourism, which on the one hand will make a significant contribution to the provision of financial resources for conservation, and on the other - will contribute to the development of additional employment, additional income and improving the quality of life of local people.

2.1.10. Condition with regard to harmful physical factors

A. Noise

With regard to harmful physical factors, the noise factor is of the utmost importance for the cross-border region within the scope of the CBCP and TSIM.

Car traffic is the main source of noise pollution in Europe, and noise levels are expected to increase in both urban and rural areas over the next decade due to the development of urbanization and the increased need for mobility.

To limit the harmful effects of environmental noise, Directive 2002/49 / EA of 25 June 2002 on the assessment and management of environmental noise was adopted.

Legislation to limit environmental noise has been adopted in both the Republic of Bulgaria and the Republic of North Macedonia.

Below is information on the state of the factor and the main sources of noise in the cross-border region within the scope of CBCP and TSIM.

➤ *Blagoevgrad and Kyustendil districts (Republic of Bulgaria)*

The main sources of noise in the two districts are the typical sources typical of modern settlements - transport flows of road and rail transport, as well as local sources of noise (industrial, municipal - workshops, shops, restaurants, etc.).

A detailed examination of the **transport infrastructure** is made in **item 2.1.9** of the EAR.

Local noise sources

Blagoevgrad and Kyustendil districts (NUTS III) are located in the South-Western region (NUTS II), statistical zone South-Western and South-Central Bulgaria (NUTS I).

The economic development of the two districts follows the general dynamics of the economic development of the Republic of Bulgaria. Like other Level 2 regions, industry ranks second in the sectoral economy. In comparative terms of the gross value added (GVA) of the South-

Western region, Blagoevgrad district has a share of 9% and Kyustendil district with 3%. The main productions of the sector are production of food industry, clothing and textiles, coal mining, electricity production, construction, etc.

7 complex permits have been issued for Blagoevgrad district: Energoremont - Kresna AD - Kresna; RFRAO for the municipalities of Sandanski, Strumyani and Kresna; PFRAO for the Municipality of Petrich; PFRAO for the municipalities of Gotse Delchev, Garmen and Hadjidimovo; RFRAO for the municipalities of Razlog, Bansko, Belitsa and Yakoruda; Carlsberg Bulgaria AD - Blagoevgrad Brewery and Regional Waste Management System, Blagoevgrad Region - Stage I.

4 complex permits have been issued for Kyustendil District: TPP Bobov Dol EAD, Kamenik village; TPP Bobov Dol EAD, village of Golemo Selo; KERAMENGINEERING AD - branch of KZ BAGRENTSI; ET "Valentin Georgiev - Valdis".

The industry develops mainly in the industrial zones, in the immediate vicinity of the entrances and exits of the settlements, around the main road routes.

In addition to industrial sites, there are various local sources of noise in the settlements (workshops, shops, restaurants, etc.) with a limited range of noise impact. There are no data on exceedances of noise standards in residential areas as a result of such sources.

Summary data on the noise load in the districts of Kyustendil and Blagoevgrad

The Environmental Noise Protection Act (ENPA) and the accompanying bylaws ensure full compliance of Bulgarian legislation with the requirements of Directive 2002/49/EA on the assessment and management of environmental noise.

The implementation of Directive 2002/49 / EA by the Republic of Bulgaria is related to the development of the Strategic Noise Maps and their action plans for:

1. *agglomerations with over 250,000 inhabitants;*
2. *the main roads - with traffic over 6 000 000 crossings per year;*
3. *the main railway lines - with over 60,000 crossings per year;*
4. *the main airports with over 50,000 aircraft movements per year.*

The Kyustendil and Blagoevgrad agglomerations do not fall within the scope of ENPA, for which Strategic Noise Maps (SCMs) and an action plan for them must be prepared. However, on the territory of the two districts there are main roads (*in the sense of §1, item 10 of the ENPA RD "Main road is a republican road through which over 3 million motor vehicles pass annually."*), Which are included in the Updated strategic noise map of 1,122,606 km of road sections in the Republic of Bulgaria, through which pass more than 3 million motor vehicles per year and the Action Plan to it, approved by Order № RD-01-240 / 27.04.2020 of the Minister of Health.

In compliance with the requirements of ENPA, as well as the measures approved in the Action Plan to the Strategic Noise Maps (SCS) of 2016 was built and put into operation *Continuous and systematic noise monitoring system - concerning residential areas and/or territories with children's, medical, educational and public buildings near main road sections of the Republican road network*. The system is provided with public access and visualization of the measurement data for noise in the environment for five terminals, none of which are located on the territory of Kyustendil and Blagoevgrad districts.

The European Environment Agency (EEA) maintains a NOISE (Noise Observation and Information Service for Europe) database, which includes data from noise maps developed by EU member states. The analysis of the data shows that for the agglomerations in Europe (including Bulgaria) the main source of excessive noise is road transport. Compared to road transport, in terms of noise impact, rail transport is more sparing, as it occurs only when passing individual trains. Obsolete railways trains and routes do not allow high-speed movement, which limits the effective mass use of railways. transport.

With regard to environmental noise from industrial sources, according to the EPL, the Regional Inspectorates of Environment and Water (RIEW) carry out preventive, ongoing and ex-post controls on industrial installations and facilities, including the categories of industrial activities in Annex № 4 to Article 117, para 1 of the EPL. Control and own measurements are performed by accredited laboratories, observing the requirements of the *Methodology for determining the total sound power emitted into the environment by an industrial enterprise and determining the noise level at the place of impact*, approved by Order № RD-613/08.08. 2012 of the Minister of Environment and Water.

According to data from the Regional Reports on the State of the Environment in the last reporting year 2020. no change in the acoustic environment of the two areas compared to the previous years was observed. The existing industrial sites in the considered area are located mainly in separate industrial zones and are not sources of excessive noise for the settlements.

The main sources of noise in urban areas are means of transport - cars and trucks and railway transport. In Bulgaria, the *National System for Noise Monitoring in Urban Areas of the Ministry of Health* operates for noise monitoring in settlements. *In Ordinance №6 of 26.06.2006 on environmental noise indicators, taking into account the degree of discomfort during different parts of the day, the limit values of environmental noise indicators, methods for assessing the values of noise indicators and harmful effects from noise on the health of the population*, the main indicator for noise impact assessment has been determined - equivalent noise level Leq, dBA for the three periods of the day day (07.00-19.00 h), evening (19.00 - 23.00 h) .), night (23.00 - 07.00 h.).

Граничните стойности на нивото на шум за различните територии и устройствени зони са регламентирани в горесцитираната Наредба № 6 – представени са в следващата таблица:

Table 2.1.11.A-1 *Limit values for equivalent noise levels in dB (A).*

Development zone	Equivalent noise level dBA			
	day	evening	night	24 h
Residential areas and territories	55	50	45	50
Areas affected by heavy road traffic	60	55	50	60
Production and storage territories and zones	70	70	70	70

Annually RHI - Kyustendil conducts measurement of street noise on the territory of Kyustendil District in the settlements - Kyustendil and Dupnitsa. RHI-Blagoevgrad in Blagoevgrad performs the same functions. According to summary data from RHI's annual reports, out of the total

number of outlets, 50% of them are located on high-traffic and high-density streets, 20% of outlets are close to local noise sources and 30% of inland neighborhoods. of the residential area with minimal noise impact. From the measurements carried out in the period 2014 - 2018. at the noise level, values above the limit values specified in Ordinance № 6/2006 have been registered in residential areas and territories subject to the impact of road traffic.

According to NSI data, the noise load in Kyustendil and Blagoevgrad districts, reported at all noise registration points in both districts for the period 2010-2019, is given in **Tables 2.1.11.A-2** and **2.1.11.A-3**, respectively.:

Table 2.1.11.A-2 *Distribution of the monitored points according to the registered noise levels in Kyustendil District 2010 - 2019.*

Year	Observed points (number)	Distribution of the observed points according to the registered noise levels in Kyustendil District (dB)				
		under 58	58-62	63-67	68-72	73-77
2010	12	-	1	1	9	1
2011	36	5	3	21	7	-
2012	36	5	3	15	13	-
2013	36	4	2	18	12	-
2014	36	5	3	20	8	-
2015	36	5	4	15	11	1
2016	36	6	4	21	5	-
2017	36	6	3	18	9	-
2018	36	6	4	18	8	-
2019	35	6	6	21	2	-

Table 2.1.11.A-3 *Distribution of the monitored points according to the registered noise levels in Blagoevgrad District 2010 - 2019.*

Year	Observed points (number)	Distribution of the observed points according to the registered noise levels in Blagoevgrad District (dB)				
		under 58	58-62	63-67	68-72	73-77
2010	17	-	7	10	-	-
2011	17	7	10	-	-	-
2012	17	7	10	-	-	-
2013	17	8	7	2	-	-

2014	17	14	3	-	-	-
2015	17	14	3	-	-	-
2016	17	14	3	-	-	-
2017	17	13	4	-	-	-
2018	17	13	4	-	-	-
2019	17	10	7	-	-	-

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

The main sources of environmental noise are road vehicles, rail and air traffic and industrial installations. Particularly significant and specific to Republic of North Macedonia is construction noise and noise caused by other stand-alone sound equipment, such as religious noise.

A detailed examination of the **transport infrastructure** is made in **item 2.1.9** of the EAR.

Local noise sources

The northeastern region is the least economically developed with a share of 5%. In the Eastern Planning Region, the main centers of industrial activity are the municipalities of Shtip, Berovo, Delchevo and Kochani. The main productions in the sector are clothing and textiles, metallurgy, ore mining, timber mining, agriculture and others. The eastern region, due to favorable climatic conditions, contributes to the development of agriculture (rice, potatoes), while the economy in the Southeast region is much more competitive than the other two, as it registered a share of 9.8% of GDP in 2018. for this region are the spheres of services and agriculture.

In the Republic of North Macedonia, micro, small and medium enterprises represent 99.7% of the country's economy. The cross-border region is characterized by a diverse economic structure. The industry develops mainly in the industrial zones of the settlements, around the main road routes.

In addition to industrial sites, there are various local sources of noise in the settlements with a limited range of noise impact.

Summary data on noise pollution Northeastern, Eastern and South-Eastern regions

According to the provisions of the Environmental Noise Act, strategic noise maps and action plans should be developed, and the competencies for their preparation, adoption, use and storage are:

- For main roads, major railways and major airports - Ministry of Environment and Physical Planning.
- For agglomerations and settlements - the Council of Municipalities and the City of Skopje.
- For an area of special interest - The legal entity that manages the area of special interest.

Strategic noise maps for agglomerations, major roads, airports and settlements, and areas of special interest have not yet been developed in the Republic of North Macedonia. Therefore, the estimated number of apartments, schools, hospitals and residents exposed to different noise levels cannot be shown.

The Regulations on Limit Values for Environmental Noise Levels of the Republic of Macedonia (Official Gazette of the Republic of Macedonia, № 147/08) set limit values for environmental noise levels caused by different sources, differentiated according to the degree of noise protection determined by the Regulations for the location of measuring stations and measuring points, as follows:

Table 2.1.11.A-4 *Limit values for the level of noise in the environment caused by different sources*

Territory differentiated according to the degree of protection against noise	Equivalent noise level dBA		
	day	evening	night
First degree area	50	50	40
Second degree area	55	55	45
Third degree area	60	60	55
Fourth degree area	70	70	60
Types of territories	Equivalent noise level dBA		
	day	evening	night
Areas affected by heavy road traffic	60	55	50
Areas affected by heavy rail traffic	65	60	55
Territories exposed to air traffic	65	65	55
Areas with intensive industrial activity	70	70	70
Quiet areas outside the agglomerations	40	35	55

The Regulations set out specific objectives recommended by the World Health Organization:

- the intensity of all-day noise does not exceed 53 dB (A)
- the intensity of the night noise does not exceed 45 dB (A).

The public health centers in Skopje, Bitola, Kichevo and Kumanovo perform measurements of the noise level in the settlements, twice a year, at several measuring points. Noise intensity is shown with basic indicators of noise, total noise exposure (all day) (L_{day}), L_{night} for one night and maximum noise level - L_{Amax}, expressed in dB (A).

The data from the noise measurements in the town of Kumanovo are important for the considered territory. For 2020, according to the processed data for the L_{den} indicator, it can be concluded that throughout the period under review at all measurement points, the intensity of municipal noise in the environment in Kumanovo is above the recommended level of 53 dB (A) of the World Health Organization. According to the indicator L_{night} values, the town of Kumanovo has the highest noise pollution and noise intensity in the environment in all measuring points, as the maximum limit value is exceeded by 28.7 dB (A) at the recommended level of the World Health Organization - 45 dB (A). The values of L_{Amax} show high pollution from noise in the environment, as the measurements of the intensity of the maximum noise level exceeding the value of 60 dB (A) is quite high and is 83.7%.

Except in the town of Kumanovo, no official noise measurements have been made in other settlements in the northeastern region (eg Kratovo, Kriva Palanka and Rankovce).

No official measurements of noise in settlements have been made in the eastern and southeastern planning regions.

With regard to environmental noise caused by industrial activities, based on the data provided by the installations performing the measurements, it is noted that the limit value is exceeded at a very small number of measuring points.

B. Vibration

Vibrations are divided into whole-body vibrations (general vibrations) and hand-arm vibrations (local vibrations). Limit values for vibrations on the whole body are still not well justified in terms of their harmful effects on the body.

Vibrations transmitted over the whole body or general vibrations are defined when the worker stands, sits or rests with a large surface of his body on the vibrating base, seat or surface. Vibrations on the whole body are mechanical vibrations, which when transmitted to the body lead to risks to the health of workers - drivers of excavators, bulldozers, scrapers, dump trucks; truck drivers, buses, concrete mixers, Whatmans; locomotive drivers; tractor drivers; drivers of self-propelled agricultural machines, electric trucks, etc.

Vibrations transmitted by the hand-arm system or local vibrations are defined when the worker is holding a vibrating tool and the receiving surface is his palm / hand. Hand-arm vibrations are mechanical vibrations that, when transmitted to the hand-arm system, lead to risks to the health of workers with vibrating hand tools, with some types of non-mechanized equipment, with the control elements of machines and equipment, etc. Hand percussion, drilling and cutting tools are widely used in repair and construction (residential, road) and logging.

There are no data on identified environmental problems from general vibrations emitted by large man-made sources of impact in the cross-border area within the scope of CBCP and TSIM.

C. Ionizing radiation

No radiation parameters other than the natural ones, characteristic for the considered area, were observed. There are no sites and other anthropogenic sources built on the considered territory, which are proven pollutants that contribute to the change in the radiation situation.

The gamma radiation background is within the limits of the typical natural gamma background for the region (according to the available data in the Regional Reports on the State of the Environment and the data from the radiation monitoring of the European Commission).

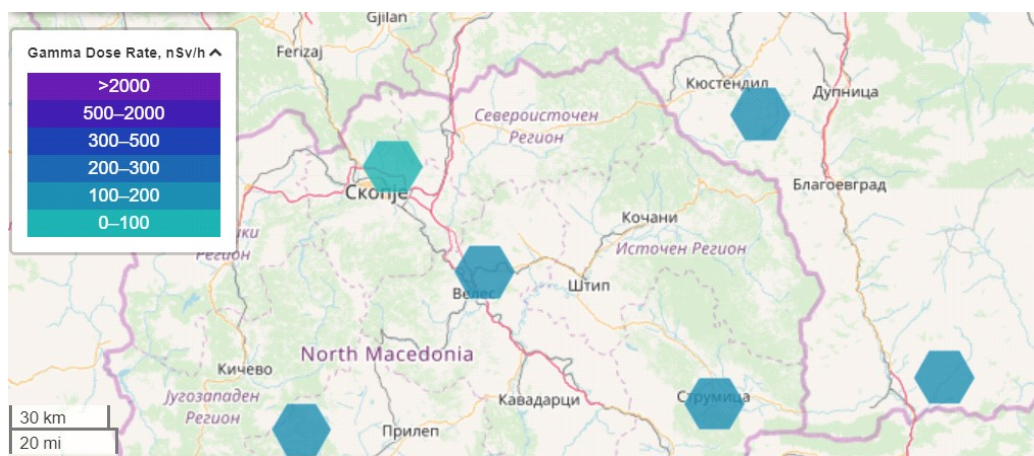


Figure 2.1.13.B-1 Excerpt from the interactive radiation monitoring map, European Commission 66

D. Non-ionizing radiation

Non-ionizing radiation is one of the few studied environmental factors with adverse effects on humans and insufficiently elucidated mechanisms of their biological effects. Non-ionizing radiation includes a large number of factors: electrostatic field, constant magnetic field, radio frequency electromagnetic waves, laser radiation and others.

In recent years, new technologies related to the emission of electromagnetic fields (EMF) from different frequency bands, both in the work environment and in populated areas. Almost every activity of modern man is associated with the use of sources of non-ionizing radiation: electricity, household appliances, transport, medicine, cosmetics, communication technologies.

There are no maximum permissible EMF levels for the Republic of North Macedonia.

For the territory of the Republic of Bulgaria the EMF energy emitters (radio and television transmitters and repeaters, radar and navigation stations, etc.) are located so that the voltage and power density of the EMF in the area of populated areas do not exceed the maximum allowable levels, according to the requirements of Ordinance № 9/1991. maximum permissible levels of electromagnetic fields in populated areas and determination of hygienic protection zones around radiating objects, specified in **Table 2.1.11.D-1**:

Table 2.1.11.D-1 - Maximum allowable levels of voltage and energy flux density of EMF in a populated area

№	The frequency range of the transmitter	Maximum permissible level
1.	от 30 до 300 kHz	25 V/m
2.	от 0.3 до 3 MHz	15 V/m
3.	от 3 до 30 MHz	10 V/m

⁶⁶ <https://remap.jrc.ec.europa.eu/Simple.aspx>

4.	от 30 до 300 MHz	3 V/m
5.	от 0.3 до 30 GHz	10 μ W/cm ²

For the territory of both countries there are no systematic data from measurements of the values of electromagnetic fields from these sources and their impact on the environment. Therefore, an appropriate assessment of the state of EMF in the environment cannot be given.

The National Center for Public Health and Analysis (NCPHA) in the Republic of Bulgaria performs targeted measurements of electromagnetic field values (EMF) in "sensitive" areas with kindergartens, schools, hospitals, places of rest and recreation, as well as in densely populated areas. areas with a high density of broadcasting facilities, for the purposes of completing the information system. NCPHA also performs measurements with monitoring stations for 24-hour monitoring, as well as with spectrum analyzers to differentiate the contribution of different emitters at points around "sensitive" buildings and areas.

The results of measurements performed by NCPHA in almost the whole country show that the EMF values do not exceed the permissible levels according to the requirements of Ordinance № 9 of 14.05.1991 on *maximum permissible levels of electromagnetic fields in populated areas and determination of hygienic protection zones. around radiating objects*, namely 10 μ W/cm². Exceeding this value is detected at no more than 3% of the measured values.

In the Republic of Bulgaria and the Republic of North Macedonia there is no normative act regulating the protection of the population from low-frequency electric and magnetic fields, as well as for those with a frequency of 50 Hz, emitted by energy systems. The measured values at these frequencies should be compared with the European Recommendation 1999/419/EC for protection of the population from electromagnetic fields.

Regarding the *magnetic fields in residential buildings with built-in substations*, the results of measurements in the Republic of Bulgaria are the following:

- The most unfavorable in terms of the impact of the magnetic field are the substations built on the first above-ground floors (ground floor type), in some cases those of the extension type. The discrepancies relate mainly to noise and vibration in the premises located next to the substation, but higher values of the magnetic field are found in this type of equipment.
- Although the magnetic field values are within the hygienic standards for persons with active or massive metal implants (**Recommendation 1999/519/EA**), they are relatively high in relation to the carcinogenic thresholds described in the literature. (3 mG = 0,3 μ T).

There are insufficient data from measurements and estimates in both countries on the state of exposure of the population from **the other sources of EML** described above. It can be summarized that:

- Irradiation with medical sources of EMF can be very serious and greatly exceed the maximum allowable levels;

- Cell phone radiation is very high, but short-lived. However, research is being done in many countries on the uptake of electromagnetic energy by brain tissue, and it is not yet clear whether these phones have no harmful effects due to the chronic, subthreshold effects directly on the brain;
- Household electrical appliances and electrical installations are also a big problem for the population, especially if installed incorrectly.
- Add to this the risk of other emitters - police radios, ambulances, transport, as well as those for security and anti-theft, which are much talked about in the world today and which create serious levels of electromagnetic exposure on persons near the emitters.

Summary of the situation with regard to harmful physical factors:

Of the harmful physical factors, noise is of the greatest importance for the region - increased values are found mainly in cities, in the territory of both countries. For the Bulgarian territory the increased noise levels are mainly due to transport. For the Republic of North Macedonia, exceedances have been established for terrains close to productions, according to the available data.

No exceedances or problems were reported for the other harmful physical factors.

2.1.11. Condition and management of waste

➤ *Blagoevgrad and Kyustendil districts (Republic of Bulgaria)*

Waste management in the Republic of Bulgaria, and in particular in the Blagoevgrad and Kyustendil districts is carried out on the basis of specific regulations (the main ones are the Law on Waste Management and its bylaws, ordinances on waste management at the municipal level), National Waste Management Plan 2021-2028 and Municipal or regional (for municipalities belonging to the Regional Association for Waste Management) waste management programs.

The situation with regard to waste management in both districts is as follows (*Regional Reports on the State of the Environment of RIEW-Blagoevgrad, RIEW-Sofia and RIEW-Smolyan for 2020.*):

All municipalities in the scope of both districts have developed **municipal ordinances** for waste management, and implement **municipal or regional waste management programs**, and in the process of developing and adopting waste management programs for the period after 2020.

Waste

According to the *National Waste Management Plan 2021-2028* in general, in recent years the trend of reducing the generated municipal waste has been preserved, but the levels of the amounts of landfilled waste are still high. A positive trend in this direction is the introduction in recent years of more and more pre-treatment plants - separation and stabilization of the biodegradable fraction, through which directly disposed waste significantly reduced - by nearly 74% for the period 1999-2018, and the total amount deposited waste for the same period decreased by almost 50%. There is a tendency for a gradual increase in the share of household waste submitted for recycling.

In the composition of the generated household waste, the biodegradable ones represent 36%, the biological ones are 25%, and the recyclable fractions of paper and cardboard, plastic, glass and metals - 27.5%.

For both areas:

- The system for organized garbage collection and disposal of non-hazardous **household waste** covers over 98% of the population in the two districts. Garbage collection and disposal is difficult in populations with a small population and/or inaccessible geographical location (mountainous areas) - municipalities of Sandanski, Strumyani, Petrich and Simitli. The waste of Blagoevgrad district and Boboshevo municipality from Kyustendil district is transported to the 5 regional landfills for non-hazardous waste in Blagoevgrad district built and put into operation;
- The problem is the great delay in the construction of a regional system for municipal waste management in Kyustendil district - with the exception of Boboshevo municipality, the other municipalities have contracts for non-hazardous waste treatment in other regions - Sofia and Samokov. They have concluded contracts with companies for preliminary treatment/separation/after which the unusable fraction is handed over for disposal to the respective regional landfill.
- In 2020, installations for separation of mixed household waste and installations for composting of separately collected waste from RWMS-Sandanski and RWMS-Petrich were put into operation;
- At the regional landfill for non-hazardous waste - Razlog there is a composting plant for biodegradable waste, and the construction of a separation plant for mixed municipal waste is forthcoming;
- The old municipal landfills for household waste, which do not meet the requirements, have been decommissioned and are either recultivated or in the process of reclamation.

Widespread waste

- There are still no sites for free delivery of separately collected **household waste in the settlements with a population of more than 10,000 inhabitants (the criterion is defined in the WMA), incl. bulky waste, hazardous waste and others.** Municipalities meet this legal requirement by concluding contracts with legal entities holding the relevant permit/registration document.;
- Persons operating on the territory of the districts by placing **widespread waste** on the market fulfill their obligations by participating in collective systems, represented by recovery organizations or paying the due product fee to EMEPA. So far, there are no people to perform their duties individually;
- In accordance with the requirement for settlements over 5000 inhabitants to organize separate collection of **packaging waste**, in *Blagoevgrad* district in 14 of 15 municipalities (excluding Kocherinovo Municipality, whose settlements have a

population of less than 5,000 inhabitants) a system for separate collection of waste has been introduced. packaging waste. The recovery organizations have concluded a contract with a subcontractor for collection, transportation and subsequent treatment of waste on the territory of the municipalities, which have concluded a contract with the organizations for recovery of packaging waste. Packaging waste is transported to a site for further treatment (separation - in a separation plant), located in the village of Zelen dol, Blagoevgrad municipality;

- More than 30 companies in both areas have permits for activities with **ferrous and non-ferrous metal waste, end-of-life vehicles, unusable batteries and accumulators, obsolete electrical and electronic equipment;**

Construction waste

Construction waste has a relatively small relative share of the generated industrial waste - about 6.6%. In the last years of the analyzed period for the country there are positive trends for increasing the relative share of recovered compared to disposed of construction waste.

On the territory of the two districts so far no installations or facilities for utilization of **construction waste** have been built - they are handed over for disposal to landfills for inert waste or to the regional landfills for non-hazardous waste. The main problems of the municipalities are related to the construction waste and especially its unregulated disposal.

Industrial and hazardous waste

The quantities of generated **industrial waste** have been growing in recent years, with "Production and distribution of energy and fuels" in the first place in terms of economic activities. The quantities of industrial waste handed over for recovery decrease, while the ones handed over for disposal increase.

For both areas, the main quantities of industrial waste are from the wood processing, textile and footwear industries, as well as from the service sector (car washes and car repairs) - most industrial non-hazardous waste is disposed of. A significant part of wood waste is used as fuel for heat production. The problem is the unregulated incineration of industrial waste - most often textile, paper and plastic packaging waste.

In recent years, the quantities of generated hazardous waste have decreased significantly, with the largest share of hazardous waste generated by the processing industry. The **hazardous waste** delivered (as a whole for the country) for recovery for the period 2013-2018 is over 11%.

Hazardous waste is handed over for further treatment, according to the WMA, and no hazardous waste disposal facility has been built in both areas. The companies have difficulties in handing them over for further treatment, as the generated waste is in small quantities, and the persons entitled to treat such waste are in remote parts of the country, which leads to higher prices for the service.

➤ ***Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)***

Waste management in the Republic of North Macedonia, and in particular in the Northeast, East and Southeast regions is carried out on the basis of specific regulations (the main ones are the Law on Waste Management, Law on Batteries and Accumulators and Waste Batteries and Accumulators, Law on management of packaging and packaging waste and the Law on Management of Electrical and Electronic Equipment). Waste management plans and programs are developed at three levels - national, regional and municipal. Waste management programs are also developed and implemented by large waste producers.

The situation with regard to waste management in the three regions is as follows (source *Programs for development of Northeastern, Eastern and South-Eastern regions for the period 2021-2026, Report on the state of the environment with indicator approach - 2020, draft of National Waste Management Plan for the period 2020-2030.*):

Waste

The management of municipal waste is entrusted to the municipalities.

Northeast region

Municipal waste management includes collection, transportation and disposal. The disposal is carried out at local or municipal landfills, which do not meet the current normative requirements and sanitary-technical standards.

Garbage collection is carried out by 5 registered utility companies, and urban areas are relatively well covered. Rural areas are not fully covered by the garbage collection system, which is one of the main reasons for the emergence of illegal landfills in them. The problems with the illegal dumping of waste are expected to end after the commissioning of the new regional landfills for non-hazardous municipal waste.

There are 4 landfills in the Northeast region, classified (according to the National Waste Management Plan and according to the risk of environmental pollution) as follows:

- Konopnitsa high-risk landfill, Kriva Palanka municipality;
- Krasta medium risk depot, Kumanovo municipality;
- low risk landfills "Railway", Kratovo municipality and "Bel Kamen", Lipkovo municipality.

The recycling rate of municipal waste is extremely low (excluding packaging waste), as well as industrial and other non-industrial waste.

Household waste for the period 2015-2019 shows a downward trend of 25.19%. However, the difference between generated and collected waste remains large - for example, in 2019 the generated municipal waste is 62 136 tons, and the collected - 39 495 tons, or 22.6% of the generated waste is not collected.

Separate collection of recyclable fractions is done through separate collection containers, but in very few municipalities.

Eastern region

Collection, transportation and subsequent disposal, similar to the Northeast region, do not cover all settlements, which is why unregulated landfills are formed. There are 9 active landfills in the Eastern region, none of which meets the current regulatory requirements.

For 2019, the collected household waste is 77,000 tons, with 100,000 tons generated, and the trend is to increase the quantities.

Southeast region

As in the other two regions, the system for collection, transportation and disposal of municipal waste does not cover all settlements, which leads to unregulated waste disposal. Some municipalities in the area have public-private partnerships with local municipal waste collection and recycling companies. For 2019, the generated municipal waste in the region is 60,428 tons, and the collected 46,677 tons, and the trend is to increase in recent years. The largest share falls on biodegradable waste - 40.4%, followed by paper and cardboard - 13%, plastics - 11.7%.

There is not a single landfill in the South-East region, which is the reason for the presence of over 700 unregulated landfills. An initiative is currently underway to design and build a regional landfill, as well as to find a solution for cleaning up unregulated landfills.

In all three regions there are no composting plants for biodegradable waste, which represents the largest percentage in the composition of mixed municipal waste.

Widespread waste

Waste such as obsolete tires, unusable batteries and accumulators, obsolete electrical and electronic equipment are not collected selectively and fall with the total flow of household waste to municipal landfills.

Construction waste

Due to problems similar to those of municipal waste, the exact quantities of generated construction waste are not known for the reporting and data collection for the generated construction waste, but the approximate ones for the territory of the country are 460 000-500 000 t/year.

The construction waste management is entrusted to the municipal governors. At present, no investments have been made in the country in facilities for treatment and recovery/recycling of construction waste. At the moment, construction waste is not collected in an organized manner, it is dumped in municipal landfills for aggregates, or in most cases - illegally, in illegal landfills.

Due to the lack of financial resources in the municipalities, the direction is to attract the private sector in such activities.

Industrial and hazardous waste

The latest statistics for 2018 (published in 2019) show that production, followed by agriculture, forestry and fisheries, as well as mining, are the most significant sources of production (including those generated as a result of trade) waste in the Republic of North Macedonia. The total amount of industrial waste by sectors in the country in 2018 (last processed data) amounts to 1,142,663.00 tons. The largest amount (531,762.00 tons) was formed in the manufacturing sector.

No regulatory incentives are applied to limit the generated industrial waste, which is reported as a significant shortcoming (draft Waste Management Plan for the period).

The total amount of generated hazardous waste for the country is 20,484.00 tons in the mining and quarrying sector. The quantities of **hazardous waste** generated for different regions are different for different years, which does not allow to draw an unambiguous conclusion about the trend for this waste. This is due to the changing number of hazardous waste generating entities.

Summary of the situation regarding waste:

For the territory within the scope of the Republic of Bulgaria: the main way of treatment of mixed municipal waste is landfilling, noting positive trends for reducing the amount of landfilled waste with the introduction of pre-treatment facilities. The main problems are the lack of installations and facilities for the recovery of construction waste and the unregulated disposal of household and construction waste.

For the territory of the Republic of North Macedonia: waste management in planning areas can be characterized as inefficient and hampered by serious shortcomings, including: low public awareness, lack of consensus on the location of regional landfills for non-hazardous waste, lack of stricter requirements for waste generators, leading to continuing adverse effects on the environment and human health.

2.1.12. Hazardous chemicals and risk of major accidents

➤ *Blagoevgrad and Kyustendil districts (Republic of Bulgaria)*

On the territory of both districts in the scope of CBCP and TSIM are 4 existing enterprises falling within the scope of Chapter Seven, Section One of the EPL (according to the Public Register under Article 11, paragraph 1, item 6 of the EPL⁶⁷), with operators and basic parameters as follows:

- “Apel” ltd. - a company with high risk potential from a major accident - Kyustendil, with scope of activity: storage and production of basic organic solvents of alkyd paints;
- Coal Mining Bobov Dol ltd - an enterprise with low risk potential - Bobov Dol, with subject of activity: extraction of brown coal;
- "BMW-2000" Ltd. - an enterprise with low risk potential, Blagoevgrad - industrial zone - oil depot "Unloading and loading of petroleum products" (gasoline and diesel fuel);
- TPP Bobov Dol JSC - enterprise with low risk potential, Golyamo Selo village, Bobov Dol municipality - condensing thermal power plant, in which the process of conversion of heat energy released during the combustion of conventional fuels (coal, fuel oil) is carried out, in electricity by means of a steam turbine.

➤ *Northeastern, Eastern and South-Eastern regions (Republic of North Macedonia)*

The *Convention on the Transboundary Consequences of Industrial Accidents* has been ratified, and the Environmental Act has a separate chapter on the prevention and control of major accidents involving dangerous substances, which describes the obligations of operators handling hazardous substances and chemicals. According to the requirements transposing the Seveso Directive, each operator must draw up its own internal emergency plan for accident prevention. *Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances is to be transposed, amending and subsequently repealing Council Directive 96/82/EC (Seveso III Directive)*. The enterprises at risk of major accidents have been identified, as such fall in the territory of the three regions within the scope of CBCP and TSIM - enterprises of the mining industry, for electricity production, processing enterprises.

Summary of the situation regarding hazardous chemicals and the risk of major accidents:

In the cross-border area subject to CBCP and TSIM, there are also existing enterprises with low and high risk potential for major accidents, and information on their location and parameters is not public.

When implementing CBCP and TSIM activities and measures related to the construction of sites and infrastructure, it is necessary to take into account the existing enterprises in the area, performing activities for storage/production/use of hazardous chemicals and mixtures in quantities that pose a risk of large accidents.

2.1.13. Health status of the population

A. Health and demographic characteristics of the population

The purpose of the specialized study presented in this sub-item is to study the health status of the population of the cross-border region with a view to assessing the presence or absence of determinants of environmental risk factors.

The object of the study are the population of the respective districts and regions and the whole country through a comparative analysis.

Surveillance units:

- logical unit for observation - the residents of Kyustendil and Blagoevgrad districts on the territory of the Republic of Bulgaria and the residents of the Northeastern, Eastern and South-Eastern regions on the territory of the Republic of North Macedonia;
- technical unit for monitoring - the environment, including the factors and parameters of the respective districts and regions.

➤ *Blagoevgrad and Kyustendil districts (Republic of Bulgaria)*

Demographics

Blagoevgrad District is located in the South-Western District of the Republic of Bulgaria and has an area of 6449.5 sq. Km. The district consists of 14 municipalities with 13 towns and 261 villages. It borders the Republic of North Macedonia to the west and Greece to the **south**.

Kyustendil District is located in the same region of the country, with an area of 3084 sq. Km. or 2.7% of the country's territory. It includes 9 municipalities with 182 settlements. It borders the districts of Sofia, Pernik and Blagoevgrad, and to the west with the Republic of North Macedonia and Serbia.

Population

As of 2020, the population of **Blagoevgrad region** is 301,916 people, which represents 4.35% of the country's population and puts the district in 6th place in relative share of the population. The tendency for decrease of the population in the district in the last three years is preserved, typical for the country as well (**Table 2.1.14-1**).

Table 2.1.14-1 *Population of Blagoevgrad district (for a three - year period)*

Year	Population c area - total	Men	Rel. share	Wome n	Rel. Share	In cities	Rel. share	In villages	Rel. share
2018	305 123	148 542	48.68	156 581	51.31	183 143	60.02	121 980	39.97
2019	302 694	147 231	48.64	155 463	51.36	182 137	60.17	120 557	39.83
2020	301 916	146 800	48.62	155 116	51.38	181 825	60.22	120 091	39.78

The total population of **Kyustendil region** by 2020 is 116,619 people at a density of 44.3 people per square km.

Table 2.1.14-2 *Population of Kyustendil district (for a three - year period)*

Year	Population c area - total	Men	Rel. shar e	Wome n	Rel. Share	In cities	Rel. sha re	In villag es	Rel. share
2018	119 041	57944	48.68	61097	51.32	83230	69.92	35811	30.08
2019	116 915	56922	48.69	59993	51.31	81884	70.04	35031	29.96
2020	116 619	56699	48.62	59920	51.38	80924	69.39	35695	30.61

The age structure of the population of the two districts is presented in the following two tables:

Table 2.1.14-3 *Age structure of the population in Blagoevgrad District (for a period of three years)*

Years	Total	Age groups					
		0-17	% of the total number	18-59	% of the total number	60+	% of the total number
2018	305 123	47 483	15.56	188 160	61.67	69 480	22.77
2019	302 694	47 539	15.7	185 180	61.17	69 975	23.13
2020	301 138	47 359	15.73	183 855	61.05	69 924	23.22
In cities							
2018	183 143	29 225	15.96	114 310	62.42	39 608	21.62
2019	182 137	29 521	16.21	112 495	61.76	40 121	22.03
2020	181 513	29 590	16.3	111 640	61.5	40 283	22.2
In villages							
2018	121 980	18 258	14.97	73 850	60.54	29 872	24.49
2019	120 557	18 018	14.95	72 685	60.29	29 854	24.76
2020	119 625	17 769	14.85	72 215	60.37	29 641	24.78

Table 2.1.14-4 *Age structure of the population in Kyustendil District (for a period of three years)*

Age groups							
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Year	Total	0-17	% of the total number	18-59	% of the total number	60+	% of the total number
2018	119 041	17 297	14.53	59 937	50.35	41 807	35.12
2019	116 915	17 173	14.69	58 434	49.97	41 308	35.33
2020	116 619	16 281	13.96	58 146	49.86	42 192	36.18
In cities							
2018	83 230	13 829	16.61	43 584	52.37	25 817	31.02
2019	81 884	13 735	16.77	42 317	51.68	25 832	31.55
2020	80 924	13 020	16.09	41 561	51.36	26 343	32.55
In villages							
2018	35 811	3 468	9.68	16 353	45.67	15 990	44.65
2019	35 031	3 438	9.82	16 117	46.00	15 476	44.18
2020	35 695	3 261	9.14	16 585	46.46	15 849	44.40

Birth rate

The birth rate in **Blagoevgrad region** in recent years is gradually rising and in 2018 reached 10.9 per thousand compared to 10.7 per thousand for the country. For the period 2018 - 2020 the tendency for the indicators for the district to be close to those for the country is preserved. In 2020, the values for the district (8.8) are higher than those for the country (8.5).

The birth rate in **Kyustendil region** has varied over the last 9 years, reaching 6.8 per thousand in 2020, which is the lowest value for the period.

Mortality

The total mortality in **Blagoevgrad region** shows tendencies to increase 11.3 - 13.3 per thousand, and by 2019 there is an increase in the values of deaths in the district - 13.29 per thousand population (4,056 people died), compared to 15, 4% nationwide with 108,526 registered deaths. In 2020 it is observed - 13.3 per thousand population (4054 deaths), compared to 15.5 for the whole country with 108 083 registered deaths. Due to death, almost 57.9% of deaths are due to class IX - Circulatory diseases, followed by class II - neoplasms - 15.5% and class XI - diseases of the digestive system - 3.1%.

The total mortality in the **Kyustendil region** shows an increasing trend for the last 9 years - from 19.1 to 24.07 per thousand for 2020, with an average value for the country for 2020 - 15.5, and for the whole period is more high than the national average. In the first place as a cause of death are diseases of class IX - Circulatory diseases - 52.7% of deaths are due to them, followed by Class II - Neoplasms - 13.3% and third - Class XVIII - Symptoms, signs and deviations from the norm, found in clinical and laboratory studies, not elsewhere classified - 11.7%.

Infant mortality in the **Blagoevgrad region** has been declining in recent years, with 12 cases in 2018, 8 in 2019 and 2020, and 301 in the country in 2020.

In 2020, the number of infant mortality in **Kyustendil district** is 5, and in previous years it was 9 for 2019 and 7 for 2018, respectively, and infant mortality decreased from 10.73 in 2019 to

6.31 per 1000 live births in 2020. ., and is higher than the national average (5.09 - for the country, at 6.31 per 1000 - for the district).

The predominant causes of infant mortality are: class X- Diseases of the respiratory system.

Natural growth

The low birth rates, the increased migration processes and the gradually increasing indicators of total mortality determine the negative natural growth of the population in both districts in the last 10 years, but in comparison with those for the country the values are significantly more favorable for Blagoevgrad district. unfavorable for Kyustendil district.

In 2020 the natural increase for **Blagoevgrad district** is (-7.1) compared to (-9.5) for the country compared to 2018, when the natural increase for the district is (-4.5) compared to (-6.5)) for the country.

For **Kyustendil district** the values are significantly more unfavorable than the national average, as in 2020 the natural increase is (-17.3) compared to (-9.5) for the country. The lowest value is noted for the municipality of Nevestino, where the natural increase is (-42.9).

Sickness and morbidity

The classes of diseases according to the International Classification of Diseases that are most related to environmental factors are:

Class II: Neoplasms;

Class IV: Diseases of the endocrine glands, nutrition, metabolism and immune disorders;

Grade IX: Diseases of the circulatory system;

Class X: Diseases of the respiratory system;

XI class: Diseases of the digestive system;

XII class: Diseases of the skin and subcutaneous tissue;

XIV class: Diseases of the genitourinary system;

Grade XVII: Congenital anomalies.

The presented data reflect the primary turn of the population for medical care to the pre-hospital (polyclinic) establishments in the city. General morbidity (primary cases) and some classes of IDC diseases have been observed, which according to the literature may be influenced by **environmental risk factors**.

In 2020, the largest share of the disease for **Blagoevgrad region** falls on diseases of the respiratory system 166 428 cases / 23.85% /, diseases of the circulatory system - 145 745 cases were registered / 20.88% /, followed by diseases of the ear and mastoid process - 74,441 cases / 10.67% /; diseases of the genitourinary system - 57,548 cases / 8.25% /; diseases of the musculoskeletal system and connective tissue - 55,341 cases / 7.93% /; diseases of the eye and its appendages - 54,601 cases / 7.83% /; some infectious and parasitic diseases - 46,958 cases / 6.73% / (**Table 2.1.14-5**).

In 2020, the largest share of morbidity for **Blagoevgrad region** falls on diseases of the respiratory system - 166,428 cases / 23.85% / were registered in 167,274 cases / 22.92% / for 2018, followed by diseases of the circulatory system - 145,745 cases were registered / 20.89% / in 132,902

cases / 18.21% / in 2018, diseases of the ear and mastoid process - 74,441 cases / 10.67% / in 19 123 cases / 2.62% / in 2018; diseases of the genitourinary system - 57,548 cases / 8.25% / compared to 62,270 cases / 8.54% / in 2018; diseases of the musculoskeletal system and connective tissue - 55,341 cases / 7.93% / compared to 49,826 cases / 6.83% / in 2018; diseases of the eye and its appendages - 54,601 cases / 7.83% / compared to 49,070 cases / 6.73% / in 2018; some infectious and parasitic diseases - 46,958 cases/6.73%/compared to 46,946 cases / 6.43% / in 2018. and other. (Table 2.1.14-5).

Table 2.1.14-5 *Morbidity and morbidity among the population in Blagoevgrad district in 2020.*

Class	Name of diseases according to IDC-10	Illness			Morbidity
		Registered diseases	Per 1000 population	Registered diseases	Per 1000 population
	TOTAL I - XIX class	697756	2305,15	270234	892,76
I	Some infectious and parasitic diseases	46958	155,13	15957	78,33
II	Neoplasms	5179	17,10	5469	26,84
III	Diseases of the blood, blood-forming organs and individual disorders involving the immune mechanism	2455	8,11	1064	3,51
IV	Diseases of the endocrine system, eating disorders and metabolic disorders	36481	120,52	9276	30,64
V	Mental and behavioral disorders	12445	41,11	3973	3,97
VI	Diseases of the nervous system	31807	105,079	12447	41,12
VII	Diseases of the eye and its appendages	54601	180,38	21457	70,88
VIII	Diseases of the ear and mastoid process	74441	245,92	11426	37,74
IX	Diseases of the circulatory system	145745	481,49	26024	85,97
X	Diseases of the respiratory system	166428	549,82	52094	172,10
XI	Diseases of the digestive system	31679	104,65	15389	50,84
XII	Diseases of the skin and subcutaneous tissue	27341	90,32	13447	44,42
XIII	Diseases of the musculoskeletal system and of connective tissue	55341	182,82	25395	83,89

Class	Name of diseases according to ICD-10	Illness			Morbidity
XIV	Diseases of the genitourinary system	57548	190,11	24097	79,60
XV	Pregnancy, childbirth and postpartum period	3480	11,49	1832	6,05
XVI	Some conditions that occur during the perinatal period	226	0,74		
XVII	Congenital anomalies, malformations, chromosomal aberrations	2966	9,79	915	3,02
XVIII	Symptoms, signs and abnormalities found in clinical and laboratory studies not elsewhere classified	16268	53,74	8016	26,48
XIX	Injuries, poisonings and some other consequences of the impact of external causes	37459	123,75	21828	72,11
XX	External causes	37459	123,75	161	0,53
XXI	Factors affecting health	418520	1382,65	28339	93,62

Note: The data are obtained after processing the annual statistical reports of outpatient care in the field.

Registered diseases, *morbidity for **Kyustendil district*** - according to the number of patients according to ICD-10:

- In the first place - class IX - Diseases of the circulatory system - relative share - 31.53%;
- In second place - class X - Diseases of the respiratory system - 12.31%;
- Third - Class IV - Diseases of the endocrine system, eating disorders and metabolic disorders - 7.57%.

*Morbidity for **Kyustendil district**:*

- In the first place - class X - Diseases of the respiratory system - rel. share-12.31%;
- In second place - class IX - Diseases of the circulatory system - 12.07%;
- In third place - class VII - Diseases of the eye and its appendages-9.62%.

In terms of morbidity for the district, in 2020 diseases of the circulatory system remained in first place, as in 2019.

In terms of morbidity in 2020, diseases of the respiratory system remain in the first place, as in 2019.

Hospitalized morbidity

The number of **hospitalizations** in medical institutions for hospital care in the **Blagoevgrad region** in 2020 is 65,096, which is 4,800 more than the number of patients discharged in 2019/60,296 people/.

In terms of the structure of morbidity due to hospitalization by classes in the first place in 2020 are diseases of the respiratory system - 10,522 cases, followed by diseases of the circulatory system - 9,840 cases. (Table 2.1.14-6).

Table 2.1.14-6 Hospitalized morbidity in Blagoevgrad District for 2020.

Class	Name of diseases according to IDC-10	Hospitalized cases	Per 100,000 population	Relative share %
	TOTAL I - XX class	65096	2150,5	100,0
I	Some infectious and parasitic diseases	2040	67,3	3,1
II	Neoplasms	5145	169,9	7,9
III	Diseases of the blood, blood-forming organs and individual disorders involving the immune mechanism	51	1,6	0,07
IV	Diseases of the endocrine system, eating disorders and metabolic disorders	970	32,0	1,4
V	Mental and behavioral disorders	1067	35,2	1,6
VI	Diseases of the nervous system	3625	119,7	5,5
VII	Diseases of the eye and its appendages	236	7,7	0,3
VIII	Diseases of the ear and mastoid process	1022	33,7	1,5
IX	Diseases of the circulatory system	9840	325,0	15,1
X	Diseases of the respiratory system	10522	347,6	16,1
XI	Diseases of the digestive system	5740	189,6	8,8
XII	Diseases of the skin and subcutaneous tissue	1359	44,8	2,0
XIII	Diseases of the musculoskeletal system and connective tissue	4314	142,5	6,6
XIV	Diseases of the genitourinary system	4790	158,2	7,3
XV	Pregnancy, childbirth and the postpartum period	4848	160,1	7,4
XVI	Some conditions occurring during the perinatal period	580	19,1	0,8
XVII	Congenital anomalies [malformations], deformations and chromosomal aberrations	10	0,3	0,01
XVIII	Symptoms, signs and abnormalities found in clinical and laboratory studies not elsewhere classified	1764	58,2	2,7

Class	Name of diseases according to IDC-10	Hospitalized cases	Per 100,000 population	Relative share %
XIX	Injuries, poisonings and some other consequences from the impact of external causes	5043	166,6	7,7
XX	External causes of morbidity and mortality	-	-	-

Note: The data are obtained after processing the annual statistical reports of the medical establishments for hospital care

Specialized statistics for 2019 and 2020 show an increase in primary examinations from 150,997 to 219,534.

The analysis of the data shows that the leading diseases are Acute infections of the upper respiratory tract - the primary examinations performed in 2020 are 158,900. compared to 2019, when there were 154,167. Acute infections are followed by Other acute respiratory infections of the lower respiratory tract, and the examinations performed in 2020 are 25,015. with 892 pcs. less than in 2019, when there were 25,907.

The incidence in Blagoevgrad district is close to that for the country, and in certain cases, reflected in the present analysis, is lower.

The data on hospitalized morbidity for *Kyustendil district* are presented in the following table - leading for the diseases:

Table 2.1.14-7 Hospitalized morbidity in Kyustendil District for 2020.

Class	Name of diseases according to IDC-10	Discharged patients	Per 10,000 population	Relative share
	TOTAL I - XX class	20824	1785.64	100.00
I	Some infectious and parasitic diseases	289	24.78	1.39
II	Neoplasms	464	39.79	2.23
III	Diseases of the blood, blood-forming organs and individual disorders involving the immune mechanism	178	15.26	0.85
IV	Diseases of the endocrine system, eating disorders and metabolic disorders	225	19.29	1.08
V	Mental and behavioral disorders	711	60.96	3.41
VI	Diseases of the nervous system	1278	109.59	6.14
VII	Diseases of the eye and its appendages	69	5.92	0.33
VIII	Diseases of the ear and mastoid process	0	0	0
IX	Diseases of the circulatory system	3534	303.04	16.98
X	Diseases of the respiratory system	2930	251.25	14.07
XI	Diseases of the digestive system	2958	253.73	14.20
XII	Diseases of the skin and subcutaneous tissue	581	49.82	2.79

Class	Name of diseases according to IDC-10	Discharged patients	Per 10,000 population	Relative share
XIII	Diseases of the musculoskeletal system and connective tissue	168	14.41	0.81
XIV	Diseases of the genitourinary system	2084	178.70	10.01
XV	Pregnancy, childbirth and postpartum period	1585	791.63	7.61
XVI	Some conditions occurring during the perinatal period	146	1841.11	0.70
XVII	Congenital anomalies, malformations, chromosomal aberrations	3	0267	0.01
XVIII	Symptoms, signs and abnormalities found in clinical and laboratory studies not elsewhere classified	433	37.13	2.08
XIX	Injuries, poisonings and some other consequences of the impact of external causes	2126	182.30	10.21
XX	External causes of morbidity and mortality	-	-	-

➤ **Regions Northeast, East and Southeast (Republic of North Macedonia)**

Northeast region⁶⁷ is located in the northeastern part of the Republic of North Macedonia - has external borders with the Republic of Kosovo, the Republic of Serbia and the Republic of Bulgaria and is one of the smallest areas in the country - covers an area of 2,310 square kilometers, which is 8,98% of the country's territory. It includes 6 municipalities - Lipkovo, Kumanovo, Staro Nagorichane, Kratovo, Rankovce and Kriva Palanka. Out of 192 settlements in the region, 189 are villages. The population density is on average 76.2 g/sq.km, which is below the national average - 83.4 g/sq.km.

Eastern region⁶⁸ is located in the easternmost part of the Republic of North Macedonia - to the east it borders the Republic of Bulgaria. The total area of the region is 3,537.3 sq. Km, which is 13.8% of the total area of the country. It includes 11 municipalities - Berovo, Vinitsa, Delchevo, Zarnovtsi, Karbintsi, Makedonska Kamenica, Pehchevo, Proboscip, Cheshinovo, Obleshovo and Shtip and a total of 219 settlements. The population density is 49.1 g/sq.km, which ranks it sixth in the country (out of a total of 8 regions)

Southeast region⁶⁹ is located in the extreme southeastern part of the country, with its southern part bordering The Republic of Greece and the eastern part bordering the Republic of

⁶⁷

<https://northeastregion.gov.mk/web/wp-content/uploads/2021/04/%D0%9F%D1%80%D0%BE%D0%B3%D1%80%D0%B0%D0%BC%D0%B0-%D0%B7%D0%B0-%D1%80%D0%B0%D0%B7%D0%B2%D0%BE%D1%98-%D0%BD%D0%B0-%D0%A1%D0%B5%D0%B2%D0%B5%D1%80%D0%BE%D0%B8%D1%81%D1%82%D0%BE%D1%87%D0%B5%D0%BD-%D0%BF%D0%BB%D0%B0%D0%BD%D1%81%D0%BA%D0%B8-%D1%80%D0%B5%D0%B3%D0%B8%D0%BE%D0%BD-2020-2024-f.pdf>

⁶⁸ <https://eastregion.mk/dokumenti/programa-za-razvoj/>

⁶⁹ <https://eastregion.mk/wp-content/uploads/2021/07/%D0%9F%D1%80%D0%BE%D0%B3%D1%80%D0%B0%D0%BC%D0%B0-%D0%B7%D0%B0-%D1%80%D0%B0%D0%B7%D0%B2%D0%BE%D1%98-%D0%BD%D0%B0-%D0%A1%D0%B5%D0%B2%D0%B5%D1%80%D0%BE%D0%B8%D1%81%D1%82%D0%BE%D1%87%D0%B5%D0%BD-%D0%BF%D0%BB%D0%B0%D0%BD%D1%81%D0%BA%D0%B8-%D1%80%D0%B5%D0%B3%D0%B8%D0%BE%D0%BD-2020-2024-f.pdf>

Bulgaria. Its area is 2,767 square kilometers, which is 10.76% of the total area of the country. It includes 10 municipalities - Bogdantsi, Bosilovo, Valandovo, Vasilevo, Gevgelija, Doiran, Konche, Novo Selo, Radovish and Strumica, and a total of 190 settlements. The population density in the region is 62.46 g/sq. Km, which puts it in fifth place in the country in terms of population density.

Population

The last official census in the country was conducted in 2002.

The population of the Republic of North Macedonia as of 31.12.2020 is 2,068,808 people. The population of the Northeast, East and Southeast regions is a total of 524,400 people, which represents about 25.3% of the country's population. The attitude of men towards women remains almost unchanged, and although small in value, it is in favor of men. The trend for the three regions within the scope of CBCP and TSIM is to reduce the population, the main reason being migration outside the country.

Table 2.1.14-8 Population by regions (for a three - year period)⁷⁰

Year	Indicator	Northeast region	East region	Southeast region
2018	Total, no.	176 196	174 877	173 327
	Men, no.	89 691	88 348	87 635
	Relative share,%	50,9	50,5	50,6
	Women, no.	86 505	86 529	85 692
	Relative share,%	49,1	49,5	49,4
2019	Total, no.	175 973	173 804	172 824
	Men, no.	89 541	87 830	87 319
	Relative share,%	50,9	50,5	50,5
	Women, no.	86 432	85 974	85 505
	Relative share,%	49,1	49,5	49,5
2020	Total, no.	175 171	172 277	171 840
	Men, no.	89 107	87 007	86 704
	Relative share,%	50,9	50,5	50,5
	Women, no.	86 064	85 270	85 136
	Relative share,%	49,1	49,5	49,5

The age structure of the population also has negative tendencies, related to the decrease of the persons under working and in working age, and the increase of the persons over working age - demographic aging of the population. This trend is most unfavorable in the Eastern region (which is associated with mainly mountainous terrain and more unfavorable living conditions compared to other parts of the country).

Table 2.1.14-9 Age structure of the population in the three regions (for a period of three years)

%D0%B7%D0%B0-%D1%80%D0%B0%D0%B7%D0%B2%D0%BE%D1%98-%D0%BD%D0%B0-%D0%98%D1%81%D1%82%D0%BE%D1%87%D0%B5%D0%BD-%D0%BF%D0%BB%D0%B0%D0%BD%D1%81%D0%BA%D0%B8-%D1%80%D0%B5%D0%B3%D0%B8%D0%BE%D0%BD-2021-2026_v2_2.pdf

⁷⁰Државен Завод за Статистика <http://www.stat.gov.mk>

Year	Age groups					
	0-19	% of the total number	20-59	% of the total number	60+	% of the total number
Northeast region						
2018	40 597	23,0	101 828	57,8	33 771	19,2
2019	39 872	22,7	101 543	57,7	34 558	19,6
2020	38 910	22,2	101 192	57,8	35 069	20,0
Eastern region						
2018	33 396	19,1	99 959	57,2	41 522	23,7
2019	32 680	18,8	98 671	56,8	42 452	24,4
2020	31 790	18,5	97 342	56,5	43 144	25,0
Southeast region						
2018	37 566	21,7	98 868	57,0	36 893	21,3
2019	37 083	21,5	97 947	56,7	37 794	21,8
2020	36 360	21,2	97 051	56,5	38 429	22,3

The dynamics of the population in the *Northeast region* shows that for the period 2015-2019 the population decreased by 0.13%, in the *Eastern region* by 1.74%, and in the *Southeast* by 0.4%.

Birth rate

3a In recent years, the trend of declining birth rates throughout the country has continued. For the period 2015-2020 the average birth rate for the country decreased from 11.1 to 9.2 ‰.

The birth rate in the *Northeast region* for 2020 is 8.6 ‰ (compared to 10.6 ‰ in 2015), which puts it in second place in the country. Within the region, this indicator varies for the municipalities from 4.97 ‰ for Kratovo to 10.92 ‰ for Lipkovo.

For the *Eastern region* the birth rate for 2020 is 6.7 ‰ (for comparison in 2015 it is 9.0 ‰), and for the *Southeast* - from 11.0 ‰ for 2015 it decreases to 8.1 ‰ for 2020 d.

The most unfavorable trend is in the Eastern region, where the birth rate is significantly below the national average.

Mortality

For the period 2015-2020 the mortality rate varies between 9.5 and 9.9 ‰, with a significant increase for the last 2020, when the average mortality rate for the country is 12.8 ‰.

For the three regions the values of the indicator are as follows:

- *Northeast* - for the period 2015-2018 the value of the indicator decreases in each subsequent year from 9.9 ‰ to 9.2 ‰, a slight increase is recorded in 2019, when it reaches 9.5 ‰, and in 2020. - significant, the value being 12.1 ‰.

- • **Eastern** - for the period 2015-2019 the indicator varies in the range of 10.6-11.4 ‰, as, similarly to the observed for the country, for 2020 there is a significant increase and the value is 13.8 ‰;
- • **Southeast** - for the period 2015-2019, unlike the other two regions, the indicator varies in lower limits, decreasing its value from 10.7 to 10.2 ‰, but for 2020 there is also a significant increase to 12, 8‰.

Both at the beginning and at the end of the period under review, the trend in the Eastern region is the most unfavorable.

For both the country and the three regions, the leading cause of death in recent years are diseases of class IX - Circulatory diseases, followed by class II - neoplasms, and the values for 2020 are as follows:

- For the **country**: total deaths 25,755, with a leading share of causes of class IX diseases - circulatory diseases - 10,726 people (42%), followed by class II - neoplasms - 3,908 people (15%), class XVIII - Symptoms, signs and abnormalities found in clinical and laboratory studies, not elsewhere classified - 2,847 people (11%) and class X - Diseases of the respiratory system - 1495 (5.8%);
- For the **Northeast region** - a total of 2,119 deaths, with a leading share of causes of class IX diseases - circulatory diseases - 913 people (43%), followed by class II - neoplasms - 312 people (15%) and class X - diseases of the respiratory system - 182 (9%);
- For the **Eastern region** - a total of 2,395 deaths, with a leading share of causes of class IX diseases - circulatory diseases - 1,045 people (43%), followed by class II - neoplasms - 336 people (14%), class XVIII - symptoms , signs and deviations from the norm, found in clinical and laboratory studies, not classified elsewhere - 324 people (13.5%) and class X - Diseases of the respiratory system - 130 (5.4%);
- For the **South-Eastern region** - a total of 2,199 deaths, with a leading share of causes of class IX diseases - circulatory diseases - 1,140 people (53.8%), followed by class II - neoplasms - 315 people (14.8%) , class XVIII - Symptoms, signs and abnormalities found in clinical and laboratory studies, not elsewhere classified - 182 people (8.3%) and class X - Diseases of the respiratory system - 122 (5,5%).

Natural growth

In recent years, the trend of decreasing natural growth has been maintained, both for the country and for the three regions within the scope of CBCP and TSIM. Compared to 2015, when the natural increase for the country was 1.3, in 2019 the value became negative: -0.3, and in 2020 it is already -3.2. The lowest indicator is for the Eastern region, where for 2020 it is -7.1, followed by the Southeastern, where it is -4.7 and the Northeastern: -3,5.

Morbidity and morbidity

According to the *National Strategy of the Republic of Macedonia for Prevention and Control of Noncommunicable Diseases*⁷¹ and *Report on the health of the population in the Republic of North Macedonia in 2019* the highest incidence of cardiovascular diseases and malignant neoplasms in the country is followed by mental health problems, diabetes, chronic diseases of the respiratory system, diseases of the oral cavity and musculoskeletal system.

The following figure presents information on the most common diseases in children and young people in schools in the country:

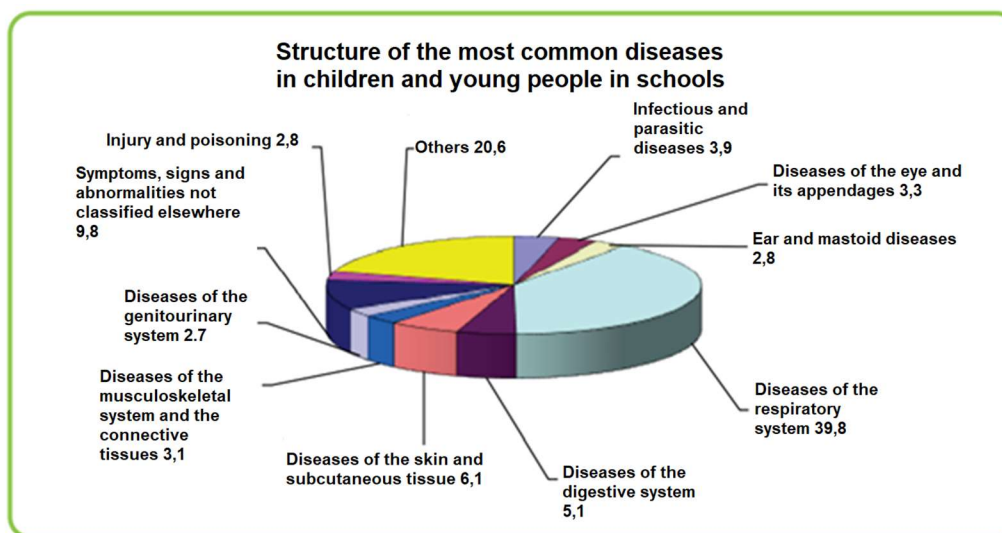


Figure 2.1.14-1 *Structure of the most common diseases in children and youth in the educational institutions of the Republic of North Macedonia for 2019.*

Report on the health of the population in the Republic of North Macedonia in 2019

From the figure it can be seen that it overcomes the diseases of the digestive system, followed by symptoms, signs and deviations, not classified elsewhere and diseases of the skin and subcutaneous tissue..

B. Analysis of the risk factors of the surrounding Wednesday, influencing the top health of the population in the cross-border region

Environmental risk factors for human health are identified and monitored at national level in the following documents for both countries:

- *The annual reports of the Minister of Health on the state of health of citizens and the implementation of the National Health Strategy of the Republic of Bulgaria - the last such report was approved in April, 2020 and refers to 2019) and*
- *Annual reports on public health in the Republic of North Macedonia, published by the Institute of Public Health of the Republic of North Macedonia - the last published*

⁷¹ <http://zdravstvo.gov.mk/wp-content/uploads/2012/12/strategija-nezarazni-bolesti.pdf>

report is *Report on the health of the population in the Republic of North Macedonia in 2019*⁷².

According to the indicated documents, part of the risks for health factors, apart from the socio-economic and related to lifestyle, is the group of factors related to the surrounding and labor Wednesday. From the factors of the surrounding Wednesday, health risks are *atmospheric air quality, quantity and quantity of drinking water, bath water, soils, waste, noise, genetically modified organisms in food, non-ionizing treatments and ionizing treatments*. In recent years, the importance of risks related to **climate change** has grown – as seen in **item 2.1.1-B** of the EA Declaration.

The deteriorating quality of atmospheric air (atmospheric air freezing) is a serious threat to human health and the quality of life of the population. Systemic exposure to elevated levels of atmospheric contaminants directly or indirectly provokes a range of adverse effects - from insignificant functional impairment to the onset of serious diseases of individual organs and systems (most commonly dichotomous). The most sensitive groups of the population - children, adults and people with chronic diseases - are also exposed to the potentially valuable effect of atmospheric contaminants.

The health risk of airborne dust contamination depends on both the scale of the particles and the chemical composition of the suspended dust particles, as well as other chemical compounds adsorbed on the surface. cases of possible dissuasive cumulative effects as a result of various contrived and constructive activities. The growth factor in the degree of respiratory disease is read - it is significantly more common in children from 0-18 years. and decreases in adults over the age of 18.

For the territory within the scope of the Republic of Bulgaria no significant problems with **drinking water** have been identified. For the regions of the Republic of North Macedonia covered by the CBCP and TSIM, the most significant problem is the lack of **drinking water**, as well as **deteriorating quality** (mainly microbiological indicators - bacteria) due to lack of safe POPs around drinking water sources. domestic water supply.

Bathing waters in natural lakes in the territory of the Republic of North Macedonia are classified according to two microbiological indicators - intestinal enterococci and Escherichia coli, and the monitoring results show satisfactory quality. There are no approved bathing areas in the Bulgarian territory, falling within the scope of CBCP and TSIM.

The condition of the **soils** in the cross-border region shows the local (point) nature of the pollution in the two districts on Bulgarian territory and local and diffuse pollution on the territory of the Republic of North Macedonia. No adverse effects resulting from significant soil contamination have been reported.

With regard to **waste**, the main problems for the districts in the Republic of Bulgaria are the lack of installations and facilities for the recovery of construction waste and the unregulated

⁷² <http://iph.mk/wp-content/uploads/2021/02/Izvestaj-za-zdravje-2019.pdf>

dumping of household and construction waste, which is associated with risks to human health. For the territory within the scope of the Republic of North Macedonia, the construction of regional landfills for non-hazardous waste is forthcoming, as the current landfills do not comply with the applicable current regulatory requirements. The problem is the lack of consensus on the location of regional landfills for non-hazardous waste, the lack of stricter requirements for waste generators, which leads to continuing adverse effects on the environment and human health.

High **noise** levels in cities in the cross-border area - observed in both countries - are also a significant risk factor leading to adverse effects on population and human health - hearing loss, discomfort.

No problems and violations have been identified with regard to **ionizing and non-ionizing radiation**, as well as **genetically modified organisms in food**.

Summary of the state of the population and human health:

According to the presented data for the whole cross-border area of CBCP and TSIM, depopulation continues with main characteristics - low birth rate, high overall mortality and migration processes, which lead to negative natural population growth. The maintenance of these negative values of natural growth is a result of the aging of the population and changes in its reproductive attitudes, the latter being largely due to the low standard of living.

For the districts in the Republic of Bulgaria it is established that, unlike Blagoevgrad district, the indicators for Kyustendil district are more unfavorable than the national average.

The tendencies in the Eastern region are the most unfavorable for the regions in the Republic of North Macedonia.

In both countries, mortality by cause shows a leading place for circulatory diseases, followed by neoplasms, and for the Republic of North Macedonia in third place are diseases of the respiratory system, which may be associated with deteriorating air quality.

For the Republic of Bulgaria - in Blagoevgrad district, in the first place in the hospitalized morbidity are the diseases of the respiratory system, and in Kyustendil - in third place. There are no official statistics on morbidity and morbidity for the Republic of North Macedonia.

From the analysis of the risk factors for human health for the cross-border region in the first place are air pollution and increased noise levels in some cities in both countries. For the Republic of North Macedonia additional risks are posed by the shortage and unsatisfactory quality of drinking water in some settlements, the current state of municipal waste management (tendency to form a significant number of unregulated landfills and use of municipal landfills that do not meet regulatory requirements). Risks related to climate change are becoming increasingly important for the entire cross-border region.

2.2. Possible development of the environment without the application of CBCP and TSIM

Based on the analysis of the data from the environmental characteristics in the previous **item 2.1 of the EAR**, the following table assesses the development of environmental aspects without the

application of CBCP and TSIM by components and factors of the environment, incl. human health. In this way, the impact of the "zero alternative" was assessed, ie. refusal to implement CBCP and TSIM.

Table 2.2-1 *Possible development of the environment without the application of CBCP and TSIM*

Components and environmental factors	Development without application of CBCP and TSIM
Climate and climate change	Existing and new sources of greenhouse gases will increase their emissions, but their levels will be negligible, both for both countries and globally. Over the last three decades, emissions of basic greenhouse gases (GHGs) have tended to decrease. This trend is expected to continue without the implementation of CBCP and TSIM.
Atmospheric air	Without the implementation of CBCP and TSIM, the modernization of existing and construction of new buildings, energy efficient installations, rehabilitation of existing and construction of new roads, construction of green areas to reduce gas and pollutants will be delayed. The economic development of the cross-border region is slowing down, benefits for financing and additional investments will be missed, as well as absorption of funds from the European Union, respectively - improvement of working conditions, improvement of quality of life, healthy lifestyle, respectively provision of pleasant environment. preserving the rich nature on the basis of sustainable development of the environment.
Surface water	Most of the goals, visions, priorities, specific and strategic goals have a positive impact on surface waters. In case of non-application of CBCP and TSIM, the development of surface waters will be unfavorable because: <ul style="list-style-type: none"> - there will be no positive impact from territorial cohesion, a greener and more connected border region; - there will be no mutual cooperation, which could lead to adverse effects on surface waters. - the control over the planned tourist initiatives will be lowered.
Groundwater	No development is expected
Earth subsurface	No development is expected
Soils and land use	The non-implementation of CBCP and TSIM has a less favorable impact than their implementation, as the opportunities for financing activities and measures related to the control of processes leading to soil degradation in urban areas (sealing, pollution, erosion) will be missed. and extra-urban environment (destruction of soil organic matter due to: mechanical damage to the integrity of the soil profile; compaction; deterioration of the soil microbocenosis in disturbed water, air and heat regime of the soil, fires and floods).

Components and environmental factors	Development without application of CBCP and TSIM
Vegetation and fauna	No development is expected
Protected areas and territories	No development is expected
Landscape	The trends will remain the same as at the moment - the problems related to unregulated landfills, lack of sufficient green areas in the urban environment will deepen.
Tangible assets	In case of non-application of CBCP and TSIM, the development of tangible assets will be unfavorable because: <ul style="list-style-type: none"> - there will be no positive impact from territorial cohesion and the achievement of a more interconnected border region; - there will be no positive impact to achieve a greener cross-border region with improved mobility and developed alternative infrastructure - the identified opportunities for the development of tourist and cultural events, and hence the stimulation of the local economy, balanced development and achieving competitiveness of the business environment will not be realized.
Cultural-historical heritage	No development is expected, and the benefits for protection, promotion, incl. increase and diversify the sources of income for the territories within the scope of CBCP and TSIM.
Harmful physical factors	Non-implementation of CBCP and TSIM will lead to continued trends in higher noise emissions from road transport. The opportunity to finance and implement activities related to the achievement of the priorities and objectives set by the two documents will not be used. No change in trends with regard to other harmful physical factors is expected.
Waste	Non-implementation of CBCP and TSIM has a less favorable impact than their implementation, as funding opportunities for pollution control activities and measures will be missed, with the introduction of circular economy models and waste recovery identified as admissible.
Hazardous chemicals and risk of major accidents	No change in the state of management of hazardous chemicals and the risk of major accidents is expected.
Health status of the population and health risk	Without the implementation of CBCP and TSIM, there will be a continuing stagnation in the development of the socio-economic situation of cross-border areas. The trend of depopulation of settlements in the studied cross-

Components and environmental factors	Development without application of CBCP and TSIM
	border areas, the deepening negative population growth and the continuing deterioration of the health and demographic situation will be maintained. Improving the quality of life in a healthy way of development and a clean environment is largely reciprocal with financial support from the EU and other sources (which are insufficient at local level).

3. Characteristics of the environment for areas that are likely to be significantly affected by the implementation of the CBCP and TSIM

CBCP and TSIM will be implemented within the specified geographical scope:

- *Republic of Bulgaria*: 2 NUTS III districts: Blagoevgrad and Kyustendil;
- *Republic of North Macedonia*: 3 NUTS III regions: Northeast, East and Southeast.

Accordingly, the environmental impacts will be realized in this territorial scope as well. Some of the activities and measures that are not of investment nature - soft measures (support for joint strategies and plans, conducting specialized assessments, training, etc.) do not have the potential to affect the environment.

The activities and measures of investment nature - firm measures - for the most part, with the exception of the strategic project for CBC "Klepalo", are of low detail - without a specific location, parameters, scope and accompanying activities, therefore, taking into account on the principle of prevention, affecting the whole territory within the scope of CBCP and TSIM.

The analysis of the possible significant impact on the territories from the implementation of CBCP and TSIM is made by components and factors of the environment, taking into account the current guidelines of the European Commission, the *Technical Guidelines of the European Commission for integration of the principle of The Mechanism for Recovery and Sustainability*, with impacts also analyzed against the six environmental objectives covered by the Taxonomy Regulation.

With regard to the likely significant impact of components and environmental factors, the following is expected:

Atmospheric air and climate change

No significant effects on both air and climate are expected as a result of the CBCP and TSIM implementation activities and related priorities, specific objectives, activities/investments, support objects, nor are significant new ones expected to be generated. emissions of harmful substances, incl. of greenhouse gases, in the implementation of eligible activities and measures. On the contrary, the activities/measures envisaged in all three CBCP specific objectives are related to both improving the AAQ of the cross-border region and sustainable adaptation to climate change.

Water

With regard to **surface waters, water protection and flood risk areas**, there are no areas that are likely to be significantly affected by the implementation of the CBCP and TSIM in both countries. The following are possible minor impacts that may occur:

Republic of Bulgaria

The analysis shows that the following significant problems may have the largest share for the deterioration of the condition of surface water bodies in the West Aegean region in the implementation of CBCP and TSIM:

Pollution of water from discharge of untreated domestic wastewater from sites subject to CBCP and TSIM - from sewerage networks and non-compliant with wastewater treatment plants in Directive 91/271/EEC. The results of the monitoring conducted in the period 2010-2014 show that 25% of the surface water bodies on the territory of the Biodiversity Act are in worse than good condition in terms of BEC and basic physico-chemical indicators, which means that they test direct negative impact from pollution with nutrients (nitrogen and phosphorus) or deviations from the established norms for biological and physicochemical indicators related to organic pollution are observed. Sewerage networks from populated areas form 80-90% of the total load for nitrogen and phosphorus, as well as the related indicators for organic pollution (BOD and COD).

Discharge of industrial wastewater from sites within the scope of CBCP and TSIM. The chemical pollution of surface water bodies has a direct impact on their ecological status/potential in terms of the content of specific pollutants and their chemical status - the presence of priority substances. The results of the monitoring conducted in the period 2010 - 2014 show that on the territory of the Biodiversity Act 4.4% of surface water bodies are in poor ecological condition, caused by the discharge of industrial sources. Typical specific pollutants that are found above the specified EQS are copper, zinc and cyanides. Priority substances that cause poor chemical status are cadmium, lead and nickel.

Agriculture (agriculture and animal husbandry) is not subject to CBCP and TSIM, but the planned construction of green areas, accompanied by fertilization and use of pesticides can achieve a cumulative effect with the available pollution - 5.5% of surface water bodies in the territorial scope of the Biodiversity Act.

Water abstraction and alteration of surface water runoff in CBCP tourism activities. Excessive use of water from rivers and dams can affect the outflow of surface water when accumulating with the effect of built-in derivation MRES.

Adverse impact of the activities in case of non-compliance with the requirements of the PIA, especially when POPs for drinking water have not been determined;

Adverse impact on the constructed sites under CBCP and TSIM, in case of non-compliance with the requirements within the scope of the determined AWSPFR.

Republic of North Macedonia

1. Construction of industrial sites under CBCP and TSIM, in case of vulnerability to surface waters;
2. Presence of relatively high level of polluted rivers in case of insufficient treatment and lack of treatment in rural areas;

3. Construction of CBCP and TSIM sites in areas with insufficient drinking water and outdated water supply systems;
4. Areas with relatively high risk of floods;
5. Areas with risk of overuse of tourist resources, incl. erosion;
6. Adverse effects on POPs for DDWS, including when not identified;
7. Pollution of the transboundary surface water body of the Strumeshnitsa River and other bodies with nitrates in the vulnerable zone "South-West Zone";
8. Pollution of the Strumeshnitsa River / Strumitsa and other bodies with domestic wastewater from settlements /sensitive areas/;
9. Impact of CBCP and TSIM on water protection zones in protected areas.

По-голямата част от слабостите и въздействията се проявяват на територии и в двете държави.

Groundwater

No significant impact of groundwater bodies, including transboundary, is expected in the implementation of the CBCP and TSIM, as the planned activities and measures are not related to the impacts on the component.

Earth's subsurface

CBCP and TSIM do not provide for measures and activities related to the use or significant impact on the earth's interior.

The program includes a strategic project related to construction - the project for CBC "Klepalo", part of which will be the construction of a new road section. In order to prevent erosion processes and other negative geological phenomena - landslides, landslides, the design of the site should be prepared and take into account the results of detailed hydrogeological studies (which is required by the legislation of the Republic of Bulgaria).

Soils and land use

There are no territories in which the lands and soils will be significantly affected by the implementation of CBCP and TSIM in both countries, except for those related to the implementation of the *Strategic Project: Bulgaria and the Republic of North Macedonia* ”.

With the implementation of the two sites - a new border crossing and new road infrastructure, greater connectivity between the two countries will be achieved, facilitated transport flow and exchange of goods, as well as economic development of border areas.

The impact on the soils during the construction will be local and direct, expressed in: mechanical violation of the integrity of the soil profile in the areas of excavation activities during the construction of new facilities, compaction and sealing (parking lots, service infrastructure, etc.).

It is obligatory to include in the *design* of the new sites the necessary activities and measures for protection of soil resources and reclamation in order to prevent the occurrence of erosion processes and maximum restoration of the disturbed lands. During the implementation of the *construction activities* it is necessary to take measures for protection of the soil resources (preliminary seizure of the humus soil and its utilization for the purposes of reclamation.

Biodiversity

An assessment of the impact of the CBCP and TSIM measures and activities was made in item 6 of the EA Report, in accordance with the level of detail of the projections. In regard to:

- *Specific impact on territories* - significant impact on biological diversity is possible on Bulgarian territory, when building the planned new road section within the strategic project CBC "Klepalo", given the saturation of the area with plant and animal species and habitats with high conservation status. In this regard, the choice of a route option should be made after the development and evaluation of possible location alternatives. Consideration should also be given to the planned rehabilitation of the existing road III-1008, for the same reasons. As the construction activities of the project have been carried out on the territory of the Republic of North Macedonia, no significant impact on the territories in terms of biodiversity is expected as a result of the forthcoming project activities.
- *CBCP and TSIM activities and measures* - potential for significant impact on the biodiversity of the territory of both countries have mostly envisaged measures related to tourism development - given the lack of precise location and parameters of specific projects, at this stage can not assess the significance of the impact. In any case, the impact should be assessed for each project in the light of the significant biodiversity and the associated value of the area.

Protected areas and protected zones

The territory in the cross-border area is extremely rich in protected areas and territories.

The risk of affecting protected areas can be predicted at this stage, and in low detail (due to lack of specific parameters) only for the strategic project under CBCP Priority 2 for CBC Klepalo. The construction of the site, incl. leading road and facilities at the CBC checkpoint on territory of Republic of North Macedonia has been completed.

Rehabilitation of an existing road section of road III-1008 is forthcoming on Bulgarian territory, as well as completion of the road section on the road Strumyani - CBC "Klepalo" with a length of about 17 km to the building and facilities of CBC.

Figure 3-1 shows in blue the existing road III-1008, and it is envisaged that the new road section will start before the diversion of the road to the village of Kolibite. It can be seen that in the beginning, at the Struma Motorway, the existing road touches the borders of two protected areas - BG0002003 "Kresna" under the *Birds Directive* and BG0000366 "Kresna-Ilindentsi" under the *Habitats Directive*.

The figure shows that between the existing road and CBC Klepalo there is a protected area BG0000366 "Kresna-Ilindentsi" under the *Habitats Directive*, which is expected to be affected by the route of the new road section to CBC. The degree and nature of the impact and impact, incl. on the subject matter and objectives of the protected area will be subject to the environmental impact assessment procedure within the meaning of *Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on assessment the impact of certain public and private projects on the environment* and an assessment of compatibility within the meaning of the *Habitats Directive*, these assessments being part of the scope of the strategic project.



Figure 3-1 Location of the existing one-lane road on the republican road III-1008 in relation to the protected areas in the region

Landscape

The envisaged measures and activities under CBCP and TSIM are not expected to significantly affect areas with valuable / natural / natural landscape. The impact on the landscape as a whole is a complex positive of the landscaping measures - direct impact; energy efficiency and circular economy - indirectly; development of the family business, qualification - do not imply significant impact on the landscape; the

development of alternative mobility systems - indirectly.

The development of tourism products and smart solutions for tourism using cultural and historical heritage sites have the potential to affect natural landscapes, so any such project should be subject to a preliminary assessment of the impact on the landscape - as part of the required procedures for environmental impact assessment. In this way, the protection of the natural resources and the value of the territory and compliance of the tourist load with the capacity of the environment should be ensured.

Tangible assets

The CBCP and TSIM projects envisage the implementation of targeted measures to improve the existing and build new modern and meet all environmental requirements and standards transport, communal, cultural and tourist infrastructure, as well as invest in the development and construction of alternative environmental systems and infrastructure for achieving a greener, low-carbon, competitive and connected region. In connection with the above, no significant negative impact on territories is expected in terms of tangible assets, but only a positive one.

Cultural-historical heritage

Non-construction activities do not have the potential to significantly affect and negatively affect cultural heritage sites.

Any construction activity has the potential to endanger previously unregistered **archaeological cultural values**, and to lead to the destruction or destruction of archaeological sites. The legislation of both countries provides for specific actions to be taken in the event of the discovery of such sites, and no significant adverse effects are expected in this regard. The measures related to specific objective 1.2 of TSIM are directly aimed at using the potential of the cultural and historical heritage for the development of tourist products, and a positive impact is expected - maintenance of these sites.

Harmful physical factors

With regard to harmful physical factors, the noise factor from road traffic is important for the cross-border region within the scope of CBCP and TSIM. Transport connections and connectivity between the Republic of Bulgaria: 2 NUTS III districts: Blagoevgrad and Kyustendil and the Republic of North Macedonia: 3 NUTS III districts: Northeast, East and Southeast, is presented in **item 2.1.11** of the EAR.

The change in the noise load in the considered area may be influenced by the change in the transport and communication network, the emergence of new local sources of noise, etc., provided for in the CBCP and TSIM.

Important for the identification of the affected areas by the noise factor, the possible impacts as a result of achieving the objectives and priorities of the TCP and TSIM will be considered below:

Priority 2 envisages the implementation of a strategic infrastructure project - opening of a new CBC "Klepalo" - in the municipality of Strumyani, Blagoevgrad district, Bulgaria and Berovo municipality, Eastern region, Republic of North Macedonia. Road access to the new CBC is foreseen on a Class III road, part of the RPM. For the purposes of the assessment, data obtained from long-term measurements and calculations of the level of traffic noise on roads of different classes may be used, namely:

The equivalent noise level, Leq - dBA, emitted by the traffic flow (noise characteristic) is determined by the dynamic parameters of the flow - intensity (number of vehicles / hour), structure (percentage of heavy goods vehicles and buses in total flow), speed (km / h) and parameters of the road route - pavement, longitudinal slope (%). At present, data on the indicated parameters of the traffic flow in the considered road sections are not presented.

The noise characteristics of the flow at a distance of 7.5 m from the axis of the nearby lane, depending on the class of the road are:

Class II - in the range of 65-70 dBA at a permitted speed of 80 km/h;

Class III - in the range of 60-65 dBA at a permitted speed of 60km/h

IV and V class - up to 60 dBA depending on the specific load and speed.

The existing section of road III-1008 passes through the villages of Mikrevo, Razdol and Klepalo. The new route of the road from km 22 + 000 (before the road deviation for the village of Kolibite) to the beginning of the site of CBC "Klepalo", its class and the set design speed - up to **40 km/h** suggest low intensity of traffic flows, which implies equivalent noise levels below 50 dB (A) for the day and below 40 dB (A) for the night.

The implementation of the project does not imply an increase in noise exposure above the permissible norms and does not imply the emergence of health risks for the population in the area.

The implementation of CBCP and TSIM is not expected to exacerbate existing problems or create new ones. The priorities and measures envisaged by CBCP and TSIM do not imply a risk of additional noise pollution in settlements. The planned eligible activities/measures for landscaping of urban and suburban areas (under CBCP Priority 1) and improving the mobility and connectivity of transport and engineering infrastructure through the development of alternative mobility systems (measure 1.2.1. Of TSIM) will have positive effect to reduce noise pollution and impact on the environment and the population of the region, included in the scope of CBCP and TSIM.

The priorities and measures envisaged by CBCP and TSIM are not related to activities involving additional effects of vibration, ionizing and non-ionizing radiation.

Waste

Areas of waste activities are not expected to be significantly affected, nor are significant amounts of waste generated in the implementation of the eligible activities and measures, on the contrary - those envisaged as eligible activities for technological modernization (to measure 1.1.1. Of TSIM) and for efficient product development process (to measure 1.1.3 of TSIM) contribute to the transition to a circular economy and have a positive impact on reducing the amount of waste generated.

Hazardous chemicals and the risk of major accidents

The CBCP and TSIM projections do not involve significant impacts resulting from the storage and use of hazardous chemicals, and the eligible activities and measures do not have the potential to increase the risk of major accidents in existing low- and high-risk facilities in the cross-border area.

Population and human health

With regard to **human health**, the implementation of the CBCP and TSIM projections does not involve new, significant sources of emissions and environmental hazards that would lead to new or increase the adverse effects of identified existing risk factors in the cross-border area. On the contrary, the implementation of activities and measures is expected to have a positive impact related to improving the quality of life, the development of non-health activities - an object of income for the population (tourism), limiting the harmful effects of local production (through technological activities). modernization). It is extremely important that the location of new sites (eg the planned new road section as part of the strategic project under CBCP Priority 2, etc.), which will be financed under CBCP and TSIM, comply with the nearest **areas and sites**, **subject to health protection**, as well as to ensure compliance with regulatory requirements for water protection and in particular the prohibitions and restrictions in the **sanitary protection zones** of water sources for drinking and domestic water supply and mineral waters used for therapeutic, prophylactic, drinking and hygiene needs. A detailed assessment of the expected impacts is presented in **item 6 of the EA Report**.

In view of the above, the **assessment against the six environmental objectives of the principle of non-material injury** to CBCP and TSIM activities and measures allows us to draw the following conclusions:

- 1) ***Climate change mitigation:*** Most of the measures have a positive or no impact on reducing greenhouse gas emissions, and none of the measures and activities lead to significant

greenhouse gas emissions - no significant damage is expected in terms of mitigation. climate change. The activities under CBCP Priority 1 have a direct positive impact on the absorption of greenhouse gas emissions, and the activities under measure 1.1.1 of TSIM for technological organization will lead to a reduction of greenhouse gas emissions of the respective enterprises. It should also be noted that green and digital solutions should be included as horizontal principles and thus become an integral part of all supported projects under TSIM.;

- 2) ***Adaptation to climate change:*** None of the CBCP and TSIM measures or activities have a detrimental effect on the current and projected future climate on the population, nature or assets - no significant damage is expected to be done to mitigate the effects of climate change. Some of the measures and activities contribute to the adaptation and guarantee of sustainability of climate change - the landscaping activities under Priority 1 of the CBCP;
- 3) ***Sustainable use and protection of water and marine resources:*** Measures and activities will have an indirect positive effect on water, and no measures and activities are envisaged that would lead to deterioration of water quality or quantity, in compliance with the regulations for water protection.
- 4) ***Transition to a circular economy, waste prevention and recycling:*** Some of the activities and measures contribute to the transition to a circular economy (under TSIM specific objective 1.1). The remaining CBCP and TSIM measures and activities are not associated with a significant increase in the generation, incineration or disposal of waste, do not lead to significant inefficiencies in the direct or indirect use of natural resources and do not have the potential to cause long-term environmental damage. the circular economy.
- 5) ***Pollution prevention and control:*** Some of the measures and activities have a clear environmental focus, and they will contribute to limiting existing environmental problems. The CBCP and TSIM forecasts are mainly related to the improvements and development of existing sites, which will lead to their renovation, modernization, and limiting the impact on the environment.

Specific objective 1.1 of the CBCP is entirely environmentally friendly, incl. to reduce all forms of pollution, Specific Objective 2.1 and its Strategic Project contribute to the diversification of traffic and increase security, and Specific Objective 3.1 is relevant to the greening of existing SMEs.

When financing new sites and technical infrastructure (including the strategic project under CBCP Priority 2), the availability of zones and sites subject to health protection and other sensitive areas should be taken into account - sanitary protection zones around water sources, protected zones. and territories, sites of cultural heritage, possible cumulative impact with existing facilities and infrastructure in the respective area. These impacts and their prevention or minimization will be subject to the statutory procedures for environmental impact assessment, environmental assessment, complex permit, permits under the Water Act, etc., which will ensure compliance only with projects that do not lead to a significant increase in emissions of pollutants into the air, water or land.

- 6) ***Protection and restoration of biodiversity and ecosystems:*** The principal nature of the activities to be implemented under the CBCP and TSIM is such that it does not imply negative

impacts (or at least significant ones) on biodiversity. Most CBCP and TSIM measures and activities are related to neutral to positive impacts on biodiversity. In compliance with the national laws and administrative acts of the two countries, which are aimed at protecting their biodiversity, the potential negative impacts of activities and measures of an investment nature will be reduced to acceptable limits. CBCP and TSIM measures and activities are not expected to lead to the deterioration of the state and sustainability of ecosystems, or the conservation status of habitats and species, respectively, no significant damage is expected.

4. Existing environmental problems identified at different levels relevant to the CBCP and TSIM, including those of special importance to the environment, such as protected areas under the Biodiversity Act

Analysis of the existing environmental problems in the country, identified at different levels related to CBCP and TSIM, incl. of the relationship between environmental problems and the projections of the plan, respectively - conclusions whether CBCP and TSIM will lead to improved environmental conditions, or to the deterioration and aggravation of existing environmental problems and/or the emergence of new ones, is made in the following table:

Table 4-1 Existing environmental problems and their attitude towards CBCP and TSIM

<i>Environmental component / factor</i>	<i>Existing environmental problems with regard to CBCP and TSIM</i>	<i>Development of the problem without the application of CBCP and TSIM</i>	<i>Problem development / Emergence of new environmental problems with the implementation of CBCP and TSIM</i>
Climate change and adaptation to changing climate	<p>Emissions of greenhouse gases (CO₂, CH₄, N₂O, O₃ and halogenated hydrocarbons) related to climate change as a global phenomenon are emitted in all processes of conversion of fossil fuels into energy - solid fuels used in domestic heating or liquid fuels, used in internal combustion engines of road transport. The existing problems are the effects of the changing climate:</p> <ul style="list-style-type: none"> - drought; - floods; - extreme meteorological phenomena; - fires, etc. <p>In terms of adaptation to changing climate, the problem is the instability of most of the existing infrastructure built years ago.</p>	<p>No change in climate change is expected without the application of CBCP and TSIM.</p>	<p>Increase in greenhouse gas emissions is possible only with a significant increase in transport traffic due to the implementation of the new border checkpoint (CBC) "Klepalo" between the Republic of Bulgaria and the Republic of North Macedonia, which is not expected given the technical parameters of the planned routes. the expected emissions will be insignificant and negligible, moreover, the aim of the project is to alleviate / disperse traffic on the roads and through the CBC of both countries.</p> <p>Other measures and activities, according to the level of detail in which they are described, do not have the potential to emit significant amounts of greenhouse gases.</p> <p>The activities under CBCP Priority 1 related to the construction of green areas, which are the main absorber of greenhouse gas emissions, as well as the TSIM measures related to the transition to a circular economy, energy and resource, will have a positive contribution to limiting greenhouse gas emissions. efficiency, technological innovation - will reduce greenhouse gas emissions.</p> <p>The same activities and measures contribute to adaptation to climate change - green areas in urban and rural areas lead to improved ventilation and atmospheric circulation - limit the adverse effects of heat waves, improve water regime and permeability of soils - respectively its absorption capacity in torrential rains, help maintain humidity, anti-erosion role, have a protective function in strong winds and storms.</p>

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Environmental component / factor	Existing environmental problems with regard to CBCP and TSIM	Development of the problem without the application of CBCP and TSIM	Problem development / Emergence of new environmental problems with the implementation of CBCP and TSIM
			In this regard, the implementation of CBCP and TSIM is expected to reduce the atmospheric concentration of greenhouse gases.
Atmospheric air	<p>There are areas that are critical to air pollution due to domestic heating in settlements (sulfur and nitrogen oxides, dust).</p> <p>In 2019, air pollution with FDP10 continues to be a major problem for air quality at the national level for both countries.</p> <p>An additional contribution to air pollution with dust particles is the impact of adverse weather conditions such as prolonged weather with low wind speeds and prolonged droughts..</p>	Without the implementation of CBCP and TSIM, the modernization of existing and construction of new buildings, energy installations, rehabilitation of existing and construction of new roads in both countries, construction of green areas to reduce gas and dust pollutants will be delayed.	No significant effects on both ambient air and climate are expected as a result of the CBCP and TSIM activities, and related priorities, specific objectives, activities/measures, nor are significant significant emissions of harmful substances expected to be generated. in the implementation of the eligible activities and measures. On the contrary, the activities /measures envisaged as eligible in all three specific objectives - 1.1, 2.1 and 3.1 of the CBCP are related to the improvement of AAQ in the cross-border region.
Surface water, Groundwater, protection zones, Risk of flooding	<p>Absence of UWWTP</p> <p>Incomplete drinking water supply</p> <p>Water losses in the water supply network</p> <p>Water losses in outdated sewerage network</p> <p>WWTP - insufficient purification</p> <p>Discharge of wastewater without a permit</p> <p>Contamination with fertilizers and pesticides</p> <p>Unregulated waste disposal, incl. directly in water bodies and water protection zones</p> <p>Others - erosion</p> <p>With regard to groundwater, no environmental problems related to CBCP and TSIM have been identified.</p>	No development is expected. Problems with surface waters, water protection zones and the risk of flooding may worsen.	The implementation of CBCP and TSIM is not expected to exacerbate existing problems or create new ones. The eligible activities and measures envisaged in the program and the strategy are expected to have a positive impact on surface waters, water protection zones and flood risk, mainly through the eligible activities for landscaping, pollution control, technological modernization of production.
Earth's subsurface	No problems have been identified, as an unfavorable condition for the cross-border area is significantly high seismic activity - it is necessary to take into account	No development or change is expected	CBCP and TSIM are not expected to exacerbate existing or create new issues. For projects particularly

Environmental component / factor	Existing environmental problems with regard to CBCP and TSIM	Development of the problem without the application of CBCP and TSIM	Problem development / Emergence of new environmental problems with the implementation of CBCP and TSIM
	this risk in the implementation of activities within the territory.		related to construction, the high seismicity of the area should be taken into account.
Soils and land use	Environmental problems related to the soil are: a) pollution with fertilizers and pesticides (especially in areas with intensive cultivation of fruits and vegetables), b) loss of organic matter in the soil (due to cultivation of intensive crops, low use of organic fertilizers), c) decomposition of the humus layer due to drought or heavy rainfall, d) soil contamination, e) soil sealing, f) soil acidification, g) soil erosion. There is no existing soil and land problem with the CBCP and TSIM .	There is no existing soil and land problem with the CBCP and TSIM .	There are no territories in which the lands and soils will be significantly affected by the implementation of CBCP and TSIM in both countries, except for those related to the implementation of the Strategic Project: Bulgaria and the Republic of North Macedonia - the impact is mainly on the new road section on the territory of the Republic of Bulgaria. Through the eligible activities and measures envisaged in the program and the strategy, a positive impact is expected in terms of soil protection - preliminary seizure of humus soil and maximum restoration of disturbed lands..
Vegetation	One of the most significant factors affecting forest habitats is logging (regulated and unregulated); Others are hydrological activities and facilities (including those in marine waters, eg dredging and water use), construction of buildings, facilities and linear infrastructure, tourist flow, pollution, including water, air and soil, as well as domestic waste), and general climate drought. Drought is the most significant factor for vegetation, a consequence of climate change.	No development is expected	There is a risk of deepening environmental problems in the development of tourism inconsistent with biodiversity in the region. In this regard, the development of tourism products, services, facilities and infrastructure should be preceded by analyzes and assessments of the impact on biodiversity for the specific location chosen. Unregulated and / or heavy tourist traffic should not be allowed.
Animal world	With regard to fauna, environmental problems are related to direct and indirect impacts on populations. Indirect impacts occur mainly when changing the habitat characteristics of animal species, changing basic environmental parameters such as noise, water pollution, urbanization, intensification of agricultural practices, construction of transport and energy	No development is expected	There is a risk of deepening environmental problems in the development of tourism inconsistent with biodiversity in the region. In this regard, the development of tourism products, services, facilities and infrastructure should be preceded by analyzes and assessments of the impact on biodiversity for the specific location chosen.

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Environmental component / factor	Existing environmental problems with regard to CBCP and TSIM	Development of the problem without the application of CBCP and TSIM	Problem development / Emergence of new environmental problems with the implementation of CBCP and TSIM
	infrastructure and others. - Anxiety and fragmentation are the most common. Direct impacts are directed at individuals and, as a consequence, their direct mortality or expulsion from the natural habitat is most often observed.		Unregulated and / or heavy tourist traffic should not be allowed.
Protected areas and protected areas	The main components of PAs and PAs, subject to protection in them, are plant habitats and plant and animal species. In this sense, the environmental problems are the same as those described above. EIA procedures, and in particular AC for PAs, are the tool through which these problems are assessed and the corresponding impacts are reduced or eliminated.	No development is expected	There is a risk of deepening environmental problems in the development of tourism inconsistent with biodiversity in the region. In this regard, the development of tourism products, services, facilities and infrastructure should be preceded by analyzes and assessments of the impact on protected areas and territories. Unregulated and / or heavy tourist traffic should not be allowed.
Landscape	Landscape problems are the result of observed problems in other components of the environment - the most significant for the region are related to: - the presence of significant areas occupied by quarries for the extraction of mineral resources - especially in the territory of the Republic of North Macedonia, where the landscape has significantly deteriorated parameters; - presence of unregulated landfills, especially on the territory of the Republic of North Macedonia; - lack of sufficient landscaping in the settlements; - air pollution, noise pollution, water protection problems that reduce the quality of the urban landscape as a living environment; - high energy intensity and resource intensity of productions and enterprises, which is associated with indirect negative impact on the surrounding landscape; - effects of climate change that lead to risks to natural landscapes.	The problems are expected to deepen, incl. of those related to CBCP and TSIM - unregulated landfills and the lack of sufficient landscaping of urban landscapes, urban pollution and noise.	The implementation of CBCP and TSIM is related to solving some of the problems - unregulated landfills, green areas in settlements. It is not expected that the existing ones will deepen or develop new problems with the implementation of the provisions of both documents. There is a risk of environmental problems only for the activities / measures related to the development of tourism, in case of non-compliance of the tourist products and activities with the capacity of the environment of the respective region.

<i>Environmental component / factor</i>	<i>Existing environmental problems with regard to CBCP and TSIM</i>	<i>Development of the problem without the application of CBCP and TSIM</i>	<i>Problem development / Emergence of new environmental problems with the implementation of CBCP and TSIM</i>
Tangible assets	Insufficient infrastructure to serve and meet the needs for economic and social development of the region. Need for funding for the development and realization of the identified potential of the cross-border region.	No development expected / Problems may be exacerbated in terms of non-maintenance of existing tangible assets due to lack of financial resources	The implementation of CBCP and TSIM is not expected to exacerbate existing problems or create new ones, quite the opposite. The eligible activities and measures envisaged in the program and the strategy are expected to have a positive impact on the development of assets - improving transport, communal, cultural and tourist infrastructure, as well as investing in building alternative green mobility systems, improving the urban environment for one. a greener, low-carbon, connected and competitive region.
Cultural-historical heritage	Lack of financial resources for protection and maintenance of cultural heritage sites Insufficiently developed and maintained infrastructure for access to cultural and historical sites and natural landmarks Insufficient joint actions in the field of cultural heritage exchange;	Deepening the problem and risk of deterioration of cultural values	It is not expected that the problem will deepen or new problems will arise, on the contrary - the development of cultural tourism will provide funds for the preservation and maintenance of cultural and historical sites in the cross-border area.
Harmful physical factors	Registered noise levels with values above the limit in residential areas and territories exposed to road traffic. No deviations from the normally measured values for the radiation condition were registered.	Non-implementation of CBCP and TSIM will lead to continued trends in higher noise emissions from road transport. No development is expected with respect to other harmful physical factors.	The implementation of CBCP and TSIM is not expected to exacerbate existing problems or create new ones. The planned eligible activities / measures for landscaping of urban and suburban areas (under CBCP Priority 1) and improving the mobility and connectivity of transport and engineering infrastructure through the development of alternative mobility systems (measure 1.2.1. Of TSIM) will have positive effect to reduce noise pollution and impact on the environment and the population of the region, included in the scope of CBCP and TSIM. The priorities and measures envisaged by CBCP and TSIM are not related to activities involving additional effects of vibration, ionizing and non-ionizing radiation.

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<i>Environmental component / factor</i>	<i>Existing environmental problems with regard to CBCP and TSIM</i>	<i>Development of the problem without the application of CBCP and TSIM</i>	<i>Problem development / Emergence of new environmental problems with the implementation of CBCP and TSIM</i>
Waste	The majority of municipal waste is treated by landfill (the lowest level in the waste management hierarchy); Unregulated disposal of household and construction waste; There are no facilities for recovery / treatment of construction waste; Unregulated incineration of industrial waste; Difficulties with the transfer of generated hazardous waste and lack of facilities for treatment of such waste.	No development expected / Problems may worsen	Existing problems or new ones are not expected to worsen. Through the eligible activities and measures envisaged in the program and the strategy, a positive impact is expected - technological modernization, effective process of product development, pollution control, which will contribute to solving the existing problems.
Hazardous chemicals and risk of major accidents	Potential for environmental problem in terms of risk of major accidents is the failure to comply with emergency / safe distances around enterprises with risk potential and allowing the deployment of unacceptable regulatory requirements sites and facilities in them.	No development is expected	The application of CBCP and TSIM does not provide for storage, use and activities with hazardous chemicals and mixtures.
Population and human health	Based on the analysis of the risk factors, made in item 2.1.14.B. The problems related to the risks to human health of the environment are mainly related to: - Deteriorated air quality in some settlements in the cross-border area; - problems with the quality and quantity of drinking water; - unregulated landfills; - exceedances of noise standards in some settlements.	No development is expected	No new environmental problems are expected to be significant for the health of the population, and as a result of the planned activities the identified existing problems are expected to be limited, including: - Improving the microclimate in the urban environment through landscaping activities - related to improving ventilation, retention of pollutants, noise absorption, contribution to flood prevention. - Pollution control through CBCP Priority 1 pollution control activities

5. Environmental objectives at national and international level relevant to the CBCP and TSIM and the way in which these objectives and all environmental considerations have been taken into account in the preparation of the program and strategy

5.1. Integration of environmental objectives into CBCP and TSIM projects

The integration of environmental objectives in the CBCP and TSIM is laid down in the regulations for financial support for the period 2021-2027, incl. in the specific objectives and the thematic concentration of Interreg, identified respectively in Article 14 and Article 15 of the Interreg Regulation. Pursuant to those provisions, at least 60% of the ERDF contribution and, where applicable, of the amount allocated to the Union's external financing instruments for each Interreg program A, B and D shall be allocated to **Objective 2 of the policy** (*"A greener, lower-carbon and sustainable Europe with a zero-carbon economy through the promotion of a clean and equitable energy transition, green and blue investments, a circular economy, climate change mitigation and adaptation, prevention and management risk and sustainable urban mobility"*) and a maximum of two other policy objectives set out in Article 5 (1) of Regulation (EU) 2021/1060.

included as horizontal principles and thus become an integral part of all supported projects under TSIM.

In this regard, ***CBCP and TSIM guarantee to contribute to the achievement of environmental goals at European and national level.***

5.2. Environmental and national environmental objectives relevant to CBCP and TSIM and how they are compliant

The following tables analyze the relevance of environmental objectives at the international and national levels, included in some of the strategies, plans and programs described in **section 1.4** of the EAR.:

Table 5.2-1 Relevance and degree of compliance with environmental objectives at the international level

Strategic document and goals for environmental protection at international (including European) level	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>UN Sustainable Development Agenda 2030 “Transforming the World“ The objectives with regard to environmental protection are: Goal 3: Good health and well-being Goal 6: Clean water and sewerage Goal 7: Affordable and clean energy Goal 11: Sustainable cities and communities Goal 12: Responsible consumption and production Goal 13: Climate action Goal 14: Life under water Goal 15: Life on earth</p>	<p>CBCP and TSIM are relevant and contribute to all these objectives, including: All Objectives of the CBCP and TSIM, which will lead to a greener, more connected border region, integrated social, economic and environmental development, have a comprehensive contribution to Objectives 3 and 11. Objective 6 is supported by CBCP Priority 1 activities for the construction of green areas for water management. Objective 7 relates the activities to TSIM measure 1.1.1 (for technological modernization). Under Objective 12, the eligible TSIM activities contribute to Specific Objective 1.1. Objective 13 contributes directly to CBCP Priority 1, through landscaping activities (including green areas for water management, which will contribute to flood risk prevention) and pollution control, as well as measures under TSIM related to technological renewal and improvement of knowledge and skills of SMEs. Under Objectives 14 and 15, the contribution from the implementation of the CBCP and TSIM priorities and measures will have a generally positive contribution, given the improvement of the state of the environment as a whole as a result of the implementation of their projections.</p>
<p>Proposal for a Decision of the European Parliament and of the Council on the European Union Joint Program of Action for the Environment to 2030 (Eighth Program of EU Action for the Environment to 2030) (COM (2020) 652) <u>Thematic priority objectives:</u> (a) irreversible and gradual reduction of greenhouse gas emissions and increase of removals by natural or other sinks in the Union in order to achieve the target of reducing greenhouse gas emissions by 2030 and climate neutrality by 2050, defined in Regulation (EU) ... / ...; (b) continuous progress in increasing adaptation capacity, strengthening resilience and reducing vulnerability to climate change; (c) advancing a recovery model with recovery that returns more to the planet than is taken, decoupling economic growth from resource use and environmental degradation, and accelerating the transition to a circular economy; (d) the ambition of zero pollution for non-toxic environments, including air, water and soil, and for protecting the health and well-being of citizens from environmental risks and impacts;</p>	<p>Directly related to and contribution to priority objective a) has CBCP Priority 1, through eligible landscaping activities - increasing greenhouse gas emitters. TSIM measures for technological modernization of SMEs also contribute. Objective b) also directly contributes to the CBCP Priority 1 landscaping activities as well as to the technological modernization of TSIM SMEs. Objective (c) directly contributes TSIM measures to specific objective 1.1. Objective (d) contributes to the pollution control activities under CBCP Priority 1 and measure 1.1.1. under TSIM for technological modernization. Relation to Objective (e) CBCP Priority 1 for a greener border region. Of the activities listed under Objective 9f) that put pressure on the environment and climate, the only specific project is under Priority 2 of the program - for CBC "Klepalo" - as the main objective of the project is to improve regional connectivity and facilitate traffic in connection with which is not expected to increase this pressure. Other activities do not lead to climate pressure, on the contrary - a positive impact is expected.</p>

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Strategic document and goals for environmental protection at international (including European) level	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>(e) protection, conservation and restoration of biological diversity and increase of natural capital, in particular as regards air, water, soil and forests, fresh water, wetlands and marine ecosystems;</p> <p>(f) promoting environmental sustainability and reducing the main types of environmental and climate pressures related to production and consumption, in particular in the fields of energy, industrial development, buildings and infrastructure, mobility and the food system.</p>	<p><i>CBCP and TSIM activities and measures should take into account the need to adapt and ensure the resilience of infrastructure and activities to the adverse effects of climate change.</i></p>
<p>Communication from the European Commission "A Clean Planet for All". European strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy”(COM (2018) 773) Strategic building blocks:</p> <ol style="list-style-type: none">1. Maximize the benefits of energy efficiency, including zero-emission buildings2. Making the most of renewable energy sources and maximizing the use of electricity to fully decarbonise energy supplies to Europe3. Achieving clean, safe and connected mobility4. The existence of a competitive EU industry and a circular economy as a key factor in reducing greenhouse gas emissions5. Development of adequate intelligent network infrastructure and interconnections6. Fully realize the benefits of the bioeconomy and create essential carbon sinks7. Eliminate remaining emissions by capturing and storing CO2	<p>Under item 1: Financing of energy efficiency activities under measure 1.1.1 of TSIM is envisaged as part of the technological modernization.</p> <p>Under item 2: The need for development of renewable energy sources within the territorial analysis has been identified.</p> <p>Under item 3: Contribution has Priority 2 of the CBCP, with the envisaged project for the establishment of a new CBC "Eyelid", whose main goal is to alleviate the growing trafficking in human beings and goods between the two countries, which will increase travel safety and will contribute to reducing pollution (as a result of decentralized traffic, new road surfaces and modern facilities).</p> <p>Under item 4: Most of the TSIM measures aimed at increasing the competitiveness of SMEs in the cross-border region and envisaging activities for technological modernization have a direct contribution.</p> <p>Under item 5: Activities for improvement of the engineering infrastructure under measure 1.2.1 of TSIM are envisaged.</p> <p>Under item 6: CBCP and TSIM do not have a specific focus on the bioeconomy, but within the applicable measures for SMEs such activities could be implemented.</p> <p>Under item 7: No relation.</p>
<p>Communication from the European Commission: "Building a climate-resilient Europe - the EU's new strategy for adapting to climate change" (COM (2021) 82) Guidelines:</p> <ol style="list-style-type: none">1. Building a climate-resilient Union:<ol style="list-style-type: none">1.1. Smarter adaptation: improving knowledge and managing uncertainty - expanding the boundaries of knowledge about adaptation; more and better data on climate risk and losses; making Climate-ADAPT an authoritative European platform on adaptation issues.1.2. More systematic adaptation: support for policy development at all levels and in all sectors - improving adaptation strategies and plans; promoting local, individual and	<p>The CBCP integrates the policy objective for a greener, low-carbon Europe by providing specific activities and measures related to climate change adaptation - under CBCP Priority 1 for green areas (and especially green areas for water management, which provide prevention of floods) as well as to TSIM measures for technological modernization of SMEs.</p>

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Strategic document and goals for environmental protection at international (including European) level	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>equitable sustainability; integrating climate resilience into national fiscal frameworks; promoting environmentally friendly adaptation solutions;</p> <p>1.3. Faster adaptation: accelerating adaptation everywhere - speeding up the implementation of adaptation solutions; climate risk reduction; eliminating gaps in climate protection; ensuring the availability and sustainability of fresh water.</p> <p>2. Strengthening international action on climate change resilience:</p> <p>2.1. Increase support for international sustainability and climate preparedness</p> <p>2.2. Increase international funding to build resilience to climate change</p> <p>2.3. Strengthen global commitment and exchange on adaptation</p>	
<p>Communication from the European Commission "Towards a healthy planet for all. EU Action Plan: Towards zero air, water and soil pollution "(COM (2021) 400)</p> <p>Leading initiatives:</p> <p>Flagship Initiative 1: Reducing Health Inequalities through Zero Pollution</p> <p>Flagship Initiative 2: Support for zero pollution actions in urban areas</p> <p>Flagship Initiative 3: Promoting zero pollution in different regions</p> <p>Flagship Initiative 4: Facilitate the choice of zero pollution</p> <p>Flagship initiative 5: Joint application of zero pollution</p> <p>Flagship Initiative 6: Presenting zero pollution solutions for buildings</p> <p>Flagship Initiative 7: Living Laboratories for Environmental Digital Solutions and Smart Zero Pollution</p> <p>Flagship Initiative 8: Minimize the European footprint of pollution in other parts of the world</p> <p>Flagship Initiative 9: Consolidating EU Zero Pollution Knowledge Centers</p>	<p>CBCP and TSIM comply with the Communication of the EC, as the main purpose of the documents is to reduce inequalities, respectively - inequality, incl. with regard to the health status of the population in the cross-border region, which will be achieved through the implementation of activities and measures, as they will improve the quality of the environment of settlements, improve the characteristics and parameters of SMEs, reduce pollution and improve the quality of life in general.</p>
<p>Communication from the European Commission on the European Green Pact (COM (2019) 640)</p> <p>The document sets out 10 main points in the European Commission's plan:</p> <ol style="list-style-type: none">1. A "climate-neutral" Europe - a goal of zero net greenhouse gas emissions by 2050, supported by a new "Climate Act"2. The circular economy - a new circular economy action plan is envisaged as part of the EU's broader industrial strategy - focusing on a sustainable product policy with "prescriptions on how to produce goods", using fewer materials and ensuring that they can be reused and recycled;3. Renovation of the buildings;4. Zero pollution - whether in the air, soil or water, the goal is to achieve a "pollutant environment" by 2050;	<p>CBCP and TSIM will have a direct contribution to points 1, 2 and 4 (through CBCP Priority 1 activities and TSIM technological modernization measures), and 7 (through CBC Eyelid project) and indirectly to item 5 - through measures and activities contributing to pollution management. When planning / selecting specific investment activities for financing, sustainability (avoiding negative impacts) of ecosystems and biodiversity should be ensured.</p> <p>The remaining points of the plan are not relevant to CBCP and TSIM.</p>

Strategic document and goals for environmental protection at international (including European) level	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<ol style="list-style-type: none"> 5. Ecosystems and biodiversity - a new strategy for biodiversity until 2030 with new measures addressing the root causes of biodiversity loss, measures to tackle soil and water pollution, and a new strategy for forests - has an indirect bearing; 6. Farm-to-Table Strategy - aims at "greener and healthier agriculture" and includes plans to significantly reduce the use of chemical pesticides, fertilizers and antibiotics; 7. Transport - targets for car carbon emissions; promoting electric vehicles and sustainable alternative fuels. 8. Finance - a mechanism for a fair transition by providing assistance to areas that are most dependent on fossil fuels; 9. Research and development and innovation - 10. External relations. 	
<p>Communication from the European Commission: A new action plan on the circular economy - Towards a cleaner and more competitive Europe (COM / 2020/98)</p> <p>Directions for key actions:</p> <ol style="list-style-type: none"> 1. Sustainable products policy framework - design of sustainable products and establishment of sustainability principles (durability of products, reusability, modernization and repair, increased energy and resource efficiency, increasing the content of recycled materials in products, secondary production and high-quality recycling, reduction of CO2 emissions, limitation of disposable products, digitization of product information, etc.), providing more opportunities for consumers and public buyers, circular production processes; 2. Key value chains in the field of products - guidelines for electronics and ICT, rechargeable batteries for vehicles, packaging, plastics, textiles, construction and buildings, food, water and nutrients; 3. Less waste, more value - more effective waste prevention and support policies, enhancing the circular and non-toxic environment, creating a functioning EU market for secondary raw materials, taking action on exports of waste; 4. Circulation for the benefit of people, regions and cities - job creation in connection with the circular economy, skills acquisition, cohesion; 	<p>The decision concerns TSIM, and in particular the measures related to technological modernization.</p> <p><i>It is recommended that when identifying specific funding activities, criteria and requirements be set for these activities to meet as many criteria / guidelines as possible from the key actions in the Decision.</i></p>

Strategic document and goals for environmental protection at international (including European) level	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>5. Cross-sectoral actions - strengthening the interactions between the cycle and reducing greenhouse gas emissions, integrating the goals of the circular economy; research and innovation.</p>	
<p>EU Biodiversity Strategy to 2030 <i>Initiatives:</i></p> <ol style="list-style-type: none"> 1. Nature conservation and restoration in the EU <ul style="list-style-type: none"> - a harmonized network of protected areas - protection of at least 30% of the land area and 30% of the EU's sea basins; - introduction of measures for strict protection of at least one third of the protected areas - 10% of the land area and 10% of the EU sea basins; - strict protection of natural centuries-old forests; - establishing ecological corridors to prevent genetic isolation, allowing migration and improving ecosystems; - effective management of protected areas - setting clear conservation objectives and measures and appropriate monitoring. 2. EU nature restoration plan - EU will propose quantitative targets for nature restoration, classification of protected species and habitats, revision of pesticide use legislation, EU pollinator initiatives, action plans, new / revision of strategies for soils and forests, development of the forest information system, sustainability criteria, etc. 3. Creating conditions for a transforming economy - EU guidelines and initiatives for cooperation, sustainable corporate governance, sustainable financing, classifications of activities contributing to the conservation and restoration of biodiversity, knowledge center, promotion of cooperation will be developed. 4. EU efforts to implement the ambitious World Biodiversity Program - international treaties and agreements, measures to minimize the marketing of products related to deforestation or forest degradation on the EU market, etc. 	<p>The CBCP and TSIM are related to initiatives 1 - the planned activities under CBCP Priority 1 and 3 - the measures for SMEs under TSIM.</p>

Table 5.2-2 Relevance and degree of compliance with the objectives of environmental protection at national level - Republic of Bulgaria

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>National Development Program BULGARIA 2030 The goals for environmental protection are contained in <u>National priorities</u>:</p> <ul style="list-style-type: none"> 4. Circular and low-carbon economy 5. Clean air and biodiversity 6. Sustainable agriculture 	<p>CBCP and TSIM envisage activities and measures directly related to National Priorities 4 (through TSIM measures for technological modernization) and 5 (through CBCP Priority 1 activities for landscaping, pollution control). The contribution to National Priority 6 is indirect, through some of the TSIM measures related to increasing the competitiveness and development of SMEs at the local level, given that not a small part of the cross-border area is in rural areas.</p>
<p>Strategy for transition to circular economy 2021-2027 (draft) <i>Strategic goals:</i> Strategic goal 1: Green and competitive economy</p> <ul style="list-style-type: none"> - Specific objective 1.1: Higher resource productivity - Specific objective 1.2: New business models - Specific objective 1.3: Coherence in the economy - Specific objective 1.4: Bulgaria contributes to the supply of critical raw materials <p>Strategic goal 2: Less waste, more resources</p> <ul style="list-style-type: none"> - Specific objective 2.1: Less waste - Specific objective 2.2: More opportunities for sustainable use - Specific objective 2.3: More recycled waste, better quality raw materials - Specific objective 2.4: No landfilled waste <p>Strategic goal 3: Consumer benefit economy</p> <ul style="list-style-type: none"> - Specific objective 3.1: Better informed consumers - Specific objective 3.2: Sustainable patterns of behavior - Specific objective 3.3: Social green economy 	<p>TSIM measures, and measures in particular 1.1.1. and 1.1.3 also include activities for the transition to a circular economy for SMEs in the cross-border region, thereby integrating and contributing to the achievement of strategic objectives. CBCP and TSIM do not include measures and activities that would lead to a significant increase in waste, inefficient use of natural resources or environmental damage to the circular economy.</p>
<p>National Program for Air Pollution Control 2020-2030</p> <p>The program was developed and adopted in order to fulfill the commitments of the Republic of Bulgaria to achieve national ceilings for total annual emissions of certain air pollutants for 2020 and 2030 and in particular for pollutants - sulfur dioxide (SO₂), nitrogen oxides (NO_x), non-methane volatile organic compounds (NMLC), ammonia (NH₃) and fine particulate matter (FDP2.5), relative to emissions for the base year 2005 in accordance with Directive (EU) 2016/2284.</p>	<p>There will be a direct positive contribution from CBCP Priority 1 activities for pollution control. The impact of the project for construction of CBC "Klepalo" under Priority 2 of the TSG is also positive, given that it is related to traffic alleviation, rehabilitation of roads, which will improve their condition compared to what is currently observed. Contribution to the reduction of atmospheric pollution in settlements is also expected from the TSIM measures for technological renewal of SMEs, energy and resource efficiency</p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria

National Program for Improving Atmospheric Air Quality 2018-2024

The program proposes a package of measures to be implemented by the end of 2024 in order to comply with the requirements of the Cleaner Air Directive for Europe in terms of FDP10 levels. The measures are targeted at reducing emissions from the two main sectors that are sources of FDP10 emissions, namely domestic heating and transport.

Measures to reduce emissions from the combustion of solid fuels for domestic heating are aimed at replacing old and inefficient heating appliances with new ones that meet modern efficiency requirements (eco-design) and replacing solid fuels with other more environmentally friendly means for heating.

The National Strategy and Action Plan for Adaptation to Climate Change of the Republic of Bulgaria

The common strategic goals are:

- Inclusion and integration of AIC. This includes improving adaptation policies and integrating adaptation considerations into existing national and sectoral plans and programs.
- Institutional capacity building for AIC. This includes building expertise, training, knowledge base, monitoring and research to ensure and support adaptation actions.
- Raising awareness about AIC. This includes raising public education and awareness on AIC issues and the need for adaptation actions to be implemented in Bulgaria in order to achieve public support and participation in adaptation policies and actions.

Strategic goals for the sectors are:

Agriculture sector

- Sustainable management of agricultural practices for adaptation to climate change
- Promoting the capacity for adaptation and awareness in the agricultural sector
- Promoting research and innovation to adapt to climate change
- Strengthen the policy and legal framework for the adaptation of the agricultural sector

Biodiversity and Ecosystems Sector“

- Improving ecosystem management
- Improving knowledge management and communication with stakeholders on ecosystem adaptation
- Creating space for biodiversity and ecosystems
- Strengthening resilience to climate change by reducing non-climate change pressures
- Sustainable use of regulatory and cultural ecosystem adaptation services

Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027

Activities under CBCP Priority 1 for the construction of green areas in settlements (given that high-stem vegetation retains and absorbs air pollutants and increases the ventilation of the territory), as well as measures and activities will have a direct and indirect positive impact on air quality. described above with a contribution to the control of air pollution.

General strategic goals are integrated into the CBCP and TSIM projects, providing for objectives, priorities, eligible activities and measures contributing to the reduction of greenhouse gas emissions on the one hand (green areas, technological modernization of SMEs), and on the other - to adapt to changing climate (green areas for water management).

Of the sectoral strategic objectives, most of them are relevant (***emphasis is placed on those at the level of detail of the CBCP and TSIM***) for the implementation phase of the CBCP and TSIM, and ***investments in the relevant sectors should take into account relevant strategic objectives. for each project proposal, incl. apply the relevant adaptation options described in the strategy.***

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>Sector "Energy"</p> <ul style="list-style-type: none"> • Institutional capacity building, knowledge and use of data for adaptation • Incorporate climate change considerations into energy sector policies, plans and financial mechanisms • <u>Incorporate resilience to climate change in design and engineering</u> • Increasing the sustainability of energy supplies <p>Sector "Forests"</p> <ul style="list-style-type: none"> • Improving the knowledge base and raising awareness of adaptation to climate change • Improvement and protection of forest resources • <u>Improving the potential for sustainable use of forest resources</u> <p>Human Health Sector</p> <ul style="list-style-type: none"> • Improve adaptation management • Creating a knowledge base and awareness of adaptation • <u>Adapting the external environment to reduce the impact of climate change on health</u> <p>Tourism Sector</p> <ul style="list-style-type: none"> • <u>Incorporating adaptation to climate change in the process of policy development and the legal framework for the tourism sector</u> • <u>Raising awareness and knowledge base for adapting to climate change in the tourism sector</u> • <u>Building adaptive capacity in the tourism sector</u> • <u>Development of specific adaptive actions for the tourism sector</u> <p>Transport Sector</p> <ul style="list-style-type: none"> • Building institutional capacity and knowledge base in the transport sector • Incorporate climate change adaptation issues into key planning and decision-making processes <p>Urban Environment Sector</p> <ul style="list-style-type: none"> • Strengthen the policy and legal framework for integrating climate change adaptation • Capacity building for adaptation • Develop financial, social and risk management policies to adapt to climate change • Improving knowledge management, research, education and stakeholder communication on adaptation <p>Water Sector</p> <ul style="list-style-type: none"> • <u>Improve adaptation management</u> • <u>Strengthening the knowledge and awareness base on adaptation</u> • <u>Improving the adaptive management of the water system infrastructure</u> 	
<p>Integrated plan in the field of energy and climate of the Republic of Bulgaria 2021-2030.</p>	<p>CBCP and TSIM contribute to the achievement of the EU's binding targets, as the measures and activities are mostly related</p>

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Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>The Integrated Energy and Climate Plan of the Republic of Bulgaria 2021-2030 defines the main goals and measures for the implementation of national energy and climate policies for the implementation of European legislation, principles and priorities for energy development, in order to achieve binding EU climate and energy targets for 2030, as follows:</p> <ul style="list-style-type: none">- Reduction of greenhouse gas emissions by at least 40% compared to 1990;- Increasing energy efficiency to at least 32.5%;- Increase the share of energy from renewable sources (RES) to at least 32% of gross final energy consumption in the EU;- Ensure a minimum 15% level of interconnection between Member States. <p>In this regard, the main objectives of the integrated plan of the Republic of Bulgaria are defined as follows:</p> <ul style="list-style-type: none">- stimulating low-carbon economic development;- development of competitive and secure energy;- reducing dependence on imports of fuels and energy;- guaranteeing energy at affordable prices for all consumers.	<p>to the reduction of greenhouse gas emissions, incl. their absorption - the activities under CBCP Priority 1, the TSIM measures for technological modernization of SMEs, etc</p>
<p>National Program for Protection, Sustainable Use and Restoration of Soil Functions 2018-2027.</p> <p>The general strategic goal of the country related to the protection, sustainable use and restoration of soil functions is: Sustainable land use, ensuring a high level of preservation of soil functions, high productivity, maintenance of ecosystems and social welfare. Strategic goals:</p> <ol style="list-style-type: none">1: Improving the administrative capacity, the legal instruments for the implementation of the environmental legislation and the information security for the purpose of sustainable soil management.2: Prevention of degradation processes, restoration and preservation of soil functions.3: Sustainable soil management as a natural resource and environmentally friendly land use.4: Involve the public in the processes of management, sustainable use and protection of soils.	<p>The activities under CBCP Priority 1 for landscaping have a direct effect on protection and restoration of soil functions, as they will contribute to strategic objectives 2, 3 and 4, provided that sustainable use and maintenance of the planned green areas is ensured, in item h without / with minimal use of plant protection products and mineral fertilizers, with the exception of registered organic plant protection products and fertilizers.</p> <p><i>The objectives of the program should also be observed for project proposals of SMEs related to land use under TSIM measures.</i></p>
<p>National Strategy for Forest Sector Development 2013-2020</p> <p>There are 3 goals and 4 priorities:</p> <p>Objective 1: Ensuring sustainable development of the forest sector by achieving an optimal balance between the ecological function of forests and their ability to provide long-term material benefits and services</p> <p>Goal 2: Strengthening the role of forests in ensuring the country's economic growth and more balanced territorial socio-economic development</p> <p>Goal 3: Increase the contribution of the forestry sector to the green economy</p>	<p>The activities under the CBCP Priority 1 for construction of green areas have a connection with the forest territories, when these activities fall on the territory of forest territories. The other CBCP and TSIM provisions are not directly related to forest areas.</p> <p>Given that these areas are predominant in the cross-border area, the implementation of measures and activities should comply with forest management legislation and existing forest strategies, plans and programs.</p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>Priority 1: Maintaining vital, productive and multifunctional forest ecosystems that help mitigate the effects of climate change Priority 2: Conservation, restoration and maintenance of biological and landscape diversity in forest areas Priority 3: Increasing the vitality and competitiveness of the forestry sector Priority 4: Using the potential of the forest sector for the development of the green economy</p>	
<p>National Waste Management Plan 2021-2028</p> <p>Three main goals have been formulated, to which the respective programs have been developed.</p> <p>Goal 1: Reduce the harmful effects of waste by preventing its generation and encouraging its reuse</p> <ul style="list-style-type: none"> - National Waste Prevention Program with - Sub-program for food waste. <p>Goal 2: Increase the amount of recycled and recovered waste</p> <ul style="list-style-type: none"> - Program for achieving the goals for preparation for reuse and recycling of household waste; - Program for achieving the goals for recycling and recovery of construction and demolition waste; - Program for achieving the goals of recycling and recovery of widespread waste. <p>Goal 3: Reduction of the quantities and risk of landfilled municipal waste</p> <ul style="list-style-type: none"> - Program for reducing the quantities and the risk of landfilled municipal waste. 	<p>CBCP and TSIM envisage activities and measures related to waste management, incl. activities for control of pollution and rehabilitation of rivers and abandoned fields under Priority 1 of the CBCP and activities for technological renewal under measure 1.1.1 of TSIM.</p>
<p>National Strategy for Management and Development of the Water Sector in the Republic of Bulgaria and Action Plan to it in the short-term (2013-2015), medium-term (2016-2021) and long-term (2022-2037) perspective</p> <p>Goal 1: Guaranteed water supply for the population and business in the conditions of climate change leading to drought Goal 2: Preservation and improvement of surface and groundwater conditions Goal 3: Improving the efficiency of integrated water management as an economic resource Goal 4. Reduce the risk of flood damage</p>	<p>CBCP and TSIM include measures and activities related to the 4 objectives of the strategy: Objectives 1 and 3: Measures 1.1.1. (technological modernization) and 1.2.1 (improvement of the engineering infrastructure, realizing the need for development of water supply and sewerage) according to TSIM Objectives 2 and 4: Activities for construction of green areas for water management under CBCP Priority 1. Given the consequences of climate change, the implementation of investment activities and measures should take into account the risk of floods and ensure the sustainability of infrastructure. The</p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
	development of tourism should take into account drought and water scarcity, which will deepen as a problem as a result of climate change, as well as the risk of fires.
<p>National Strategy for Biodiversity Conservation</p> <p>The strategy has the following main priorities:</p> <ul style="list-style-type: none"> - Strengthening the scientific basis for biodiversity conservation; - Support for legislative initiatives; - Expanding and strengthening the network of protected areas; - Environmental education and further training; - Development and implementation of ecotourism policy; - Promoting the protection of the Black Sea basin; - Promoting nature conservation in the Balkans. 	<p>CBCP and TSIM do not envisage activities and measures according to the priorities of the strategy, but the implementation of CBCP and TSIM, incl. the approval and implementation of project proposals should be in accordance with and not in conflict with the provisions of the strategy. Particular attention in this regard should be paid to project proposals under measures 1.2.1 to improve mobility and connectivity, 1.2.2. for the development and implementation of regional tourism products, 1.2.3 for new SMEs in the field of tourism, 1.2.4 for a joint network of locations and 1.2.5 for promoting the development of health and recreation tourism.</p>
<p>Biodiversity Strategy in the Republic of Bulgaria (draft, October, 2021)</p> <p>National targets:</p> <ol style="list-style-type: none"> 1. Achieve full implementation of the Birds Directive and the Habitats Directive. 2. Ensuring the protection, conservation and development of the network of protected areas and biosphere parks 3. Conservation and improvement of the condition of the populations of the endangered species on the territory of the country, protection of globally endangered species. 4. Conservation of biological diversity in the Black Sea and coastal marine ecosystems. 5. Preservation and restoration of ecosystems and the ecosystem services and benefits they provide 6. Sustainable improvement of information provision in the Biodiversity sector 7. Introduction of procedures for access to genetic resources and control over their use on the territory of the country. 8. Increasing the contribution of agriculture to the conservation and improvement of biodiversity, reducing the use of pesticides and increasing the share of agricultural land managed according to the principles of organic farming, achieving sustainable use of fishery resources. 9. Maximum restriction of the introduction and naturalization of alien species in nature and control of widespread invasive alien species. 	<p>CBCP and TSIM do not envisage activities and measures according to the priorities of the strategy, but the implementation of CBCP and TSIM, incl. the approval and implementation of project proposals should be in accordance with and not in conflict with the provisions of the strategy. Particular attention in this regard should be paid to project proposals under measures 1.2.1 to improve mobility and connectivity, 1.2.2. for the development and implementation of regional tourism products, 1.2.3 for new SMEs in the field of tourism, 1.2.4 for a joint network of locations and 1.2.5 for promoting the development of health and recreation tourism.</p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>10. Preserving and increasing the function of forests for biodiversity conservation and reducing climate change trends by increasing their area, quality and sustainability.</p> <p>11. Preservation, restoration and expansion of green infrastructure in urban and suburban areas.</p> <p>12. Conducting regular public campaigns for informing the public and working at the local level.</p>	
<p>National plan for protection of the most important wetlands in Bulgaria 2013-2022.</p> <p>-Priority 1 - Reasonable use of wetlands in the country with a view to long-term protection of their ecosystem services and related benefits for society. Maintaining the ecosystem functions of wetlands through the sustainable use of their resources contributes to the quality of life of local communities, their livelihoods, and is also an important approach to limiting and adapting to global climate change.</p> <p>-Priority 2 - Preservation of good ecological status of the wetlands described in this plan as important for the conservation of biological diversity and prevention of net loss of areas occupied by wetlands in the country, including through support measures;</p> <p>-Priority 3 - Limitation of anthropogenic adverse factors that affect wetlands as ecosystems. The main means of protection of wetlands remain the various legal statutes of protection (under the PTA and the Biodiversity Act), as well as related regimes and management measures.</p> <p>-Priority 4 - Restoration of wetlands whose condition has been disturbed due to various anthropogenic impacts but have a high potential for restoration and / or represent an important habitat for rare and endangered species. The main role here is the restoration and maintenance of the water regime, which is often associated with the design and construction of hydraulic facilities.</p> <p>-Priority 5 - Raising public awareness and support for the protection, maintenance and restoration of wetlands. The promotion of the social, economic and environmental benefits of wetlands can be achieved through various forms of environmental education, as well as through the demonstration of mechanisms for sustainable use of natural resources. Support for sustainable wetlands is important to increase public support, especially from local communities.</p>	<p>On the territory falling within the scope of CBCP and TSIM is located the Choklovo blato - peat bog (described as a protected area) described in the plan as a potential wetland, located in the lands of Bunovo village (Kyustendil municipality) and Baikalsko village (Radomir municipality) . For her, there is a tendency to worsen the situation due to increased urbanization.</p> <p><i>When planning activities and measures in the area of the potential wetland, the priorities of the plan and the established regimes and restrictions for the territory of the potential wetland should be observed.</i></p>
<p>West Aegean River Basin Management Plan (2016-2021)</p> <p>The RBMP sets the framework for integrated water management at basin level and includes a program of measures to achieve environmental objectives (Section 7 of the RBMP). The RBMP has the principle of protecting surface and groundwater from depletion, pollution</p>	<p>The CBCP and TSIM projections have been analyzed and evaluated against the RBMP 2016-2021 in the EAR sections for the water component - no activities and measures have been identified that conflict with the plan. The level of detail of the CBCP and TSIM forecasts does not allow the identification of</p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>and damage in order to maintain the required quantity and quality of water and a healthy environment, preserve ecosystems, preserve the landscape and prevent economic damage.</p>	<p>specific RBMP measures relevant to the program and strategy, and any investment project proposal should be preceded by an assessment/opinion of the competent authority on eligibility compared to the current one. and proceeding with the RBMP proposal.</p>
<p>Flood Risk Management Plan (FRMP) in the West Aegean Basin Management Region 2016-2021, incl. Draft Preliminary Flood Risk Assessment (PFRA) for the West Aegean Basin Management Region, 2021.</p> <p>The aim of the FRMP is to create the conditions to reduce the adverse effects on human health, the environment, the cultural heritage and the economic activity of floods in the basin management areas, and in particular in certain areas with significant potential flood risk (AWSPPFR).</p>	<p>The forecasts of CBCP and TSIM are analyzed and evaluated against FRMP 2016-2021 and the draft updated PFRA, 2021 in the sections of the EAR for the component "waters" - no activities and measures identified that contradict the documents. The level of detail of the CBCP and TSIM projections does not allow for the identification of specific FRMP measures relevant to the program and strategy, and any investment project proposal should be preceded by a location analysis in relation to areas with significant potential flood risk. in force at the time of preparation of the PFRA project and from the assessment/opinion of the competent authority of eligibility against the existing FRMP at the time of preparation and processing of the proposal.</p>
<p>National Priority Framework for Action for Natura 2000 for the period 2021-2027 (draft)</p> <p>The National Priority Framework for Action for Natura 2000 provides for the following measures:</p> <ul style="list-style-type: none"> E.1. Horizontal measures and administrative costs related to Natura 2000 <ul style="list-style-type: none"> E.1.1. Site identification and management planning E.1.2. Site management and communication with stakeholders E.1.3. Monitoring and reporting E.1.4. Remaining gaps in knowledge and research needs E.1.5. Measures for communication and awareness raising, education and access of visitors in connection with Natura 2000 E.1.6. References (for horizontal measures and administrative costs related to Natura 2000) E.2 Site-related conservation and restoration measures within and outside Natura 2000 <ul style="list-style-type: none"> E.2.1. Sea and coastal waters E.2.2. Steppe areas and areas with bushy vegetation E.2.3. Swamps, mudslides, swamps and other wetlands E.2.4. Pastures 	<p>When implementing measures and activities on the territory of protected areas, the possibility for implementation of measures from the framework should be taken into account or contradiction with the identified measures should not be allowed.</p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of Bulgaria	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027
<p>E.2.5. Other agri-environmental systems (including arable land)</p> <p>E.2.6. Mountains and wooded areas</p> <p>E.2.7. Rocky habitats, dunes and areas with sparse vegetation</p> <p>E.2.8. Freshwater habitats (rivers and lakes)</p> <p>E.2.9. Others (caves, etc.)</p> <p>E.2.10. References to site-related conservation and restoration measures within and outside Natura 2000</p> <p>E.3. Additional measures for specific species not related to specific ecosystems or habitats</p> <p>E.3.1. Measures and programs for specific species not listed elsewhere</p> <p>E.3.2. Prevention, mitigation or compensation of damage caused by protected species</p> <p>E.3.3. References to additional measures for specific species not related to specific ecosystems or habitats</p>	

Table 5.2-3 *Relevance and degree of compliance with the objectives of environmental protection at national level - Republic of North Macedonia*

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of North Macedonia	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027.
<p>National Strategy for Nature Conservation 2017-2027. <i>Specific objectives:</i></p> <ul style="list-style-type: none"> • preservation of natural sites in terms of geological and geomorphological properties of nature, • rational use of mineral resources, • ensuring the sustainable use of wild species and ecosystems, • strengthening and improving the system of protected areas, • conservation of landscape diversity in accordance with the requirements of the Landscape Convention, • strengthening the institutional capacity for nature protection at central and local level; • creation and development of ecological networks for effective protection and management of natural heritage, • harmonization of the Nature Conservation Strategy with other strategic documents for development from other sectors (forestry, agriculture, animal husbandry, fisheries, transport, energy, industry, mining, tourism, construction, etc.) by integrating the conservation policy nature, • Achieving integrated nature protection by promoting an integrated approach to the conservation of biodiversity, geodiversity and landscape diversity. <p><i>National objectives of the Action Plan:</i></p> <ol style="list-style-type: none"> 1. Geodiversity and geoheritage and other components of nature (biodiversity and landscape diversity) to be properly identified, studied, monitored and inventoried 2. To protect, preserve and monitor the components of geodiversity, geoheritage, biological and landscape diversity 3. By 2022, integrate nature conservation policy into the strategies, plans and programs of other sectors. 4. To establish and implement sustainable use of geodiversity, geoheritage and other components of nature (biological and landscape diversity) through the use of traditional knowledge, innovation, best practices and positive incentives for sustainable use of nature. 5. Improving the legislative framework in line with EU law and relevant ratified international nature conservation agreements and providing an appropriate institutional framework by strengthening administrative capacity. 6. Raising the level of awareness, education and promotion of the values and importance of geodiversity and geoheritage and other components of nature (biological and landscape diversity). 	<p>CBCP and TSIM do not envisage activities and measures for the purposes of the strategy, but the implementation of CBCP and TSIM, incl. the approval and implementation of project proposals should be in accordance with and not in conflict with the provisions of the strategy. Particular attention in this regard should be paid to project proposals under measures 1.2.1 to improve mobility and connectivity, 1.2.2. for the development and implementation of regional tourism products, 1.2.3 for new SMEs in the field of tourism, 1.2.4 for a joint network of locations and 1.2.5 for promoting the development of health and recreation tourism.</p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of North Macedonia

7. Ensuring continuous and increased funding for nature protection from budget funds at central and local level, from investments and other sources of funding by creating appropriate sustainable and effective models for financing nature conservation and sustainable use

National Biodiversity Strategy with Action Plan 2018-2023

4 strategic and 19 national goals have been identified:

Strategic goal A. Overcoming the main causes of biodiversity loss through its integration into society as a whole

1. Raising public awareness of the values of biodiversity, ecosystem services and the steps to be taken to conserve and sustainably use biodiversity.

2. Gradually integrate the values of biodiversity into economic development policies at national and local level (poverty reduction, accounting systems, national and local development plans, etc.).

3. Introduce positive incentives for the conservation and sustainable use of biological diversity in accordance with the Convention and the obligations of the EU and identify and correct incentives that are harmful to the affected components of biological diversity.

4. Increasing the level of investments and funding for biodiversity conservation from budgetary funds at central and local level and other sources.

Strategic goal B. Reducing direct and indirect pressures on ecosystems and biodiversity

5. Establish management practices in forestry, agriculture, hunting and fisheries that contribute to the conservation of biodiversity and the maintenance of ecosystem services.

6. Reduction of pollution, including waste and excessive intake of nutrients, to levels that are not harmful to biodiversity, ecosystems and the provision of ecosystem services.

7. Development and implementation of plans for sustainable production and sustainable consumption in order to use natural resources within the borders for a safe environment.

8. Development and implementation of an appropriate policy for registration, control and protection against non-native and invasive species.

9. Integrate measures to adapt to and mitigate the effects of climate change and combat desertification.

Strategic goal C. Improving the state of the components of biodiversity in order to increase the benefits of biodiversity and ecosystem services

10. Prevention of loss, degradation and fragmentation of natural habitats of national and European importance.

11. Increasing the area of protected areas to 15% and ensuring their functional connection as an ecological network and establishing effective management of protected areas in cooperation with local communities.

Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027.

CBCP and TSIM do not envisage activities and measures for the purposes of the strategy, but the ***implementation of CBCP and TSIM, incl. the approval and implementation of project proposals should be in accordance with and not in conflict with the provisions of the strategy. Particular attention in this regard should be paid to project proposals under measures 1.2.1 to improve mobility and connectivity, 1.2.2. for the development and implementation of regional tourism products, 1.2.3 for new SMEs in the field of tourism, 1.2.4 for a joint network of locations and 1.2.5 for promoting the development of health and recreation tourism.***

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of North Macedonia

12. Determining the degree of conservation of wild species, preventing the extinction of affected species and improving and maintaining conservation status, especially for endangered populations.
13. Improving the in situ and ex situ protection of the genetic resources of local crops and domestic animals.
14. Establishment of monitoring of biological diversity and natural processes.
15. Promoting the protection of species and ecosystems in transboundary contexts by taking joint measures/actions
16. Improving the state of important ecosystems with regard to the provision of basic ecosystem services.
17. Incorporate the requirements of the Nagoya Protocol on Access to Genetic Resources into national law by 2018.

Strategic goal D Improving knowledge and availability of all relevant information on biodiversity

18. Promoting staff training, financially supporting research into the components of biodiversity, creating and supplementing a national database for sharing and making better use of biodiversity information.
19. Preservation and promotion of traditional knowledge, innovations and practices for conservation and sustainable use of natural resources.

Environment and Climate Change Strategy 2014-2020.

Operational objectives in the field of environment and climate change:

- 1) Full transposition of EU environmental legislation;
- 2) Adopted planning documents within a certain period, measures and activities necessary for the implementation of the legislation;
- 3) Established and strengthened administrative structure, ready to ensure the implementation of legislation and manage the EU Accession process;
- 4) Higher level of implementation of environmental legislation, in line with EU requirements and international obligations;
- 5) Integrate environmental protection into sectors that affect the environment;
- 6) Monitoring, analysis and assessment of the state of the environment and reporting on the condition;
- 7) Raising environmental awareness;
- 8) Reducing the negative effects of climate change and establishing a system of measures to limit greenhouse gases;
- 9) Increasing the capacity to adapt to the most vulnerable sectors of climate change;

Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027.

CBCP and TSIM include objectives, priorities, eligible activities and measures contributing to the protection of the environment and limiting greenhouse gas emissions on the one hand (green areas, technological modernization of SMEs), and on the other - to adapt to changing climate (green areas for water management).

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of North Macedonia

- 10) Support for "clean" technologies and changes aimed at using renewable energy sources and reducing energy consumption

National Long-Term Action Strategy for Climate Change of the Republic of North Macedonia 2020-2050 and Action Plan for the first stage of implementation of the 2021-2030 strategy (draft)

General vision

The overall vision of the Strategy is for the Republic of North Macedonia to become a successful low-carbon economy by 2050 that is resilient to climate change and towards sustainable development, strengthens competitiveness and promotes social cohesion through action aimed at climate change. and their impact.

Overall goal

The overall objective of the strategy is to reduce national net greenhouse gas emissions (including forestry and other land uses, excluding aircraft emissions and imported electricity by 72% by 2050 compared to 1990) or to reduce greenhouse gas emissions by 42%, excluding forestry and other land uses and elements of aircraft emissions and imported electricity) and to strengthen the resilience of climate change in society, the economy and ecosystems in the Republic of North Macedonia .

- Specific mitigation targets (mitigation targets):

1. Reduction of greenhouse gas emissions by 64% in the energy sector (excluding aircraft emissions and imported electricity) by 2050 compared to 1990
2. Limit greenhouse gas emissions to 153% in the Industrial Processes and Product Use sector by 2050 compared to 1990.
3. Reduction of greenhouse gas emissions by 34% in the sector, Agriculture by 2050 compared to 1990
4. Increase in carbon dioxide in the sector, forestry and other land uses by 1733% by 2050 compared to 1990
5. Reduction of greenhouse gas emissions by 2% in the waste sector by 2050 compared to 1990

- Specific objectives for adaptation:

6. Establishment of stable systems for regular and periodic collection of data on productions and sharing of scientific and technical knowledge.
7. Increasing resilience to the effects of climate change on key socio-economic sectors and ecosystems.

- Specific objectives in horizontal / rugged areas:

8. Establish comprehensive policies for planning, coordination, and implementation of climate action instruments.

Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027.

The overall vision and goal are integrated into the CBCP and TSIM projects, which set goals, priorities, eligible activities and measures to contribute to reducing greenhouse gas emissions on the one hand (green areas, technological modernization of SMEs), and on the other - for adaptation to changing climate (green areas for water management).

The development of project proposals should take into account the relevant specific objectives of the strategy in order to reduce greenhouse gas emissions and ensure resilience to the effects of climate change.

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of North Macedonia	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027.
<p>9. Incorporate climate change aspects into future national strategic planning documents in the fields of education, research and development, innovation, social inclusion and equal opportunities for men and women.</p> <p>10. Improving the green transition through capacity building, training for new skills and raising public awareness.</p>	
<p>National Strategy for Sustainable Development of Forestry in the Republic of Macedonia (2006-2026) Main guidelines:</p> <ol style="list-style-type: none"> 1. Expansion, improvement of the quality and protection of the forest fund according to the Spatial Plan of the Republic of North Macedonia. 2. Multifunctional forest management and sustainable development of forestry. 3. Increasing the contribution of forests and other related products and services to the quality of life in rural areas. 4. Increasing the public and social functions of forests and forestry through a common development strategy, with overall valorisation of common benefits and social functions. 5. Raising awareness of the ecological and social values of forests. 6. Improving the capacity to provide national and international funding to support the development of the sector. 7. Harmonization of forestry legislation with national interests and international obligations. 	<p>The activities under the CBCP Priority 1 for construction of green areas have a connection with the forest territories, when these activities fall on the territory of forest territories. The other CBCP and TSIM provisions are not directly related to forest areas.</p> <p><i>Given that these areas are predominant in the cross-border area, the implementation of measures and activities should comply with forest management legislation and existing forest strategies, plans and programs.</i></p>
<p>National Water Strategy of the Republic of Macedonia (2012-2042) <i>Measures and activities:</i></p> <ul style="list-style-type: none"> • Protection against floods and other negative effects of water - regulation of water runoff, protection against floods, protection against erosion, irrigation and drainage • Water use - provision of drinking water, wastewater treatment, industry (provision of the necessary amount of water for cooling in industry, introduction of water recirculation in technological processes, approval of plans for exploitation and protection of water resources), rural economy and agriculture (efficient use of water for irrigation, provision of the necessary quantities of water for irrigation, fragmentation of agricultural land and stopping the reduction of existing irrigation systems, repair and commissioning and harmonization with new requirements and needs), electricity generation the construction of hydroelectric power plants is a strategic goal for the state), navigation (maintenance of permanent waterways, inclusion of water infrastructure in the development of the transport network of river ports, etc.), fish farming, tourism and use of water for recreation to provide water supply and third waste water in the tourist season, the use of water for sports should 	<p>CBCP and TSIM contribute to water conservation through CBCP Priority 1 activities for the construction of green areas for water management, river rehabilitation, as well as through resource efficiency and technological renewal activities of SMEs under TSIM measures.</p> <p><i>The strategy should be taken into account in the implementation of investment activities under CBCP and TSIM, as well as in the activities of technological modernization of SMEs and construction of the necessary infrastructure, in order to prevent negative impacts on water and compliance with the requirements for each activity.</i></p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of North Macedonia	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027.
<p>not have a negative impact on the environment and water-related ecosystems), sustainable use of geothermal and mineral waters;</p> <ul style="list-style-type: none"> • Water protection - protection of surface and groundwater as water reserves for drinking purposes, protection of protected and other areas of importance in relation to water surfaces, improving the ecological functions of water, reducing the amount of hazardous substances at the source of pollution, sustainable management on the water; • Protection of other important water-related areas - natural areas of importance, incl. Natura 2000, bathing waters, areas around drinking water sources, eutrophication of sensitive areas as a result of wastewater from settlements and areas sensitive to nitrates. • Expert and operational framework for water management; • International cooperation and EU accession process; • Frame and tools; • Economic instruments. 	
<p>National Strategy for Sustainable Development in the Republic of Macedonia (2009-2030) The seven strategic definitions are:</p> <ol style="list-style-type: none"> 1. The important issue of securing EU membership. 2. Raising awareness and commitment to sustainable development, covering all spheres of life in the Republic of North Macedonia. 3. The introduction of e-government as a powerful tool for supporting and implementing sustainable development. 4. Targeting the public sector through organizational and institutional development, strengthening on the basis of the concepts and principles of sustainable development, intersectoral and integrated strategic work and participatory work. 5. Directing the banking and financial sector to provide funds for financing projects and activities for sustainable development. 6. Orienting the private sector to development based on the principles of sustainable development. 7. Implementation of demonstration and pilot projects in the early phase of implementation of the strategy. 	<p>Sustainability is a basic principle of CBCP and TSIM, respectively for financing project proposals they should comply with the principles of sustainable development - according to strategic definition 5. <i>For the implementation phase (preparation and implementation of projects) are relevant strategic definitions 2, 4 and 6.</i></p>
<p>National Waste Management Plan of the Republic of Macedonia 2020-2030 <i>Priority activities::</i></p> <ul style="list-style-type: none"> • Increasing the collection of municipal waste to 100% by 2030; 	<p>The latter two activities are to some extent relevant to CBCP and TSIM, and the implementation of projects should ensure</p>

Strategic document and goals for environmental protection at national level, developed for the territory of the Republic of North Macedonia	Analysis of the degree of compliance in the draft CBCP and TSIM 2021-2027.
<ul style="list-style-type: none"> • Establishment of regional centers with the necessary infrastructure (regional landfills, transshipment stations, etc.) according to the Regional Waste Management Plans; • Creation of appropriate collection and treatment of hazardous waste, medical waste and sewage sludge; • Closure of unregulated landfills/illegal landfills. 	<p>appropriate collection and treatment of hazardous waste, in case of generation of such.</p>
<p>Air pollution reduction program The priority activities for implementation and financing are:</p> <ol style="list-style-type: none"> 1) Improving the air quality monitoring system; 2) Improving the capacity of environmental inspectorates to carry out control inspections; 3) Raising public awareness; 4) Reduction of emissions from domestic heating by replacing heating systems; 5) Urban landscaping; 6) Waste management (including cleaning of illegal landfills); 7) Industry - increasing the frequency of inspections, amending the law on industrial emissions, publishing information on licensed production; 8) Construction - improving the control of construction activities, introduction of a system for construction waste management. 	<p>Priorities 5, 6 and 8 are relevant to CBCP and TSIM, as follows: Priority 5 is integrated into CBCP's "Greener Border Region" Priority 1, with which the CBCP will have a direct positive contribution to the implementation of the priority activity. Pollution control and technological modernization activities are also envisaged, which will contribute to priority activities 6. <i>Priority activity 8 of the Air Pollution Reduction Program should be respected during the implementation of the CBCP and TSIM, and in particular the investment project proposals for which there is a construction phase.</i></p>

In summary of the above analyzes:

- The planned CBCP activities and TSIM measures do not conflict with environmental objectives;
- CBCP and TSIM integrate relevant environmental objectives at national and international level and will contribute to their achievement. In particular, CBCP and TSIM have integrated and envisaged measures and activities that will directly and indirectly **contribute to the implementation of the objectives of strategic documents at national and European level** for climate change mitigation, adaptation to changing climate, protection and sustainable water use, transition to a circular economy, pollution reduction and control, protection and restoration of biodiversity and ecosystems (*environmental objectives within the scope of the principle of non-significant damage*);
- Some environmental objectives are relevant to the implementation phase of CBCP and TSIM and should be taken into account in the preparation and implementation of project proposals.

6. Likely significant effects on the environment and human health, incl. and transboundary environmental impacts in other countries

The assessment of the expected impacts of the implementation of the CBCP and TSIM on the environment and human health at the two levels identified by the program and the strategy (strategic level and "measures/activities" level) was made taking into account the nature of synergies and synergies impacts, namely: secondary, cumulative (item 6.3), simultaneous, short-term, medium-term, long-term, permanent and temporary, positive and negative consequences.

Strategic level:

- For the CBCP, this includes an impact assessment of *Priorities 1, 2 and 3* and the *Specific Objectives (to Priorities 1 and 2, as the specific objective under Priority 3 is a strategic objective of TSIM and is considered in the strategy)*;
- For TSIM, this includes an impact assessment of the *Vision, The Strategic Goal and the Specific Goals*.

Level "measures/activities“:

- For the CBCP, this includes an assessment of the impact of the supported activities / investments;
- For TSIM, this includes an impact assessment of the measures.

The impact assessment also includes the assessment according to the Technical Guidelines of the European Commission for the Integration of the Principle of "No Significant Damage" according to the Regulation on the Mechanism for Recovery and Sustainability.

6.1. Assess the likely impacts at the Strategic level

6.1.1. For CBCP

Environmental component / factor	Priority 1: Greener Border region (green infrastructure)	Specific objective 1.1: Enhancing protection and preservation of nature, biodiversity, and green infrastructure, including in urban areas, and reducing all forms of pollution	Priority 2. More connected border region (communication links, extended access to the core TEN-T) Specific objective 2.1. Developing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility	Priority 3 Integrated development of the cross-border region (integrated territorial development of the regions)
	Impact			
Climate, Climate change Adaptation to the changing climate	Direct, long-term positive impact associated with increasing the area of green areas as CO2 absorbers. The priority and the specific goal are not related to the increase of greenhouse gas emissions, but their absorption. Environmentally friendly infrastructure contributes to increasing resilience to changing climates.		Negative, long-lasting, reversible, negligible and low (given the dispersal of cross-border traffic in general) impact of increased road traffic in specific areas while improving access to the core TEN-T network. Positive in terms of adaptation to changing climate as a result of the development of climate resilience of mobility.	Integrated development fosters the development and exchange of experience and good practices in mitigating climate change and adapting to the effects of changing climate.
Atmospheric air quality	Positive, long-term, direct impact of increasing green areas, which have a role in improving ventilation and retention of air pollutants.		Negative, long-lasting, reversible, negligible and low (given the dispersal of cross-border traffic in general) impact of increased road traffic in specific areas while improving access to the core TEN-T network.	Integrated development promotes the development and exchange of experience and good practices in the sustainable improvement of AAQ.
Surface water Groundwater Water protection zones Risk of flooding	The priority is related to direct, long-term positive impact in relation to surface waters, SPZs, vulnerable zones, etc. The development of green areas is associated with indirect, long-term improvement of water quality, water protection areas,	The priority is related to direct, long-term positive impact in relation to surface waters, SPZs, vulnerable zones, etc. The development of green areas is associated with indirect, long-term improvement of water quality, water protection areas, reduction of wastewater pollution and flood risk. No impact on groundwater is expected.	The priority and the goal have no significant and direct relation to the water management, the SPA and the risk of floods.	The priority is indirectly positive, primary, long-term impact on transboundary surface water bodies, POPs, sensitive areas, vulnerable zones and floods, as integrated development favors the development and exchange of information,

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	reduction of wastewater pollution and flood risk. No impact on groundwater is expected.			experience and good practices, including on water management
Earth's subsurface	The priority is not directly related to the bowels of the earth, but is associated with an indirect positive impact - the increase of green areas is a preventive measure against erosion and landslides.	Similar to the impact at Priority level	No impact is expected	No impact is expected
Soils Land use	The priority is not related to negative impacts on soils. The increase of green areas will have a positive long-term effect on the condition of the soils in these areas and will contribute to the preservation of their functions and their rational use.	The specific objective has a direct, positive permanent, long-term impact in terms of soil protection and improvement of their condition, given that it provides for the reduction of existing forms of degradation, incl. and pollution.	Improved mobility and access to the TEN-T network are associated with direct negative, in most cases irreversible effects on the soil cover for new projects - related to soil sealing. The degree of impact can be determined at the level of "project proposal / project", and in any case such measures should provide for measures for protection and maximum conservation of soils.	Integrated development favors the development and exchange of experience and good practices, incl. on soil management and land use planning.
Vegetation	The impact is direct, positive, irreversible, permanent, related to the increase of green areas in urban and suburban environments, provided that invasive and alien and atypical for the region species are not used.	The aim is directly aimed at the protection and conservation of biodiversity and in this regard no negative, but only positive impacts on vegetation, wildlife and protected areas and territories are expected.	The priority and objective are not directly related to biodiversity and protected areas and territories - improved mobility is generally associated with less limited impact on environmental biodiversity compared to the current state of road infrastructure, with adequate measures for biodiversity conservation and compliance of the established regimes in the protected zones and territories.	Integrated development favors the development and exchange of experience and good practices, incl. on biodiversity conservation.
Animal world	Indirect positive impact, as a result of increased vegetation, which will favor the accommodation of animal species.			

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Protected areas Protected territories	Indirect positive impact, given that in the protected areas and territories the natural vegetation and habitats are maintained and protected and the implementation of priority activities in protected areas and territories is not envisaged. In case of realization of such activities, they should be in full compliance with the established regimes and eligible activities in the respective area / territory..			
Landscape	Completely positive, long-term impact for all territories in which priority activities will be implemented, related to the improvement of urban and non-urban landscapes, their recreational value. The plant species used should be carefully selected in order to: - preventing the introduction of invasive and alien species, especially in areas with valuable and/or protected natural landscape status; - the choice of species should be in line with the forecasts for the consequences of climate change - drought, extreme weather events, in order to ensure sustainability.	Entirely positive, long-term, direct impact related to the protection of natural landscapes, the development of green infrastructure, improving the quality of the landscape in urban areas.	Similar to the impact on biodiversity.	Integrated development favors the development and exchange of experience and good practices in various fields of activity, which will have an indirect positive impact on the landscape in the cross-border region.
Tangible assets	The priority is directly related to the long-term positive impact on tangible	The specific objective is directly related to the long-term positive impact on tangible assets, related	The realization of the priority and the specific goal will have an extremely direct positive impact, by building a modern,	Integrated development is also related to integrated, more

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	assets. The construction of urban and suburban green areas, including green areas for water management, etc., will contribute favorably to the long-term development and improvement of urban infrastructure and raising the living standards of the population.	to the improvement and improvement of the sustainability of urban infrastructure and raising the standard of living of the population.	climate-sustainable infrastructure to alleviate the growing trafficking in human beings and goods between the two countries, strengthening communication links, improving and expanding access to basic TEN. T network.	sustainable identification of investment needs in tangible assets. A positive impact on the territory is expected from renewed assets that are more environmentally friendly and human health.
Cultural-historical heritage	It has nothing to do with cultural heritage. No impact is expected.	No impact on cultural and historical heritage sites is expected.	No impact on the priority and specific objective is expected in principle. There is a possibility for new projects / routes to establish unregistered cultural values. Projects related to improving mobility should be preceded by studies on the presence of archaeological sites.	Integrated development will contribute to the exchange of experience, good practices and the development of activities related to the protection of cultural heritage.
Harmful physical factors	Priority is directly related to the noise factor. Green areas play an important role in reducing and absorbing noise. The expected impact is positive, cumulative, simultaneous, long-term and permanent for the region under consideration.	Priority is directly related to the noise factor. Green infrastructure / areas have a positive effect on reducing noise pollution and the impact on the environment and the population of the region, included in the scope of CBCP and TSIM. The expected impact is positive, cumulative, simultaneous, long-term and permanent for the region under consideration.	The expected noise impact is defined as positive, cumulative, simultaneous, long-term and permanent for the region under consideration, as a result of improved and sustainable mobility. No health risk is expected for the population in the area.	Integrated development is related to the alleviation of the growing trafficking in human beings and goods between the two countries, which leads to the dispersion of noise from transport traffic and has a positive, cumulative, simultaneous, long-term and permanent impact on the region.

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Waste	The priority is not related to the negative impact on waste. The development of green areas is not related to the generation of hazardous waste or waste in significant quantities.	The specific objective has a positive impact on waste management, as it provides for the reduction of all forms of pollution. There is no potential for negative impact.	The priority and the specific goal are not directly related to waste management, as mobility is not related to the generation of significant amounts of waste (the main waste streams are construction waste).	The priority is not directly related to waste, but territorial cohesion favors the development and exchange of experience and good practices, incl. on waste management
Hazardous chemicals and risk of major accidents	The priority has nothing to do with hazardous chemicals and the risk of major accidents. No impact is expected.	The specific objective is not related to the impact of hazardous chemicals and the risk of major accidents.	For the new sites should be provided:	Integrated development favors the development and exchange of experience and good practices, incl. on the management of hazardous chemicals and the risk of major accidents
Population Human health Risk of accidents	Positive impact on the population and health protection, as well as prevention of the risk of accidents	Positive impact, similar to the impact at Priority level.	- Ensuring safe distances to the enterprises and/or facilities located in the area with high and low risk potential from the occurrence of a major accident.	Integrated development has an indirect positive effect on the population, due to the resulting reduction in inequalities and improving the quality of life.
Summary of the impact:	<i>The priority is not related to negative, but to entirely positive, long-term impact on the components and factors of the environment.</i>	<i>The specific objective is not related to negative, but to entirely positive, long-term impact on the components and factors of the environment.</i>	<i>The priority and specific objective have a positive impact on most components and factors of the environment, as improved mobility and connectivity lead to traffic diversification, improved and facilitated traffic, increased safety and reduced risk of accidents, limiting emissions (compared to congested, low-traffic roads). Adverse risks exist for components and environmental factors at the level of "specific project proposals / projects"</i>	<i>The integrated development of the border region is related to the exchange of information and experience, joint activities in compliance with a set of aspects (integration of activities), part of which is the protection of the</i>

				<i>environment and human health. A positive impact from the implementation of the priority is expected.</i>
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6.1.2. For TSIM

Component / Environmental factor	<i>Vision: The CBC regions of the Republic of Bulgaria and the Republic of North Macedonia: a place for consolidation and stability of the cultural and historical heritage through joint efforts for mutually beneficial cooperation, socioeconomic cohesion and balanced sustainable development.</i>	<i>Strategic objective: Achieving integrated territorial development focusing on competitiveness and tourism development.</i>	<i>Specific objective 1.1: Increase the competitiveness of the local economy and improve the business environment</i>	<i>Specific objective 1.2: Development of an attractive, all-season tourism product by means of smart solutions that ensure universal access and participation.</i>
Impact				
Climate, Climate change Adaptation to the changing climate	The vision determines an indirect positive impact, as a result of the cooperation for sustainable development of the region, incl. climate resilience.	Indirect positive impact as a result of improved competitiveness, related to limiting emissions of harmful substances, incl. greenhouse gases in the atmosphere and increasing resilience / adaptation to changing climates.	Similar to the impact of the Strategic Objective in the area of competitiveness	Similar to the impact of the Strategic Goal in the part of tourism development
Atmospheric air quality		The development of tourism is associated with a secondary negative impact associated with increased tourist flow, respectively transport traffic to the sites. Emissions are insignificant in quantity.	Similar to the impact of the Strategic Goal	Negative, local, temporary, reversible with a low degree of impact in case of increased transport traffic related to the tourist flow in areas with intact air.

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		When developing tourism products, the consequences of climate change should be taken into account, incl. forecasts of water scarcity, risk of forest fires, floods and other adverse weather events, ensuring the sustainability of tourism infrastructure and sites.		
Surface water Groundwater Water protection zones Risk of flooding	The vision indirectly identifies positive, long-term, permanent impacts on surface waters, the SPA and flood risk reduction, given the joint efforts for mutually beneficial cooperation, cohesion and sustainable development.	The strategic goal has an indirect positive, long-term impact as a result of integrated development, which leads to environmentally friendly water management, SPAs and flood risk.	The specific objective is not expected to have an impact on the lawful use and management of water, polluted water, protection of water protected zones and compliance with the requirements for flood protection in the process of economic activities.	The specific objective is not expected to have an impact on the lawful use and management of water, polluted waters, protection of water protection zones, compliance with flood risk areas and compliance with flood protection requirements in the process of using the tourist product.
Earth's subsurface	No impact is expected.			
Soils Land use	The vision indirectly identifies a positive, long-term, permanent impact on soils and land use in border areas, reducing the risk of soil degradation, given the joint efforts for mutually beneficial cooperation, cohesion and sustainable development.	The strategic goal has an indirect positive, long-term impact as a result of integrated development, which will contribute to sustainable environmentally friendly land management and protection of soil resources.	The specific objective is not expected to have an impact on the lawful use and management of land and soil and compliance with the requirements for protection against degradation in the process of economic activities.	Potential indirect long-term negative impact on soils (mechanical impacts - sealing, compaction, erosion, etc.) in the process of using the tourist product can be expected from the implementation of the specific objective, if the envisaged measures for lawful use and management of lands and soils.

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Vegetation	The vision of sustainable development implies a positive impact on biodiversity in general, incl. such development does not expect negative impacts on the subject and objectives of protection of protected areas and territories.	The strategic goal in its part for competitiveness in general does not imply the occurrence of significant negative impacts on biodiversity, incl. protected areas and areas within the territorial scope of the program, and while effectively promoting integrated economic and environmental development through appropriate and environmentally friendly practices, even positive effects can be expected in less developed and sparsely populated areas - the development of competitiveness is related to technological improvements with a positive impact on the environment in general and on biodiversity, protected areas and zones in particular.	Similar to the impact of the Strategic Objective in the area of competitiveness.	Similar to the impact at the level of Strategic Objective in the part for the development of tourism. Of paramount importance are the parameters, location and nature of the respective tourist product, which are not defined at the level of Specific Objective and this does not allow accurate determination of the degree of impact.
Animal world				
Protected areas Protected territories		The tourist activity and the related tourist flow are generally related to the risk of adverse effects on biodiversity, incl. protected areas and territories due to the destruction of plant species - directly, through collection, trampling, which leads to soil compaction, disturbance of animal species. Provided that this is done in a sustainable way in accordance with environmental legislation, regulations and administrative acts of both countries, including information campaigns to promote biodiversity in the area and raise awareness of its value and benefits to ecosystems and life of the local population, the potential negative impacts can be minimized.		
Landscape	The goals of stability, cooperation and sustainable development are related to the improvement of the environmental	Similar to the impact on flora, fauna, protected areas and territories in the part of the competitiveness objective.	Similar to the impact on vegetation, wildlife, protected areas and territories.	Tourism development has two potential aspects of impact:

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	conditions, incl. sustainable landscape development.	In the part of the goal for tourism development two potential aspects of impact: - positive, related to the improvement and maintenance of the landscape around and within the tourist sites - cultural values; - negative - in case of non-compliance with the tourist capacity of the environment and congestion, which will lead to pollution, respectively violation of the qualities of the landscape.		- positive, related to the improvement and maintenance of the landscape around and within the tourist sites - cultural values; - negative - in case of non-compliance with the tourist capacity of the environment and congestion, which will lead to pollution, respectively violation of the qualities of the landscape.
Tangible assets	The vision determines a direct positive impact, given the fact that in order to achieve stability, cultural and historical reality, mutually beneficial cooperation, socio-economic cohesion and sustainable development, targeted measures are envisaged to build new and / or improve existing tangible assets in cross-border region.	Long-term positive impact on tangible assets, given the planned investments to increase competitiveness and tourism development	Direct, entirely positive impact of the specific goal - increased competitiveness and good business environment are achieved by investing in tangible assets and renewal of tangible assets, taking into account environmental considerations, standards and requirements.	The objective is based mainly on targeted activities aimed at improving existing and / or creating new environmentally friendly tangible fixed assets, through targeted investment packages, leading to a positive effect in terms of efficiency, connectivity of engineering and transport infrastructure. Achieving the goal will have a direct positive long-term impact.
Cultural-historical heritage	The vision takes into account the need to preserve and use the potential of cultural and historical heritage, which is positive as an impact.	Long-term, positive and direct impact related to the provision of funds for protection and development of cultural heritage sites.	No impact is expected.	Completely positive, long-term impact related to the protection, promotion and maintenance of the state of cultural values.
Harmful physical factors	Positive impact as a result of sustainable development actions, which are expected to reduce sources and noise levels.	Increasing competitiveness is also associated with reducing the harmfulness of enterprises, including noise levels are	Similar to the impact of Vision on competitiveness.	The development of tourism products is not associated with adverse

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		expected to be reduced, as well as other harmful physical factors. The development of tourism is not associated with high levels of noise and the action of other harmful physical factors.		effects of harmful physical factors.
Waste	The vision defines an indirect positive impact, given that sustainable development includes environmentally friendly waste management.	Indirect positive impact as a result of improving competitiveness. Tourism is not related to generating significant amounts of waste.	No impact on the legal management of waste from economic activities is expected.	The development of a tourist product does not imply activities related to the generation of significant amounts of waste, respectively no negative impact is expected in compliance with the legislation on waste management.
Hazardous chemicals and risk of major accidents	Similar to the impact of the waste factor.	No negative effects are expected		
Population Human health Risk of accidents	Socio-economic cohesion has a positive effect on the conditions and quality of life of the population in the region, given that social and economic factors are the main factors of health risk. In addition, the goal of sustainable development will ensure the improvement of the environment and the reduction of adverse health factors.	Increasing the competitiveness of the local economy and improving the business environment in the region will make it more attractive to people, will increase their quality of life, their well-being, which has a significant positive, albeit indirect impact on their health. The development of tourism is presumed to have a positive impact on human health, as it provides an opportunity for recreation and leisure.		
Summary of the impact:	Integrated development, covering aspects of economic, social and environmental development, represents sustainable development, which is entirely positive for the environment and the health of the population in the region.	<i>No significant negative impacts are expected. The main indirect positive impact is expected from the increase of competitiveness, related to the improved condition of the enterprises of the local economy in comparison with their current condition, incl. emitting less harmful substances into the environment and improving the quality of life of the population. The development of tourist products using the sites of cultural and historical heritage has the potential for negative impact on the air, soil, biodiversity and landscape, in case of non-compliance with the carrying capacity of the environment. The degree of this impact depends on the exact parameters, location and scale of the specific tourist product. In this regard, the choice for the development and realization of tourism products should be based on environmental impact assessment, and measures should be taken to prevent significant negative impacts. With regard to the other components and factors, the impact is from neutral to positive.</i>		

6.2. Assessment of likely impacts at the level of "activities / measures"

6.2.1. For CBCP

A. Activities / investments, object of support under Priority 1:

Environmental component / factor	<i>Investments in building greens (green balconies, green walls, green roofs, atrium spaces, green pavements, green parkings, green fences, noise barriers, etc.);</i>	<i>Investments in developing urban and peri-urban green areas, including improving connections between green spaces (tree alley and street tree/hedge, street green and green verge, green playground/school ground, green and colored squares, riverbank greens);</i>	<i>Investments in developing natural urban green areas (urban park, historicalpark/garden, pocketpark/park let, neighbourhood green space, institutional green space, green sport facility, forest, shrubland, abandoned and derelict area with patches of wilderness);</i>	<i>Investments in developing green areas for water management (swales, creek restoration and nature scaping, rain gardens or sustainable urban drainage systems (SUDS), naturalized storm water pond, bio retention areas);</i>
Impact				
Climate, Climate change Adaptation to the changing climate	Direct, long-term, cumulative with the other activities under the priority, positive impact related to the increase of the green areas - CO2 absorbers and the improvement of the microclimate in the settlements. Green areas do not pose risks to adaptation, on the contrary - they help to increase resilience to the effects of changing climate.	Direct, long-term, cumulative with the other activities under the priority, positive impact related to increasing the green areas - CO2 absorbers and improving the microclimate. Green areas do not pose risks to adaptation, on the contrary - they help to increase resilience to the effects of changing climate. Contribute to better ventilation, protection from strong winds during storms, retention of snow cover, improve soil moisture retention.		Positive impact on climate change associated with increasing green spaces as CO2 sinks. Positive impact on adaptation to climate change, related to reducing the risk of floods and improving the resilience of urban infrastructure (thanks to improved rainwater runoff).
Atmospheric air quality	Positive indirect effects related to the functions of vegetation to retain air pollutants, improve ventilation.			
Surface water	The construction of green areas has no potential for negative impact. The maintenance of green areas in the construction of green areas is associated with the use of soil improvers and plant protection products. In			The construction of green areas for water management has a direct

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Environmental component / factor	<i>Investments in building greens (green balconies, green walls, green roofs, atrium spaces, green pavements, green parkings, green fences, noise barriers, etc.);</i>	<i>Investments in developing urban and peri-urban green areas, including improving connections between green spaces (tree alley and street tree/hedge, street green and green verge, green playground/school ground, green and colored squares, riverbank greens);</i>	<i>Investments in developing natural urban green areas (urban park, historical park/garden, pocket park/parklet, neighbourhood green space, institutional green space, green sport facility, forest, shrubland, abandoned and derelict area with patches of wilderness);</i>	<i>Investments in developing green areas for water management (swales, creek restoration and nature scaping, rain gardens or sustainable urban drainage systems (SUDS), naturalized storm water pond, bio retention areas);</i>
Impact				
Groundwater Water protection zones Risk of flooding	compliance with the norms of use, no negative impact of the activity on surface waters is expected. The activities have nothing to do with the risk of floods.			positive, permanent, long-term impact on surface waters, water protection zones, as well as reducing the risk of floods. The maintenance of green areas in the construction of green areas is associated with the use of soil improvers and plant protection products. In compliance with the norms for their use, no negative impact of the activity on surface waters and the PIA is expected.
Earth's subsurface	No direct impact is expected. Green areas are associated with indirectly beneficial effects associated with reducing the risk of erosion and landslides.			
Soils Land use	The construction of green areas does not have the potential for negative impact, provided that the land use is on low-productive lands and high-quality fertile soils are not affected. The maintenance of green areas during the construction of green areas is associated with the use of mineral fertilizers and plant protection products. In compliance with the norms for their use, no negative impact of the activity on soil quality is expected.			
Vegetation	Direct positive impact related to the increase of the green cover in the settlements. It has nothing to do with natural vegetation and habitats.	Positive impact related to ensuring connectivity of vegetation and habitats of species. Local species specific to the region should be used, and the use of invasive and alien, atypical for the region species should not be allowed.		Positive impact as a result of using green instead of traditional gray infrastructure. Indigenous, climate-resilient species should be used.

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Environmental component / factor	<i>Investments in building greens (green balconies, green walls, green roofs, atrium spaces, green pavements, green parkings, green fences, noise barriers, etc.);</i>	<i>Investments in developing urban and peri-urban green areas, including improving connections between green spaces (tree alley and street tree/hedge, street green and green verge, green playground/school ground, green and colored squares, riverbank greens);</i>	<i>Investments in developing natural urban green areas (urban park, historical park/garden, pocket park/parklet, neighbourhood green space, institutional green space, green sport facility, forest, shrubland, abandoned and derelict area with patches of wilderness);</i>	<i>Investments in developing green areas for water management (swales, creek restoration and nature scaping, rain gardens or sustainable urban drainage systems (SUDS), naturalized storm water pond, bio retention areas);</i>
Impact				
Animal world	Increasing green areas in settlements is positive for synanthropic species and improving the resilience of urban ecosystems.	Indirect positive impact related to limiting existing fragmentation, noise reduction and anxiety.	Similar to the impact on vegetation.	Similar to the impact on vegetation.
Protected areas Protected territories	No impact is expected.	Neutral to positive impact in compliance of the activities with the regimes and the admissible activities in the protected zones and territories. Invasive, alien species should not be used in the vicinity of such areas and zones, but only native, area-specific ones.	No impact is expected.	Similar to the impact on vegetation.
Landscape	Direct positive impact to improve the visibility and quality of the landscape of settlements.	Entirely positive, direct, long-term impact, cumulative with other priority activities - quality improvement, incl. the attractiveness of the landscape in urban and suburban areas		Positive impact related to the use of green instead of the traditional gray infrastructure for water management and limiting the risk of floods - higher aesthetic and ecological value of the landscape.
Tangible assets	The construction of green areas is an investment in environmental infrastructure, leading to the improvement of existing urban areas, as well as raising living standards. The implementation of the relevant activities should comply with the requirements of local legislation on spatial planning and environment, as well as to comply with the current general and detailed development plans of specific locations.			

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Environmental component / factor	<i>Investments in building greens (green balconies, green walls, green roofs, atrium spaces, green pavements, green parkings, green fences, noise barriers, etc.);</i>	<i>Investments in developing urban and peri-urban green areas, including improving connections between green spaces (tree alley and street tree/hedge, street green and green verge, green playground/school ground, green and colored squares, riverbank greens);</i>	<i>Investments in developing natural urban green areas (urban park, historical park/garden, pocket park/park let, neighbourhood green space, institutional green space, green sport facility, forest, shrubland, abandoned and derelict area with patches of wilderness);</i>	<i>Investments in developing green areas for water management (swales, creek restoration and nature scaping, rain gardens or sustainable urban drainage systems (SUDS), naturalized storm water pond, bio retention areas);</i>
Impact				
Cultural-historical heritage	No impact is expected.			Indirect positive impact on sites close to places where such green infrastructure will be built, given the reduction of the risk of flooding of cultural heritage sites in these areas.
Harmful physical factors	Direct positive impact of the planned green areas for noise protection.	The construction of green areas will have a positive effect on reducing noise pollution and the impact on the environment and the population of the cross-border region.		
Waste	The construction of green areas is related to the generation of mainly waste from group 20 02 - waste from parks and gardens, including biodegradable waste with code 20 02 01, soil and stones 20 02 02 and other non-degradable waste 20 02 03. Composting facilities are available for treatment of biodegradable waste, the rest can be disposed of in landfills for aggregates. No negative impact from such waste is expected.			
Hazardous chemicals and risk of major accidents	The maintenance of green areas is associated with the use of soil improvers and plant protection products, and in compliance with the norms of use no negative impact is expected.			
Population Human health Risk of accidents	Indirect positive impact related to improving the attractiveness, microclimate, noise reduction in populated areas.	Positive impact, similar to the previous activity, with the difference that in suburban areas the construction of green areas will provide additional opportunities and areas for recreation and recreation of the population.	Analogous to previous activities	Indirect positive impact related to improved water management and flood risk reduction.

Environmental component / factor	<i>Investments in building greens (green balconies, green walls, green roofs, atrium spaces, green pavements, green parkings, green fences, noise barriers, etc.);</i>	<i>Investments in developing urban and peri-urban green areas, including improving connections between green spaces (tree alley and street tree/hedge, street green and green verge, green playground/school ground, green and colored squares, riverbank greens);</i>	<i>Investments in developing natural urban green areas (urban park, historical park/garden, pocket park/parklet, neighbourhood green space, institutional green space, green sport facility, forest, shrubland, abandoned and derelict area with patches of wilderness);</i>	<i>Investments in developing green areas for water management (swales, creek restoration and nature scaping, rain gardens or sustainable urban drainage systems (SUDS), naturalized storm water pond, bio retention areas);</i>
Impact				
Summary of the impact:	<i>Overall positive impact for most components and factors of the environment. No impact is expected for the others.</i>			<i>A positive impact is expected, mainly related to improved water management and limiting the risk of floods without significant negative impacts</i>

<i>Support for joint strategies and action plans for developing new tools, instruments, as well as transferring solutions between relevant stakeholders</i>	
Environmental component/factor	Impact
The development and subsequent implementation of strategies and plans has an indirect positive impact on the environment and human health, as a result of the selection of the best solutions, with a proven positive effect in the relevant field of application.	

B. Strategic project, object of support under Priority 2:

Strategic project: “Establishment of a new Border cross check point (BCCP) „Klepalo” between the Republic of Bulgaria and the Republic of North Macedonia ”	
Environmental component/factor	Impact
Climate, Climate change Adaptation to the changing climate	<p>The main adverse impact is during the construction phase of the sites and facilities, related to unorganized emissions of dust and exhaust gases from internal combustion engines of construction and transport equipment. The impact is local, temporary, reversible, so it cannot be assessed as significant.</p> <p>Negative, local, long-lasting, reversible, negligible and with a low degree of impact from the increased car traffic during the implementation of the new border checkpoint (CBC) "Klepalo" between the Republic of Bulgaria and the Republic of Northern Macedonia, given that the project priority) will help to facilitate traffic between the two countries.</p> <p>In terms of adaptation, the design of the project elements should take into account climate change impact forecasts in order to ensure the sustainability of the infrastructure.</p>
Atmospheric air quality	
Surface water Groundwater Water protection zones Risk of flooding	<p>No direct negative impact is expected with the legal use of surface water and wastewater discharge, as well as on protected water areas, nor is an increase in the risk of floods expected.</p> <p>When passing through water bodies, this should be done on the basis of the relevant permits for use of the water body according to the applicable regulations.</p>
Earth’s subsurface	<p>No impact is expected. Neighboring areas affected by the construction should be recultivated by taking measures to prevent erosion processes and landslides/landslides.</p>
Soils Land use	<p>Direct negative local impact is expected, which will be short-term in compliance with the necessary activities and measures (as a result of EIA procedures) for the protection of soil resources during all phases - design, construction and operation.</p>
Vegetation Animal world	<p>Significant potential negative impacts on the components of biodiversity could be expected only from the implementation of activities related to the construction of new roads (leading to CBC "Klepalo"), to a much lesser extent than the rehabilitation of existing ones, as well as future intensive traffic on them (as a result of the integrated development of the region). The route of road III-1008 Strumyani - CBC "Klepalo", in the border area of the village of Klepalo passes through BG0000366 BG "Kresna-Ilindentsi" under the Habitats Directive. With a letter Ex. № EA-17/29.06.2021 regarding the requirements of Article 31 of the Biodiversity Act the competent authority has considered that in general the Cross-Border Cooperation Program 2021-2027 between Bulgaria and Republic of North Macedonia and TSIM at this stage is unlikely to have significant negative impact on natural habitats, populations and habitats of protected species in Natura 2000 protected areas. In view of this, the potential expected impact on the components of biological diversity of nature in both countries (specifically for Bulgaria EPL, Ordinance on the terms and conditions for carrying out EIA, Biodiversity Act, Ordinance on AC, PTA) can be assessed as: Manner and degree of impact: Negative, direct (when building new roads) and indirectly (when increasing road traffic), largely reversible with effective implementation of environmental legislation, weak to moderate within acceptable limits.</p> <p>Territorial scope of impact: Within the territorial scope of the program within the limits of the road infrastructure subject to rehabilitation and completion and to a lesser extent in its neighboring territories);</p> <p>Duration of impact: Temporary and short-term during the rehabilitation and completion of the road infrastructure, long-term and periodic from the traffic on it (especially in the light part of the day).</p>
Protected areas Protected territories	<p>In the region of the territory of the Republic of Bulgaria, near the CBC "Klepalo", there are protected areas under the Birds Directive and the Habitats Directive. Protected area BG0000366 "Kresna-Ilindentsi" under the Habitats Directive is expected to be affected by the route</p>

Strategic project: “Establishment of a new Border cross check point (BCCP) „Klepalo” between the Republic of Bulgaria and the Republic of North Macedonia ”	
Environmental component/factor	Impact
	of the new road section to the CBC. The impact assessment, incl. on the subject matter and objectives of the protected area will be subject to the environmental impact assessment procedure within the meaning of Directive 2014/52 / EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on assessment the impact of certain public and private projects on the environment and a compatibility assessment within the meaning of the Habitats Directive, these assessments being part of the scope of the strategic project.
Landscape	Transport infrastructure sites are associated with changes in landscape dominants. All activities related to the construction of transport infrastructure have a combined, complex, cumulative impact on the local landscape. The operation is mainly related to visual impact.
Tangible assets	The project is related to the construction of a specific infrastructure facility, which aims to improve regional connectivity and stimulate economic growth in the cross-border region by providing a new transport link to alleviate the growing trafficking in human beings and goods, strengthen communication links, improve and expand access. to the TEN-T network. The implementation of the project will have a significant direct positive impact on material assets, in terms of rehabilitation of existing infrastructure and construction of new ones that meet all environmental requirements and standards, both national (both partner countries) and EU level. . The project may require ownership and land regulation procedures. Its implementation should be in full compliance with the national laws of the partner countries in the Spatial Planning Area. Prior to the implementation of the investment project, the respective will be subject to EIA procedures and compatibility assessment, according to the applicable legislation of both countries.
Cultural-historical heritage	Prior to the start of construction, it is necessary to conduct field research in which to locate the endangered archeological sites along the route of the new road section. Then, before the start of the construction works, rescue excavations must be carried out on all sites that will be affected by the construction (in case such are found). In the process of construction activities there should be observation by archaeologists along the entire route. Exploitation is not related to the impact on cultural heritage.
Harmful physical factors	The project is related to the generation of noise from construction and transport equipment during construction activities. The impact is temporary and reversible, and therefore insignificant. The class of the road and the set design speed - up to 40 km / h during its operation, suggest low intensity of traffic flows, therefore the expected equivalent noise levels will be below 50 dB (A) for the day and below 40 dB (A) for the night. The implementation of the project does not imply an increase in the noise load above the permissible norms. No health risk is expected for the population in the area.
Waste	The project is mainly related to the generation of construction waste during the construction of sites and subprojects. Operation is not related to waste generation. The impact is insignificant in compliance with the current legislation on waste management.
Hazardous chemicals and risk of major accidents	The project does not require the storage/use of significant amounts of hazardous chemicals. The risk of accidents in the nearest enterprises with low and high risk potential is not expected to increase.

Strategic project: “Establishment of a new Border cross check point (BCCP) „Klepalo” between the Republic of Bulgaria and the Republic of North Macedonia ”

Environmental component/factor	Impact
Population Human health Risk of accidents	<p>Short-term and temporary impact on the site workers during the construction process - increased levels of dust and exhaust gases from internal combustion engines, noise and local vibrations from the construction and transport equipment used. The impact is reversible, and localized within the boundaries of construction sites and routes. Depending on the distance to sites subject to health care, discomfort is possible for the nearby population. The EIA procedure should, if necessary, consider route options and propose measures to prevent significant impacts on the population in the site area.</p> <p>For the stage of operation the main possible risk factor for disturbing the comfort of the population when crossing the route near populated areas and sites subject to health protection is acoustic noise, as according to the assessment of harmful physical factors made in the table above, no exceedances are expected for areas with normalized noise regime.</p>

Summary of the impact:

There is currently no EIA or AC procedure for the project, and based on the available details it can be assumed, based on similar projects, that a slight negative impact is expected during construction, locally, largely reversible, without cumulative nature. Operation is associated with negligible negative to neutral effects for some components and environmental factors.

6.2.2. For TSIM

A. Measures to a Specific Objective 1.1.

Environmental component / factor	<u>Measure 1.1.1.</u> Actions aimed at increasing the productive capacity of the SMEs to become greener, more digital and more competitive (technological modernization);	<u>Measure 1.1.2.</u> Actions aimed at improving the knowledge capacity of the SMEs to operate in a greener, more digital and more competitive environment (acquiring new knowledge and skills, incl. access to external finances);	<u>Measure 1.1.3.</u> Actions aimed at building effective product development process (it encompasses all steps needed to take a product from concept to market availability) and reaching new markets (marketing, entrepreneurship, internationalization);
	Impact		
Climate, Climate change	A positive impact is expected, as modern ones are lower in emissions than traditional ones. The transition to a circular economy and resource efficiency are also linked to limiting greenhouse gas emissions.	The measure does not have a direct impact on the environment and human health. No indirect negative impacts are expected.	As a result of the activities, the developed products are expected to be of improved quality, incl. of the production process, which is a

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Environmental component / factor	<u>Measure 1.1.1.</u> Actions aimed at increasing the productive capacity of the SMEs to become greener, more digital and more competitive (technological modernization);	<u>Measure 1.1.2.</u> Actions aimed at improving the knowledge capacity of the SMEs to operate in a greener, more digital and more competitive environment (acquiring new knowledge and skills, incl. access to external finances);	<u>Measure 1.1.3.</u> Actions aimed at building effective product development process (it encompasses all steps needed to take a product from concept to market availability) and reaching new markets (marketing, entrepreneurship, internationalization);
Impact			
Adaptation to the changing climate	Funded projects should be designed in a way that ensures their resilience to the effects of a changing climate.	Indirect positive impact is expected as a result of increased knowledge and acquired key skills, related to focusing and investing in more environmentally friendly activities, increased environmental friendliness, circular economy and resource efficiency.	resource and energy efficient, more environmentally friendly. These products are expected to be more durable and not associated with the generation of hazardous wastes or large quantities of wastes. As there are no specific parameters at this level of detail and no specific projects have been identified, the potential risk of negative impacts cannot be assessed. Projects of investment nature are subject to the regulated preventive procedures under the environmental legislation of both countries. Similar to the impact on the climate.
Atmospheric air quality	Similar to the impact on climate change, the impact is positive - related to limiting air emissions from high-tech activities.		
Surface water Groundwater Water protection zones Risk of flooding	It is expected: - direct positive impact on the quantities and qualities of surface waters, - indirect positive impact on the PIA, -no impact on flood risk.		
Earth's subsurface	No impact is expected.		
Soils Land use	Direct positive impact related to soil protection.		
Vegetation	The activities arising from the measure have an indirect positive impact on biodiversity, protected areas and territories due to technological modernization.		
Animal world			
Protected areas Protected territories			
Landscape	Similar to the impact on biodiversity.		
Tangible assets	The measure directly implies the positive impact related to the integration of modern communication and information technologies, building digital competencies, technological innovation and implementation of digital technologies in enterprises.		

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Environmental component / factor	<u>Measure 1.1.1.</u> Actions aimed at increasing the productive capacity of the SMEs to become greener, more digital and more competitive (technological modernization);	<u>Measure 1.1.2.</u> Actions aimed at improving the knowledge capacity of the SMEs to operate in a greener, more digital and more competitive environment (acquiring new knowledge and skills, incl. access to external finances);	<u>Measure 1.1.3.</u> Actions aimed at building effective product development process (it encompasses all steps needed to take a product from concept to market availability) and reaching new markets (marketing, entrepreneurship, internationalization);
Impact			
Cultural-historical heritage	No impact is expected.		
Harmful physical factors	Indirect positive impact resulting from the noise abatement measures used in modern technology. No impact on other harmful physical factors is expected.		
Waste	Direct positive impact related to the reduction of the generated waste, appropriate utilization and their transformation into a resource.		
Hazardous chemicals and risk of major accidents	No impact is expected.		
Population Human health Risk of accidents	The impact is also related to improving the quality of the environment from the modernization of enterprises. The location of new production sites should take into account the proximity to areas and sites subject to health protection, in order to prevent harmful effects on human health in these areas and sites.		
Summary of the impact:	<i>In general, indirect, long-term, positive impact of technological modernization. For the new activities and related sites, the statutory preventive EIA procedures and compatibility assessment should be performed.</i>		

B. Measures under Specific Objective 1.2.

Component / Environmental factor	<u>Measure 1.2.1.</u> Improving the mobility and connectivity of the transport and engineering infrastructure by a system of alternative mobility, including a grid of bicycle lanes, 'dirt' forest and country roads, helipads, etc.;	<u>Measure 1.2.2.</u> Development and marketing of integrated regional tourism products suitable for various activities through the inclusion of the cultural and historical heritage and natural assets; joint efforts for diversification of the forms of tourism services and the realisation of all-season tourism in the CBC region	<u>Measure 1.2.3.</u> Development of integrated targeted financial packages for supporting business activity and the creation of new SMEs in tourism with a focus on family businesses and the offering of local tourism products: wine and gourmet tourism, rural eco-tourism, cycling tourism, hunting and fishing, off-road tourism, etc.;
Impact			
Climate, Climate change Adaptation to the changing climate	A positive impact is expected, as alternative transport is associated with lower levels of greenhouse gas emissions.	The activities related to the development of tourism have a secondary negative impact related to the increased tourist flow, respectively transport traffic to the sites. Emissions are insignificant in quantity. When developing tourism products, the consequences of climate change should be taken into account, incl. forecasts for water scarcity, risk of forest fires, floods and other adverse weather events, ensuring the sustainability of tourism infrastructure and sites.	The activities related to the development of tourism have a secondary negative impact related to the increased tourist flow, respectively transport traffic to the sites, incl. off-road tourism. The impact is low. When developing tourism products, the consequences of climate change should be taken into account, incl. forecasts for water scarcity, risk of forest fires, floods and other adverse weather events, ensuring the sustainability of tourism infrastructure and sites.
Atmospheric air quality	The construction of alternative propulsion systems is related to the generation of mainly dust emissions during construction and gas emissions from construction equipment. Expect local, temporary negative impact during their construction and fully positive impact during their use.	The activities have a secondary negative impact related to increased tourist flow, respectively transport traffic to the sites. Emissions are insignificant in quantity.	
Surface water Groundwater Water protection zones Risk of flooding	Weak negative, indirect, temporary, long-term impacts on the hydromorphological status of rivers and water protection areas are expected in the development of "black" forest and field roads, as well as possible increase in the risk of	No negative impact is expected with the proper/lawful exercise of tourism activities.	Weakly negative, indirect, temporary, long-term impacts on the hydromorphological status of rivers and on the SPAs are expected in the development of off-road tourism, as well as a slight increase in the risk of floods as a result.

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	floods as a result. In this regard, projects should be preceded by a water impact and flood risk assessment to ensure the sustainability and security of the infrastructure and the safety of its users.		
Earth's subsurface	No impact is expected		
Soils Land use	Potentially weak negative, direct, temporary, long-term impacts on soils are expected in the development of "black" forest and field roads, and an increased risk of erosion is possible - such projects should be preceded by detailed assessments of possible impacts and take measures to prevent significant negative impacts and risk for the users of the sites.	No negative impact is expected with the proper / lawful exercise of tourism activities.	Potentially weak, direct, temporary, long - term impacts on soils are expected in the development of off - road tourism, with a possible slight increase in erosion risk as a result.
Vegetation	The impact has both positive and negative aspects: - It is positive compared to traditional road infrastructure, as alternative modes of transport are not associated with a high degree of disturbance, fragmentation, direct destruction of species and habitats; - In case of development of alternative infrastructure to valuable habitats, habitats of plant species, protected areas and territories, however, their significant impact is possible - the extent of this impact depends on traffic congestion on these alternative roads, the value of the territory, the vulnerability of habitats and species. All this should be taken into account in the decision-making process for approving such project proposals.	The tourist activity and the related tourist flow are generally related to the risk of adverse effects on biodiversity, incl. protected areas and territories due to the destruction of plant species - directly, through collection, trampling, which leads to soil compaction, disturbance of animal species. The parameters, the location and the essence of the respective tourist product are extremely important - these parameters will be clear at the stage - project proposal, and the same should be subject to environmental impact assessment and protected areas.	Although family forms of tourism are of low intensity and pressure, given the wealth of the area of valuable, incl. protected and rare plant species, animal species and habitats, incl. protected areas and territories, for each individual project proposal an assessment of the possible impact should be made, incl. cumulatively on biological diversity, protected areas and territories, due to the risk of impact and destruction due to the tourist pressure of plant species, habitats, incl. such object of protection in protected areas. In this regard, special attention should be paid to the eligibility / impact of specific routes for cycling, hunting and fishing, and especially off-road tourism. In order to avoid significant negative impacts in the area, the development of hunting and fishing activities in it should be carried out in accordance with the Hunting Act, its by-laws
Animal world			
Protected areas Protected territories			

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			<p>and in coordination with the local hunting teams.</p> <p>The development of tourist packages related to off-road tourism should be in accordance with the regimes of PA and PA in the region, over 1/3 of which in its Bulgarian part is covered by PA under the Habitats Directive and to a lesser extent by PA under The Birds Directive. Currently, the declaring orders in most of these areas prohibit "the movement of motorcycles, ATVs, UTVs and buggies outside the existing roads in non-urban areas (does not apply to statutory routes for the listed motor vehicles, as well as and in case of disasters, emergencies and for conducting fire, emergency, control and rescue activities) ", as well as a ban on "conducting races with motor vehicles outside the existing roads ".</p> <p>Provided that this is done in a sustainable way in accordance with environmental legislation, regulations and administrative acts of both countries, including information campaigns to promote biodiversity in the area and raise awareness of its value and benefits to ecosystems and life of the local population, the potential negative impacts can be minimized as follows:</p> <ul style="list-style-type: none"> -negative, to moderate, direct and indirect, mostly reversible with active implementation of sustainable development measures; - within some of the most popular and attractive tourist destinations in the area. - long lasting. -periodically, especially in the seasonal tourist periods.
Landscape	The impact is positively compared to traditional road infrastructure, alternative transport infrastructures fit	The development of integrated all-season tourism products has two potential aspects of impact:	Similar to the impact on biodiversity, the implementation of projects under the measure should be preceded by an environmental

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	better into the natural surrounding landscape and are not related to the adverse effects of traditional road infrastructure.	- positive, related to the improvement and maintenance of the landscape around and within the tourist sites - cultural values; - negative - in case of non-compliance with the tourist capacity of the environment and congestion, which will lead to pollution, respectively violation of the qualities of the landscape.	impact assessment, the projects should be consistent with the capacity and capacity for self-restoration of the landscape.
Tangible assets	The measure has a direct positive impact, given the planned construction of modern environmentally friendly transport and engineering infrastructure through the development of alternative mobility systems to improve mobility and connectivity in the region.	The development of an attractive all-season tourist product through joint intelligent solutions with guaranteed access and participation of all is based mainly on targeted activities aimed at improving existing and / or creating new environmentally friendly tangible assets through targeted investment packages leading to a positive effect. in terms of efficiency, connectivity of engineering and transport infrastructure. The implementation of the measure will have a direct positive long-term impact.	The development of tourism packages is based mainly on targeted activities aimed at improving existing and / or creating new environmentally friendly tangible assets through targeted investment packages, leading to a positive effect in terms of efficiency, connectivity of engineering and transport infrastructure. The implementation of the measure will have a direct positive long-term impact.
Cultural-historical heritage	No impact is expected	Completely positive, long-term impact related to the preservation, promotion and maintenance of the state of cultural values.	No impact is expected
Harmful physical factors	Improving the mobility and connectivity of transport and engineering infrastructure through the development of alternative transport systems will have a positive effect on limiting noise pollution and the impact on the environment and the population of the region covered by the CBCP and TSIM.	No impact is expected	No impact is expected
Waste	Only the construction stage is related to waste generation. No impact is expected in the legal management of construction waste	No negative impact is expected with proper / lawful management of the waste generated by the activities	No negative impact is expected with proper / lawful management of the waste generated by the activities

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Hazardous chemicals and risk of major accidents	No negative impact is expected - the activities are not related to the use and storage of chemicals.		
Population Human health Risk of accidents	Positive impact related to the provision of opportunities for physical activity, sports, recreation and recreation, plus - lack of sources of emissions and noise compared to traditional road infrastructure.	The development of tourism is presumed to have a positive impact on human health, as it provides an opportunity for recreation and leisure.	
Summary of the impact:	<i>The impact is generally positive, as the alternative movement is more environmentally friendly than the traditional one - with vehicles related to the removal of significant areas, noise, emissions of harmful substances, incl. greenhouse gases, more significant impact on biodiversity. However, the specific location and manner of implementation of the measures under the measure should be preceded by an assessment of the possible impact, in particular on water, soil, biodiversity, protected areas and zones, in order to avoid significant adverse effects.</i>	<i>The development of tourist products using the sites of cultural and historical heritage has the potential for negative impact on the air, soil, biodiversity and landscape, in case of non-compliance with the carrying capacity of the environment. The degree of this impact depends on the exact parameters, location and scale of the specific tourist product. In this regard, the choice for the development and realization of tourism products should be based on environmental impact assessment, and measures should be taken to prevent significant negative impacts at the level of "project proposals". With regard to the other components and factors, the impact is from neutral to positive</i>	<i>Similar to measure 1.2.2, there is a risk of negative impact on water.</i>

Measure 1.2.4. Creating a joint network of locations for the realisation of concepts like ‘green school’, ‘in the country’, ‘visiting with...’, ‘made by...’, etc.;

Impact

Similar to the impact of TSIM Specific Objective 1.2, the development of the tourism products listed in the measure has the potential to have a negative impact on air, soil, biodiversity and landscape in the event of non-compliance with the absorption capacity of the environment. The degree of this impact depends on the exact parameters, location and scale of the specific tourist product. In this regard, the choice for the development and realization of tourism products should be based on environmental impact assessment, and measures should be taken to prevent significant negative impacts at the level of "project proposals".
With regard to the other components and factors, the impact is from neutral to positive.

Measure 1.2.5. Elaborating and applying joint measures for reducing the vulnerability of services in the tourism sector to the effects of pandemic and epidemic situations; promoting the development of health and recreational tourism: products and services related to physical exercise, outdoor sports, strengthening the immune system and improving the health status through spa procedures, climate therapy, mud therapy; combining short breaks of different kinds with individual travel;

Impact

Similar to the impact of TSIM Specific Objective 1.2, the development of the tourism products listed in the measure has the potential to have a negative impact on air, soil, biodiversity and landscape in the event of non-compliance with the absorption capacity of the environment. The degree of this impact depends on the exact parameters, location and scale of the specific tourist product. In this regard, the choice for the development and realization of tourism products should be based on environmental impact assessment, and measures should be taken to prevent significant negative impacts at the level of "project proposals".
With regard to the other components and factors, the impact is from neutral to positive.
Activities to reduce the vulnerability of services due to pandemic and epidemic situations will have an additional positive effect on the population, as in this way it is expected to guarantee income for the population in such periods, ie. to prevent the deterioration of the economic situation, hence the well-being and quality of life of those employed in the sectors affected by such situations.

6.3. Cumulative impact

With regard to **atmospheric air**, no negative cumulative impact is expected - negative effects for some of the activities and measures related to construction are local and reversible.

Positive cumulative effect is expected in terms of climate from the implementation of activities and measures for green space development, technological renewal, resource and energy efficiency, pollution control and transition to a circular economy, as they are related to reducing and absorbing emissions. greenhouse gases. CBCP and TSIM do not include activities that, alone or in combination, lead to significant greenhouse gas emissions. A positive cumulative effect is also expected with regard to the adaptation to the changing climate from the implementation of the mentioned activities and measures with a favorable impact on climate change..

No significant negative cumulative impact on water is expected at the Strategic Impact Assessment Level. Regarding the indicative activities, insignificant negative cumulative impact can be expected on the water protection zones - the sanitary protection zones for drinking water.

In the process of implementation of CBCP and TSIM there will be positive cumulative impacts on surface waters as a result of the activities under CBCP Priority 1 and the measures for technological modernization under TSIM.

The implementation of CBCP and TSIM may be accompanied by low negative cumulative impacts on surface waters. These impacts are expected to occur mainly during the construction of the facilities.

The development of the regional infrastructure may have weak cumulative negative impacts on the places of water protection according to art. 119 of the Water Act. They refer to future projects that will be developed under CBCP and TSIM. The combination of negative and positive weak effects may have a weak cumulative effect on the quantitative state in the same surface water body in:

- Simultaneous execution of construction works envisaged by strategic goals, investment priorities, visions and measures - Priority 1 - green areas by CBCP and measures 1.2.1 and 1.2.3 of TSIM;

- Simultaneous operation of existing and newly built plumbing facilities.

The forecasts for the level of strategic objectives, investment priorities and specific objectives do not envisage significant negative, cumulative negative impacts on surface waters, water protection zones and flood risk.

With regard to **groundwater**, no impact is expected, incl. cumulatively.

In the process of implementation of some activities and measures under CBCP and TSIM there will be positive cumulative impacts on **soils** - Priority 1 - green areas of CBCP and measure 1.1.1 of TSIM).

The implementation of CBCP and TSIM may be accompanied by weak negative impacts on soils. These impacts are expected to occur mainly in the course of construction of facilities and sites:

- Simultaneous execution of construction works on project proposals and other investment proposals;

- Simultaneous operation of existing and newly built smoothies, facilities and infrastructure.

The forecasts for the level of strategic objectives, investment priorities and specific objectives do not envisage significant negative, cumulative negative impacts on land and soils.

With regard to **biodiversity**, adverse cumulative impact is possible in all activities and measures related to the construction of new areas - the degree depends on the specific project proposal, its parameters, location, scale. A negative cumulative effect is also possible as a result of the development of new tourist products in places where there is already a tourist flow. The prognosis for cumulative impact on the **landscape** is similar.

With regard to **protected territories**, cumulative impacts are possible, similar to those for biodiversity.

No cumulative effect is expected on **protected areas** due to the stricter management regime in them, namely a ban on construction.

With regard to the **noise** factor, the expected impact is defined as positive, cumulative. No negative cumulative effect is expected for the region under consideration, incl. occurrence of health risk for the population in the area from the action of noise. With regard to **other harmful physical factors**, no impact is expected, incl. cumulatively.

No cumulative negative impact is expected for **cultural heritage** sites.

With regard to **tangible assets**, a positive cumulative impact is expected to improve the condition of existing fixed assets and/or build new environmentally friendly ones in the cross-border area, as through specific eligible activities and measures aimed at transport, cultural, tourism, urban, communication, digital and environmental infrastructure will ensure stable regional mobility and connectivity, which in turn will have a direct impact on increasing the competitiveness of the region as a whole. No negative cumulative effect is expected.

With regard to **waste**, a positive cumulative impact is expected for waste management in the cross-border area, as specific eligible activities and measures for cleaning up pollution and the circular economy will improve waste management in general. No negative cumulative effect is expected.

With regard to **hazardous chemicals and the risk of major accidents**, no cumulative impact is expected.

CBCP and TSIM forecasts have a generally positive effect on **human health and the health and hygiene** aspects of the environment. Negative cumulative effect is possible in the

implementation of new, albeit high-tech production and activities in areas with already busy production environment, near areas and sites subject to health protection, or leading to a secondary significant increase in transport traffic through settlements, as well as in case of non-compliance with the tourist capacity of the destinations in which tourism will be developed under specific objective 1.2 of TSIM.

6.4. Transboundary impact of CBCP and TSIM

Regarding the **likely transboundary impact** resulting from the application of CBCP and TSIM:

- CBCP and TSIM are cross-border in nature and scope, and both documents aim to have an impact on the scope of the defined cross-border region. In this regard, *by drawing up this single EAR for the whole territory within the scope of the program, the impact of the projections of the two documents in the cross-border region has been assessed by default.*;
- With regard to transboundary impacts within the framework of the *Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context*, the EAR will analyze the likelihood of transboundary impacts in other countries outside the CBCP and TSIM cross-border region. At this stage, taking into account the projections of the draft program and the strategy, there is no reason to assume a cross-border impact on the nearest neighboring countries - the Republic of Serbia and the Greece.

With regard to **transboundary surface water bodies** in the CBCP and TSIM territorial scope, a total of five transboundary surface water bodies have been identified for the Biodiversity ActBU: three in the Struma and one in the Mesta and Dospat.

- Strumeshnitsa River from the border between Republic of Bulgaria – Republic of North Macedonia to the confluence with the Struma with code BG4ST400R1072,

- Lebnitsa River from the border between Republic of Bulgaria – Republic of North Macedonia to its confluence with the Struma River, code BG4ST500R066.

They spring on the territory of the Republic of North Macedonia, cross the territory of the Republic of Bulgaria and flow into the Struma River.

- Struma River from the confluence of the Strumeshnitsa River to the Bulgarian-Greek border, code BG4ST300R073.

For the basin of the Mesta River, a transboundary surface water body has been identified - the Mesta River from the confluence of the Mutnitsa River to the border with the Republic of Greece, code BG4ME100R113.

Given that the projects defining the framework for the development of investment proposals are not large in scope and do not envisage significant sources of emissions and pollution, and they will be subject to the applicable EIA/EA/AC procedures, no significant impacts on transboundary water bodies are expected.

The priority axes and visions of CBCP and TSIM set the framework for the development of surface waters in the transboundary area between Republic of North Macedonia and Bulgaria in order to make the region safe, efficient, green, well connected and inclusive.

The program and strategy, as well as their priorities, axes and objectives are aimed at integrated development of the transboundary area, which will improve in most cases the condition of surface waters, the PIA, and reduce the risk of floods.

Possible negative impact is expected mainly during the construction phases on the seating elements of surface waters:

- Transboundary surface water bodies: Strumeshnitsa/Strumitsa, Lebnitsa, Mesta.
- POPs from surface waters with codes - BG4ST700R1220, BG4ST700R1120, BG4ST400R1272.
- Vulnerable area - groundwater body in the valley of the Strumeshnitsa River.
- Sensitive areas with code BG4ST400R1272 - Strumeshnitsa river.
- AWSPFR - there are no defined ones with cross-border impact in FRMP.

The duration and frequency of the impact will be short-term, they will be of low intensity, with local scope and mostly reversible. The long-term effects are likely to have a positive impact on surface waters - see sections 6.1 and 6.2. The statutory EIA/EA/AC procedures will be carried out for activities in these territories.

6.5. Summary of the impact

Summary of the impact at the Strategic level

With regard to **atmospheric air**, the impact at the strategic level is generally positive, indirect and direct compared to the current impact on the cross-border area. Minor negative impact with low degree, local, long-term, reversible, is expected from the goals and priorities related to the development of connectivity (road network) and tourism.

With regard to **climate change**, projections at the strategic level are not related to significant greenhouse gas emissions, on the contrary - most goals and priorities are related to limiting these emissions.

With regard to **adaptation to climate change**, the objectives and priorities are not related to increasing the vulnerability of climate change - on the contrary, some of the objectives and priorities are related to ensuring climate sustainability (CBCP Priority 1, TSIM Specific Objective 1.1, etc.). Predictions are not related to the impact on people, assets or nature. Specific requirements for climate resilience/adaptation should be integrated into project proposals.

There are no forecasts, incl. activities and measures related to the generation of significant greenhouse gas emissions or those leading to a conflict/conflict or reducing the effectiveness of adaptation measures.

With regard to surface waters, water protection zones and flood risk prevail:

- absence of negative impact, both directly and indirectly;
- presence of positive impact in most cases;

-long-term and in most cases - permanent impact.

With regard to **soils and lands**, the following predominate:

-absence of direct negative impact. An exception is the potential indirect (indirect) negative impact on lands and soils in the process of their use with the development of the tourist product;

-presence of positive impact in most cases;

-long-term and in most cases - permanent impact.

Most projections have a neutral to positive impact on **biodiversity, protected areas and territories**. The potential for adverse effects are projections related to improving the mobility/connectivity and development of all-season tourism products - the degree of impact and eligibility of these activities depends on the parameters of specific projects and should be assessed in their planning/design. The impact on the **landscape** is similar.

An entirely positive long-term impact is expected in terms of tangible assets and **cultural and historical heritage**.

With regard to the **noise** factor, the expected impact is defined as positive, cumulative, simultaneous, long-term and permanent for the region under consideration. With regard to other **harmful physical factors**, no impact is expected.

With regard to **waste**, a positive, indirect and direct long-term impact is generally expected.

Indirectly positive and long-term, cumulative within the program and strategy, is the impact on the **population and human health** at the Strategic level.

With regard to the **earth's subsurface and hazardous chemicals and the risk of major accidents**, no impact is expected.

Summary of the impact at the level of "activities/measures"

With regard to **air and climate change**, a positive, indirect and direct long-term impact is expected in general, with the exception of tourism development measures, as well as during the construction of all types of engineering and transport facilities and sites.

In terms of **surface water, water protection and flood risk areas** predominate:

-absence of direct negative impact, in very rare cases - indirectly;

-presence mainly of direct and indirect positive impact;

-long-term and in most cases - permanent impact;

- in most cases there is no impact at all.

No impact on the **earth's subsurface and groundwater** is expected.

In terms of **land and soil** prevail:

-presence of potential direct short-term negative impact for TSIM on measures related to improving mobility and tourism development;

-presence mainly of direct and indirect positive impact;

-long-term and in most cases - permanent impact;

- in most cases there is no impact at all.

Different in some ways and degrees of negative impacts on **biodiversity** as a result of the implementation of the CBCP could be expected as a result of the implementation of the strategic project under CBCP Priority 2 and some of the measures under specific objectives 1.1 and 1.2 of TSIM. At the same time, some positive impacts can be expected - mostly from the activities under Priority 1 and to some extent under the strategic project under Priority 3. Given this, in the implementation of all future activities in accordance with national laws, regulations and administrative acts of the two countries, which are aimed at conserving biodiversity and nature in them, the potential negative impacts will be reduced to acceptable limits.

Negative impacts are expected in measures related to the development of tourism and mobility, and each project proposal should be subject to environmental impact assessment and the objectives and subject of protected areas, in accordance with the applicable legislation of both partner countries. The impact on the **landscape** is similar.

The impact on the sites of **cultural and historical heritage** from the measures for development of tourism based on such sites is positive, for the other measures no impact is expected.

With regard to the **noise** factor, the expected impact is generally defined as positive, cumulative, simultaneous, long-term and permanent for the region under consideration, without preconditions for the occurrence of health risk for the population in the region. With regard to other **harmful physical factors**, no impact is expected.

With regard to **waste**, an overall positive impact is expected as a result of the specific waste activities and measures envisaged. No negative effects are expected from the other measures.

No negative impact is expected with regard to **hazardous chemicals and the risk of major accidents**.

The impact on the **health and hygiene aspects** of the environment is generally positive. The location of new production sites should take into account the proximity to areas and sites subject to health protection, in order to prevent harmful effects on human health in these areas and sites.

7. Measures designed to prevent, reduce and compensate as fully as possible for the adverse effects of the implementation of the CBCP and the TSIM on the environment and human health

The analysis and assessment of the expected impact on the implementation of the CBCP and TSIM requires the identification of measures, the implementation of which will ensure the prevention, mitigation and as full compensation as possible of adverse effects on the environment and human health. The measures are motivated by the expected results of their implementation:

7.1. Measures to reflect in the final versions of the CBCP and/or TSIM

The implementation of CBCP and TSIM does not imply significant negative impacts on the environment and human health, therefore measures for reflection in the final version of CBCP and TSIM are not necessary.

7.2. Implementing measures for the implementation of CBCP and/or TSIM

General measures:

1. Plans, programs, projects and investment proposals arising from CBCP and TSIM falling within the scope of Directive 2014/52/EU or Directive 2001/42/EA or outside them and falling within the scope of Article 6 of Directive 92/43/EEC, are subject to an assessment of their compatibility with the subject matter and objectives of the protection of protected areas and can only be approved after a decision/opinion on EIA/EA/AC approval/coordination, and in accordance with the recommendations of the assessments, and with the conditions, requirements and measures set out in the decision/opinion.

Expected result: Prevention of significant adverse effects.

2. Investment proposals arising from measures and activities under the CBCP and TSIM to comply with the existing spatial plans of the territory, as well as national, regional and local strategic, planning and regulatory documents, other available planned projects with similar and/or convergent activities in order to achieve the necessary synchronization in the implementation of project procedures by the involved institutional bodies.

Expected result: Avoidance of contradictions, according to the current legislation and the already adopted strategic and planning documents. Preventing project proposals that do not comply with existing ones, leading to administrative difficulties and / or requesting double funding for overlapping activities.

Atmospheric air

3. Priority approval for realization of production activities/technological modernizations, corresponding to the best available techniques.

Expected result: Ensuring production with minimal emissions of harmful substances into the atmosphere.

Adaptation to climate change

4. Consideration of the relevant activities and measures from the current strategic documents for adaptation to climate change and provision of measures to ensure the sustainability of projects.

Expected result: Ensuring climate resilience of projects.

5. The development of project proposals under specific objective 1.2 of TSIM should take into account the effects of climate change, incl. forecasts for water scarcity, risk of forest fires, floods and other adverse weather events, ensuring the sustainability of tourism infrastructure and sites.

Expected result: Ensuring climate resilience of projects.

Waters, water protection zones and flood risk

6. For the projects to be provided measures for prevention of the deterioration of the condition of the surface waters and WPL, according to the requirements of art. 116 of the Law on Waters of the Republic of Bulgaria as well as the Law on Waters of the Republic of North Macedonia.
7. Investment proposals, plans and programs to be implemented in accordance with the current RBMP, FRMP and water protection and management legislation.

Clarification of the main applicable provisions of the legislation for water protection of the Republic of Bulgaria:

- *Compliance with the requirements of Article 134 of the Water Act: In the coastal floodplains and the lands belonging to the reservoirs it is prohibited:*
 1. *storage of pesticides, landfilling and treatment of waste;*
 2. *construction of livestock farms;*
 3. *construction of farm and residential buildings;*
 4. *the washing and servicing of vehicles and equipment;*
 5. *the planting of perennials with shallow root system;*
 6. *the disposal of waste.*
- *Compliance with the requirements of Art. 143 of the Water Act, which prohibits protection from the harmful effects of water:*
 1. *disturbance of the natural condition of beds, river banks and coastal floodplains;*
 2. *the reduction of the conductivity of the river beds, including through barrages and thresholds, without the respective permit;*
 3. *the use of river beds as landfills, earth and rock masses;*
 4. *the performance of constructions over the covered river sections;*
 5. *the storage or warehousing of materials which would significantly increase the destructive power of water in case of floods.*
- *Compliance with the requirements of Art. 146. (1) of the Water Act: The location of residential and villa buildings and farm buildings in the flooded terraces of the rivers and the easement of the hydrotechnical facilities and the dam walls shall be prohibited.*
- *Compliance with the requirements of Art. 125. (1) of the Water Act. Only wastewater should be included in the sewerage networks and WWTP, which can be treated in the existing technological scheme of the treatment plant and does not endanger the life and health of the operator. The removal must comply with:*
 - *the discharge permit; the quantity and quality of wastewater;*
 - *the existing sewerage network and treatment plant; sludge treatment technology for recovery or disposal.*
- *Compliance with the requirements of Art. 132 of the Water Act, the persons, from the economic activity, on which waste waters are formed, are obliged to build the necessary treatment facilities in accordance with the requirements for discharge into the water body, when there is no sewerage system in the respective territory.*

- *In case of water abstraction and/or use of a water body to comply with the requirements of Articles 44 and 46 of the Water Act - the presence of the relevant permit.*
- *For activities falling within the AWSPFR in the floodplain area, plan measures to protect against the harmful effects of water in accordance with the CCM.*
- *When implementing CBCP and TSIM activities to comply with the applicable measures of the PoM and to comply with the objectives of RBMP 2016-2021 / 2022-2027 and FRMP 2016 -2021 / 2022-2027.*
- *Prevention of accidental pollution of surface waters and protection zones, according to the requirements of Article 131 of the Water Act: In case of emergencies creating preconditions for water pollution, the owner or the person operating the site - source of pollution, including tailings , sludge storages and embankments, is obliged to take the necessary measures to limit or eliminate the consequences of pollution according to a pre-prepared emergency plan and immediately notify the basin directorates and the bodies of the Ministry of Interior.*
- *Protection of sanitary protection zones for drinking water, according to the restrictions and prohibitions in the POPs.*

Expected result of measures 6 and 7: Prevention of deterioration of the status of surface waters and the WPZ, as well as increase of the risk of floods.

8. Sustainable use of water, incl. introduction of revolving cycles for water use in industrial enterprises, local treatment of industrial wastewater.

Expected result: Protection of the chemical and ecological condition/potential of the surface waters.

9. Taking measures and technological solutions to prevent accidental pollution of surface waters.

Expected result: Protection of the chemical and ecological condition/potential of surface and groundwater.

10. Carrying out periodic reclamation of "black" forest and field roads and "off-road" routes.

Expected result: Protection of the territories from erosion and the impact on the surface waters.

11. Prevention of accidental surface water pollution;

Expected result: Protection of the chemical and ecological condition / potential of the surface waters.

Soils

12. In the *design* of the new sites to include the necessary activities and measures for protection of soil resources and reclamation in order to prevent the occurrence of erosion processes and maximum restoration of disturbed lands.

Expected result: Prevention of impact on lands and soils during the implementation of design decisions.

13. During the implementation of the *construction activities* it is necessary to take measures for protection of the soil resources (preliminary seizure of the humus soil and its utilization for the purposes of reclamation.

Expected result: Conservation of soil resources.

Vegetation, fauna, protected areas and protected areas, landscape

14. In the planned activities for construction of green areas under Priority 1, specific objective 1.1 of the CBCP not to use invasive alien species.

Expected result: Preservation of the local vegetation and related habitats of the region and prevention of its displacement by alien and invasive species.

15. In case of project proposals for hunting and fishing activities within the scope of measure 1.2.3. under TSIM should be carried out in accordance with the Hunting Act, the by-laws to it and in coordination with the local hunting teams.

Expected result: Prevention of significant negative impact on biodiversity.

16. The development of tourism products related to off-road tourism should be consistent with the regimes of protected areas and protected areas in the region, more than 1/3 of which in its Bulgarian part is covered by protected areas under the Habitats Directive and in more a small degree of protected areas under the Birds Directive. Their scope should be applied and observed compliance with the ban on the movement of motorcycles, ATVs, UTVs and buggies outside the existing roads in non-urban areas (does not apply to designated on the basis of regulations routes for the movement of these vehicles, and in case of disasters, emergencies and for fire, emergency, control and rescue activities) ", as well as the ban on holding races with motor vehicles outside the existing roads" .

Expected result: Prevention of significant negative impact on biodiversity.

17. Measures and projects for development of tourism to be implemented in accordance with the norms for recreational load and absorption capacity of the environment, and taking into account the status of the territory.

Expected result: Prevention of significant load on the territory, incl. destruction of valuable landscapes, elements of biological diversity, habitats of species, soils.

Hazardous chemicals and risk of major accidents

18. In case of construction of a new or alteration in an existing enterprise and/or facility with low or high risk potential, as well as in the planning of new constructions, including the construction of transport roads, residential areas, public facilities nearby to existing enterprises and/or facilities with low or high risk potential, where the location or new constructions may be a source or increase the dangers or consequences of a major accident in these enterprises/facilities, it is necessary:

- 18.1. Providing safe distances for the enterprise and/or facility to residential areas, public sites and areas, recreation areas and, where possible, major transport routes.
- 18.2. Maintaining safe distances of enterprises and/or facilities with low or high risk potential or other appropriate measures to areas of special conservation sensitivity or interest and cultural and historical heritage sites in the vicinity of enterprises, where appropriate, in order to protect them.
- 18.3. Taking additional technical measures to limit the risks to human health and the environment, in the case of existing enterprises and/or facilities with low and high risk potential

Expected result: Avoidance of risks associated with major accidents involving hazardous chemicals.

Population, human health, health and hygiene aspects of the environment

19. When planning and implementing investment proposals, the location of the sites shall be in accordance with the expected emissions of harmful substances in the environment and the living environment and the availability of sites subject to health protection, as well as zones and territories in which such sites are located.

Expected result: Prevention of risks and protection of the population and human health.

8. Reasons for choosing the considered alternatives

The CBCP and TSIM projects submitted by the Contracting Authority do not contain alternatives.

The analysis of the "zero alternative" made in item 2.2 of the EAR shows that it has a less favorable impact than the alternative for the implementation of the program and its territorial strategy.

The alternative for implementing CBCP and TSIM. is generally with a complex positive impact on the environment, incl. on the population and human health, as the eligible activities and measures are predominantly environmental oriented. However, some of the planned activities are related to possible negative impacts, therefore at the stage of implementation and enforcement of CBCP and TSIM it is mandatory to implement the recommended measures in item 7 of the EAR, as well as all laws and regulations in force. in both countries related to the protection of individual components of the environment, incl. human health.

9. Methods for carrying out the ecological assessment, used normative base and documents and difficulties in gathering the necessary information

The main **methodological documents** used are the following instructions and methodologies:

- Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment - European Commission ⁷³– DG Environment;
- Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment⁷⁴, 2013 – European Commission;
- The Use of Spatial Data for the Preparation of Environmental Reports in Europe, JRC technical support⁷⁵, 2010;
- Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment, 2011 – UNECE⁷⁶;
- Good Practice Recommendations on Public Participation in Strategic Environmental Assessment⁷⁷, 16 February 2016 – UNECE;
- Cross border orientation paper for IPA CBC cooperation programmes with the participation of regions of Bulgaria, Republic of North Macedonia and Turkey⁷⁸, Ref. Ares(2019)6239329 - 09/10/2019;
- Strategic environmental assessment in Interreg NEXT programmes - Guidance note and review of approaches⁷⁹, July 2020, TESIM;
- Letter Ref. Ares(2020)32846 - 06/01/2020 of EC with provisions and clarifications for environmental assessments applicable to the plans and programmes co-financed by the EU in the period 2021-2027;
- Presentation on *Application of the SEA Directive to the EU 2021-2027 cofinanced programmes*, 40th meeting of the Expert Group on ESIF(EGESIF), Brussels, 11-12 February 2020, Directorate-General for the Environment;
- *Technical Guidelines for Climate Sustainability of Infrastructure Projects 2021-2027, Notice from the European Commission, C (2021) 543*

The EAR was prepared according to the following **methodological approach**:

- 1) Familiarization of the team of experts with the CBCP and TSIM projects and their forecasts, the other documentation provided by the Contracting Authority, the opinions on the terms of reference for determining the scope and content of the EAR;
- 2) Identification and analysis of other plans, strategies and programs related to the CBCP and TSIM projects;

⁷³ https://ec.europa.eu/environment/archives/eia/pdf/030923_sea_guidance.pdf

⁷⁴ <https://ec.europa.eu/environment/eia/pdf/SEA%20Guidance.pdf>

⁷⁵ <https://publications.jrc.ec.europa.eu/repository/handle/JRC58006>

⁷⁶ <https://unece.org/DAM/env/documents/2011/eia/ece.mp.eia.17.e.pdf>

⁷⁷ https://unece.org/sites/default/files/2020-12/1514364_E_Espoo_web.pdf

⁷⁸ <http://www.ipacbc-bgrs.eu/2020/cross-border-orientation-paper-ipa-cbc-cooperation-programmes-participation-regions-republic>

⁷⁹ <https://tesim-enicbc.eu/download/guidance-on-strategic-environmental-assessment-in-interreg-next-programmes/>

- 3) Collection, analysis and processing of literature sources and data on the current state of the environment by components and factors, its relationship with the current level of development of the cross-border area in the scope of CBCP and TSIM;
- 4) Analysis of the development of the environment in case of non-application of CBCP and TSIM (impact assessment of the so-called "zero alternative");
- 5) Analysis of the probable significant impact on areas with CBCP and TSIM;
- 6) Collection, processing and analysis of information on existing environmental problems at the national level and their relationship with CBCP and TSIM, incl. possible development of these problems with and without the implementation of CBCP and TSIM;
- 7) Analysis of the extent to which the CBCP and TSIM projects comply with the relevant objectives and measures for environmental protection included / identified in documents - plans, strategies and programs at national and international level;
- 8) Analysis and assessment of the impact of CBCP and TSIM on the environment: As CBCP and TSIM are strategic documents, the assessment of likely significant impacts on the environment and human health has been carried out on two levels of detail ("strategic" and "measures / activities ");
- 9) Proposing measures to prevent, reduce and limit impacts, as well as measures to monitor and control the impact of the program in its implementation;
- 10) Motivated choice of the most appropriate alternative in terms of impact on the environment and human health;
- 11) Preparation of a reasoned opinion on the implementation of the CBCP and TSIM taking into account the opinions received as a result of the consultations.

The impacts in item 6 of the EAR were also assessed in the integration of *the Technical Guidelines of the European Commission for the integration of the principle of "non-significant damage" under the Regulation on the Mechanism for Recovery and Sustainability*, and the impacts were analyzed Taxonomy Regulation.

To assess the impact on the **health and hygiene aspects of the environment, respectively the risk factors for the population and human health**, as part of the environmental assessment, the methodology according to Annex A1.1 to *Resource Manual to Support Application of the Protocol on Strategic Environmental Assessment*:

- a) *Analysis of the state of health and hygiene aspects according to available official data;*
- b) *Identification of health risk factors;*
- c) *Consultation in the course of the environmental assessment with the relevant competent authorities for protection of human health and health and hygiene*

aspects of the environment and taking into account their requirements and recommendations when developing the EA Report;

- d) *Assessment of the expected health effects according to the level of detail of the CBCP and TSIM forecasts.*

The main **normative acts** that will be taken into account when preparing the EA report are:

International documents:

- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Protocol on the Registers for the Release and Transfer of Pollutants to the Aarhus Convention;
- UN Framework Convention on Climate Change, Kyoto Protocol;
- Convention on Environmental Impact Assessment in a Transboundary Context;
- Protocol on Strategic Environmental Assessment to the EIA Convention in a Transboundary Context;
- Multilateral agreement between the countries of Southeast Europe on the implementation of the EIA Convention in a cross-border context
- Convention on Long-range Transboundary Air Pollution, Protocols;
- Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits of Their Use with the Convention on Biological Diversity;
- Convention on the Transboundary Effects of Industrial Accidents, Protocol on Civil Liability and Compensation for Damage to Transboundary Water Bodies Caused by Transboundary Effects of Industrial Accidents;
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Protocol on Water and Health, Protocol on Civil Liability and Compensation for Damage to Transboundary Water Bodies Caused by Transboundary Effects of Industrial Accidents;
- Convention for the Protection of the Black Sea against Pollution, Protocol for the Protection of Biological and Landscape Diversity in the Black Sea;
- Convention on Biological Diversity and Related Cartagena Protocol on Biosafety, Additional Nagoya-Kuala Lumpur Protocol on Liability and Compensation to the Cartagena Protocol on Biosafety, Nagoya Protocol on Access to Genetic Resources and Equitable and Equitable Gender Equality from their use;
- Convention on the Conservation of European Wildlife and Natural Habitats;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora;
- Convention on the Conservation of Migratory Species of Wild Animals;
- Ramsar Convention on Wetlands;
- Agreement on the Conservation of African and Eurasian Migratory Waterbirds;

- Agreement on the Conservation of Cetaceans in the Black Sea, the Mediterranean Sea and the Neighboring Atlantic Ocean;
- Agreement on the Conservation of European Bat Populations;
- Convention Concerning the Protection of the World Cultural and Natural Heritage;
- UN Convention to Combat Desertification in Those Countries Experiencing Severe Drought and/or Desertification, Especially in Africa;

EU legislation:

- Regulation (EU) 2021/1060 of the European Parliament and of the Council of 24 June 2021 establishing the generally applicable provisions for the European Regional Development Fund, the European Social Fund plus, the Cohesion Fund, the Fair Transition Fund and the European Maritime Fund , fisheries and aquaculture, as well as the financial rules for them and for the Asylum, Migration and Integration Fund, the Internal Security Fund and the Instrument for Financial Support for Border Management and Visa Policy (General Regulation);
- Regulation (EU) 2021/1059 of the European Parliament and of the Council of 24 June 2021 on specific provisions for the European Territorial Cooperation Objective (Interreg), supported by the European Regional Development Fund and external financing instruments (Interreg Regulation);
- 2001/42/EA of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programs on the environment;
- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92 / EU on the assessment of the effects of certain public and private projects on the environment;
- DIRECTIVE (EU) 2016/2284 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EA and repealing Directive 2001/81/EA;
- Directive 2008/50/EA of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe;
- Directive 2004/107/EA of the European Parliament and of the Council of 15 December 2004 on the content of arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons in ambient air;
- Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control);
- Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management;

- Council Directive 1999/30 / EA of 22 April 1999 relating to limit values for sulfur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air;
- Directive 2000/69/EA of the European Parliament and of the Council of 16 November 2000 on limit values for benzene and carbon monoxide in ambient air;
- Directive 2002/3/EA of the European Parliament and of the Council of 12 February 2002 on ozone in ambient air;
- Water Framework Directive;
- Directive on flood risk assessment and management;
- Marine Strategy Framework Directive;
- Commission Delegated Directive (EU) 2021/1226 of 21 December 2020 amending, in order to adapt scientific and technical progress, Annex II to Directive 2002/49 / EA of the European Parliament and of the Council as regards common noise assessment methods;
- Commission Directive (EU) 2020/367 of 4 March 2020 amending Annex III to Directive 2002/49/EA of the European Parliament and of the Council as regards the establishment of methods for assessing the harmful effects of environmental noise;
- Commission Directive (EC) 2015/996 of 19 May 2015 establishing common methods for the assessment of noise in accordance with Directive 2002/49/EA of the European Parliament and of the Council;
- Corrigendum to Commission Directive (EC) 2015/996 of 19 May 2015 establishing common methods for the assessment of noise in accordance with Directive 2002/49/EA of the European Parliament and of the Council;
- Directive 2002/49/EU on the assessment and management of environmental noise;
- Directive 2000/14/EU on noise emissions from equipment intended for use outside buildings Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, as amended and the subsequent repeal of Council Directive 96/82/EA;
- Directive 2008/98/EA of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives;
- Directive (EU) 2018/850 of the European Parliament and of the Council amending Directive 1999/31/EA on the landfill of waste;
- Council Directive № 92/43/EEC on the conservation of natural habitats and of wild fauna and flora;
- Directive 2009/147/EA of the European Parliament and of the Council on the conservation of wild birds;

- Directive 2001/18/EA of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220 / EEC.

For the Republic of Bulgaria:

- Environmental Protection law;
- Law on Liability for Prevention and Elimination of Environmental Damage;
- Law on Biological Diversity;
- Waste Management Act;
- Atmospheric Air Purity Act;
- Climate Change Reduction Act;
- Water Law;
- Plant Protection Act;
- Law on Medicinal Plants;
- Soil Law;
- Law on Environmental Noise Protection;
- Law on Protected Areas;
- Law for protection of agricultural lands and Regulations for its implementation;
- Law on Cultural Heritage;
- Disaster Protection Act;
- Law on Spatial Planning;
- Law on Forests;
- Law on Healthy and Safe Working Conditions;
- Health law;
- Law on Liability for Prevention and Elimination of Environmental Damage;
- Ordinance on the terms and conditions for conducting environmental assessment of plans and programs;
- Ordinance on the terms and conditions for assessing the compatibility of plans, programs, projects and investment proposals with the subject and objectives of protection of protected areas;
- Decision № 196 of the Council of Ministers of 11 April 2019 approving the Analysis of the Socio-Economic Development of Bulgaria 2007-2017 for determining the national priorities for the period 2021-2027, on a list of policy objectives that to be supported during the programming period 2021-2027, and a list of programs and lead agencies for their development;
- Decree № 142 of the Council of Ministers from 2019 for development of the strategic and program documents of the Republic of Bulgaria for management of the funds from the EU funds for the programming period 2021-2027;

- Other by-laws regulating the components and factors of the environment and human health.

B. For the Republic of North Macedonia (https://www.moep.gov.mk/?page_id=901):

- Law on the Environment (incl. *Chapter X Assessment of the Impact of Certain Strategies, Plans and Programs on the Environment*);
- Atmospheric Air Quality Act;
- Law on Nature Protection;
- Law on Environmental Protection from Noise;
- Waste Management Act;
- Law on Batteries and Accumulators and Waste Batteries and Accumulators;
- Law on Packaging and Packaging Waste Management;
- Law on Management of Electrical and Electronic Equipment;
- Water Law;
- Law on Spatial and Urban Planning;
- Law on Implementation of the Spatial Plan of the Republic of North Macedonia;
- Law on World Natural and Cultural Heritage;
- Law on Evaluation;
- Law on Forests;
- Law on hunting;
- By-laws on *strategic environmental impact assessment*:
 - 1. Ordinance on the criteria on the basis of which it is assessed whether a decision should be issued on whether a specific planning document may have a significant impact on the environment and human health (Official Gazette of the Republic of Macedonia No. 144/07);
 - 2. Ordinance on strategies, plans and programs, including their amendments, which are subject to a procedure for mandatory assessment of their impact on the environment and human health ("Official Gazette of the Republic of North Macedonia" No. 153/07 and 45/11) ;
 - 3. Ordinance on the content of evidence for strategic environmental assessment (Official Gazette of the Republic of North Macedonia (No. 153/07));
 - 4. Ordinance on public participation in the process of preparation of legislative and other acts on the environment, as well as on environmental plans and programs ("Official Gazette of the Republic of North Macedonia" No. 147/08 and 45/11);
 - 5. Regulations on the model, content and form of the decisions for application or non-application of the strategic assessment and the forms for

the necessity of application or non-application of the strategic assessment ("Official Gazette of the Republic of North Macedonia" No.122 / 11);

- 6. Regulations on the manner of conducting cross-border consultations ("Official Gazette of the Republic of North Macedonia" No. 110/10);
- Other by-laws regulating the components and factors of the environment and human health.

As sources of information are also used:

- Official statistical data on the components and factors of the environment, reports and bulletins on the state of the environment of the Republic of Bulgaria and the Republic of North Macedonia;
- National reports on the state and protection of the environment of the Republic of Bulgaria and the Republic of North Macedonia;
- Strategies, plans and programs of the Republic of Bulgaria and the Republic of North Macedonia related to CBCP and TSIM;
- Strategies, plans and programs at national (of the Republic of Bulgaria and the Republic of North Macedonia) and international (European) level, setting goals for environmental protection;
- Literary sources of information on the components and factors of the environment in the Republic of Bulgaria and the Republic of North Macedonia (climatic factors, geology, hydrology, landscape, vegetation, fauna, etc.), incl.:
 - BANSIK: Employment and Land Use in 2020, MAF Department of Agrostistics, Results and Analysis, № 381;
 - Sustainable Land Management PROJECT, <http://unccd-slm.org/>;
 - ANALYSIS AND ASSESSMENT OF THE RISK AND VULNERABILITY OF THE SECTORS IN THE BULGARIAN ECONOMY FROM CLIMATE CHANGE, MEW;
 - Soil-geographical zoning of Bulgaria, 1974. Pushkarov Investment Intermediary;
 - Artinova, N. 2014. Characteristics and grouping by content and composition of humus in the soils of Bulgaria by mathematical and statistical methods. In Soil Organic Matter and Soil Fertility in Bulgaria;
 - Project Title: Capacity development on digital soil mapping and development of the Macedonian Soil Information System (MASIS);
 - Agro-ecological atlas of the Republic of North Macedonia, 2020;

The following documentation was used to prepare the EAR:

- CBCP and TSIM projects;
- Normative base for development of the programs for the programming period 2021-2027;

- Other documentation provided by the Managing Authority and the National Authority.

Difficulties in gathering the necessary information can be mentioned:

- During the preparation of the EA documentation, many strategic documents are in the process of preparation and approval, which will be valid for the period 2021-2027, but have not yet been finalized - respectively, this makes it impossible to adequately reflect / comply with them;
- Some of the required information is not publicly available (eg companies with low or high risk potential in the territory of the Republic of North Macedonia), or there are differences between the way each of the two countries prepares it (eg for one country there is data on one indicator, but for the other no data are prepared for the specific indicator or year).

10. Monitoring measures during the implementation of CBCP and TSIM

Pursuant to Article 10 of the CEA Directive, according to the results and conclusions of the forecasts for the impact of CBCP and TSIM on the environment and human health, measures and indicators are identified, on the basis of which the monitoring and control of forecasted possible significant, as well as possible unforeseen negative impacts.

When identifying the measures and indicators, the identified indicators for progress and result in the CBCP project are taken into account, in order to avoid duplication.

Table № 10-1 *Measures for monitoring and control of the impact on the environment and human health in the application of CBCP and TSIM*

№	Monitoring and control measure	Indicators	Period/Responsible authority for implementation
1.	For measures and activities of an investment nature to comply with the relevant objectives, guidelines and measures for adaptation to climate change to ensure their sustainability	Sustainability measures envisaged in the project proposals	When approving project proposals / Governing body, National body
		Cases of damage to sites, facilities or infrastructure by extreme events - the result of climate change	After commissioning/Beneficiaries
2.	Prevention of deterioration of the condition of water bodies during the implementation of project proposals	Surface and/or groundwater monitoring data, if prescribed by the	During construction and operation in accordance with the periodicity

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	of investment nature in the vicinity of such sites, or related to the use/ impact of water bodies	competent authorities for the specific project proposal	specified in the plan for own monitoring / Beneficiaries
3.	Eligibility of project proposals of investment nature compared to the current RBMP and FRMP.	Existence of an opinion from the competent authorities	Before the start of the project / Beneficiaries
4.	Prevention of water pollution in emergency situations	Preventive measures envisaged	During the preparation of the project proposal / Beneficiaries
		Number of emergencies - actions taken	Periodically / Beneficiaries
5.	Observance of the adopted management regimes of the protected areas, including limitation of the probability of negative impact on the protected areas and the priorities of protection in them	Approved investment projects on the territory of protected areas, occupied area (decares);	Periodically / Beneficiaries
6.	Prevention of disturbance /damage/ destruction of valuable plant species, as well as animal species and their habitats	EIA/EA/AC procedures performed (where applicable) Implementation of EIA/EA/AC final measures (when provided for biodiversity)	Periodically / Beneficiaries
7.	Prevention of damage / violation / destruction of cultural values - archaeological sites in the construction of sites and infrastructure	Existence of a conciliatory opinion from a competent authority	Before starting the construction activities / Beneficiary
		Existence of a competent, authorized person during the construction	During construction / Beneficiary
8.	Prevention of exceeding the noise levels for projects that are implemented in/near areas with normalized noise regime	Measured noise values dB (A) compared to the permissible norms.	According to the established periodicity in the plan for own monitoring and/or by the Decision on EIA/Beneficiaries

11. Conclusion of the environmental assessment

Based on the analyzes, forecasts and assessments made, the impact of the implementation of CBCP and TSIM, in the implementation of the recommended measures in item 7 of the EA Report is:

Overall, with regard to ***ambient air and climate change***, a positive impact is expected as a result of specific eligible CBCP and TSIM activities and measures. The CBCP and TSIM projections do not have the potential for significant negative impacts, but only for temporary local,

reversible impacts. No activities and measures are envisaged that would lead to a significant increase in greenhouse gas emissions.

Some of the planned activities (green areas, resource and energy efficiency, technological renewal of production, transition to a circular economy) have a direct positive contribution to limiting *climate change and adapting to changing climate*. No activities and measures are foreseen that would pose a risk to the population, nature or assets based on climate change forecasts and the consequences thereof.

With regard to **water, incl. the water protection and flood risk zones** - based on the performed ecological review of CBCP and TSIM Bulgaria – Republic of North Macedonia 2021 - 2027, through the analysis and assessment of the potential impacts of the activities envisaged under the respective priority axes, objectives and visions, concludes that the Program and the Strategy will have an overall positive impact at regional, national and cross-border level, as most of the indicative activities and measures envisaged directly or indirectly contribute to improving the status of surface waters, water protection zones and the risk of floods, and in general - the environment. No impact on groundwater is expected. The activities and measures included in the CBCP and TSIM do not have the potential to damage the good status and good environmental potential of water bodies.

No impact on the *earth's subsurface* and groundwater is expected.

Based on the conducted environmental review of CBCP and TSIM, through the analysis and assessment of the potential impacts of the activities envisaged under the respective priority axes, objectives and visions, it is concluded that the Program and Strategy will lead to overall positive impact on regional, national and cross-border level, as most of the indicative activities and measures envisaged directly or indirectly contribute to improving the condition of *soils* and the environment in general.

Most projections are expected to have a neutral to positive impact on *biodiversity and protected areas and territories*. Negative impact is expected mainly in the measures related to the development of tourism and mobility, and in the construction of new enterprises in non-urban areas, and each project proposal should be subject to environmental impact assessment and the objectives and subject of protected areas. in accordance with the applicable legislation of the two partner countries. The impact on the *landscape* is similar.

The impact on the *cultural heritage* is positive for the measures related to the development of cultural tourism and neutral for the other projections.

With regard to the *noise* factor, the expected impact is defined as positive, cumulative, simultaneous, long-term and permanent for the region under consideration. The forecasts of CBCP and TSIM do not have the potential for significant negative impact, incl. creating a risk to human health.

With regard to other *harmful physical factors*, no impact is expected.

With regard to *waste*, a positive impact on its management is expected as a result of specific eligible CBCP and TSIM activities and measures. The CBCP and TSIM forecasts do not have the

potential for significant negative impacts. The activities and measures are not related to the generation of significant amounts of waste, incl. dangerous.

With regard to *hazardous chemicals and the risk of major accidents*, CBCP and TSIM forecasts do not include new companies, nor do they have the potential to increase the risk of major accidents in existing companies with low and high risk potential..

The impact on the *population, human health and health and hygiene* aspects of the environment is complex positive, related to the favorable impact of socio-economic factors in the region and environmental factors related to health.

In view of the above, the implementation of CBCP and TSIM is preferred in terms of environmental and human health impact over the "zero" alternative.

12. Information on the results of the consultations conducted in the process of preparation of CBCP and TSIM and environmental assessment

The opinions received as a result of the consultations on the Terms of Reference for determining the scope and content of the EAR and the manner of their compliance with the reasons for this are presented in **Table 12.-1**:

Table № 12-1 *Opinions received as a result of consultations on the Terms of Reference for the scope and content of the EAR and how to reflect them*

Opinion received from: (Municipality, department, organization, etc.)	Content of the opinion	Manner of reflection with the reasons for this
Opinions of the interested parties on the territory of the Republic of Bulgaria		
Central Coordination Unit - Council of Ministers August 16, 2021 - by e-mail	In connection with the ongoing consultations on the terms of reference for the scope and content of the report on environmental assessment of the projects of the Cross-Border Cooperation Program between the Republic of Bulgaria and the Republic of North Macedonia for the period 2021-2027 (CBCP) and the Territorial Strategy for Integrated Measures (TSIM), We would like to inform you that we have no comments from the Central Coordination Unit Directorate at the Administration of the Council of Ministers on the task thus proposed.	The opinion does not contain any comments or suggestions on the EA Report
Southwestern Regional Development Council	No opinion received	
Board of Rectors	No opinion received	
CITUB	No opinion received	
LC "Support"	No opinion received	
Association of Industrial Capital in Bulgaria	No opinion received	
Confederation of Employers and Industrialists in Bulgaria	No opinion received	

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National Association of Municipalities in the Republic of Bulgaria	No opinion received	
Association of Business Clusters	No opinion received	
National Council for Integration of People with Disabilities	No opinion received	
Agency Road Infrastructure"	No opinion received	
Ministry of Environment and Water	<p>In response to your letter with entry №EO-17 / 15.07.2021 of the Ministry of Environment and Water (MEW) with attached terms of reference for the scope and content of the EC Report, consultation scheme, and after review of documentation we express the following opinion:</p> <p>I. With regard to the Terms of Reference for the scope and content of the EO:</p> <p>The assignment has been prepared in compliance with <i>the provision of Art. 86, para. 3 of the Environmental Protection Act (EPL) and Art. 17, para. 1 of the Ordinance on the terms and conditions for carrying out environmental assessment of plans and programs (the Ordinance on EC)</i> in relation to the requirements for the scope and content of the EC Report. According to the information presented in the Terms of Reference, we have the following notes and recommendations:</p> <p>1. Please note that the Municipality of Kyustendil has implemented the "Program for Management and Improvement of Atmospheric Air Quality (KAB) 2016-2020." According to the indicator of fine dust particles (FDP10) in 2021 the municipality of Kyustendil is included in the schedule of a mobile automatic station of the Central Laboratory of Sofia for monitoring of KAB. The results of the measurements will be ready in early 2022, and it will become clear whether the municipality of Kyustendil</p>	<p>Under item 1: The information for the Municipality of Kyustendil is in accordance with item 2.1.2 of the EAR.</p>

should develop and implement a new program for management and improvement of KAB.

2. Under Measure 1.1.1 *“Incentives for starting and developing MCPs in key areas with potential for creating employment and alternative employment; orientation towards high-tech production activities with high added value, transition to a circular economy related to reduction of resource dependence and recovery of waste under Specific Objective 1.1 ”*, on page 14 to include a new bulletin with the content: "Promoting the transition to a circular economy through support measures for the sharing of knowledge on water saving, including the circulating use of water in industrial enterprises, as well as the reuse of treated wastewater for irrigation in agriculture“.

3. Under item 2.1.3 - Condition of the waters, zones for water protection, risk of floods

3.1. B. Groundwater, p. 23:

Groundwater information is poorly affected. In connection with the finding of the assessed in poor condition groundwater bodies in the area, they should be described, in accordance with the River Basin Management Plan of the West Aegean region, in order to comply with the measures set for the water body in the plan, in fulfilling the objectives of the CBCP and TSIM projects.

3.1. On page 24 of the terms of reference, add a new point "E": *"Surface groundwater status, potential impact of the program on its status and provision of conservation measures"*, given that the environmental assessment report will be presented information on the state of surface and groundwater in the area of the transboundary region subject to CBCP and TSIM, the state of water protection zones, the presence of areas with significant potential flood risk.

Under item 2: The thematic scope of measure 1.1.1. Unequivocally allows activities in the Circular Economy Area, as described in the name of the measure, i.e. the recommendation is in line.

Under item 3.1: The information is elaborated in detail in the EAR, while in the Terms of Reference only the scope of the assessment is indicated.

Under item 3.1: The part of the Terms of Reference to which the recommendation has been made is from item 2 of the EAR, in which the current state of the environment should be considered, incl. water component. The potential impacts are described in the EAR in point 3, assessed in detail according to the forecasts of the CBCP and TSIM in point 6, and in

4. In Section III, item 1.4. Relationship of CBCP and TSIM with other relevant plans, programs and strategies, b. "A", the following strategic documents should also be considered :

- Proposal for a Decision of the European Parliament and of the Council on the European Union Joint Program of Action for the Environment to 2030 (Eighth EC Environment Action Program to 2030) (COM (2020) 652).
- Communication from the European Commission: "A clean planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy" (COM (2018) 773).
- Communication from the European Commission: "Building a climate-resilient Europe - the new EC strategy for adapting to climate change" (COM (2021) 82).
- Communication from the European Commission: "Towards a healthy planet for all. EC Action Plan: "Towards zero air, water and soil pollution" (COM (2021) 400), instead of the one set out in the Terms of Reference: "Roadmap for an Action Plan for Zero Water, Air and Soil Pollution"“.

5. We draw your attention to the fact that on page 18, in item "B" "*Plans, programs and strategies on the territory of the Republic of Bulgaria, relevant to CBCP and TSIM 2021-2027*". The "National Waste Management Plan 2021-2028 (draft)" is indicated. We remind you that the National Waste Management Plan in the Republic of Bulgaria for the period 2021-2028 was adopted by Decision №459 of the Council of Ministers of 17.06.2021.

II. With regard to the EC Report on PTGC 2021-2027 and TSIM:

In item 2.1.13 "Hazardous chemical substances and risk of major accidents" of the terms of reference it is stated that the EA report will include information on enterprises / facilities with high and low risk potential on the territory of Blagoevgrad and Kyustendil districts, subject to the program.

Up-to-date information about these enterprises can be found in the register under Art. 111, para. 1, item 6 of the Environmental Protection Act (EPL), published on the MOEW website at the following website:

point 7 measures for their protection are proposed.

Under item 4: The documents have been added and analyzed to item 1.4, and those of them, which also set goals for environmental protection, are also analyzed in item 5 of the EAR.

Under item 5: The error has been eliminated in the EAR.

Under item II: The information is compliant in the EAR, in item 2.1.12, as in item 7 the proposed measures are also included.

<https://www.moew.government.bg/bg/prevantivna-dejnost/himichni-vestestva/sevezo/registur/>.

The register has search filters, for example by district, municipality, settlement, company name, etc.

Item 7 "*Measures to prevent, reduce and fully compensate for the adverse effects of the implementation of CBCP and TSIM on the environment and human health*" of the EC report should provide measures for the implementation of activities during the design, the construction and operation of the sites and infrastructure on the territory of the districts of Blagoevgrad and Kyustendil, which should reflect the provisions of Article 104 of the EPL, for example:

In case of construction of a new or alteration in an existing enterprise and/or facility with low or high risk potential, as well as in the planning of new constructions, including construction of transport roads, residential areas, public facilities near existing ones enterprises and / or facilities with low or high risk potential, where the location or new constructions may be a source or increase the dangers or consequences of a major accident in these enterprises/facilities, it is necessary:

- Providing safe distances for the enterprise and/or facility to residential areas, public sites and areas, recreation areas and, where possible, major transport routes.
- Maintaining safe distances of enterprises and/or facilities with low or high risk potential or other appropriate measures to areas of special environmental sensitivity or interest and cultural and historical heritage sites in the vicinity of enterprises, where appropriate, in order to protect them.
- Take additional technical measures to limit the risks to human health and the environment, in the case of existing enterprises and/or facilities with low and high risk potential.

III. Under the consultation scheme:

	<p>With regard to the Scheme for EO consultations with the public, the interested bodies and third parties, it has been prepared in accordance with the requirements of Art. 19, para. 3 of the Ordinance on EO.</p> <p>IV. Guidance on the next steps to be taken under the EC procedure:</p> <p>The next actions that you need to take under the EO procedure for CBCP 2021-2027 and TSIM include preparation of an EO report, the development of which is assigned to a team of experts with a leader who meets the requirements of Art. 16, para. 1 and 3 of the EO Ordinance. It is necessary to hold consultations on the EO report, incl. and the appendices thereto, the draft program and the strategy within the meaning of Art. 20 of the EO Ordinance, for which purpose you should perform:</p> <ol style="list-style-type: none"> 1. Preparation and publication of a notice for conducting consultations, containing the information under Art. 20, para. 1, item 1 of the Ordinance on EO. 2. Ensuring access to the report on the EO, the program and the strategy, and acceptance of the opinions expressed in time by the order of art. 20, para 1, item 2 of the Ordinance on EO. 3. Conducting consultations with the public, the interested bodies and third parties by the order of art. 20, para. 2 of the Ordinance on EC. 4. Submission of the EO report with all its annexes, on paper and electronic media to the MOEW, incl. and the program and strategy for conducting consultations on the grounds of Art. 20, para. 3 of the Ordinance on EO. The communication for consultations should be attached to the documentation, taking into account the requirements of Art. 20, para. 4 of the EO Ordinance 5. Sending the notice for consultations to all departments and organizations specified in the scheme for consultations, as well as to publish it on your website and / or in another publicly accessible way, in accordance with the provision of Art. 20, para. 4 of the EO Ordinance." 	<p>The instructions under item IV shall be executed by the Assignor of EAR.</p>
Ministry of the Interior	No opinion received	

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Ministry of Economy 09.09.2021 - by e-mail	Hello, I would like to inform you that we agree without remarks on the scope and content of the report on environmental assessment of projects of the Cross-Border Cooperation Program 2021-2027 (CBCP), co-financed by the Instrument for Pre-Accession Assistance, between the Republic of Bulgaria and Republic of North Macedonia and the Territorial Strategy for Integrated Measures (TSIM)	The opinion does not contain any comments or suggestions on the EA Report
Ministry of Foreign Affairs	No opinion received	
Ministry of Education and Science	No opinion received	
Ministry of Tourism	No opinion received	
Ministry of Culture	No opinion received	
ACEU Executive Agency	No opinion received	
Commission for Protection against Discrimination	No opinion received	
Non-profit legal entities for public benefit, working in the field of education, science and culture	No opinion received	
Blagoevgrad District Administration, 09.09.2021 - by e-mail	In connection with the published Terms of Reference for the scope and content of the report on environmental assessment of the projects of the Cross-Border Cooperation Program 2021-2027 (CBCP), co-financed under the Instrument for Pre-Accession Assistance between the Republic of Bulgaria and the Republic of North Macedonia and the Territorial Strategy for Integrated Measures (TSIM), in their capacity as members of the working group for development of territorial strategy for integrated	The opinion does not contain any comments or suggestions on the EA Report

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	measures to be financed under CBCP 2021-2027, the representatives of Blagoevgrad District Administration Nikolay Shushkov - Blagoevgrad District Governor and Krassimira Krumova - Chief ACRDRD expert, fully agree on the proposed project, without additional comments and suggestions	
Kyustendil District Administration	No opinion received	
Gotse Delchev Business Incubator (NGOs with activities in the field of ecology, education, vocational training and culture)	No opinion received	
Business Information and Consulting Center - Sandanski (NGOs with activities in the field of regional development, member of the Bulgarian Association of Regional Development Agencies and Business Centers) 09.09.2021 - by e-mail	I declare that I have no comments on the scope and content of the report on environmental assessment of the projects of the Cross-Border Cooperation Program 2021-2027 (CBCP), co-financed by the Instrument for Pre-Accession Assistance between the Republic of Bulgaria and the Republic of North Macedonia and the Territorial Strategy for Integrated Measures (TSIM)	The opinion does not contain any comments or suggestions on the EA Report
Employers' organizations, small and medium enterprises	No opinion received	
Ministry of Health	In connection with your letter received from the Ministry of Health with a draft Terms of Reference attached to it to determine the scope and content of the environmental assessment report (EA) of the above CBCP and TSIM, we inform you the following:	

№ 99-00-2-224 / 18 /
24.08.2021

The presented terms of reference envisage the environmental assessment report to comply with the regulatory requirements regarding the content, structure and scope of this type of report.

The terms of reference envisage the EA report to examine the current state of the environment and the existing environmental problems in each of the areas covered by the CBCP and TSIM. According to the terms of reference, the report will analyze and assess the expected impact on individual factors and components of the environment, as well as on the population and human health as a result of the implementation of the programs. The following should be taken into account when making this assessment:

1. When considering the condition of the waters, data on the quality of the drinking water shall be presented and analyzed. Explicitly state the need for the projects proposed in the CBCP and TSIM to comply with the requirements for water protection and in particular the prohibitions and restrictions in the sanitary protection zones of water sources for drinking and domestic water supply and mineral waters used for healing, preventive, drinking and hygienic needs.

2. When considering the state of environmental factors (noise, vibration, deterioration of ambient air, deterioration of drinking water, ionizing and non-ionizing radiation) to assess possible adverse effects, including cumulative ones, and to provide all necessary measures to prevent the occurrence of health risk.

3. When presenting the health and demographic state of the population, the state of the specific region should be analyzed within the territorial scope of the Republic of Bulgaria and the Republic of North Macedonia and compared with the average statistics for the country as a whole. To make an analysis of the possible impacts on human health due to the existing problems in the region in the environment and living environment.

4. To analyze the possible negative or positive impact on human health as a result of the implementation of each of the objectives and priorities set out in the CBCP and TSIM.

Under item 1. It is made in EAR, in the water parts.

Under item 2. It is performed in the EAR in the parts for harmful physical factors.

Under item 3. Implemented in the EAR in the parts for analysis and assessment of the impact on health.

Under item 4: Implemented in item 6 of the EAR.

	<p>5. To analyze and evaluate which individual specific projects, if identified in the CBCP and TSIM, have the potential to have significant negative impacts as well as the type and extent of impacts on individual environmental and environmental factors, during of the construction and/or the subsequent operation of the respective sites.</p> <p>6. To propose adequate measures for prevention and as complete as possible reduction of the negative impacts on human health as a result of the implementation of the program, incl. and specific projects identified in the strategies of the Republic of Bulgaria and the Republic of North Macedonia (especially those concerning the development of infrastructure projects related to transport, business development and industrial zones), explicitly stating the requirement that their location be consistent with spatial decisions and projections for the development of the settlements in order to prevent the implementation of the measures under the program to lead to a negative impact on residential areas, recreation and sports areas, recreational and resort areas and sites subject to health protection.</p>	<p>Under item 5. It is performed within the assessment in item 6 of the EAR.</p> <p>Regarding item 6. It is implemented in item 7 of the EAR.</p>
	<p>We would like to inform you that RIEW - Blagoevgrad, there are no recommendations and proposals for amendments to the submitted Terms of Reference for the scope and content of the report on environmental assessment of projects of the Cross-Border Cooperation Program 2021-2027 co-financed by the Instrument for Pre-Accession Assistance. The Republic of Bulgaria and the Republic of North Macedonia and the Territorial Strategy for Integrated Measures.</p>	<p>The opinion does not contain any comments or suggestions on the EA Report</p>

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<p>RIEW - Sofia Issue №6965 / 28.07.2021</p>	<p>In connection with consultations under Art. 19a, item 3 of the Ordinance on the terms and conditions for carrying out environmental assessment of plans and programs submitted with entry №13769/15.07.2021 in the Regional Inspectorate for Environment and Water - Sofia, Terms of reference for the scope and content of report on the environmental assessment of the CBCP project, co-financed by the Instrument for Pre-Accession Assistance, between the Republic of Bulgaria and the Republic of North Macedonia and TSIM, I express the following:</p> <p>The assignment has been prepared in compliance with the requirements to the content and scope of the EO report according to the provision of Art. 86, para. 3 of the Environmental Protection Act. There are no remarks or recommendations on the information presented in the assignment RIEW - Sofia.</p>	<p>The opinion does not contain any comments or suggestions on the EA Report</p>
<p>RIEW - Smolyan №KPD-01-177- (1) /27.07.21</p>	<p>In connection with the Terms of Reference for the scope and content of the report on environmental assessment of the above program on the basis of Article 20, paragraph 3, item 2 of the Ordinance on the terms and conditions for environmental assessment of plans and programs, we inform you that RIEW - Smolyan has no comments or suggestions.</p>	<p>The opinion does not contain any comments or suggestions on the EA Report</p>
<p>Basin Directorate - West Aegean Region №RD-11-497 (1) /28.07.2021</p>	<p>Pursuant to the provision of Art. 19a of the Ordinance on the terms and conditions for the Environmental Assessment of Plans and Programs (EC Ordinance), the West Aegean Basin Directorate expresses the following opinion on the submitted draft terms of reference for determining the scope and content of the Environmental Assessment Report (EAR) of the above program and territorial strategy:</p> <p>1. In connection with letters with ref. №04-00-1849/27.05.2021 and ex. №EO-17/18.06.2021 of the MOEW, the Biodiversity Act has reviewed and evaluated the draft Cross-Border Cooperation Program (CBCP) 2021-2027, co-financed by the Instrument for Pre-Accession Assistance, between the Republic of Bulgaria and the Republic of North Macedonia and the Territorial Strategy for Integrated Measures (TSIM). Art. 12, para 5 and para. 6 of the Ordinance on the terms and conditions for assessing the compatibility of plans, programs, projects and investment intentions with the subject and objectives of protection of protected areas (AC Ordinance), and has delivered opinions under Art. 155, para 1, item 23 of the Law, with reference</p>	<p>Under item 1: The opinions are in line with the EAR.</p>

№P-01-155 (1) /09.06.2021. and ref. №P-01-155 (3) /08.07.2021, that the program and the territorial strategy are admissible with RBMP of Biodiversity Act (2016-2021) and PUPH of Biodiversity Act (2016-2021) in compliance with the provisions of The Water Act and the conditions, prohibitions and measures described in the above-cited opinions.

2. With regard to the submitted draft terms of reference for determining the scope and content of the environmental assessment report (EAR) of the CBCP and TSIM, in item 1.4. Link of CBCP and TSIM with other relevant plans, programs and strategies, the EC Report should note that the programming period of the CBCP and TSIM project under consideration coincides with the period of updating, preparation and implementation of the third River Basin Management Plans (RBMP 2022-2027) and the Second Flood Risk Management Plans (FRMP) for the period 2022-2027. The EAR of CBCP and TSIM should also consider the developed draft of the updated preliminary flood risk assessment (POPH) for the West Aegean Basin Management Region, with updated preliminary AWSPFR, prepared on the basis of Art. 146a, para. 1 of the Water Act.

3. In item 2.1.3 Condition of waters, water protection zones, risk of floods, in item A. Surface waters, it is specified that in the review of the current state of the environment, the reflection of the condition and characteristics of surface and groundwater water was carried out on water bodies, according to the information contained in the RBMP of the BDA (2016-2021) and on the basis of current information on the state of the water, posted on the website of the Basin Directorate. In item B Groundwater, the main sources of diffuse groundwater pollution are described. It is specified that information on the state of surface and groundwater will be presented in the EAR. In this regard, the main characteristics of surface water bodies in the territorial scope of the Biodiversity Act are described and presented in a table in Annex 1.2.4. of Section 1 of the RBMP of the Biodiversity Act (2016-2021), Table №1.3.2.a. of Section 1 of the RBMP contains information on groundwater bodies in the Biodiversity Act for BU. The status of water bodies is discussed in Section 4 of the RBMP of the Biodiversity Act (2016-2021).

Under item 2: The information is reflected in item 1.4, and in the "water" parts of the EAR the updated PFRA is complied with.

Under item 3: The information is in accordance with item 2.1.3 of the EAR.

The EAR should take into account the forthcoming update of the characteristics of surface and groundwater bodies in the Biodiversity Act, which will be prepared in the process of updating the RBMP of the Biodiversity Act for the period 2022-2027. Up-to-date information on the Work Program and timetable for updating the West Aegean Basin Management RBMP and measures for consultation with stakeholders and the public is available on the WABD website at: <https://wabd.bg/content/%d0%bf% d1% 83% d1% 80% d0% bl /% d0% bf% d1% 83% d1% 80% d0% bl - 2022-2027/>.

In item V. Water protection zones, the regulated water protection zones are listed according to the provisions of art. 6 of the Water Framework Directive. The EAR should include information on the designated water protection zones in the West Aegean region, under Art. 119a of the Water Act, discussed in Section 3 of the RBMP of the Biodiversity Act (2016-2021).

In item D Flood risk, it is specified that the cross-border area subject to CBCP and TSIM includes areas with significant potential flood risk. For the analyzes of the waters on the territory of Blagoevgrad and Kyustendil districts RBMP and PUPH of the West Aegean region for the period 2016-2021 will be used, as well as the updated preliminary flood risk assessment to the project of PUPH for the period 2022-2027.

4. With regard to item 2. 1. 13 Hazardous chemicals and risk of major accidents, it is clarified that the EAR will provide information on existing.

The available information was used in the EAR.

Information on water protection zones is included in item 2.1.3 of the EAR.

The indicated sources of information on the flood risk analyzed in section 2.1.3 of the EAR were used.

Under to item 4: In item 2.1.13. The EAR provides up-to-date information on undertakings with a low and high risk potential for major accidents, according to the Register of these undertakings referred to in the MEW opinion described in the table above.

Under item 5: The requirement is met.

Under item 6: The requirement is met.

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		<p>Under item 9: Appropriate measures are proposed, based on the results of the assessment of the possible impacts of CBCP and TSIM on water.</p> <p>Under item 10: Such an explicit measure is included in item 7.2 of the EAR.</p>
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Opinions of interested parties in the Republic of North Macedonia

<p>Ministry of Local Government</p> <p>August 18, 2021 - during a meeting to discuss the Terms of Reference</p>	<p>On page 1 of the document, under the title, the legislation of the Bulgarian side is indicated. It is necessary to add the regulations of the side of Republic of North Macedonia, as the document is the same for both countries.</p> <p>The introduction should consistently and everywhere describe in legislation of the Republic of North Macedonia in addition to the Bulgarian one.</p>	<p>The Scope and Content Terms of Reference refer only to the Bulgarian legislation on environmental assessment, as the document was prepared for the purposes of the CEA procedure on the territory of the Republic of Bulgaria - it is required under Bulgarian legislation. The EA Report refers to the applicable European legislation.</p>
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Ministry of Economy	No opinion received	
<p>Ministry of Environment and Spatial Planning</p> <p>August 18, 2021 - <i>during a meeting to discuss the Terms of Reference</i></p>	<p>1. According to Article 65 of the Environmental Law, the title of the Report should not be "Environmental Assessment", but "Strategic Environmental Assessment for a cross-border cooperation program between the Republic of Bulgaria and the Republic of North Macedonia" and thus should be written everywhere in the text of the document.</p> <p>2. On page 9, the first sentence should be replaced by the legislation of the side of Republic of North Macedonia - Law on Environment, Article 65, which defines the scope, content and manner of preparation of the report and Article 67, which defines the reports.</p> <p>3. Biodiversity is subject to the Nature Conservation Act. There is no specific law on biodiversity</p>	<p>Under item 1: the EAR is prepared in accordance with Directive 2001/42/EA and in the legislation of the Republic of Bulgaria the term for “strategic environmental assessment” is “environmental assessment”.</p> <p>Under item 2: The terms of reference for scope and content have been prepared in accordance with the current legislation of the Republic of Bulgaria, in which Directive 2001/42/EU has been transposed, respectively the provisions of the Environmental Law of the Republic of North Macedonia are complied with by default. As the purpose of the Terms of Reference is to provide a framework for the content and scope of the EAR, the EAR takes due account of all opinions, comments, suggestions and recommendations received under the Terms of Reference.</p> <p>Under item 3: The error is the result of an inaccurate translation - in item 9 of the Terms of Reference and the EAR, when listing the legislation of the Republic of</p>

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		North Macedonia, the Law on Nature Protection is indicated.
Ministry of Health	No opinion received	
Secretariat for European Affairs	No opinion received	
Ministry of Culture	No opinion received	
Ministry of Transport and Communications August 24, 2021 - by e-mail	<p>1. EAR approval, i.e. will the Strategic Environmental Assessment have an effect on the procedures for approving General Development Plans, Detailed Development Plans, or other development planning documents or development projects that have already been launched or will be prepared on the basis of already approved spatial development documents? -high level for which a Strategic Environmental Assessment has already been approved?</p> <p>- To consider the possibility of harmonizing procedures, i.e. modification of already approved spatial planning documents in order to ensure compliance;</p> <p>- For these changes to already approved spatial planning documents, it will be necessary to provide funding, especially given that the already approved documents have a valid planning period.</p> <p>2. Adjust the legislation used in relation to the Spatial and Urban Planning Act, as this is not valid.</p> <p>- With regard to spatial planning, the current Law on Spatial Planning (Official Gazette of the Republic of North Macedonia № 32/20) is up to date, and as far as we know the Law on Spatial Planning is still being prepared.</p>	<p>Under item 1: CBCP and TSIM do not represent development documents and in this connection do not fall into hierarchical dependence with development documents, plans and programs. The implementation of projects financed under CBCP or TSIM is preceded by procedures, incl. on changing the purpose of the land - if necessary, according to the legislation in force in the country. In all cases, these activities comply with the current development plans of the territory on which the specific investment will be realized.</p> <p>Under item 2: The notes are reflected in item 9 of the EAR.</p>

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Northeast Planning Development Center	No opinion received	
Center for Development of the Eastern Planning Region	No opinion received	
Southeast Development Planning Center	No opinion received	
Municipality of Staro Nagorichane	No opinion received	
Municipality of Lipkovo	No opinion received	
Municipality of Kratovo	No opinion received	
Municipality of Rankovce	No opinion received	
Municipality of Pehchevo	No opinion received	
Municipality of Makedonska Kamenica August 24, 2021 - by e-mail	<p>1. The list of abbreviations does not correspond to the abbreviations of our institutions.</p> <p>2. Provide for measures in relation to extreme weather events.</p>	<p>Under item 1: The list includes all used abbreviations in the text of the Terms of Reference, and in the same way the list of abbreviations in the EAR has been prepared.</p> <p>Under item 2: In the political framework of the new programming period, measures against extreme weather events fall into specific objectives, which are not included in the specific CBCP and TSIM. However, the eligible activities under CBCP Priority 1 contribute to adaptation to climate change and the prevention of the risk of</p>

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		extreme weather events, which is confirmed by the analyzes and assessments of the EA Report.
Municipality of Delchevo	No opinion received	
Municipality of Kochani	No opinion received	
Municipality of Vinitsa	No opinion received	
Municipality of Probishchip	No opinion received	
Municipality of Karbintsi	No opinion received	
Municipality of Cheshinovo and Obleshevo	No opinion received	
Municipality of Shtip	No opinion received	
Municipality of Bogdantsi August 23, 2021 - <i>by e-mail</i>	<p>Among the main normative acts that should be taken into account in the EAR I propose:</p> <ol style="list-style-type: none"> 1. Forest Act 2. Law on Genetically Modified Organisms 3. Decree for the operations and activities for which a report is obligatorily prepared, and for the approval of which the mayor of the municipality is competent. 4. Decree on the operations and activities for which a report is obligatory and for the approval of which the competent authority empowered with environmental competences is competent <p>Policy Objective 2 "A greener, lower-carbon Europe" would add the following types of support activities/investments:</p>	<p>These normative acts have been added to item 9 of the Report and have been taken into account in its elaboration.</p> <p>Under the recommendations to the documents:</p>

1. Reduction of carbon units in educational and public institutions, calculated carbon emissions and electricity consumption.

Under item 1, the specific objective of Policy Objective 2, part of the thematic concentration of the program, is: *Improving the protection and conservation of nature, biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution.* Its scope does not allow investments in the proposed areas.

2. Botanical garden/greenhouse with inner alleys.

Under item 2. As a general rule and taking into account the narrow thematic concentration of the program (legal restrictions apply) and its limited budget, all funded projects must address the territorial challenges identified in the Program and in the Strategy. The scope of the specific objective under Policy Objective 2 provides support for a wide variety of environmental measures that would contribute to maintaining a healthy green, physical and living environment, as well as to improving environmental permeability.

	<p>3. Construction of bike lanes.</p> <p>4. To Specific Objective 1.2, Measure 1.2.1, Relevant needs and potential for development to include the provision of investments for renovation. Water supply and sewerage, priority renovation, depending on the quality of the pipes, years of use, asbestos pipes, etc. and preparation of a cadaster of the water supply network.</p> <p>5. Towards Strategic Objective 1, Specific Objective 1.1, Measure 1.1.1. <i>Providing incentives for the start-up and development of SMEs in all areas with the potential to create employment and alternative employment...</i> may also apply to crafts, some of which have disappeared or are disappearing. Each settlement has its own local crafts.</p>	<p>Under item 3. The construction of bicycle lanes is an eligible activity under CBCP Priority 3</p> <p>Under item 4. The proposed types of investments do not fall within the thematic scope of specific objective 1.2 of the TSIM</p> <p>Under item 5. Measure 1.1.1. does not impose restrictions on the start-up sector and the development of SMEs, as long as SMEs have the potential to create jobs</p>
Municipality of Zrnovce	No opinion received	
Municipality of Kriva Palanka	No opinion received	
Municipality of Kumanovo	No opinion received	

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Municipality of Berovo	No opinion received	
Municipality of Doiran	No opinion received	
Municipality of Bosilovo	No opinion received	
Municipality of Valandovo August 19, 2021 - by e-mail	Include the Forest Act	It is implemented in the Report.
Municipality of Vasilevo	No opinion received	
Municipality of Gevgelija 23.08.2021 - by e-mail	We support the notes, proposals and additions of the Ministry of Environment and Spatial Development	The comments are reflected, as described above in the opinion of the Ministry of Environment and Spatial Planning
Municipality of Konche	No opinion received	
Municipality of Novo Selo	No opinion received	
Municipality of Radovish	No opinion received	
Municipality of Strumica	No opinion received	
NGO Regional Center for Sustainable Development - Kratovo	No opinion received	
Chamber of Commerce of the Republic of North Macedonia	No opinion received	
Regional Center for Sustainable Development - Kratovo	No opinion received	

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Chamber of Commerce of the Republic of North Macedonia	No opinion received	
Council for Cooperation and Development of Civil Society	No opinion received	
Center for Sustainable Development ELIPSA - Kumanovo	No opinion received	
Citizens' Association for Education and Training in the Field of Dance and Cultural and Artistic Values BITRIX-KRU-Skopje	No opinion received	
Association of Local Self-Government Units of the Republic of North Macedonia August 18, 2021 - <i>during a meeting to discuss the Terms of Reference</i>	<ol style="list-style-type: none"> 1. The risk of fires has not been addressed 2. The legislative provisions related to the Report should include the Law on Forests - which is extremely important for the eastern part of the Republic of North Macedonia. 3. There are many protected areas and national parks in the area. 4. There are many endangered species. Both plant and animal. 5. Climate change, CO2 pollution, etc. are not mentioned. These risks have not been addressed. 	<p>Under item 1: The purpose of the Terms of Reference is only to provide a general framework for the scope of the Report. The risk of fires is discussed in detail in the Report - the parts are climate change and the consequences of the changes.</p> <p>Under item 2: Added to item 9 of the Report.</p> <p>Under items 3 and 4: Biodiversity and protected areas are discussed in items 2.1.6 and 2.1.7 of the Report.</p> <p>Under item 5: The purpose of the assignment is to propose a general framework for the scope of the assessment</p>

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	<p>6. The experts strictly followed the legislation of the Ministry of Environment and Water and did not cover the legislation of other ministries.</p>	<p>in the report, as in item 2.1.1. Climate change is also included in the Terms of Reference - i.e. are foreseen for consideration in the Report. Climate change, incl. CO2 emissions and the risks to the environment and human health associated with them are examined, analyzed and assessed in detail in the Report.</p> <p>Under item 6: In item 9 of the Terms of Reference and in the same point of the Report is described the legislation, compliant with the preparation of the documentation on ecological assessment, which covers other spheres and areas, besides environment. The Report also complies with the legislation of the Republic of North Macedonia, according to the information provided by the National Program Authority through MRDPW.</p>
<p>Ministry of Agriculture, Forestry and Water Management</p> <p>August 18, 2021 - during a meeting to discuss the Terms of Reference</p>	<p>1. The Law on Forests is specified for the Bulgarian side, but is not specified in the legislation of the Republic of North Macedonia. The border area includes a large number of areas covered with forests, and they are managed under the Forest Act.</p>	<p>Under item 1: The Law on Forests of the Republic of North Macedonia has been added to the list of normative documents to item 9 of the Report, and is consistent with the preparation of parts “biological diversity“.</p>
<p>Ministry of Agriculture, Forestry and Water Management</p>	<p>1. Page 12 - The specific goal is formulated "sustainable climate" - whether it is a translation error or something else. On page 9 in the diagram (Priority 2) these words</p>	<p>Under item 1. Specific objective 2.1 of the CBCP is: Development of climate-sustainable, intelligent and intermodal</p>

August 19, 2021 - by e-mail

are missing. These two words used in this way do not make sense, and on the other hand cover a very wide range. How is it planned to be achieved? Nothing is marked.

2. Page 18 - in measure 1.2.1 the words "bicycle lines" are used. I have not encountered such a word in the literature of Republic of North Macedonia. I think it should be bike paths. The following words "dusty/muddy forest" are used in the same connection. What is meant? Looking at the English version, I think it means "bad forest and rural roads".

In the next section "Relevant needs", the above words are repeated.

3. On page 21, subpoint C, the "Strategy for Sustainable Forest Development of the Republic of North Macedonia (2006-2025)" should be added.

4. Page 24 - "Fine particles" - an appropriate term should be used

5. p. 35 - Part C, add the Forest Act and the Hunting Act.

6. The risk of forest fires should be noted in the report on climate factors.

Additional notes:

Given that much of the border area is covered by forests and has forest-dependent settlements, the Report should include measures and activities to :

1. Exchange of experience and good practices between the two countries on ways to improve the sustainability of forests/forest and wildlife management.

Activity: Cooperation of the regional units of the two countries

national, regional and local mobility, including improved access to TEN-T and cross-border mobility - the reason for the inaccuracy is the translation to Bulgarian language.

Under item 2: The reason for the inaccuracies is from the translation.

Under item 3: The strategy is added in the indicated point in the Report, incl. is analyzed in item 5 of the Report.

Under item 4: The reason for the inaccuracy is from the translation to Bulgarian.

Under item 5: The two laws are added to item 9 of the Report and are complied with in its preparation.

Under item 6: The recommendation has been implemented in the Report.

On the additional notes :

1. The proposed areas for interinstitutional cooperation are eligible for support under Policy Objective 2, Specific Objective (iv), if presented as a separate action of a joint project aimed at improving environmental permeability in peri-urban areas or developing new forms of ecosystem services, new instruments , tools, and the

2. Exchange of experience and good practices for sustainable use of non-timber forest products

Non-timber forest products under the Forest Act (of the Republic of North Macedonia) include: mushrooms, medicinal plants (teas), plants fit for consumption and production, other plants and their parts (roots, bark, leaves, fruits, pathological growths, semi-parasitic and parasitic plants), cones and others.

(Explanation: In our country, in general, these non-timber forest products are collected by the population and handed over to points of purchase. The owners of the points subsequently sell them to larger companies.)

3. Cooperation in the purchase and sale of timber and assortments of wood.

(Explanation: The Department for Legal Entities Subject to Forestry and Hunting Activities for Forestry and Hunting issues a Decision on the transfer of timber and wood assortments. The aim is to develop cooperation between legal entities with the same subject of activity on the other side of the border.)

4. Support for the discovery of new and construction of lighting for existing forest roads.

(Explanation: These forest roads are mostly used by the population living in their area, as well as by visitors (for tourism, recreation, sports, etc.). The opening, including reconstruction and construction of lighting these roads will have a positive impact on nature lovers, tourism, recreation, etc. One of the most significant benefits is that in the event of a forest fire, these open or quality roads will greatly help to respond quickly to firefighting equipment.)

5. Support for the construction of observatories and other types of facilities that serve as a preventive measure to protect forests from fires.

(Given that there are many critical areas in these planning areas where forest fires occur annually, such support measures can be envisaged)

6. Protection of drinking water sources (especially the sources from which settlements are supplied with drinking water).

transfer of decisions between relevant stakeholders

2. If the proposed actions are intended to support the development of SMEs, they may fall within the thematic scope of measure 1.1.1 of the TSIM.

3. If the proposed actions are intended to support the development of SMEs, they may fall within the thematic scope of measure 1.1.1 of the TSIM.

4. If the proposal is presented and justified as separate actions of a multisectoral and integrated joint project for tourism development, it may fall within the thematic scope of measure 1.2.1 of TSIM.

5. If the proposal is presented and justified as separate actions of a multisectoral and integrated joint project for tourism development, it may fall within the thematic scope of measure 1.2.1 of TSIM.

6. If the protection of water sources is presented and justified as a group of actions of a multisectoral and integrated joint project for tourism development, it may fall within the thematic scope of

(Explanation: In the special forest management / management plans for several years we exclude forests that are adjacent to sources of drinking water to protect springs. However, due to lack of financial resources, no additional protection measures can be envisaged. If such a measure is envisaged, non-governmental organizations, local authorities and others will be eligible applicants for it in order to protect these water sources.)

7. Support for the development of beekeeping.

(Explanation: Given that there are many beekeepers in the Maleshevo region who produce mountain and forest honey, I believe that such a measure should be provided to support this industry, which is currently occupied mainly by residents of mountain villages. : The Forest Act includes provisions allowing the placement of bee colonies in state forest lands free of charge.)

8. Support for construction of facilities for hunting and protection of wild animals

(Explanation: Hunting facilities are temporary facilities used to support animals during drought and in winter with water and food. In general, concessionaires, due to lack of funds, cannot build such facilities. The inclusion of such a measure will have direct contribution to the conservation of wild animals.)

measure 1.2.1 of TSIM. As a general rule, and given the narrow thematic concentration of the program (legal restrictions apply) and its limited budget, all funded projects must address the territorial challenges identified in the program and in the TSIM.

7. If the proposal is presented and justified as a group of actions of a multisectoral and integrated joint project for the development of SMEs, it may fall within the thematic scope of measure 1.1.1 of TSIM.

8. As wildlife conservation, albeit with the exception of hunting practices, aims to protect wild species and their habitats in order to maintain healthy species or wildlife populations and to restore, protect or enhance natural ecosystems, we consider wildlife policy fully applicable within the scope of Policy Objective 2, specific objective (iv), if it generates positive effects on improving environmental permeability. Therefore, the recommendation is already reflected in the ITS.

9. As a general rule, and taking into account the narrow thematic concentration

	<p>9. Organizing actions for afforestation of bare and grass areas. (This activity refers to activities to protect the land from erosion and can be organized as a joint activity on both sides of the border.). The above points are important for the population of these planning areas as well as for biodiversity.</p>	<p>of the program (legal restrictions apply) and its limited budget, all funded projects must address the territorial challenges identified in the program and in ITS. If the proposal aims to support the creation of new or upgrading of existing green infrastructure, it may fall under Policy Objective 2, specific objective (iv), if presented as a separate group of actions of a joint project aimed at improving environmental permeability. in urban and suburban areas or the development of new forms of ecosystem-based services, new tools, instruments, and the transfer of solutions between relevant stakeholders</p>
<p>Institute of Public Health of the Republic of North Macedonia August 23, 2021 - by e-mail</p>	<p>1. Indication of the source of information (with references) on the findings of the document - and specifically which sources were used to determine the risk to the environment (noise and air pollution), diseases, direct and indirect health effects - which are the most common among the population of the region?</p> <p>2. The described methodology that will be used in the EAR to determine the risks to the environment and the impacts on the health of the population is not convincing, given the fact that the country lacks many data and indicators for health risk assessment. It needs to be explained in the Guide.</p> <p>Using only available statistics will not be enough, a targeted study should be carried out to assess health risk.</p>	<p>Under item 1. Implemented in EAR.</p> <p>Under item 2: Item 9 of the EAR describes the methodology used. The Terms of Reference present information only on the manner of performing the assessment of the state of human health and the population at the moment (as part of item 2 of the EAR - current state). The terms of reference aim to provide a framework for the scope and content of the EAR and is not detailed as a document. The actual assessment of the impact of CBCP and TSIM on the population and human health</p>

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		was performed in item 3 and in detail - in item 6 of the EAR in respect of all components and environmental factors, incl. human health. The assessment was prepared according to the level of detail of the CBCP and TSIM, in accordance with the requirements of Directive 2001/42 / EU and the official guidelines and guidelines.
Institute of Ecology and Technology	No opinion received	
NGOs from the northeastern, eastern and southeastern planning regions	No opinion received	

13. Non-technical summary of the environmental assessment

The non-technical summary of the EAR has been prepared as a stand-alone document, presented in **Annex № 3** of the EAR.

14. Annexes to the environmental assessment report

- 1) Tabular list of the experts and the head prepared the Report for ecological assessment, in which each expert has certified with signature the sections of the report and declarations of the experts, developed by him, according to the requirements of art. 16, para. 1 of the EA Ordinance;*
- 2) 2) Copies of all opinions received as a result of the consultations on the terms of reference for the scope and content of the Environmental Assessment Report within the EA procedure;*
- 3) 3) Non-technical summary of the Environmental Assessment Report.*