



HELLENIC REPUBLIC

Ministry of Development & Competitiveness

PROJECT:

“Consultant for:

i) the Ex-ante Evaluation

ii) the Strategic Environmental Assessment

of the European Territorial Cooperation Programme Greece – Bulgaria 2014-2020”

**Study for the Strategic Environmental Assessment (SEA)
of the European Territorial Cooperation Programme
Greece – Bulgaria 2014-2020**

3rd DELIVERABLE



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THESSALONIKI

September 2014



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SEA Implementation:



OMIKRON LTD

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1 A NON-TECHNICAL SUMMARY

Programme Eligible Area

The present study aims on Strategic Environmental Assessment (SEA) of the Cross Border Cooperation Operational Programme, Greece – Bulgaria for the period 2014-2020. The area of the cross-border cooperation includes the Region of Eastern Macedonia-Thrace (Regional Units of Kavala, Rodopi, Xanthi, Drama, and Evros) and the Region of Central Macedonia (Regional Units of Thessaloniki and Serres) in Greece and the South-Central Planning Region and South-West Planning Region (Districts of Kardjali, Smolyan, Haskovo and Blagoevgrad) in Bulgaria.

The Programme area is characterized by a varied natural environment, ranging from continental, Mediterranean and alpine zones. The area is densely forested and offers habitat to numerous species including large mammals. Natural resources and biodiversity are protected within a dense network of protected areas (86 NATURA 2000 sites, 1 UNESCO World Heritage, 8 National Parks, 6 Wetlands of international Interest and numerous Important bird sanctuaries). Additionally many flora and fauna species naturally occurring in the area are classified as “threatened” by the IUCN.

Agriculture, industry, urban activities, transportation and large hydraulic constructions are the largest environmental threats. These activities are concentrated in the coastal zone and on the northern side of the Rhodopes Mountain. The rivers of the area (Struma/Strymon, Mesta/Nestos, Maritsa/Evros-Ardas) are important elements for nature and humans but also cause natural disasters due to natural phenomena but also due to human interventions.

In the following table a strategic overview of the trends and the likely evolution of the main environmental issues, as it came out through the elaborated strategic environmental assessment of the Programme, is outlined and the necessity of cross-border intervention is justified.

**«Consultant for the Ex-ante Evaluation and the Strategic Environmental Assessment of the
European Territorial Cooperation Programme Greece – Bulgaria 2014-2020»**

Environmental Issues	Trend and likely evolution	Cross-border cooperation Justification
<u>Biodiversity, Fauna and Flora</u>	<ul style="list-style-type: none"> The protection status for the natural environment will contribute to the protection of fauna, flora, biodiversity and natural habitats. Transport networks, land-take (encroachment) and agriculture are expected to have rising impacts. 	<ul style="list-style-type: none"> Cooperation between management bodies of protected areas and other stakeholders in sites' protection and promotion and conduction of cross-border environmental assessments can improve the protection of the environment
<u>Human health and population</u>	<ul style="list-style-type: none"> Disturbance due to road transport is expected to rise, especially along the main axes. Flood disasters along major river systems will periodically reoccur and forest fires are also a major threat. The dimension of impacts on population and infrastructures will arise due to global climate change. 	<ul style="list-style-type: none"> Promotion of monitoring stations, provision of alternatives to road transport and development of service economy could assist in improving air quality on a cross-border level. Development of alternative transport modes and promotion of public transport could limit negative effects. Effective flood management and integrated water management systems should be implemented on a cross-border level. Protection and prevention of fire risk and activation of volunteering and local civil protection teams must be promoted across borders.
<u>Soil</u>	<ul style="list-style-type: none"> Soil is in general in good condition. Agriculture and industry are constant threats. However, the implementation of the new CAP poses new opportunities such as organic agriculture. 	<ul style="list-style-type: none"> Development of cross-border networks and markets for organic products and promotion of tourism oriented services can provide incentives for extensive and biological agriculture and the relief of the soil and subsoil.
<u>Water</u>	<ul style="list-style-type: none"> Groundwater and surface water can be designated as of incomplete to good status. Cross-border rivers Nestos and Evros are polluted with urban and industrial effluents. The adoption of related EU Directives will further improve this situation. Nevertheless improvements can be effective if coordinating actions on the upper and lower part of the rivers had been taking place. 	<ul style="list-style-type: none"> Main rivers flowing across the area are transboundary. Bilateral agreements and monitoring systems are required to guarantee mutual adaptation to the norms and requirements. Cross-border cooperation should be used to secure the coordination of investments in infrastructure.
<u>Air, climatic factors</u>	<ul style="list-style-type: none"> Quality of air is generally good. High pollution levels occurred in sites of industrial or extractive-mining activities but they are of limited impact. Emissions due to transport and consumption patterns are expected to rise. Centers such as Thessaloniki and Kavala will be especially affected. 	<ul style="list-style-type: none"> The promotion of monitoring stations, the provision of alternatives to road transport and the development of service economy could assist in improving air on a cross-border level.
<u>Landscape, cultural heritage</u>	<ul style="list-style-type: none"> Land use and land taking will be intensified, development of tourism activities will be strengthened and cultural heritage will be further enhanced as one of the regional assets to be extensively promoted. Some uses are contradictory and conflicts along with damages on the landscape can be expected. 	<ul style="list-style-type: none"> Promotion of sustainable and alternative (ecological and cultural) tourism can be addressed as a single product for the entire area, hence increasing the sensibility for the development value of landscape and cultural heritage. Creation and promotion of synergies through networking and cooperation between the public and private sectors can increase the added value of areas

Description of the Programme “Greece-Bulgaria 2014-2020”

The Programme is designed to address the main challenges in the cross-border area identified by the diagnostic report of the Expert Consultant on the Programme’s preparation. Collaboration is either necessary or is expected in order to produce significant added value. Programme is formulated into the following four priority axes and nine thematic objectives.

❖ Priority Axis 1: A competitive and Innovative Cross-Border area

Thematic objectives:

- Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators
- Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes

❖ Priority Axis 2: A Sustainable and climate adaptable Cross-Border area

Thematic objectives:

- Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems
- Conserving, protecting, promoting and developing natural and cultural heritage
- Protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including NATURA 2000 and green infrastructures
- Promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector, soil protection or to reduce air pollution.

❖ Priority Axis 3: A better interconnected Cross- Border area

Thematic objectives:

- Enhancing regional mobility by connecting secondary and tertiary nodes to TEN-T infrastructure, including multimodal nodes.
- Developing and improving environmentally-friendly (including low-noise) and low-carbon transport systems, including inland waterways and maritime transport, ports, multimodal links and airport infrastructure, in order to promote sustainable regional and local mobility.

❖ Priority Axis 4: A socially inclusive Cross-Border area

Thematic objective:

- Investing in health and social infrastructure which contribute to national, regional and local development, reducing inequalities in terms of health status, promoting social inclusion through improved access to social, cultural and recreational services and the transition from institutional to community-based services.

❖ Priority Axis 5: Technical Assistance

Programme's Relationship with the EU thematic environmental strategies

Relationship of the Programme with the current EU thematic environmental strategies was also studied.

Strategies for biodiversity

- Directive 92/43/EEC about “the conservation of natural habitats and of wild fauna and flora”
- Directive 2009/147/EC about “the conservation of wild birds”, as codified by Directive
- An EU biodiversity strategy to 2020

Strategies for human health and population

- EU's strategy for sustainable development
- Strategies for dealing with natural disasters
- Directive 2007/60/EC «on the assessment and management of flood risks»
- Forest EU Strategy: for forests and the forest-based sector

Strategies for soil

- EU's thematic strategy for soil protection

Strategies for water

- Directive 2000/60/EC "establishing a framework for the Community action in the field of water policy"
- Directive 2008/56/EC “establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)”

Strategies for air

- EU's thematic strategy on air pollution
- Directive 2008/50/EC "on ambient air quality and cleaner air for Europe"

Strategies for the climate factors

- EU's strategy on adaptation to climate change

Studying all the above it is obvious that Programme's priority axes and thematic objectives are in coherence with the existing European environmental policies.

Programme's environmental impact assessment – Presentation of proposals for impacts' prevention, reduction and response

From the impact assessment of this Programme the following results per priority axes came out. About all identified adverse impacts aroused from the implementation of the foreseen priority axes of the Programme, proposals for their prevention, reduction and response will also be presented.

❖ Priority Axis 1

Results of Priority axis 1 primarily concern the socio-economic features of the eligible area. In this issue, the overall effect of this priority axis is assessed as positive.

Priority axis 1 is not expected to have a primary effect on the natural environment. However impact on natural environment cannot be excluded if the benefited businesses are located in ecological sensitive areas, without taking all appropriate measures for environmental protection, restoration and monitoring and without compliance with the existing legal provisions on using natural resources.

Implementation of eligible actions of this Axis requires compliance with the existing environmental legislation of each country (where appropriate) on environmental permissions, approval and maintenance of any required specific environmental conditions and also preparation and approval of all required environmental studies.

It should be noted that:

- this axis, during evaluation and selection of eligible projects, could promote and strengthen business activities with environmentally friendly production processes, cooperation of businesses on adopting new technologies (industrial emission control facilities) and improving their environmental character;
- for strengthening businesses competitiveness, aid actions for participation in eco-management and audit schemes (EMAS) or adoption of certifications (ISO) by companies could be provided. These actions also provide improvement of their environmental performance, while also improving their market image.

❖ Priority Axis 2

Priority axis 2 is expected to have positive effects on protection of flora and fauna species from any threats they face and any potential risks. Positive effects are also expected from networking collaboration and efficient management of the protected areas, especially those of the NATURA 2000 network.

Impacts may occur if projects for protection and improvement of natural environment will be implemented without taking all appropriate precautions to reduce any disturbances to the natural environment. However these impacts are considered to be weak and negligible.

Implementation of eligible actions of this Axis requires compliance with the existing environmental legislation of each country (where appropriate) on environmental permitting and approval and maintenance of any required specific environmental conditions and also preparation and approval all required environmental studies.

Considering the implementation of this priority axis and thematic objectives it should be noted that focusing on common rules and standards for protection and upgrading and integrated management of transnational environmental resources of high regional importance will improve the Programme's results and contribute effectively to its objectives' achievement. Creation and operation of partnership networks of private and public actors will contribute additional benefits towards this direction. Assistance to this will be also provided by voluntary groups for preventing and dealing with natural disasters.

❖ Priority Axis 3

Actions for transportation improvement are expected to positively contribute to the stimulation and trade of commercial activities as well as the strengthening between the two countries.

Priority axis 3 is not expected to primarily affect the natural environment. However impacts on biodiversity cannot be excluded if interventions locate in ecological sensitive areas, without taking all appropriate measures for protection or restoration of the environment.

Implementation of eligible actions of this Axis requires compliance with the existing environmental legislation of each country (where appropriate) on environmental permissions and approval and maintenance of any required specific environmental conditions. In these cases preparation of all required studies (studies for environmental assessment, congestion studies etc) ensures compatibility with the environmental legislation.

❖ Priority Axis 4

Implementation of priority axis 4 is not expected to cause adverse environmental impacts.

❖ Priority Axis 5

Priority axis 5 is a tool for enhancing management and operational structures of the Programme. Its implementation is not expected to have any immediate impact on the external environment of the Programme.

2 GENERAL INFORMATION

2.1 DESIGN AUTHORITY OF THE PROGRAMME - INFORMATION OF THE PLAN AND THE STUDY – IMPLEMENTING TEAM OF THE STUDY FOR SEA

Programme Name

EUROPEAN TERRITORIAL COOPERATION PROGRAMME GREECE-BULGARIA
2014-2020

Design authority – Implementing body

Managing Authority of European Territorial Cooperation Programmes - Ministry of
Development & Competitiveness

The Managing Authority of European Territorial Cooperation Programmes, located in Thessaloniki, represents Greece in “European Territorial Cooperation” Programmes.

The Managing Authority of European Territorial Cooperation Programmes is an integral part of the Greek Ministry of Development & Competitiveness. Actually, it is that part of the Ministry that pays attention to the wider Hellenic neighborhood, Southeastern Europe and the Mediterranean Sea, as well as the whole of Europe, in order to build and strengthen bilateral cross-border and transnational ties and focus on a balance development on European level.

IMPLEMENTING TEAM OF THE STUDY FOR SEA

The responsibility of writing the present study of strategic environmental assessment (SEA) has the company

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This study for SEA is preparing in the context of project "Consultant for: i) the Ex-ante Evaluation, ii) the Strategic Environmental Assessment of the Cross Border Cooperation Operational Programme, Greece – Bulgaria 2014-2020".

2.2 PROCESS OF SEA

The strategic environmental assessment (SEA) is a procedure used for the assessment of environmental impacts of certain plans and programmes, which has been adopted at European level by Directive 2001/42/EC (hereinafter referred as SEA-directive) "on the assessment of the effects of certain plans and programmes on the environment".

The objective of the SEA Directive is to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development (Article 1).

The SEA-directive implementation requires preparation of a study for strategic environmental assessment (SEA) which defines, describes and evaluates the significant direct and indirect effects of implementing a plan or programme in humans, flora and fauna, soil, water, air, climate, landscape, cultural heritage and material assets, as well as the synergy between these factors.

It becomes clear that the process for SEA provides the means to integrate environmental issues during decision-making ensuring that all significant environmental impacts of human actions and initiatives are taking account during planning and programming.

The SEA process according to the SEA-directive and the guidelines for the ex ante evaluation of cohesion policy for the programming period 2014-2020, includes the following steps:

1. Elaboration of study for Strategic Environmental Assessment (SEA)
2. Consultations
3. Taking account of the environmental report and the results of consultations while making decisions and providing information about the approval.
4. Development of a monitoring system
5. Revision of the Programme (if necessary)

Based on Articles 5 and 8 and Annex I of the SEA-directive for a Programmes's environmental assessment and elaboration of a study for Strategic Environmental Assessment, preparedness of an environmental report is necessary which includes information about:

- the contents and level of detail in the Programme;

- the geographical scope of the Programme;
- a description of the methods of assessment;
- the likely significant effects on the environment of implementing the Programme;
- reasonable alternatives taking into account the objectives;
- mitigation measures for likely negative significant environmental effects;

In the Article 5 par. 1 and 2 of the SEA-directive all necessary information a study for SEA must give is listed. In particular:

- the likely significant effects on the environment of implementing the Programme, and reasonable alternatives taking into account the objectives and the geographical scope of the Programme, are identified, described and evaluated. The information to be given for this purpose is referred to in Annex I of the SEA-directive.
- the information that may reasonably be required taking into account current knowledge and methods of assessment, the contents and level of detail in the Programme, its stage in the decision-making process and the extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment.

The draft Programme and the environmental report prepared are made available in the course of consultations, in accordance with Articles 6 and 7 of the SEA-directive, to the authorities, the public and neighboring Member States that are likely to be affected by the environmental impacts.

The environmental report and all opinions expressed during consultations should be taken into account during the preparation of the final operational Programme.

According to the Article 10 of the SEA-directive, member states shall monitor the significant environmental effects of the implementation of plans and programmes in order to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action.

In this environmental report, the above mentioned elements will be described in the following main chapters:

- Main Objectives and Content of the Programme, outlining the thematic and specific objectives provided in the Programme and its content;
- Scoping and Method of Assessment, defining the area, the time and setting the frame for the environmental assessment and modeling and estimation of reasonable alternatives;
- Wider Environmental Objectives, bringing the Programme in perspective to EU, national, regional and local environmental objectives and regulations;

- Current Condition, giving a picture of the current environmental condition and the expected trends in case the Programme is not implemented;
- Assessment of likely significant environmental effects and proposals in order to as fully as possible offset any significant adverse environmental impacts;
- Monitoring system for the implementation of the Programme and its environmental impacts including studying the current monitoring system for the implementation of the Programme and making eventual proposals of new indicators in the monitoring system;
- Environmental assessment method and the difficulties of this;
- Public Consultations, describing the public discussion on the study for the SEA of the Programme;

The present study was elaborated according to the SEA-directive and its structure and content is in coherence with the structure defined in “1st Deliverable of the Strategic Environmental Assessment of the Cross Border Cooperation Operational Programme, Greece – Bulgaria 2014-2020”.

2.3 DELIMITATION OF THE PROGRAMME REFERENCE AREA

The reference area of the territorial cooperation Programme includes:

- in Greece
 - the Region of Eastern Macedonia-Thrace (Regional Units of Kavala, Rodopi, Xanthi, Drama, and Evros) and
 - the Region of Central Macedonia (Regional Units of Thessaloniki and Serres)
- in Bulgaria
 - the South-Central Planning Region and South-West Planning Region (Districts of Kardjali, Smolyan, Haskovo and Blagoevgrad).

2.4 GENERAL DESCRIPTION OF OPERATIONAL PROGRAMME

The Programme is designed to address the main challenges identified by the diagnostic report in the cross-border area where collaboration is either necessary or is expected to produce significant added value.

It was formulated into five priority axes and nine thematic objectives. The thematic cooperation priorities of the present Programme were identified through a multi-criteria analysis and the consideration of Strategic Guidelines coming from other programming levels (Commission Recommendations, Partnership Agreements, etc.).

The present Programme addresses challenges in five thematic objectives of Europe 2020:

- Enhancing the competitiveness of SMEs;
- Promoting climate change adaptation, risk prevention and management;
- Preserving and protecting the environment and promoting resource efficiency;
- Promoting sustainable transport and removing bottlenecks in key network infrastructures;
- Promoting social inclusion and combating poverty and discrimination.

A presentation of the Programme's priority axes and thematic objectives and their budget is given below (Table 1), based on the Draft of the Operational Programme submitted on August 2014.

❖ **Priority Axis 1: A competitive and Innovative Cross-Border area**

- Thematic objective 3a Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators
- Thematic objective 3d Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes

❖ **Priority Axis 2: A Sustainable and climate adaptable Cross-Border area**

- Thematic objective 5b Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems
- Thematic objective 6c Conserving, protecting, promoting and developing natural and cultural heritage
- Thematic objective 6d Protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including NATURA 2000 and green infrastructures
- Thematic objective 6f Promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector, soil protection or to reduce air pollution.

❖ **Priority Axis 3: A better interconnected Cross- Border area**

- Thematic objective 7b Enhancing regional mobility by connecting secondary and tertiary nodes to TEN-T infrastructure, including multimodal nodes.
- Thematic objective 7c Developing and improving environmentally-friendly (including low-noise) and low-carbon transport systems, including inland waterways and maritime transport, ports, multimodal links and airport infrastructure, in order to promote sustainable regional and local mobility.

❖ **Priority Axis 4: A socially inclusive Cross-Border area**

- Thematic objective 9a Investing in health and social infrastructure which contribute to national, regional and local development, reducing inequalities in terms of health status, promoting social inclusion through improved access to social, cultural and recreational services and the transition from institutional to community-based services.

❖ **Priority Axis 5: Technical Assistance**

Table 1. Overview of the investment strategy of the Programme

Priority Axis	Thematic objective		Programme Budget			
PA 1: A competitive and Innovative Cross-Border area	3a	Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators	10.375.646 €	8,00%	20.751.291 €	16,00%
	3d	Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes	10.375.646 €	8,00%		
PA 2: A Sustainable and climate adaptable Cross-Border area	5b	Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems	14.157.380 €	10,92%	42.553.117 €	32,81%
	6c	Conserving, protecting, promoting and developing natural and cultural heritage	13.428.868 €	10,35%		
	6d	Protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including NATURA 2000 and green infrastructures	8.248.638 €	6,36%		
	6f	Promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector, soil protection or to reduce air pollution.	6.718.230 €	5,18%		
PA 3: A better interconnected Cross-Border area	7b	Enhancing regional mobility by connecting secondary and tertiary nodes to TEN-T infrastructure, including multimodal nodes.	31.299.573 €	24,13%	34.200.721 €	26,37%
	7c	Developing and improving environmentally-friendly (including low-noise) and low-carbon transport systems, including inland waterways and maritime transport, ports, multimodal links and airport infrastructure, in order to promote sustainable regional and local mobility.	2.901.148 €	2,24%		
PA 4: A socially inclusive Cross-Border area	9a	Investing in health and social infrastructure which contribute to national, regional and local development, reducing inequalities in terms of health status, promoting social inclusion through improved access to social, cultural and recreational services and the transition from institutional to community-based services.	24.408.706 €	18,82%	24.408.706 €	18,82%
PA 5: Technical Assistance		Technical Assistance	7.781.734 €	6,00%	7.781.734 €	6,00%
Total			129.695.569 €	100%	129.695.569 €	100%

3 MAIN OBJECTIVES AND CONTENT OF THE PROGRAMME

The Programme is designed to address the main challenges identified by the diagnostic report in the cross-border area where collaboration is either necessary or is expected to produce significant added value by either capitalizing on past results, or by being complementary to mainstream Programmes and the “smart specialization” strategies, or by exploiting existing institutional capacities and/or expressed demand. It contributes to E2020 strategy as follows.

With respect to the “smart growth” objective by:

- strengthening the business fabric of the CB area and especially by promoting productivity improvements, export-orientation and the introduction of new products with a special focus on sectors identified by the “smart specialization” strategies;
- promoting innovation at all levels;
- promoting resource-efficiency;
- exploiting the comparative advantages offered by the rich and diverse cultural and natural resources for promoting economic development (tourism);
- supporting integration and efficient use of CB transport systems.

With respect to the “sustainable growth” objective by:

- increasing the ability of the CB area to adapt to climate change;
- reducing CB natural and man-made risks and enhancing the response capabilities of local stakeholders;
- preserving cultural and natural heritage;
- protecting and restoring biodiversity and the health of eco-systems;
- reducing the environmental footprint of transport activities in the CB area.

With respect to the “inclusive growth” objective by:

- enhancing CB connectivity and hence CB mobility;
- promoting “access for all” to health care;
- supporting employability especially for the most vulnerable groups;
- developing social entrepreneurship.

The Programme will be implemented through priority axes and thematic objectives as described below.

Priority Axis 1: A competitive and Innovative Cross-Border area
<i>Thematic objective 3a. Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators</i>

Specific objective

Create facilities and capacities to support sustainable entrepreneurship with a cross-border dimension

Types of Actions:

- Improvement/modernization of business-hosting facilities such as business incubators, technology parks, etc and business support facilities such as market places, exhibition halls, outlets, depots and logistics centers, laboratories or other technological installations, etc.
- Development of business support services such as ICT systems (e.g. web-platforms), business consulting, etc to support cross-border economic activity.
- Development of services fostering productivity such as business-specific training Programmes and actions facilitating the introduction of new techniques and technologies into the production process (such as transfer of intellectual property rights, technology transfer, introduction of organizational innovation, etc.)
- Productive priority areas include:
 - Agro-food industry
 - Waste management for recycling or energy production
 - Renewable energy and energy saving and efficiency
 - Sustainable tourism

<p><i>Thematic objective 3d Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes</i></p>
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Specific objective

Expand cross-border economic activity, innovation and ex-changes through the support of SME growth

Type of actions:

- Creation of clusters or other types of “networks” (e.g. “value-chains”) for the achievement of cost-savings, common research and product development, common export promotion, etc.
- Collaboration schemes between businesses and non-businesses (e.g. museums) for the tourism/culture area - such as accommodation facilities, convention centers, manufacturing businesses, transport facilities, cultural facilities, etc – in order to introduce integrated tourist destinations in the cross-border area, branding of areas, etc.
- Development and test control systems for branding of “green”, and “traditional” products respecting and promoting the CB area cultural and natural heritage.

- Joint R&D activities to benefit the local production system with a cross-border dimension, such as cross-border collaboration between businesses or business/Research Institutes/Lab schemes, R&D activities for more than one stakeholders, e.g. for a cluster, etc
- Support for intellectual property right development (e.g. patents for new products or new technologies developed through joint research undertaken by collaborating CB businesses or business/R&D institution/Lab collaboration schemes)
- Joint or common (horizontal) export support services for CB businesses (e.g. participation to exhibitions and business-promotion events).
- Cross-border business-plans with pilot applications for individual businesses and/or sectors/sub-sectors in the areas of:
 - Cross-border trade
 - Establishment of new cross-border “business organization models” (e.g. contract farming, “modular production networks”, etc)
- Productive priority areas include:
 - Agro-food industry
 - Waste management for recycling or energy production
 - Renewable energy and energy saving and efficiency
 - Sustainable tourism

Priority Axis 2: A Sustainable and climate adaptable Cross-Border area

Thematic objective 5b Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems

Specific objective

Reduce impacts from disasters

Type of actions:

- Strategies and action plans
- Adaptation/mitigation pilot actions (for specific risks) with positive mitigation effects: e.g. conservation/rehabilitation of peatland, “buffer zones”, innovative methods/technologies, etc.
- Capacity-building actions such as:
 - Actions for building up a common knowledge base: data observation/processing capacities, mechanisms for the exchange of information and early warnings, joint risk prevention and emergency response plans, etc;

- ICT tools such as Geographic Information Systems (GIS), detection and monitoring systems, alert systems, risk mapping and assessment systems, etc;
- Harmonized action plans and standards in the CB area (including common definitions of emergencies and stages of alert) for better forecasting and managing natural disasters;
- Training/educational support to enhance stakeholder (including volunteers) capacity in emergency response.
- Risks and disaster management actions for specific cross-border risks such as:
 - Investment in risk prevention and management (including small-scale infrastructure and small-scale construction works), including pilot actions;
 - Land improvements for areas with high and medium hazard risk level.
- Priority areas include:
 - weather-related risks of a cross-border nature (such as flooding, extreme temperature events, and forest fires);
 - industrial risks or accidents of a cross-border nature.

<p><i>Thematic objective 6c <u>Conserving, protecting, promoting and developing natural and cultural heritage</u></i></p>

Specific objective

Valorise CB area cultural and natural heritage

Types of Actions:

- Capacity-building actions such as:
 - knowledge transfer and exchange of good practices in the area of preservation of natural and cultural heritage;
 - joint development and pilot testing of innovative techniques in the area of cultural heritage preservation, including training;
- Rehabilitation/protection of cultural assets of cross-border significance (all structures rehabilitated under this action will be required to be accessible to people with disabilities); rehabilitation/protection of natural assets of cross-border significance; small infrastructure interventions necessary for ensuring accessibility of sites.
- CB area-wide cultural initiatives such as:
 - joint events/actions promoting cultural identity and enhancing the awareness of CB area cultural heritage;
 - youth cross-border exchanges;

- cross-border exchanges of cultural events (including art and archaeological exhibitions).
- actions to re-invent/preserve traditional jobs.

Thematic objective 6d Protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including NATURA 2000 and green infrastructures

Specific objective

Enhance the protection of CB area ecosystems

Types of Actions:

- Development of CB frameworks and platforms for the interoperability of existing databases and the integration of management approaches (hazard and risk assessment, planning methodologies, management plans, sustainability assessments, etc.);
- Development of joint strategies & procedures (and pilot applications of such) for sustainable management of resources, for the development of green infrastructure, for biodiversity protection, for landscape management and for the establishment of green corridors;
- Development (and pilot application) of joint negotiation, mediation, participation and conflict resolution models in the context of land use management with a view to protecting biodiversity;
- Design risk assessment & management models and strategies for CB protected areas;

Thematic objective 6f Promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector, soil protection or to reduce air pollution.

Specific objective

Enhance the capacity of the CB area to effectively protect the environment and use resources sustainably

Types of Actions:

- Development of CB frameworks and platforms for the interoperability of databases and the integration of management approaches in the areas of water management (pollution control and efficient use) and soil management (including contaminated lands);
- Development of CB eco-innovation partnerships and participation in European Innovation Partnerships in the areas of water management (pollution control and efficient use) and soil management (including contaminated lands);
- Pilot applications or mainstreaming of existing innovative methods/technologies in the areas of water management (pollution control

and efficient use) and soil management (including contaminated lands) and joint development of new methods;

- Promoting “green behavior” campaigns in the areas of water and soil management.

Priority Axis 3: A better interconnected Cross- Border area

Thematic objective 7b Enhancing regional mobility by connecting secondary and tertiary nodes to TEN-T infrastructure, including multimodal nodes.

Specific objective

Improve accessibility of the CB area

Types of Actions:

- Construction of new or upgrading of existing infrastructure and construction works of CB importance especially through the completion of gaps in the TEN-T network and the existing secondary and tertiary network connected to it;
- Construction of new or upgrading existing complementary infrastructures and connections;
- Planning for logistics centers, multimodal nodes etc

Thematic objective 7c Developing and improving environmentally-friendly (including low-noise) and low-carbon transport systems, including inland waterways and maritime transport, ports, multimodal links and airport infrastructure, in order to promote sustainable regional and local mobility.

Specific objective

Improve transportation environmental impact

Types of Actions:

- Transport investments aiming at reducing the environmental footprint of transport activities (including transport services);
- Development and introduction of transport monitoring systems (targeting passenger and/or goods mobility, infrastructure state-of-repairs, etc) and intelligent transport systems for goods and passengers;
- Development of new technologies/methods for the design and implementation of environment-friendly transport infrastructures and systems.

Priority Axis 4: A socially inclusive Cross-Border area

Thematic objective 9a Investing in health and social infrastructure which contribute to national, regional and local development, reducing inequalities in terms of health status, promoting social

inclusion through improved access to social, cultural and recreational services and the transition from institutional to community-based services.

Specific objective

a) Improve access to high-quality health services in the CB area

Types of Actions:

- Support centers of reference (for health threats, rare diseases, organ donation) and develop joint cross-border plans and principles for the sharing of human and information resources;
- Promote cooperation between healthcare authorities by implementing the shared use of resources and expertise in the cross-border healthcare provision wherever added value can be achieved;
- Support to renovation and equipping of existing and new primary health care practices in CB areas with serious limitations in access to primary health care;
- Development of cross-border mobile services, telemedicine and telecare infrastructure will be supported, in order to alleviate the local lack of healthcare workers;

Specific objective

b) Increase the capacity of social enterprises in the CB area

Types of Actions:

- Support for the establishment and provision of operational support to Social Enterprises that offer innovative solutions, promote inclusive CB labor markets and social services accessible to all in the CB area;
- Support for social franchising which is the cross-border transfer of a social enterprise business model from one side of the border to the other.
- Support for the development and implementation of methodologies for monitoring and evaluation of social, economic and environmental impacts of social economy in the CB area.

Priority Axis 5: Technical Assistance

4 ELIGIBLE AREA AND METHODOLOGY FOR SEA

4.1 SCOPE

The geographic area of the present study, for which the current state of the environment, the trends and the possible positive or negative effects of the objectives, priorities and proposed measures will be assessed, coincides with the reference area of the territorial cooperation Programme Greece-Bulgaria.

In particular, the scope area of the SEA extends in 40.202 km² and had a population of 2.79 million residents in 2012 compared with 2.82 million in 2008¹. In particular, the area of the cross-border cooperation includes the Region of Eastern Macedonia-Thrace (Regional Units of Kavala, Rodopi, Xanthi, Drama, and Evros) and the Region of Central Macedonia (Regional Units of Thessaloniki and Serres) in Greece and the South-Central Planning Region and South-West Planning Region (Districts of Kardjali, Smolyan, Haskovo and Blagoevgrad) in Bulgaria (Picture 1).



Picture 1. Eligible area of the European Territorial Cooperation Programme Greece–Bulgaria 2014-2020” (Reference: www.interreg.gr)

The cross-border cooperation area, stretches from the Bulgarian border with the Former Yugoslav Republic of Macedonia to the West, to the valley of river Evros (Maritsa) to the East, and the Thracian plains to the North. The area includes the

¹ CONSULTANT – TECHNICAL ASSISTANT FOR THE SUPPORT DURING THE PREPARATION OF THE CROSS-BORDER OPERATIONAL PROGRAMME GREECE-BULGARIA 2014-2020 – Diagnostic Report, 2014

Rila, Pirin and Rhodope mountains, characterized by stunning woodland and a great potential for tourism development. The rivers Strimon (Struma), Nestos (Mesta), Arda (Arda) and Evros (Maritsa) run through the area and numerous lakes exist.

The period for which trends and positive or negative effects of the objectives, priorities and proposed measures will be assessed coincides with the programming period, meaning 2014-2020, and beyond of it, until the year in which most of the projects financed by the Programme should ultimately be implemented.

4.2 ANALYSIS OF METHODOLOGICAL APPROACH OF THE MAIN TOPICS OF THE SEA

The Strategic Environmental Assessment (SEA) is a process of assessment of the environmental impacts of certain plans and Programmes, which has been institutionalized at a European level by the Directive 2001/42/EC of the European Parliament and the Council of 27 June 2001 «on the assessment of the effects of certain plans and Programmes on the environment».

The basic information required to carry out a strategic environmental impact assessment under the SEA-directive is the **determination of the scope** (article 3) which seeks to identify the relevant geographical area, time period which will reflect the trends and effects and, also, to identify the relevant environmental issues, which need to be considered in the context of SEA. In addition, **a method for assessing impacts and a method for setting and assessing reasonable alternatives** is establishing. According to the directive, consultation with the competent authorities for the environment must be provided.

The implementation of the Directive in the Member States requires the preparation of a study of strategic environmental assessment (SEA) which defines, describes and assesses the significant direct and indirect impacts of the implementation of a plan or Programme in humans, flora and fauna, soil, water, air, climate, landscape, cultural heritage and material assets, as well as the interaction among these factors.

It becomes clear that the SEA process provides the means to integrate environmental issues during decision-making ensuring that the significant environmental impacts of human actions and initiatives have been considered in the planning and programming level.

The preparation of ex ante evaluation and the SEA is carried out in accordance with the directives, guidance documents and regulations detailed in the issue of the proclamation. Additionally it will be taken into account:

1. The Guide for monitoring-evaluation of cohesion policy for the ERDF and the Cohesion Fund (April 2013).
2. The Draft Text of the EU for common indicators relating to the ERDF, the CF and the European Territorial Cooperation (September 2012).

3. The «Programming Process 2014-2020: Practical Paper» of INTERACT (February 2013).
4. The "Practical Handbook for Ongoing Evaluation of Territorial Cooperation Programmes" prepared by INTERACT Evaluation Laboratory Group (January 2012).
5. The up-to-date versions of EVALSED.
6. Each relevant document of the Commission or of the Contracting Authority relating to the design and evaluation of Programmes for the period 2014-2020.
7. The EU's cohesion policy for the period 2014-2020
8. The National Partnership Agreement 2014-2020 of the Hellenic Republic.
9. The draft of the National Partnership Agreement 2014-2020 of the Republic of Bulgaria
10. The outline and directives for the content of Programme in the EC (Draft – 7/1/2013).
11. The directives for the performance framework of the EC (Draft – 9/4/2013).

Similar sources that complement the SEA framework are:

1. Guidance on Integrating Climate Change and Biodiversity in SEA, DG Environment 2013
2. Guidance for soil in SEA and EIA, 2011
3. The Guide "to streamline environmental assessment processes for projects of common interest in the energy infrastructure" (DG for Environment and energy Apr. 2013).

The relevant geographical area and the time period which will reflect the trends and effects considered in the context of SEA are determined in section 2.1 of present report. At this point the main environmental issues of the eligible area will be presented and methods for assessing environmental impacts of the Programme and setting and assessing reasonable alternatives will be provided.

4.2.1 Main environmental issues to be considered

In order to evaluate impacts of the projects and actions covered by the operational Programme Greece-Bulgaria, environmental parameters suggested by the Directive 2001/42/EC on "assessment of the effects of certain plans and programmes on the environment" will be used. These parameters are intended to examine and highlight the various issues that may arise from the implementation of the objectives and activities of this Programme. In particular, the impacts of the objectives/eligible actions per priority axis of the operational Programme will be evaluated in relation to the following environmental parameters defined by Directive 2001/42/EC:

- biodiversity (fauna and flora),

- human health and population,
- soil,
- water,
- air,
- climatic factors,
- material assets,
- cultural heritage including architectural and archaeological heritage,
- landscape.

The level of information listed and examined in the SEA will meet the requirements of the SEA-directive, which is generally stating that the environmental report should describe the relevant aspects of the current state of the environment and the potential evolution thereof without implement of the Programme (Annex I, item b). This information is necessary for an understanding of how the Programme could affect the environment of the area and the identification of the basic problems of environmental issues and their possible development in the future.

4.2.2 Assessment method of significant environmental impacts

The assessment consists of a qualitative description of the possible positive effects or impacts caused by the priorities and directions as part of the operational Programme.

The methodical approach is answering the general question: "Are there any significant positive and/or negative effects on environmental issues in the eligible area due to possible actions related with the priorities and specific objectives of the Operational Programme?".

Characteristics of the effects of the area that will be examined, in accordance with the provisions of the directive, are mainly related to:

- ♦ probability, duration, frequency and reversibility of the effects;
- ♦ cumulative nature of the effects;
- ♦ transboundary nature of the effects;
- ♦ risks to human health or the environment (e.g. due to accidents);
- ♦ magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected);
- ♦ value and vulnerability of the area likely to be affected due to:
 - special natural characteristics or cultural heritage;
 - exceed the environmental quality standards or limit values;
 - intensive land-use;

- ♦ effects on areas or landscapes which have a recognized national, community or international protection status.

The impact assessment criteria that will be used in this study are:

- ♦ Type of effects: Positive (+), Neutral (0) or Negative (-)
- ♦ Effects intensity: Weak, Moderate or Strong
- ♦ Time horizon of impacts display: Short-term, Medium-term or Long-term
- ♦ Effects duration: Permanent or Temporary
- ♦ Effects accumulation: Yes or No
- ♦ Effects source: Primary or Secondary
- ♦ Synergy with other factors: Yes or No

Cumulative effects and correlations between environmental issues and environmental topics of interest (such as energy efficiency, risk management, urban development), which are embedded in the specific objectives and priorities of the Programme will be also analyzed. The results of this analysis will be presented in the form of the following matrixes of assessment and summary conclusions in the similar chapter of the SEA study.

Matrix of environmental impact assessment

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora											
Human health and population											
Soil											
Water											
Air											
Climatic factors											
Material assets											
Cultural heritage											
Landscape											

Matrix of summary conclusions

Environmental parameters	Impacts	Brief assessment-Commentary
Biodiversity, Fauna and Flora		
Human health and population		
Soil		
Water		
Air		
Climatic factors		
Material assets		
Cultural heritage		
Landscape		

Based on the structure and content of the cross-border cooperation operational Programme, the examination of impacts will be done at the level of objectives/priorities per priority axis.

4.2.3 Modeling and estimation method of reasonable alternatives

The setting and environmental evaluation of alternative scenarios is a focal point of Strategic Environmental Assessment. In the article 5 of Directive 2001/42/EC about Strategic Environmental Assessment is written that in the event that an environmental impact assessment is required for a purpose, "an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or Programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or Programme, are identified, described and evaluated".

The aim of these alternatives is to detect the future condition of examined parameters and to describe the final situation, meaning the situation following the implementation of proposed measures – works. In any case, the setting of scenarios is based on the assumption that the future is not derived from the evolution of individual parameters, but from the synergy and interaction between many individual parameters related to both present and past.

Any developed alternatives will be assessed taking into account the development perspective and the sustainable management and conservation of natural resources and biodiversity as well as the feasibility of each scenario's measures in the Programme's implementation.

5 WIDER ENVIRONMENTAL OBJECTIVES

In this chapter the relevant environmental goals and regulations established at international, community and national level were identified, in accordance the relevant environmental issues defined by the SEA-directive.

The following overview shows the selected issues and relevant objectives for the Bulgarian and Greek regions that have been considered.

The following reference structure is used:

- European Level: European strategies for environmental protection
- National Level: National Strategic Reference Frameworks for the Republic of Bulgaria and the Hellenic Republic, Regional Operational Programmes of the eligible regions
- Other Sources: European Environmental Agency Reports, NATURA 2000 networks, etc.

5.1 EUROPEAN STRATEGIES FOR ENVIRONMENTAL PROTECTION

It should be noted that different norms and legislation of harmonization with European environmental protection strategies apply on each side of the border. In order to establish a common ground for assessment, references on EU level will be used. The examined strategies correspond to the following key environmental issues: biodiversity (fauna and flora), human health and population, soil, water, air and climatic factors, as listed in point (f) of Annex I of Directive 2001/42/EC and presented in the section 4.2.1 of this (biodiversity (fauna and flora), human health and population, soil, water, air and climatic factors).

5.1.1 Strategies for biodiversity

The protection of natural environment and biodiversity is one of the EU policy's priorities. A basic tool for achieving the objectives of this policy was the creation of the European ecological network of protected areas "NATURA 2000". The installation and operation of this network is the pursuit of Directive 92/43/EEC about "the conservation of natural habitats and of wild fauna and flora". The NATURA 2000 network aims are i) the conservation of natural habitats and species of community interest (i.e. those listed in annexes I and II of Directive 92/43/EEC) and ii) the conservation of all bird species living in the wild on the territory of the European Union (i.e. birds for which Directive 79/409/EEC about "the conservation of wild birds", as codified by Directive 2009/147/EC, is defining the basic directions of their protection into the European Union). The NATURA 2000 network includes the areas recognized as Special Areas of Conservation (S.A.C.) (former Sites of Community Importance- S.C.I.) (Directive 92/43/EEC) and those recognized as Special Protection Areas (S.P.A.) (Directive 2009/147/EC).

In accordance with Directive 92/43/EEC, member states shall ensure monitoring of the conservation status of species and habitats referred in the article 2, taking into account the priority natural habitats and priority species, and every six years (from the end of the period defined in article 23) shall draw up a report on the implementation of provisions adopted under this directive. This report shall include in particular information about the conservation measures as well as assessment of the impacts of these measures on the conservation status of the natural habitats of annex I and the species of annex II and the main results of the surveillance referred in the article 11. This report, is drawn up in accordance with the EU model report, transmitted to the Commission and communicated to the public.

In 2011² the EU adopts a *strategy to protect and improve the state of biodiversity in Europe for the next decade*. This strategy aims to halt the loss of biodiversity and the degradation of ecosystems in the European Union (EU) by 2020, by identifying six priority targets.

Target 1: Conserving and restoring nature

To halt the deterioration in the status of all species and habitats covered by EU nature legislation and achieve a significant and measurable improvement in their status so that, by 2020, compared to current assessments: (i) 100% more habitat assessments and 50% more species assessments under the Habitats Directive show an improved conservation status; and (ii) 50% more species assessments under the Birds Directive show a secure or improved status.

Target 2: Maintaining and enhancing ecosystems and their services

By 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems.

Target 3: Ensuring the sustainability of agriculture and forestry

A) Agriculture: By 2020, maximize areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity-related measures under the CAP so as to ensure the conservation of biodiversity and to bring about a measurable improvement in the conservation status of species and habitats that depend on or are affected by agriculture and in the provision of ecosystem services as compared to the EU2010 Baseline, thus contributing to enhance sustainable management.

B) Forests: By 2020, Forest Management Plans or equivalent instruments, in line with Sustainable Forest Management (SFM), are in place for all forests that are publicly owned and for forest holdings above a certain size (to be defined by the Member States or regions and communicated in their Rural Development Programmes) that receive funding under the EU Rural Development Policy so as to bring about a measurable improvement in the conservation status of species and

² COM(2011) 244 final of 3.5.2011

habitats that depend on or are affected by forestry and in the provision of related ecosystem services as compared to the EU 2010 Baseline.

Target 4: Ensuring sustainable use of fisheries resources

Fisheries: Achieve Maximum Sustainable Yield (MSY) by 2015. Achieve a population age and size distribution indicative of a healthy stock, through fisheries management with no significant adverse impacts on other stocks, species and ecosystems, in support of achieving Good Environmental Status by 2020, as required under the Marine Strategy Framework Directive.

Target 5: Combating invasive alien species

By 2020, Invasive Alien Species and their pathways are identified and prioritized, priority species are controlled or eradicated, and pathways are managed to prevent the introduction and establishment of new IAS.

Target 6: Addressing the global biodiversity crisis

By 2020, the EU has stepped up its contribution to averting global biodiversity loss.

5.1.2 Strategies for human health and population

❖ Strategy for sustainable development

The EU's first commitment to sustainable development was in June 2001. Then, European Council of Göteborg adopted the strategy for sustainable development in EU based on commission's communication. In 2002, the Commission presented a second communication, stressing the external dimension of sustainable development adopted by the European Council of Barcelona. These texts together form the basis of the EU's strategy for sustainable development. The Commission undertook to review the strategy at the beginning of each new Commission's duties.

The strategy's main objectives are:

1. Protection of the environment
2. Social justice and cohesion
3. Economic Well-being
4. Assumption of international responsibilities

The strategy was revised in 2005 and 2009³. In recent years, EU has demonstrated its clear commitment to sustainable development and has successfully mainstreamed this sustainability dimension into many policy fields. The EU's climate change and energy policies are evidence of the impact that sustainable development strategy has had on the political agenda. The EU has started to integrate the sustainability dimension in many other policy fields also. The revised strategy takes stock of

³ COM(2009) 400 final on 24.7.2009

progress with EU policy in the areas covered by the EU SDS and provides input for reflection and debate on sustainable development. This overview highlights the fact that, despite considerable efforts to include action for sustainable development in major EU policy areas, unsustainable trends persist and the EU still needs to intensify its efforts. As the example of climate change shows, taking actions early brings more and earlier benefits at lower costs as acting later.

The revised strategy notes the EU's long-term goals on which sustainable development could focus, notably by:

- contributing to a rapid shift to a low-carbon and low-input economy, based on energy and resource-efficient technologies and sustainable transport and shifts towards sustainable consumption behavior;
- intensifying environmental efforts for the protection of biodiversity, water and other natural resources. Evidence shows that the destruction of biodiversity is continuing at a worrying rate. Degradation of ecosystems not only reduces the quality of our lives and the lives of future generations, it also stands in the way of sustainable, long-term economic development;
- promoting social inclusion. The most vulnerable in society are at risk of being the most badly hit by the economic crisis and its effects may linger longest for them unless effective measures are provided;
- strengthening the international dimension of sustainable development and intensifying efforts to combat global poverty.

❖ **Strategies for dealing with natural disasters**

Directive 2007/60/EC «on the assessment and management of flood risks».

For the assessment and management of flood risks EU adopted a directive in order to establish a framework, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity associated with floods in the Community and the proper management of such risks by the competent bodies. This directive supplements directive 2000/60/EC (Water Framework Directive) with regard to the management of flood risks and focuses on prevention, preparedness and protection against floods.

Forest EU Strategy: for forests and the forest-based sector⁴

This strategy, adopted on 2012 by the EU, identifies the key principles needed to strengthen sustainable forest management and improve competitiveness and job creation, in particular in rural areas, while ensuring forest protection and delivery of ecosystem services. It also specifies how the EU wishes to implement forest-related policies.

⁴ COM(2013) 659 final on 22.9.2013

2020 forest objective is to ensure and demonstrate that all forests in the EU are managed according to sustainable forest management principles and that the EU's contribution to promoting sustainable forest management and reducing deforestation at global level is strengthened, thus:

- contributing to balancing various forest functions, meeting demands, and delivering vital ecosystem services;
- providing a basis for forestry and the whole forest-based value chain to be competitive and viable contributors to the bio-based economy.

A special reference is made to the EU's actions on forests and their threats such as fires and pests. For their information, EU has developed a special system of a single section. The EU also aims to strengthen the mechanisms for protecting forests against pests, building on increased cooperation with neighboring countries, enhanced research and the ongoing review of the Plant Health Regime.

5.1.3 Strategies for soil

*The thematic strategy for soil protection*⁵ was proposed by the European Union on 2006. The overall objective is protection and sustainable use of soil, based on the following guiding principles:

- (1) Preventing further soil degradation and preserving its functions:
 - when soil is used and its functions are exploited, action has to be taken on soil use and management patterns, and
 - when soil acts as a sink/receptor of the effects of human activities or environmental phenomena, action has to be taken at source.
- (2) Restoring degraded soils to a level of functionality consistent at least with current and intended use, thus also considering the cost implications of the restoration of soil.

The strategy proposed by the EC provides (i) the establishment of legislative framework with protection and sustainable use of soil as its principal aim; (2) integration of soil protection in the formulation and implementation of national and Community policies; (3) closing the current recognized knowledge gap in certain areas of soil protection through research supported by Community and national research programmes; (4) increasing public awareness of the need to protect soil.

Based on this certain threats on soil have be recognized such as erosion, organic matter decline, compaction, salinisation, landslides, contamination, sealing and loss of biodiversity.

⁵ COM (2006)231 final on 22.9.2006

5.1.4 Strategies for water

The main water policy framework shaped by the EU policy, expressed by the Water Directive (Directive 2000/60/EU) and the Marine Strategy Directive (Directive 2008/56/EC). These two directives complete the legal framework for the protection of the entire water cycle. The two directives are based on the ecosystem approach which leads to the integrated approach.

Directive 2000/60/EC "establishing a framework for the Community action in the field of water policy"

This directive was aimed at establishing a framework for the protection of all forms of water (surface water, transitional waters, coastal waters and groundwater) at a river basin level. The purpose of the directive was to:

- a) prevent further deterioration and protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems;
- b) promote sustainable water use based on a long-term protection of available water resources;
- c) aim at enhanced protection and improvement of the aquatic environment, *inter alia*, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances;
- d) ensure the progressive reduction of pollution of groundwater and prevents its further pollution, and
- e) contribute to mitigating the effects of floods and drought

and thereby contributes to:

- provision of the sufficient supply of good quality surface water and groundwater as needed for sustainable, balanced and equitable water use;
- significant reduction of groundwater pollution;
- protection of inland and marine waters;
- achieving the objectives of relevant international agreements, including those aiming on prevention and elimination of marine environment pollution, emissions and losses of priority hazardous substances, with the ultimate aim of achieving concentrations in the marine environment near background values for naturally existing substances and close to zero for human-made substances.

Directive 2008/56/EC "establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)"

The Marine Directive aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend. It is the first EU legislative instrument related

to the protection of marine biodiversity, as it contains the explicit regulatory objective that "biodiversity is maintained by 2020", as the cornerstone for achieving GES.

Based on this directive, member states are required to develop their own strategies in cooperation with other member states and with third countries in order to achieve good ecological status in their jurisdiction's maritime waters by 2020. These strategies aim to ensure protection and restoration of the European marine ecosystems and ecological sustainability of economic activities associated with the marine environment as well. Key points of this directive are the following:

- Member States must first assess the ecological status of their waters and impacts of human activities. Then, based on this assessment, they are setting goals and indicators in order to achieve good ecological status. These goals must be measurable, consistent within the same sea area and combined with an implementation deadline.
- Then the states compose a program of specific measures for the implementation of defined goals taking into account the economic and social consequences of these.

Obligation of the Member States is also the implementation of coordinated monitoring programs for the regular evaluation of their waters' condition and achievement of the goals that have set.

5.1.5 Strategies for air

In order to achieve an air quality that would not adversely affect or entail serious threats for human health and environment, the thematic strategy⁶ on air pollution set goals for air pollution and proposed measures for their achievement towards 2020: updating the legislation, focusing on treatment of harmful pollutants with involvement of all the sectors and policies potentially affecting the air quality.

Significant progress for combating air pollution was the framework directive (2008/50/EC) "on ambient air quality and cleaner air for Europe" which aims to develop a common strategy to combat air pollution within the Member States of the EU.

This directive establishes standards and sets timelines for reducing concentrations of particulate matter, which are already covered by legislation and included among the most dangerous pollutants for human health. The directive arose from the need for one comprehensive and coherent policy for all air pollutants considered harmful for the human and the environment, instead of numerous directives existed until now.

Air pollution has effects on natural ecosystems. The risk that vegetation and natural ecosystems face from air pollution tends to increase away from urban centers.

⁶ [COM(2005) 446] final on 21.9.2005

Assessment of such risks and compliance with critical levels for the protection of vegetation should focus on places away from urban centers.

Goals of the Directive

This Directive lays down measures aimed at the following:

1. defining and establishing objectives for ambient air quality designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole;
2. assessing the ambient air quality in Member States on the basis of common methods and criteria;
3. obtaining information on ambient air quality in order to help combat air pollution and nuisance and to monitor long-term trends and improvements resulting from national and Community measures;
4. ensuring that such information on ambient air quality is made available to the public;
5. maintaining air quality where it is good and improving it in other cases;
6. promoting increased cooperation between the Member States in reducing air pollution.

5.1.6 Strategies for the climate factors

In 2013 the European Commission adopted an EU strategy on adaptation to climate change⁷ which aims to make Europe more climate-resilient. This means enhancing the preparedness and capacity in local, regional, national and community level, and shaping a coherent approach and improved coordination. The strategy focuses on three key objectives:

- Promoting action by Member States;
- Better informed decision-making;
- 'Climate-proofing' action at EU level by further promoting adaptation in key vulnerable sectors.

At this point should be noted that in order to reduce the country's vulnerability to the effects of climate change and improve the capacity to adapt the natural, social and economic systems to the inevitable negative impact of the climate change, the Ministry of Environment and Waters of the Republic of Bulgaria has begun the preparation of a National strategy for adaptation (NSA). In this strategic document it is pointed the cross-border cooperation on issues related to the impacts of climate

⁷ COM(2013) 216 on 16.4.2013

change. Also for the republic of Bulgaria has been elaborated and applies “Third national action plan on the climate change 2013-2020”.

5.1.7 Relationship of the Programme with the EU environmental strategies

From all the above it is obvious that the Greece-Bulgaria cross-border cooperation Programme is in coherence with the EU thematic environmental strategies for the current period.

Environmental issues	Priority axis 1	Priority axis 2	Priority axis 3	Priority axis 4
Biodiversity, Fauna and Flora		❖		
Human health and population	❖	❖	❖	❖
Soil		❖		
Water		❖		
Air		❖	❖	
Climatic factors		❖	❖	
Material assets		❖	❖	

5.2 NATIONAL AND REGIONAL STRATEGIES APPLICABLE IN OTHER PROGRAMS

A large number of documents, reports and Programme drafts are available for the Programming Period 2014-2020. Taking into account the transboundary character of the Programme it has been attempted to draw information from sources that are available in comparable form in Bulgaria and Greece alike.

The sources relating to Greece are:

- Partnership agreement of the Greek Republic;
- Operational Programme on transport infrastructure, environment and sustainable development;
- Operational Programme on Competitiveness, Entrepreneurship and Innovation;
- Operational Programme on Rural Development;

- Regional Operational Programme Eastern Macedonia and Thrace;
- Regional Operational Programme Central Macedonia.

The sources relating to Bulgaria are:

- Operational Programme "Transport and transport infrastructure";
- Operational Programme "Environment";
- Operational Programme "Regions in growth 2014-2020";
- Operational Programme "Human resource development";
- Operational Programme "Good management" and
- "Rural development Programme".

Partnership agreement of the Republic of Bulgaria wasn't available.

At this point it should be noted that during the implementation of the present cross-border cooperation operational Programme, a high synergy with the sectoral strategies and sectoral and regional Programmes of Greece and Bulgaria should be sought. Both the limited available financial resources of this Programme and its cross-border character, make its action complementary to the sectoral and regional strategies of each country. In this context, especially the environment, the greatest possible synergy of this Programme with the other operational Programmes of the new programming period for both Bulgaria and Greece should be sought. This is thought to contribute to the reinforcement of sectoral actions.

6 ALTERNATIVES DEALT WITH

Modeling and evaluation of alternative planning scenarios is an important step of the strategic environmental assessment. In the Article 5 of Directive 2001/42/EC for strategic environmental assessment it is mentioned that if an environmental impact assessment is required for a purpose "an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated".

These alternatives aim on detecting the future condition of all examined parameters and attempt to the description the final condition, i.e. the condition after the implementation of proposed actions. In any case, setting of scenarios is based on the assumption that the future is not derived from the evolution of individual parameters, but from the synergy and interaction between many individual parameters related to both present and past

The Greece-Bulgaria territorial cooperation Programme is not offered for an exhaustive study of alternatives, as its scope and budget are limited, it does not include any primary projects of large scale with significant potential environmental impacts and finally the eligible area is delimited.

The Programme's priority axes and thematic and specific objectives were elaborated based on the perspective for development and sustainable management and conservation of natural resources and biodiversity of the cross-border area. This is reflected also in the allocation of the Programme's budget. The 2nd priority axis, focusing on the environment and climate change, receives the highest amount of funds (about 33%). An alternative could arise from the possibility of changing the present allocation of budget by increasing the resources of the 3rd priority axis, focusing on accessibility, which is more possible to affect the environment adversely. However, even in this case, if the environmental legislation is kept, the effects are expected to be small or negligible. As about the other axes of the Programme (1st, 4th and 5th), constituting 41% of allocated budget, the analysis showed that they are expected to have rather neutral environmental effects.

The zero-scenario equals with not implementation of the Programme. The trend of environmental issues in the case that the whole program is not implemented is analyzed in section 7.3.

7 CURRENT ENVIRONMENTAL CONDITION

7.1 CURRENT ENVIRONMENTAL SITUATION

7.1.1 Geography

The cross-border cooperation area, is delimited:

West: from the Bulgarian border with the Former Yugoslav Republic of Macedonia;

East: from the Greek border with the Turkey and the valley of river Evros (Maritsa);

North: from the Thracian plains;

South: from the Aegean and Thracian Sea.

The area includes the Rila, Pirin and Rhodope mountains, characterized by stunning woodland and a great potential for tourism development. The rivers Strimon (Struma), Nestos (Mesta), Arda (Arda) and Evros (Maritsa) run through the area and numerous lakes exist.

7.1.2 Climatic data-Atmosphere

The geographic location and the morphology of the area contribute to the formation of a wide array of climatic conditions. The coastal zones are mainly Mediterranean, whereas the hinterland is characterized by continental and in some cases alpine climate. The Rhodope Mountains form a barrier to the moderating influence of the Aegean. This barrier and the meeting of hot and cold air masses are causing frequent rainfalls during the winter time and snowfall in higher altitudes. Microclimate permits a heavy snow cover to be preserved for a long time allowing for winter recreation activities. Temperatures can be as low as -30°C in winter whereas in summer there is large dispersion of values in the mountains and in the coastal zones.

The quality of air is generally good. There are hot spots mainly due to industrial activities but they are of limited impact. Two major polluters, metallurgy works plant and a uranium mine, operate in southwestern Bulgaria, contaminated the environment with lead, sulfur dioxide, hydrogen sulfide, ethanol, and mercury. Bulgarian air also holds the highest concentration of sulfur dioxide and carbon monoxide. At the Greek side the major polluters are concentrated near Kavala urban area, at the Karvali industrial area, where a petrochemical factory and a fertilizer company are producing the majority of air pollution.

7.1.3 Geology-Soil

The Programme area is characterized by a very large number of different soil types ranging from alluvial coastal zones to Karst mountain areas and granite massives.

River zones and delta areas are characterized from sand and gravel zones with limited permeability. Mountain areas contain a huge variety of soils with asbestolithic formations, metamorphic formations, alluvial elements etc. There is a large number of deposits ranging from lignite to gold and quicksilver. Marble is also an important development factor followed by turf and extended geothermal fields with immediate potential for exploitation. Punctual risks do exist mainly due to industrial contamination, intensive agriculture uses causing soil depletion, pesticides and mines (open pits for lignite). Erosion is not an extensive threat in the area; however hot spots are identified mainly in coastal zones threatened by salinization.

7.1.4 Hydrology-Hydrogeology

The area is characterized by a large number of significant rivers and water reservoirs. The most important of them, from east to west, are Maritza/Evros, Ardas Mesta/Nestos and Struma/Strymon.

The Maritza/Evros is, with a length of 480 km, the 2nd longest river that runs solely in the SE Europe (after the river Danube) and the most important river of the Balkans. It has its origin in the Rila Mountains in Western Bulgaria, flowing southeast between the Balkan and Rhodope Mountains. Then, meeting with the Greek Bulgarian border, enters for a few kilometers in Turkish territory, forming the triangle of Karagats, near Edirne, whence is the geographical border between Greece and Turkey. Finally it enters in the northern Aegean Sea, in the so-called Thracian sea, forming a huge and labyrinthine-like delta which is one of the most important Greek wetlands. Its main tributaries are the Toyntzas and Ardas. Evros is filled with heavy metals from waste mineral activities in industries in Bulgaria and Turkey, while the levels of nitrate, nitrite, total phosphorus and ammonium salts are extremely high and in the entry point of the river in Greece.

The Ardas is tributary of river Evros and its source lies in the Bulgarian Rhodope Mountains near the town of Smolyan. The river is flowing for 290 kilometers eastward, from which 241 km flow in Bulgarian territory and 49 km in Greek territory. It then enters the Maritza/Evros, just west of Edirne in Turkey.

One of the main problems caused by the Evros river and its tributary Ardas are the annually reoccurring floods especially at the beginning of spring. The cause of the flood is heavy snowfalls that amounted to record water-levels that occurred in Bulgaria and caused its three dams to overflow in the Ardas basin and flooding into the Maritza/Evros river.

The Mesta/Nestos is one of the five longest Greek rivers and has a length of 243km of which 130 km flows in Greece and the rest in Bulgaria. It rises in the Rila Mountains and flows into the Thracian Sea near the island of Thasos after it crosses the mountain ranges of Western Rhodope Mountains and Mountain Falakro. The largest part of the river flows between mountain ranges, with the exception of the lowland area of the river's mouth, which occupies an area of 440 km² and expands as a deltaic system of high ecological and biodiversity value with many important

species of flora and fauna. The river's ecological quality is marked as incomplete. The most important threats the ecosystem faces are: water pollution from agricultural pesticides and toxic industrial waste from the timber industries and uranium mines, overgrazing and logging.

The Struma/Strymon is a transboundary river flows in Greece, Bulgaria and FYROM with a total length of 392 km. Its source is in the Vitosha Mountain in Bulgaria, runs through lowland of Serres and lake Kerkini and empties into Strymonikos Bay. The river enters in Greece without pollution. However in lowland of Serres river is burdened by fertilizers and industrial waste.

Considering the overall quality of the surface and ground water it can be designated as of incomplete to good status. The main pressures are relevant with the agricultural, industrial and urban activity. The transboundary river basins are very important for the area's development taken into account the natural resources and the potential for sustainable development and tourism. Collaboration between Bulgarian and Greek governments for water management and especially river Mesta/Nestos started in 1964. From 1964 to 1991 three agreements were signed for these issues such as production of electric power and implementation of monitoring programs regarding quality and quantity. The most recent agreement was signed in 1995 with a duration of 35 years concerning the amount of Mesta/Nestos water discharge that should be available in the Bulgarian–Greek border.

Both Nestos and Evros are polluted with urban disposals (e.g. BOD) as well as with industrial disposals (minerals, toxic elements etc). The major problem is the management of urban wastewater resulting from the lack of infrastructure for sewage treatment in agglomerations with a population between 2,000 -10,000 inhabitants and in smaller settlements where the collection networks have been constructed but the untreated wastewater are disposed into rivers and lakes and from management of sewage sludge produced in existing wastewater treatment installations. These problems are shaping the need for some pollution monitoring and early warning systems.

Competent water management authorities that act and have data for the area are:

- West Aegean Water Basin Directorate-Blagoevgrad
- East Aegean Water Basin Directorate-Plovdiv
- Water Division of Central Macedonia
- Water Division of Eastern Macedonia and Thrace

7.1.5 Waters use

The main water uses within the cross-border area are irrigation, industry, power production and water supply.

In the **Maritsa/Evros** the non-navigable river is used for power production and irrigation. Reservoirs on the Maritza include the Kiprinos Dam.

The Bulgarian portion of **Ardas** river, tributary of river Evros, is accented by three hydroelectric and irrigation dams, Kardzhali Dam, Studen Kladenets and Ivaylovgrad Dam.

The **Mesta/Nestos** has more than 50 tributaries. The longest of them is the Dospat. Dospat has its source in Bulgaria (Rozov Vrah, "Pink Peak") and flows southeast until Dospat Dam, after which it makes a turn southwest to continue to the south and flow into the Mesta. In the Greek territory the most important dams interrupting the river's natural flow are in Thisavros, Platanovrisi and Temenos. These dams are used for irrigation, industrial use and production of hydroelectric power.

In the Greek part of the **Struma/Strymon** river a dam has been constructed from which an important wetland (Lake Kerkini) was created. Main uses of this dam are flood protection and irrigation.

7.1.6 Land use

The cross-border area presents an altitude scaling, with mountainous areas mainly occupied by forests and woodland while lowland areas and coastal areas of the Aegean Sea and the Thracian sea dominated by the agricultural use with strong presence of fields and pastures.

7.1.7 Natural Environment

Extent and topography of this area contribute to the presence of numerous species and biotopes. Three main zones are distinguishable (Picture 2):

- the Mediterranean: in the plains and river lowlands and the coastal zones,
- the alpine: in the mountain zones of Bulgaria and
- the continental: mainly on the areas north of the Rhodope barrier.



Picture 2: Biogeographic zones in the study area (Reference: <http://natura2000.eea.europa.eu>)

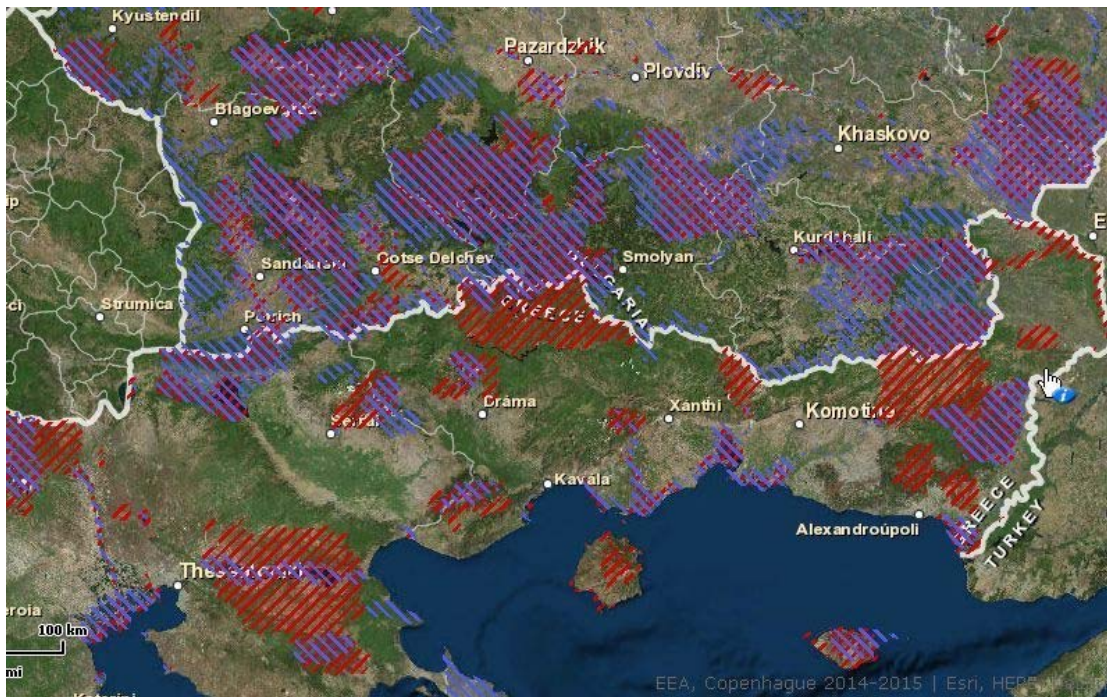
Human impact on the ecosystems is equally diversified. Some zones are heavily exploited (e.g. the coastal zones, the Nestos valley and delta, the urban conglomerations north of the Rhodope Mountains, the Struma valley in Serres region). There endemic ecosystems have vanished and environment is almost entirely influenced by human activity. In other areas the ecosystems have remained intact for thousands of years, rendering the area one of the most rich and biodiverse on the entire continent.

From the eastern side to west the most important ecological areas are:

- the riverside forests along the Maritza/Evros and Ardas Triangle with nesting zones for migratory birds, predators and sparrows, the forest of Dadia and the Maritza/Evros Delta, one of the most important zones in the area with a huge concentration of species and biotopes;
- the Porto Lagos lagoon and the lower Mesta/Nestos valley and delta pose;
- the Rhodope Mountains and Rila mountain in Bulgaria;
- the Fraktos Forest in Drama, recognized as one of the most important forest ecosystems;
- The valley of river Struma including Kerkini lake, an ecosystem with high ecological value.

Many areas are under protection status of European directives 92/43/EEC and 2009/147/EC and the RAMSAR international convention, while many species are classified as threatened by the IUCN. The most important protected areas are:

- Six (6) RAMSAR Wetlands: Evros Delta, Lake Vistonida - Porto Lagos Lagoon, Lake Ismarida and Thrace Lagoon Complex, Nestos Delta and Lagoon Complex, Lake Volvi and Lake Koroneia, Lake Kerkini.
- One (1) UNESCO World Heritage: Pirin National Park.
- Eighty six (86) NATURA 2000 sites: 51 in Greek territory and 35 in Bulgarian territory (Picture 3).

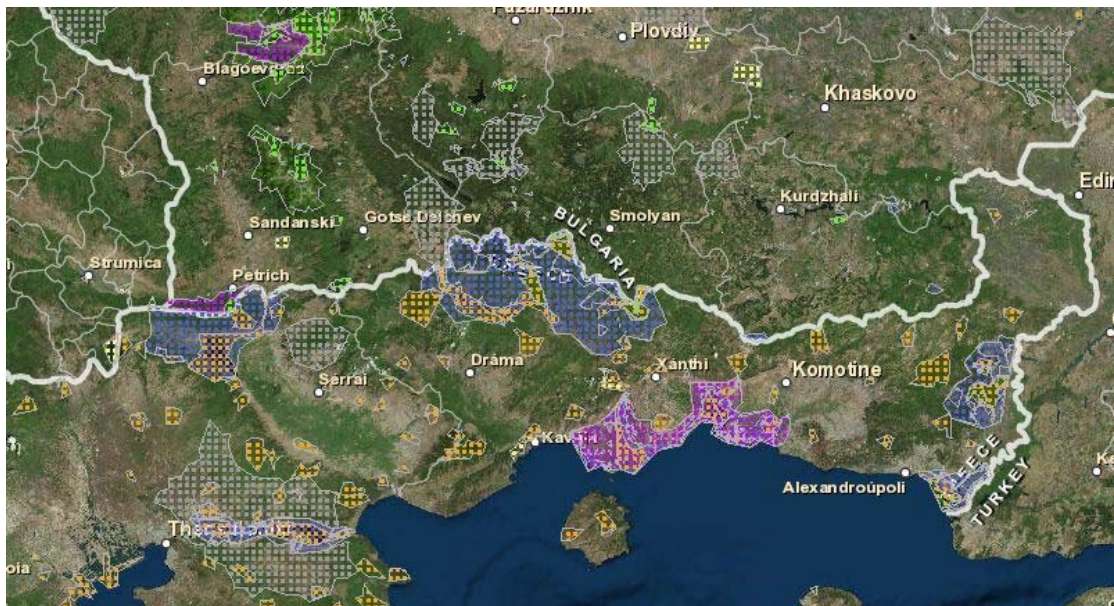


Picture 3: NATURA 2000 areas in Greece and Bulgaria (Reference: Natura 2000 Network Viewer, <http://natura2000.eea.europa.eu>)

In the Greek part six (6) areas have been characterized as National Parks in accordance with Greek legislation and numerous areas, in accordance with both Greek and Bulgarian legislation, have been recognized as forests of outstanding beauty, listed natural monuments, important bird sanctuaries, biogenetic reserves etc.

At the northeastern part of the study area, in district of Blagoevgrad, two out of three Bulgarian national parks are situated, the National Parks Pirin and Rila and the Nature Park Rila Monastery. The largest is the Pirin National Park, having an area of 403.32 km² and lies in an altitude between 1008 m and 2914m.

Another important place is Rhodope Mountain, where a rich variety of ecosystems of the Balkan Peninsula can be found. Almost 60% of the European species can be encountered here and this consists the main reason that Rodopi Mountain Range is one of the most important regions of Europe. Here are located many areas protected by national, European or international legislation and conventions. Forests cover more than 70 % and coniferous species prevail (Picture 4).



Picture 4: Nationally designated areas in Greece and Bulgaria (Reference: Natura 2000 Network Viewer, <http://natura2000.eea.europa.eu>)

Places of high ecological importance are the Deltas formed at the mouth of rivers Nestos and Evros. Both are important wetlands recognized at national, European and international level and valuable for wildlife and humans. These areas are included in the list of Ramsar convention with wetlands of international importance and the Natura 2000 ecological network while in national level they are classified as National Parks.

7.1.8 Administrative structure-demographic data

The reference area of this Programme includes seven regional units and four districts, with total population of 2.719.599 inhabitants. The decade between 2001 and 2011, the population of the eligible area showed a decline in all eligible districts of Bulgaria and in many eligible regional units of Greece (except those of Thessaloniki, Rhodope and Xanthi).

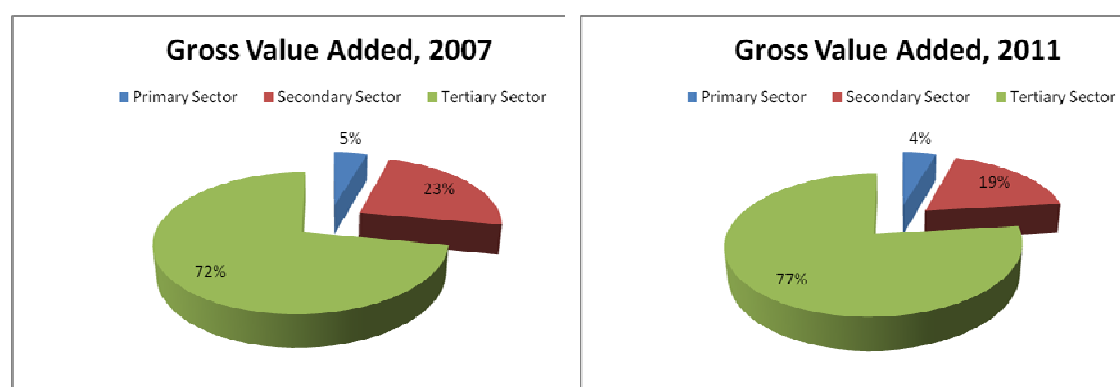
Table 2: Demographic data of the study area for the decade 2001-2011

Country	Region	Regional unit	Population 2001	Population 2011	Population Changes 2001-2011
Greece	Region of Eastern Macedonia-Thrace	Regional Unit of Kavala	141.499	124.917	-13,27
		Regional Unit of Drama	102.184	98.287	-3,96
		Regional Unit of Rodopi	111.237	112.039	+0,72
		Regional Unit of Xanthi	102.959	111.222	+7,43
		Regional Unit of Evros	149.283	147.947	-0,90
	Region of Central Macedonia	Regional Unit of Thessaloniki	1.084.001	1.110.312	+2,37
		Regional Unit of Serres	194.483	176.430	-10,23
Bulgaria	South-Central Planning Region and South-West Planning Region	District of Kardjali	164.019	152.009	-7,90
		District of Smolyan	140.066	120.456	-16,28
		District of Haskovo	277.478	243.955	-13,74
		District of Blagoevgrad	341.173	322.025	-5,95

Reference: Demographic data, Hellenic Statistical Authority, National Statistical Institute Of Bulgaria

7.1.9 Productive areas-employment

According to the data relating to the inhabitants' financial activity, inhabitants are occupied with all three sectors, while the highest GVA composition derives from tertiary sector's activities. Comparing data between the current and previous programming period (2007-2013) a slight expansion of the tertiary sector at the expense of the secondary sector has occurred (Picture 5).



Picture 5. GVA composition by sector for the CB area for years 2007 & 2011

Reference: CONSULTANT – TECHNICAL ASSISTANT FOR THE SUPPORT DURING THE PREPARATION OF THE CROSS-BORDER OPERATIONAL PROGRAMME GREECE-BULGARIA 2014-2020 – Diagnostic Report, 2014

In the Bulgarian part, at the districts of Blagoevgrad and Haskovo, the main activities are Industry, Trade and Public Administration while at Smolyan and Kardzhali agricultural activities, Industry and Public Administration exist as well.

In the Greek part of the cross border area, the main activities are Agriculture, Industry and Public Administration. Agriculture is a dominant landscape element in the coastal zones and northern areas while intense agriculture creates a clear pattern in the northern part.

Apart from the primary sector, landscape is a significant development factor also in the service sector. The mountain relief and the climatic conditions offer opportunities for winter sports. The ski centres of Bansko, Pamborovo and to a lesser extent Falakro and Lailias are evidence of the attraction of the area. However, the area offers an abundance of opportunities for additional recreational facilities (e.g. hiking, cross-country ski etc.) which demand lighter interventions in the natural environment. The area has an extended network of routes and huts, however there was limited interconnection between the Bulgarian and Greek zones. Tourism in the coastal zone is well developed and is a characteristic if not a predominant element of the landscape.

With respect to subsector productivity the following should be noted:

- Agriculture: in absolute terms, the District of Haskovo exhibits the lowest productivity and the District of Drama the highest, while in relative terms (i.e. as % of respective national average), the District of Rodopi exhibits the lowest productivity and the District of Drama the highest.
- Industry: in absolute and relative terms the District of Haskovo exhibits the lowest productivity and the District of Rodopi the highest.
- Labor productivity is significantly higher in all activities of the tertiary sector and relative productivities exhibit less variance.

7.1.10 Networks-infrastructure

Transport in the area is relying heavily on road usage. The status of the road network in the region has improved significantly during the past few years. The improvement of road axes around the two main frontier crossing points (Promachonas and Ormenio), the opening of three new crossing points and the respective road axes foreseen in the bilateral Greek-Bulgarian agreement of 1995 (Drama-Exohi-Gotse Delchev, Xanthi – Ehinós – Eledge Rudozem, Komotini-Nimfaia- Kurdjali) have significantly improved the mobility of people, goods and services and supported the development of entrepreneurship and competitiveness.

The completion of the Egnatia Motorway throughout its entire length, and of its four vertical axes, has radically upgraded road infrastructure and safety. The Egnatia Motorway is linked to nine vertical road axes, which aspire to link Greece with the main trans-European road axes network in the Balkans. Five of these vertical axes

are located in the eligible area, linking Greek with Bulgarian areas, and have a total length of about 254 km.

The bus transport network is extensive and highly efficient, providing the single viable alternative to private cars. Cross-border connections usually connect large cities (e.g. Sofia-Thessaloniki) thus leaving the small cross-border movements entirely to private means.

Train connections are developed in the coastal zones (Thessaloniki-Svilengrad through Serres, Drama, Alexandroupolis and Orestiada) and on the vertical axis of Thessaloniki-Kulata-Sofia. Hence, the network leaves large “white spots” in the area. Road transport continues to grow, showing a serious increase with respect to the amount of transported goods and work done (in tonne/km).

The principal railway axes serving the eligible area are the railroad

- 1) Thessaloniki-Kulata-Sofia and
- 2) Sofia-Plovdiv-Svilengrad-Ormenio-Alexandroupolis-Thessaloniki.

Marine transport remains a key means of long-distance transportation due to its advantages for transporting goods of significant size. The area is served by three main ports of national/international importance located in Thessaloniki, Kavala and Alexandroupolis. Additionally the area is served by other regional-level ports and fishing marinas.

In the level of air transportation the area is served by three main airports located in Thessaloniki, Kavala and Alexandroupolis.

Road transport has a considerable impact on the human health through air emissions, noise pollution, waste generation and land use. The connection between Thessaloniki and Sofia through Serres and Blagoevgrad and the Egnatia Highway are the main axes between the two countries placing a heavy burden on the adjacent areas.

In the field of communications Greece and Bulgaria have made significant progress on over the last years. Non-electronic communications has not been an issue for many decades. All parts of the cross-border region are connected through landlines, while populated areas are almost in their entirety covered by mobile telephony. So, it is obvious that the Programme area is covered almost in full degree and the essential challenge is the utilization of the existing infrastructure. E-commerce seems to be of particular importance given that many of the cities and villages there are remote and with difficulty accessible due to the mountainous character of the areas. E-commerce additionally helps overcome another difficulty in doing business, that of language, since translation is undertaken by the underlying web-applications and producers can trade with customers without having to speak their language.

Wastewater management remains non-satisfactory. In the area there is a lack of infrastructure for waste water management mainly at agglomerations of C' Priority while in other cases wastewater management systems have been constructed but they remain non-operational. Waste management systems in some cases are in a planning phase and they will markedly improve the current conditions.

Solid waste disposal is carried out primarily in landfills for non-hazardous waste, especially in the Greek territory. Formerly, waste deposition took place in numerous dump sites and waste disposal areas served the local authorities, who have stopped working and will be restored. In the cross-border region many uncontrolled former industrial hot-spots also exist.

7.2 MAIN ENVIRONMENTAL ISSUES-PRESSURES AND BASIC QUALITY AND DEGRADATION MECHANISMS OF THE NATURAL ENVIRONMENT AND AVAILABILITY OF RESOURCES

As discussed, the main environmental issues of the cross-border area are: biodiversity (fauna and flora), human health and population, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage and landscape.

According to the above information the human activities in the area are the main source of environmental pressure. These human activities are:

- Agriculture;
- Industry;
- Urban activities;
- Transportation;
- Large hydraulic constructions.

The following table specifies the main pressures arising from these types of activities and associated directly or indirectly with the environmental situation.

Table 3: Types of activities in the area and pressures arising from these.

Type of activity	Pressure	Pressures specialization
Agriculture	Agricultural discharges Irrigation	Discharge of nutrients from fertilizers Discharge of elements from pesticides Pumping surface water and groundwater for irrigation purposes
Industry	Environmental disposal of effluents Use of water resources Possible industrial accidents	Deposition of industrial waste Emission of air pollutants Wastewater discharges Groundwater pumping
Urban activities	Environmental disposal of effluents Solid Waste Management Wastewater Management Use of water resources Energy consumption Urbanization of coastal zone	Solid waste disposals Wastewater discharge Emission of air pollutants Pumping groundwater for drinking purposes Change of landscape aesthetics

Type of activity	Pressure	Pressures specialization
Transportation	Vehicles movement Transport of hazardous or toxic substances Boats movement	Environmental disposal of pollutants Noise Discharges of pollutants in coastal waters
Large hydraulic constructions	Changes on rivers hydromorphological and morphological characteristics Changes in the physical characteristics of hydrology and hydraulics of rivers Coastal erosion	

7.3 ENVIRONMENTAL TRENDS

In this chapter a strategic overview of the trends and the likely evolution of the environmental issues is outlined. The examined environmental issues correspond to those listed in point (f) of Annex I of Directive 2001/42/EC, as presented in the section 4.2.1 of this. The necessity of cross-border intervention is also commented.

➤ Biodiversity, Fauna and Flora

Trend and potential evolution

The protection status for the natural environment will contribute to the protection of fauna, flora, biodiversity and natural habitats. Transport networks, land-take (encroachment) and agriculture are expected to have rising impacts.

Cross-border cooperation Justification

Cooperation between management bodies of protected areas and other stakeholders in sites' protection and promotion and conduction of cross-border environmental assessments can improve the protection of the environment

➤ Human health and population

Trend and potential evolution

Disturbance due to road transport is expected to rise, especially along the main axes.

Flood disasters along major river systems will periodically reoccur and forest fires are also a major threat. The dimension of impacts on population and infrastructures will arise due to global climate change.

Cross-border cooperation Justification

Promotion of monitoring stations, provision of alternatives to road transport and development of service economy could assist in improving air quality on a cross-border level.

Development of alternative transport modes and promotion of public transport could limit negative effects.

Effective flood management and integrated water management systems should be implemented on a cross-border level.

Protection and prevention of fire risk and activation of volunteering and local civil protection teams must be promoted across borders.

➤ Soil

Trend and potential evolution

Soil is in general in good condition. Agriculture and industry are constant threats. However, the implementation of the new CAP poses new opportunities such as biological agriculture.

Cross-border cooperation Justification

Development of cross-border networks and markets for organic products and promotion of tourism oriented services can provide incentives for extensive and biological agriculture and the relief of the soil and subsoil.

➤ Water

Trend and potential evolution

Groundwater and surface water can be designated as of incomplete to good status. Cross-border rivers Nestos and Evros are polluted with urban and industrial effluents. The adoption of related EU Directives will further improve this situation.

Nevertheless improvements can be effective if coordinating actions on the upper and lower part of the rivers had been taking place.

Cross-border cooperation Justification

Main rivers flowing across the area are transboundary. Bilateral agreements and monitoring systems are required to guarantee mutual adaptation to the norms and requirements.

Cross-border cooperation should be used to secure the coordination of investments in infrastructure.

➤ Air, climatic factors

Trend and potential evolution

Quality of air is generally good.

High levels occurred in sites of industrial or extractive-mining activities but they are of limited impact.

Emissions due to transport and consumption patterns are expected to rise. Centers such as Thessaloniki and Kavala will be especially affected.

Cross-border cooperation Justification

The promotion of monitoring stations, the provision of alternatives to road transport and the development of service economy could assist in improving air on a cross-border level.

➤ Landscape, cultural heritage

Trend and potential evolution

Land use and land take will be intensified, development of tourism activities will be strengthened and cultural heritage will be further enhanced as one of the regional assets to be extensively promoted. Some uses are contradictory and conflicts along with damages on the landscape can be expected.

Cross-border cooperation Justification

Promotion of sustainable and alternative (ecological and cultural) tourism can be addressed as a single product for the entire area, hence increasing the sensibility for the development value of landscape and cultural heritage.

Creation and promotion of synergies through networking and cooperation between the public and private sectors can increase the added value of areas

8 ENVIRONMENTAL EFFECTS ASSESSMENT AND EVALUATION OF THE PROGRAMME

8.1 INTRODUCTION

This chapter describes how to perform an assessment of the environmental effects and identifies, assesses and evaluates the potential significant effects, and in particular primary and secondary, cumulative, synergistic, short-, medium-, long-term, both permanent and temporary, positive and negative effects on the environment and human health, material assets and cultural heritage.

Suggestions/directions/measures to prevent, reduce and, where possible, offset any significant adverse environmental effects are also described, as well as monitoring indicators to be used in order to check the efficiency of the measures and to monitor the environmental parameters are proposed.

8.2 ENVIRONMENTAL EFFECTS FROM THE PROGRAMME'S IMPLEMENTATION

This section presents the results of the priority axes environmental assessment, as they defined in the operational Programme, based on the methodology described in section 4.2 of the present.

The estimation, as already mentioned, is consisting of a qualitative description of the potential positive or negative effects deriving from the priorities and proposed actions of the operational Programme. So the study group assessed the contribution of the Programme on critical environmental issues such as: the achievement of the environmental goals set by the approved EU's thematic strategies, maintaining and/or improving of physical characteristics and conservation status (qualitative and quantitative) of natural environment's elements, protection and sustainable use and management of natural resources, sustainable urban and regional development etc.

In the following tables an assessment per priority axis and thematic objective proposed by the Programme is given.

Table 4: Environmental assessment of Priority Axis 1, Thematic objective 3a Promoting entrepreneurship, in particular by facilitating the economic exploitation of new ideas and fostering the creation of new firms, including through business incubators.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	- to 0	weak			✓	✓		✓		✓	
Human health and population	+	strong	✓			✓			✓		
Soil	- to 0	weak			✓	✓				✓	
Water	- to 0	weak			✓	✓				✓	
Air	- to 0	weak			✓	✓				✓	
Climatic factors	0										
Material assets	+	strong	✓			✓			✓		
Cultural heritage	0										
Landscape	- to +	moderate	✓			✓		✓	✓		

Table 5: Environmental assessment of Priority Axis 1, Thematic objective 3d Supporting the capacity of SMEs to grow in regional, national and international markets, and to engage in innovation processes.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	- to 0	weak			✓	✓		✓		✓	
Human health and population	+	strong	✓			✓			✓		
Soil	- to 0	weak			✓	✓				✓	
Water	- to 0	weak			✓	✓				✓	
Air	- to 0	weak			✓	✓				✓	
Climatic factors	0										
Material assets	+	strong	✓			✓			✓		
Cultural heritage	0										
Landscape	- to +	moderate	✓			✓		✓	✓		

Table 6: Summary conclusion of environmental assessment of Programme’s priority axis 1.

Environmental parameters	Effects	Brief assessment-Commentary
Biodiversity, Fauna and Flora	- to 0	Priority axis 1 is not expected to primarily affect the natural environment. However impacts on biodiversity cannot be excluded if benefited businesses locate in ecological sensitive areas, without taking all appropriate measures for protection or restoration of the environment and biodiversity.
Human health and population	+	Results of Priority axis 1 primarily concern the socio-economic features of the eligible area. In this issue, the overall effect of this priority axis is assessed as positive.
Soil	- to 0	Priority axis 1 is not expected to primarily affect the natural environment. However impacts on natural environment cannot be excluded if benefited businesses locate in ecological sensitive areas, without taking all appropriate measures for protection or restoration of the environment.
Water	- to 0	
Air	- to 0	
Climatic factors	0	
Material assets	+	Results of Priority axis 1 primarily concern the socio-economic features of the eligible area. In this issue, the overall effect of this priority axis is assessed as positive.
Cultural heritage	0	
Landscape	- to 0	Priority axis 1 is not expected to primarily affect the natural environment. However impacts on landscape cannot be excluded if benefited businesses locate in ecological sensitive areas, without taking all appropriate measures for protection or restoration of the environment

Table 7: Environmental assessment of Priority Axis 2, Thematic objective 5b Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	+	strong			✓	✓		✓	✓		
Human health and population	+	strong		✓		✓			✓		
Soil	+	strong		✓		✓			✓		
Water	+	strong		✓		✓			✓		
Air	0 to +	moderate			✓	✓			✓		
Climatic factors	0 to +	moderate			✓	✓			✓		
Material assets	+	strong		✓		✓				✓	
Cultural heritage	0 to +	weak		✓		✓				✓	
Landscape	- to +	moderate		✓		✓		✓	✓		

Table 8: Environmental assessment of Priority Axis 2, Thematic objective 6c Conserving, protecting, promoting and developing natural and cultural heritage.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	+	moderate			✓	✓		✓		✓	
Human health and population	0										
Soil	+	moderate		✓		✓				✓	
Water	+	moderate		✓		✓				✓	
Air	0										
Climatic factors	0										
Material assets	0										
Cultural heritage	+	strong	✓			✓			✓		
Landscape	- to +	strong	✓			✓		✓	✓		

Table 9: Environmental assessment of Priority Axis 2, Thematic objective 6d Protecting and restoring biodiversity, soil protection and restoration and promoting ecosystem services including NATURA 2000 and green infrastructures.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	+	strong		✓		✓		✓	✓		
Human health and population	0										
Soil	+	strong	✓			✓			✓		
Water	+	strong	✓			✓			✓		
Air	- to +	moderate		✓			✓			✓	
Climatic factors	- to +	moderate		✓		✓				✓	
Material assets	0 to +	weak		✓		✓				✓	
Cultural heritage	0										
Landscape	- to +	strong	✓			✓		✓	✓		

Table 10: Environmental assessment of Priority Axis 2, Thematic objective 6f Promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector, soil protection or to reduce air pollution.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	+	moderate		✓		✓		✓	✓		
Human health and population	+	moderate			✓	✓				✓	
Soil	+	moderate		✓		✓			✓		
Water	+	moderate		✓		✓			✓		
Air	+	moderate			✓	✓			✓		
Climatic factors	+	moderate			✓	✓			✓		
Material assets	0										
Cultural heritage	+	weak			✓	✓				✓	
Landscape	+	moderate		✓		✓		✓	✓		

Table 11: Summary conclusion of environmental assessment of Programme’s priority axis 2.

Environmental parameters	Effects	Brief assessment-Commentary
Biodiversity, Fauna and Flora	+	Priority axis 2 is expected to have positive effects on protection of flora and fauna species from any threats they face and any potential risks. Strengthening protection is estimated to have significant positive effects on both biotic and biotic environment. Positive effects are also expected from networking collaboration and efficient management of the protected areas, especially those of the NATURA 2000 network.
Human health and population	0 to +	Priority axis 2 is expected to have positive effects mostly through actions related to prevention and protection against natural and technological risks. Strengthening protection is estimated to have significant positive effects ensuring inhabitants economic and social activities.
Soil	+	Positive effects are expected from implementation of the priority axis 2, on conservation, protection and utilization of natural resources. At this point actions related to integrated management systems of natural resources (e.g. soil, water, etc) and cooperation in risk management (e.g. flood protection) can be promoted. Impacts may occur if projects for protection and improvement of natural environment will be implemented without taking all appropriate precautions to reduce any disturbances to the natural environment. However these impacts are considered to be weak and negligible.
Water	+	
Air	- to +	
Climatic factors	- to +	

Environmental parameters	Effects	Brief assessment-Commentary
Material assets	0 to +	Priority axis 2 is expected to have positive effects mostly through actions related to prevention and protection against natural and technological risks.
Cultural heritage	0 to +	Priority axis 2 is expected to have positive effects mostly through actions related to prevention and protection against natural and technological risks.
Landscape	- to +	Positive effects are expected from implementation of the priority axis 2 on conservation, protection and utilization of natural ecosystems. Impacts may occur if projects for protection and improvement of natural environment will be implemented without taking all appropriate precautions to reduce and prevent any changes on landscape and ecosystem natural character.

Table 12: Environmental assessment of Priority Axis 3, Thematic objective 7b Enhancing regional mobility by connecting secondary and tertiary nodes to TEN-T infrastructure, including multimodal nodes.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	- to 0	weak		✓		✓		✓		✓	
Human health and population	-to +	strong									
Soil	- to 0	moderate		✓			✓			✓	
Water	- to 0	moderate		✓			✓	✓		✓	
Air	- to 0	moderate			✓	✓				✓	
Climatic factors	0										
Material assets	+	strong		✓		✓			✓		
Cultural heritage	0										
Landscape	- to 0	moderate	✓			✓		✓	✓		

Table 13: Environmental assessment of Priority Axis 3, Thematic objective 7c Developing and improving environmentally-friendly (including low-noise) and low-carbon transport systems, including inland waterways and maritime transport, ports, multimodal links and airport infrastructure, in order to promote sustainable regional and local mobility.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	- to +	moderate		✓		✓		✓		✓	
Human health and population	+	strong									
Soil	- to 0	moderate		✓			✓	✓		✓	
Water	- to 0	moderate		✓			✓	✓		✓	
Air	- to +	moderate			✓	✓				✓	
Climatic factors	0										
Material assets	+	strong		✓		✓			✓		
Cultural heritage	0										
Landscape	- to +	moderate	✓			✓		✓	✓		

Table 14: Summary conclusion of environmental assessment of Programme’s priority axis 3.

Environmental parameters	Effects	Brief assessment-Commentary
Biodiversity, Fauna and Flora	- to 0	Priority axis 3 is not expected to primarily affect the natural environment. However impacts on biodiversity cannot be excluded if interventions are located in ecological sensitive areas, without taking all appropriate measures for protection or restoration of the environment and biodiversity.
Human health and population	- to +	<p>Actions for transportation improvement are expected to positively contribute to commercial activities stimulation and trade strengthening between the two countries and also help to improve inhabitants living and working conditions and competitiveness of businesses.</p> <p>Potential impacts on human health associated with a possible increase of emitted pollutants at construction sites. However they are expected to affect on a local scale.</p>
Soil	- to 0	Priority axis 3 is not expected to primarily affect the natural environment. However impact on natural environment cannot be excluded if interventions are located in ecological sensitive areas, without taking all appropriate measures for protection or restoration of the environment.
Water	- to 0	
Air	- to 0	
Climatic factors	0	
Material assets	+	Actions for transportation improvement are expected to positively contribute to commercial activities stimulation and trade strengthening between the two countries.
Cultural heritage	0	

Environmental parameters	Effects	Brief assessment-Commentary
Landscape	- to 0	Priority axis 3 is not expected to primarily affect the natural environment. However impact on environment cannot be excluded if interventions are located in ecological sensitive areas, without taking all appropriate measures for protection or restoration of the environment.

Table 15: Environmental assessment of Priority Axis 4, Thematic objective 9a Investing in health and social infrastructure which contribute to national, regional and local development, reducing inequalities in terms of health status, promoting social inclusion through improved access to social, cultural and recreational services and the transition from institutional to community-based services.

Environmental Parameters	Type	Intensity	Time horizon display			Duration		Accumulation	Source		Synergy
			Short-term	Medium-term	Long-term	Permanent	Temporary		Primary	Secondary	
Biodiversity, Fauna and Flora	0										
Human health and population	+	strong	✓			✓			✓		
Soil	0										
Water	0										
Air	0										
Climatic factors	0										
Material assets	0										
Cultural heritage	0										
Landscape	0										

Table 16: Summary conclusion of environmental assessment of Programme's priority axis 4.

Environmental parameters	Effects	Brief assessment-Commentary
Biodiversity, Fauna and Flora	0	
Human health and population	+	Implementation of this priority axis is expected to have positive effects on human health and life expectancy.
Soil	0	
Water	0	
Air	0	
Climatic factors	0	
Material assets	0	
Cultural heritage	0	
Landscape	0	

Table 17: Environmental assessment of Priority Axis 5.

Environmental parameters	Effects	Brief assessment-Commentary
Biodiversity, Fauna and Flora	0	Priority axis 5 is a tool for enhancing management and operational structures of the Programme. Its implementation is not expected to have any immediate impact on the external environment of the Programme. Proper Programme management is expected to facilitate the flow of actions as well as the faster completion of integrated projects in all of its priority axes. In this sense this priority axis can be considered as a horizontal axis supporting any actions of Greece-Bulgaria operational Programme. With this in mind, any caused environmental effects are the result of the other priority axes of the Programme
Human health and population	0	
Soil	0	
Water	0	
Air	0	
Climatic factors	0	
Material assets	0	
Cultural heritage	0	
Landscape	0	

8.3 PROPOSALS TO PREVENT, REDUCE AND AS FULLY AS POSSIBLE OFFSET ANY SIGNIFICANT ADVERSE EFFECTS ON THE ENVIRONMENT

In general, the Greece-Bulgaria cross-border cooperation Programme is expected to have significant positive environmental effects on all parameters studied. This is due to the fact that it has been designed towards sustainability and addresses the variety of issues related to the degradation of the natural environment, quality of life and development of the eligible cross-border area.

About all of the above identified adverse impacts aroused from the implementation of the foreseen priority axes of the Programme, proposals for their prevention, as well as their reduction and response will be presented. These will be analyzed per priority axis.

➤ Priority axis 1

Results of Priority axis 1 primarily concern the socio-economic features of the eligible area. In this issue, the overall effect of this priority axis is assessed as positive.

Priority axis 1 is not expected to primarily affect the natural environment. However impacts on natural environment cannot be excluded if benefited businesses are located in ecological sensitive areas, without taking all appropriate measures for environmental protection, restoration and monitoring and compliance with the existing legal provisions on using natural resources.

Implementation of eligible actions of this Axis requires compliance with the existing environmental legislation of each country (where appropriate) on environmental permissions and approval and maintenance of any required specific environmental conditions and also preparation and approval of all required environmental studies.

According to the Bulgarian legislation, the plans, programs, projects and investment proposals under the Programme for cross-border cooperation "Greece-Bulgaria 2014-2020", which fall within the scope of the annexes to the Law for Environmental Protection and the provisions of the Article 31 of the Law for Biodiversity are liable to the assessment of their compatibility with the object and the goals of conserving the protected areas and could be approved only after the decision /statement of the EIA / EA / AC (Environmental Impact Assessment / Environmental Assessment / Assessment of Compatibility) for approval /coordination, in compliance with the recommendations of the evaluations carried out and the terms, conditions and measures laid down in the decision/opinion.

Respectively, according to the Greek legislation, the plans, programmes, projects and actions risen in the context of cross-border cooperation Programme "Greece-Bulgaria 2014-2020" which fall within the scope of the Law for Environmental Permitting and the Law for the protection of Biodiversity should be accompanied by an impact assessment on the scope, objectives and conservation status of protected areas and their approval requires elaboration and approval of specific studies (Study for Environmental Impacts Assessment, Special Ecological Evaluation).

It should be noted that:

- this axis could promote strengthening business activities with environmentally friendly production processes, cooperation of businesses on adoption of new technologies (industrial emission control facilities) and improving their environmental character within selection of proposals that will join this Programme;
- in the sector of strengthening businesses competitiveness, aid actions for voluntary participation in the eco-management and audit scheme (EMAS) or the adoption certifications (ISO) by companies could be provided. These actions also provide improvement of their environmental performance, while also improving their image market.

➤ **Priority Axis 2**

Priority axis 2 is expected to have positive effects on the protection of flora and fauna species from any threats they face and any potential risks. Positive effects are also expected from networking collaboration and efficient management of the protected areas, especially those of the NATURA 2000 network.

Impacts may occur if projects for protection and improvement of natural environment will be implemented without taking all appropriate precautions to reduce any disturbances to the natural environment. However, these impacts are considered to be weak and negligible.

Implementation of eligible actions of this Axis requires compliance with the existing environmental legislation of each country (where appropriate) on environmental permission and approval and maintenance of any required specific environmental conditions and also preparation and approval all required environmental studies, as mentioned above.

Considering the implementation of this priority axis and thematic objectives it should be noted that focusing on common rules and standards for protection, upgrading and integrated management of transnational environmental resources of high regional importance will improve the Programme's results and contribute effectively to its objectives achievement. Creating and operation of partnership networks of private and public actors will contribute to obtaining additional benefits towards this direction. Assistance to this will also be provided by voluntary groups for preventing and dealing with natural disasters.

➤ **Priority Axis 3**

Actions for transportation improvement are expected to positively contribute to the stimulation and trade of commercial activities as well as the strengthening between the two countries and also help to improve the inhabitants' living and working conditions and competitiveness of businesses.

Priority axis 3 is not expected to primarily affect the natural environment. However, impacts on natural environment cannot be excluded if interventions are located in ecological sensitive areas, without taking all appropriate measures for the protection or restoration of the environment.

Implementation of eligible actions of this Axis requires compliance with the existing environmental legislation of each country (where appropriate) on environmental permission and approval and maintenance of any required specific environmental conditions, as mentioned above. In these cases preparation of all required studies (studies for environmental assessment, congestion studies etc) ensures compatibility with the environment.

➤ **Priority Axis 4**

Implementation of priority axis 4 is not expected to cause adverse environmental impacts. Therefore taking and additional offsetting measures is not necessary.

➤ **Priority Axis 5**

Priority axis 5 is a tool for enhancing management and operational structures of the Programme. Its implementation is not expected to have any immediate impact on the external environment of the Programme.

8.4 MONITORING SYSTEM FOR THE IMPLEMENTATION OF THE OPERATIONAL PROGRAMME - SUGGESTIONS FOR ITS IMPROVEMENT

Directive 2001/42 provides a system to monitor actions effectiveness and achievement of environmental objectives. Planning this Programme, a monitoring system was designed and indicators for evaluating achievement of its specific objectives and investment priorities were identified. These indicators, which can also be used to assess its effectiveness in relation to environmental objectives, are listed below.

This section includes some proposals of additional indicators for improving environmental monitoring and evaluation of Programme's quality and increasing its added value of the environmental dimension. Programme's environmental added value is reflected by its contribution to: i) protection, preserving and improvement of natural environment and biodiversity, ii) conservation, restoration and enhancement of natural heritage, iii) sustainable use and management of natural resources and iv) information-awareness and strengthening of volunteerism for environmental protection and restoration.

❖ **Priority Axis 1: A competitive and Innovative Cross-Border area**

Program indicators

- Entrepreneurial business environment
- Awareness of business opportunities beyond local markets
- Number of enterprises receiving support

- Number of clusters and other collaborative schemes composed of stakeholders/enterprises from both sides of border
- Number of enterprises cooperating with research institutions

Proposed environmental indicators

- Number of business with improved environmental characteristics

Measurement unit: Number

Baseline year: 2014

Target value (2023): 10

Source of data: Programme MIS

Frequency of reporting: Annually

❖ **Priority Axis 2: A Sustainable and climate adaptable Cross-Border area**

Program indicators

- CB Areas in risk of natural disasters covered by jointly coordinated CB action-management plans
- Satisfaction from visits to the supported sites
- % of Natura areas (surface) participating in biodiversity preservation strategies and pilot actions in the 2014-2020 programming period
- % of total renewable CB area water resources under improved management systems
- Population benefiting from flood protection measures
- Number of cultural and/or natural assets rehabilitated/protected
- Number of biodiversity preservation projects
- Number of joint projects dealing with common water management issues

Proposed environmental indicators

- Number of Natura areas benefited from forest fires prevention plans/measures

Measurement unit: Number

Baseline value: 86

Baseline year:2013

Target value (2023): 5

Source of data: Programme MIS

Frequency of reporting: Annually

- Number of programs/actions on enhancement of awareness and volunteering for environmental protection and restoration

Measurement unit: Number

Baseline year:2014

Target value (2023): 5

Source of data: Programme MIS

Frequency of reporting: Annually

❖ **Priority Axis 3: A better interconnected Cross- Border area**

Program indicators

- Travel-distance reduction at reconstructed/rehabilitated roads
- Number of intelligent transport system users
- Number of road kms constructed/rehabilitated
- Number of projects on intelligent transport systems interventions

Proposed environmental indicators

- Number of projects/actions related to the reduction of the transports' environmental footprint

Measurement unit: Number

Baseline year:2014

Target value (2023): 3

Source of data: Programme MIS

Frequency of reporting: Annually

❖ **Priority Axis 4: A socially inclusive Cross-Border area**

Program indicators

- Population covered by improved health services in the 2014-2020 programming period
- Increase in CB employment at social enterprises
- Number of health care institutions reorganized, modernized or reequipped
- Number of ICT systems developed
- Number of supported social enterprises

9 REGULATORY INFORMATION

The implementation of the Programme's measures coupled with the prevention and reduction of cause of adverse environmental effects and monitoring of these, should be done after special environmental approval. In this section all regulatory information relating to environmental approval of the Programme's actions will be clarified.

From all the above it is obvious that the Programme has proposed measures and actions per priority axis and thematic objective, within the framework of environmental protection principles. These measures can be supplemented with additional proposals described in section 8.3 and the designed monitoring system can be improved using the environmental indicators proposed in section 8.4.

Generally, interventions with sustainable perspective and minimal environmental disturbance during both the construction and operation phase should be preferred.

All interventions and their instances should be implemented according to the existing legislation on environmental protection. Also all required studies should be prepared and compliance with any specific environmental conditions and commitments should be ensured. In addition, the following factors should be taken into account while designing interventions:

- Interventions should be designed in order to minimize the overall unfavorable effects on the surrounding environment.
- Habitats and sensitive ecological areas remain unaffected.
- Monuments of cultural and archaeological heritage remain unaffected.
- Areas that already face environmental threats are not further affected.
- Priority is given in areas with environmental degradation and significant environmental problems.
- Comply with legal limits for air pollutant emission and wastewater disposal.
- Encourage using friendly environmental technologies such as recycling and water resources saving technologies, reducing/avoiding waste (liquid and solid) disposal into the environment.

10 DIFFICULTIES DURING PREPARATION OF THE STUDY FOR SEA

The main issues addressed in the elaboration of any study for strategic environmental assessment is the lack of up-to-date and safe information for the entire area studied.

As far as the study area of the present Programme cross-border cooperation area is concerned, numerous studies/reports have been published on varied themes. The difficulty that arose was about retrieving recent information on the existing ecological and developmental conditions in the Bulgarian part of this area and coding and verifying all the information on the Greek part of this area.

SOURCES OF INFORMATION

Hellenic Statistical Authority

National Statistical Institute Of Bulgaria

European Union (Europa, EUR-Lex)

NATURA 2000 data bases

Ministry of environment, energy & climate change of Greek Republic

Ministry of environment and water of the Republic of Bulgaria

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PREPARATION OF THE CROSS-BORDER OPERATIONAL PROGRAMME
GREECE-BULGARIA 2014-2020 – Diagnostic Report, 2014

<http://natura2000.eea.europa.eu>

ANNEX

Table 1. Areas of Natura 2000 ecological network at the greek part of the eligible area.

CODE	NAME
GR1110002	DASOS DADIAS - SOUFLI
GR1110003	TREIS VRYSES
GR1110004	FENGARI SAMOTHRAKIS, ANATOLIKES AKTES, VRACHONISSIDA ZOURAFA KAI THALASSIA ZONI
GR1110005	VOUNA EVROU
GR1110006	DELTA EVROU
GR1110007	DELTA EVROU KAI DYTIKOS VRACHIONAS
GR1110008	PARAPOTAMIO DASOS VOREIOU EVROU KAI ARDA
GR1110009	NOTIO DASIKO SYMPLEGMATA EVROU
GR1110010	OREINOS EVROS - KOILADA DEREIOU
GR1110011	KOILADA ERYTHROPOTAMOU: ASVESTADES, KOUFOVOUNO, VRYSIKA
GR1110012	SAMOTHRAKI: OROS FENGARI KAI PARAKTIA ZONI
GR1120003	OROS CHAINTOU - KOULA KAI GYRO KORYFES
GR1120004	STENA NESTOU
GR1120005	AISTHITIKO DASOS NESTOU
GR1130006	POTAMOS FILIOURIS
GR1130007	POTAMOS KOMPSATOS (NEA KOITI)
GR1130008	MARONEIA - SPILAION
GR1130009	LIMNES KAI LIMNOTHALASSES TIS THRAKIS - EVRYTERI PERIOCHI KAI PARAKTIA ZONI
GR1130010	LIMNES VISTONIS, ISMARIS - LIMNOTHALASSES PORTO LAGOS, ALYKI PTELEA, XIROLIMNI, KARATZA
GR1130011	KOILADA FILIOURI
GR1130012	KOILADA KOMPSATOU
GR1140001	DASOS FRAKTOU
GR1140002	RODOPI (SIMYDA)
GR1140003	PERIOCHI ELATIA, PYRAMIS KOUTRA
GR1140004	KORYFES OROUS FALAKRO
GR1140008	KENTRIKI RODOPI KAI KOILADA NESTOU
GR1140009	OROS FALAKRO
GR1150001	DELTA NESTOU KAI LIMNOTHALASSES KERAMOTIS KAI NISOS THASOPOULA
GR1150005	KORYFES OROUS PANGAIO
GR1150008	ORMOS POTAMIAS - AKR. PYRGOS EOS N. GRAMVOUSSA
GR1150009	KOLPOS PALAIOU - ORMOS ELEFTHON
GR1150010	DELTA NESTOU KAI LIMNOTHALASSES KERAMOTIS - EVRYTERI

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	PERIOCHI KAI PARAKTIA ZONI
GR1150011	OROS PANGAIO KAI NOTIES YPOREIES TOU
GR1150012	THASOS (OROS YPSARIO KAI PARAKTIA ZONI) KAI NISIDES KOINYRA, XIRONISI
GR1220001	LIMNES VOLVI KAI LAGKADA - EVRYTERI PERIOCHI
GR1220002	DELTA AXIOU - LOUDIA - ALIAKMONA - EVRYTERI PERIOCHI - AXIOUPOLI
GR1220003	STENA RENTINAS - EVRYTERI PERIOCHI
GR1220005	LIMNOTHALASSA ANGELOCHORIOU
GR1220009	LIMNES KORONEIAS - VOLVIS, STENA RENTINAS KAI EVRYTERI PERIOCHI
GR1220010	DELTA AXIOU - LOUDIA - ALIAKMONA - ALYKI KITROUS
GR1220011	LIMNOTHALASSA EPANOMIS
GR1220012	LIMNOTHALASSA EPANOMIS KAI THALASSIA PARAKTIA ZONI
GR1260001	LIMNI KERKINI - KROUSIA - KORYFES OROUS BELES, ANGISTRO - CHAROPO
GR1260002	EKVOLES POTAMOU STRYMONA
GR1260003	AI GIANNIS - EPTAMYLOI
GR1260004	KORYFES OROUS MENOIKION - OROS KOUSKOURAS - YPSOMA
GR1260005	KORYFES OROUS ORVILOS
GR1260007	ORI VRONTOUS - LAILIAS - EPIMIKES
GR1260008	TECHNITI LIMNI KERKINIS - OROS KROUSIA
GR1260009	KOILADA TIMIOU PRODROMOU-MENOIKION
GR1260010	OROS BELES

Reference: Ministry of environment, energy & climate change of Hellenic Republic, 2014.

Table 2. Areas of Natura 2000 ecological network at the bulgarian part of the eligible area.

CODE	NAME
BG0000195	РЕКА ТУНДЖА 2
BG0000212	САКАР
BG0000217	ЖДРЕЛОТО НА РЕКА ТУНДЖА
BG0000218	ДЕРВЕНТСКИ ВЪЗВИШЕНИЯ 1
BG0000287	МЕРИЧЛЕРСКА РЕКА
BG0000372	ЦИГАНСКО ГРАДИЩЕ
BG0000425	РЕКА СЪЗЛИЙКА
BG0000434	БАНСКА РЕКА
BG0000435	РЕКА КАЯЛИЙКА
BG0000440	РЕКА СОКОЛИЦА
BG0000442	РЕКА МАРТИНКА
BG0000578	РЕКА МАРИЦА
BG0001013	СКРИНО
BG0001028	СРЕДЕН ПИРИН - АЛИБОТУШ
BG0001030	РОДОПИ - ЗАПАДНИ
BG0001031	РОДОПИ - СРЕДНИ
BG0001032	РОДОПИ - ИЗТОЧНИ
BG0001034	ОСТЪР КАМЪК
BG0002012	КРУМОВИЦА
BG0002013	СТУДЕН КЛАДЕНЕЦ
BG0002014	МАДЖАРОВО
BG0002019	БЯЛА РЕКА
BG0002020	РАДИНЧЕВО
BG0002021	САКАР
BG0002022	ЯЗОВИР РОЗОВ КЛАДЕНЕЦ
BG0002063	ЗАПАДНИ РОДОПИ
BG0002071	МОСТ АРДА
BG0002073	ДОБРОСТАН
BG0002078	СЛАВЯНКА
BG0002081	МАРИЦА - ПЪРВОМАЙ
BG0002092	ХАРМАНЛИЙСКА РЕКА
BG0002103	ЗЛАТО ПОЛЕ
BG0002105	ПЕРСЕНК
BG0002106	ЯЗОВИР ИВАЙЛОВГРАД
BG0002113	ТРИГРАД - МУРСАЛИЦА

Reference: Ministry of environment and water of the Republic of Bulgaria, 2014.