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Republic of Bulgaria  
Ministry of Regional Development – DG Territorial  
Cooperation Management  
**EX-ANTE EVALUATION AND SEA OF THE BULGARIA –  
TURKEY IPA CBC PROGRAMME 2014-2020**

Environmental report

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## 1 Non-technical summary

According to the SEA Directive EU/2001/42 a Strategic Environmental Assessment (SEA) must be implemented as part of the programming procedure of the IPA CBC Bulgaria-Turkey Programme 2014-2020. The Environmental Assessment of the IPA CBC Bulgaria-Turkey Programme 2014-2020 follows the SEA process steps corresponding to the typical programming stages within the Cohesion Policy, as defined in the “*Guidance document on ex-ante evaluation (2014-2020)*”. The SEA aims at assessing the possible impacts on the environment of the IPA CBC Bulgaria-Turkey Programme 2014-2020 on the environment. The purpose of the SEA is to provide for 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.

The draft version 1 (June 2014) forms the basis for the assessment of possible effects on the environment resulting from the implementation of this Programme.

### Core contents of the IPA CBC Bulgaria-Turkey Programme 2014-2020

The IPA CBC Bulgaria-Turkey Programme 2014-2020 is a European cooperation programme, which aims to improve and preserve the environment to foster sustainability (in all dimension) and quality of life (Priority Axis 1) and strengthening the tourism sector by capitalising on the cultural and natural heritage in the BG-TR CBC region (Priority Axis 2). The overall Strategy of the IPA CBC Bulgaria-Turkey Programme 2014-2020 is embedded in the superordinate objectives and strategies of the EU, in particular the EU 2020 Strategy.

The 2 selected thematic priorities (out of the list identified in the Annex III of the IPA II regulation) have been structured into two **Priority Axes** (PA), which reflect the needs and challenges as identified in the situation analysis of the programme area:

THEMATIC PRIORITY	PRIORITY AXIS	SPECIFIC OBJECTIVE
2. Protecting the environment and promoting climate change adaptation, risk prevention and management	1. “Environment”	SO-1.1. To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters in the CBC region SO-1.2. Improvement of the capacity for nature protection and sustainable use of common natural resources in the CBC area
4. Encouraging Tourism and cultural and natural heritage	2. “Sustainable Tourism”	SO-2.1 Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage SO-2.2 Improvement of possibilities for sustainable touristic services in the CBC-region SO-2.3 Networking for sustainable development of tourism potential

## Current state of the environment

Regarding the current state of the environmental issues considered (Air and Climate, Water, Biodiversity, flora and fauna, Water, Soil and Cultural/natural heritage and landscape) emerges the environmental issues such as “Water”, “Soil” or “Air and Climate” are exposed to various pressures (e.g. from transport or waste management) which can have an adverse effect on these issues. Ambient air conditions in the CBC region are comparatively good. The main reasons for air pollution are emissions of fuel used in industry and for households heating and exhaust gases of vehicles. Along with excellent quality of the air in the mountain area “hot spots” are registered. The cross border cooperation area is rich in terms of presence of biodiversity element, due to varieties of typologies of landscapes, from medium high mountains to the coast of the black sea. In particular regarding the black sea are important to underline the threats to coastal and marine biological diversity can be listed as the entry of foreign species, over fishing, illegal fishing, pollution, the destruction of habitats, tourism activities, and interventions with the water regime. In terms of water quality the major pollutants of the surface waters are the domestic and fecal waters from the urban sewerage systems of the large settlements and the industrial wastewater discharged without treatment into the rivers. With view to soil the main challenges derive from water and wind erosion and pollutants. In relation to the attractiveness of the CBC area although the major tourist destinations are at the Bulgarian Black Sea coast, in the recent years some new forms of “all seasons tourist destinations/attractions” has occurred, e.g. SPA tourism, cultural, historical tourism, rural tourism, and sport tourism.

## Methods of assessment

The environmental assessment has been performed with an identification of the possible effects and impacts resulting from the implementation of the Programme, taking into account their probability, scale, frequency/duration, reversibility, transboundary dimension, uncertainty.

The **assessment of likely effects on environment resulting from the Programme** has been **conducted at the level of Priority Axis and their corresponding Specific Objectives**, taking into account the cross-border actions to be supported.

The environmental assessment have been guided by the following central question: *Do the Specific objectives (and corresponding cross-border actions) related to the Priority axes identified in the in the Bulgaria- Turkey IPA CBC Programme 2014-2020 have a significantly positive or negative effect on the environmental issues (air and climate; biodiversity, fauna and flora; water ;soil; population and human health; cultural/natural heritage and landscape – and their related cross-cutting themes) in the Programme’s area?* and supported by guiding **Evaluation Questions** consolidated through the identified SEA Objectives.

The Environmental Report provides a **qualitative description of the potential positive or negative effects (direct, indirect and cumulative)** of the Programme’s Specific Objectives and activities on the respective environmental issues (“**findings**” of the analysis), with **recommendations to prevent, reduce** and as fully as possible **offset** any significant **adverse effects** on the environment of implementing the Programme. These recommendations are also referred to criteria to use in course of the project selection, including eligibility and quality criteria in terms of environmental impact.

## Possible environmental effects of the Programme

The assessment at the programme level can only provide a general outline of possible environmental effects. This is due to the fact that more detailed information on the likely environmental effects will occur at the implementation phase of the projects. It has to be noticed that the likely significant effects and impacts on the environment resulting from the

implementation of the Programme are both of indirect nature (linked mainly to “Soft measures”), but also in some case more direct (“Investment measures”). This figure provides an overview of the possible effects on the environmental issues resulting from the Programme.

	Environmental issue					
	Air and Climate	Biodiversity, Flora and Fauna	Water	Soil	Population and Human Health	Cultural/Natural Heritage and Landscape
<b>Priority Axis 1: “Environment”</b>						
SO1.1. To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters	+	+	+	+	+	+
SO 1.2. Improvement of the capacity for nature protection and sustainable use of common natural resources	+	+	+	+	+	+
<b>Priority Axis 2: “Sustainable tourism”</b>						
SO 2.1. Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage	+/-	+/-	+/-	+/-	0	+/-
SO 2.2. Improvement of possibilities for sustainable touristic services	0	0	0	0	0	0
SO 2.3. Networking for sustainable development of tourism potential	+	+	+	+	+	+
<b>Accumulation of impacts</b>	+	+	+	+	+	+

No significant negative cumulative impact is expected from activities financed by the Programme. Instead, positive cumulative effects are expected on all environmental issues considered, since the whole Programme assumes protection of environment and sustainable development of productive activities as the strategic approach on which all activities are based, according also to European and national policies.

Most important positive results are expected to be achieved on protection of natural resources of the project area, thanks to improved capacity to manage critical situations (wood fires and other natural disasters) but also to information/training activities targeted on local authorities and local communities on the importance of the management/protection of natural, cultural and historical heritage of the Region.

Preservation and amelioration of water resources are expected as well. The development of tourist sector can be considered as “sustainable” only if it is accompanied by the parallel improvement of the existing water supply and sewerage systems, but also local population can benefit of such structures.

Potential risks for the environment can be linked mainly to the same subject, namely the development of uncontrolled initiatives related to tourist sector: structures for accommodation without appropriate infrastructures for water supply and treatment, deficiencies of public transports, proliferation of structures with negative impacts on landscape.

### **Monitoring measures**

According to the SEA Directive Article 10, possible significant environmental effects of the implementation of the Programme shall be monitored in order to identify at an early stage unforeseen adverse effects, and to enable the Programme Managing Authority to undertake appropriate remedial actions.

The proposed monitoring system was developed on the basis of the possible significant environmental effects of the implementation of the Programme, detected in the environmental assessment and present, at both programme and project levels, different types of indicators which can contribute to identification and monitoring of possible significant environmental effects resulting from the implementation of the IPA CBC Bulgaria-Turkey Programme 2014-2020.

The proposed monitoring system defines appropriate environmental indicators (“SEA indicators”) integrated in the monitoring and evaluation framework of the Programme, in order to avoid duplication of monitoring, as required by SEA legislation

At project level, a preliminary impact assessment on environmental issues is recommended: the applicants could make an Environmental Self-assessment about the environmental aspects of the proposed projects following the list of proposed Evaluation Questions.

## 2 Introduction

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The Regulatory framework for the period 2014-2020 drives European policies, as the Cohesion Policy, towards results in order to contribute to the Europe 2020 Strategy for a smart, sustainable and inclusive growth. To this end, the Common Provision Regulation (1303/2013) increases the importance of well-designed programmes taking into great account European, national and regional needs as well as the expected results. In this framework, the role of ex-ante evaluation is reinforced as an essential support to programming authorities in designing Operational Programmes' architecture (clearly organising their intervention logic and defining their contribution to Europe 2020 strategy) and in outlining suitable implementing and monitoring devices to meet evaluation requirements.

Where appropriate, the ex-ante evaluation shall be combine with the **Strategic Environmental Assessment (SEA)** carried out according to the European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, known as the SEA Directive. The objective of this 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* by ensuring that an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment.

In this context, as it cannot be excluded that the future IPA Cross-border Cooperation Programme Bulgaria-Turkey 2014-2020 might trigger positive and/or negative environmental effects, a Strategic Environmental Assessment (SEA) is therefore required.

For that, the **Environmental Report** at hand – the main document of the SEA – evaluates possible environmental impacts related to Priorities Axes and Specific Objectives of the Programme and gives recommendations on how to enhance the quality of the programme in respect to environmental aspects.

The Environmental Assessment of the IPA CBC Bulgaria-Turkey Programme 2014-2020 follows the SEA process steps corresponding to the typical programming stages within the Cohesion Policy, as defined in the "*Guidance document on ex-ante evaluation (2014-2020)*".

It has to be noted that the IPA CBC Bulgaria-Turkey Programme 2014-2020 is a European Cross border cooperation programme which aims to support, through Instrument for Pre-accession Assistance (IPA), the reforms in the "enlargement countries" with financial and technical help. The IPA Programme gives support for political reforms and for economic, social and territorial development - with a view to smart, sustainable and inclusive growth - and promotes regional integration and territorial cooperation. This means that the IPA CBC Bulgaria-Turkey Programme 2014-2020 mainly promote "soft factors"<sup>1</sup> (such as the building of and increasing of capacities including exchange of knowledge and good practices among the participating countries) with limited direct effects on the environment that are thought the process of SEA<sup>2</sup>. Nevertheless, the promotion of "soft factors" forms the basis for further investment activities.

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<sup>1</sup> Anyway, the Programme also provides support for small-scale infrastructures.

<sup>2</sup> In this context it should be noted that the Programme sets a framework for cross-border cooperation in small budget and "networking" projects activities with environmental considerations strongly present in it. This cannot be connected with significant immediate adverse environmental impacts. In this context, what has been primarily analysed is whether the Programme contribute to a development

Following the SEA procedure and in accordance with Bulgarian and Turkish legislation on Environmental Assessment, this SEA Report (**Environmental Report**) is presented by the Managing Authority of the Programme and must be made available, together with the Operational Programme (OP), to the relevant authorities and the public in both participating countries for the **public consultation process** (see paragraph 2.5).

## 2.1 Purpose and objectives of SEA

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In compliance with the requirements of the Directive 2001/42/EC and the national Bulgarian regulation<sup>3</sup>, the SEA aims at assessing the possible impacts on the environment of the IPA CBC Bulgaria-Turkey Programme 2014-2020 implementation. The purpose of the SEA is to provide for 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. The SEA is carried out during the preparation of the programme and will be completed before the submission to the Commission of the programme.

The first step within the SEA, the **scoping process**, was undertaken to decide upon the scope and level of detail of the information which must be included in the Environmental Report. Correspondingly, a Scoping Report was developed and consulted with relevant authorities.

To enable the identification of interactions between the Programme and the environment, this **SEA Report** includes a review of the current state of the environment which is discussed in separate components (biodiversity, soil, water, air, etc.) in Chapter 5, and a description of the core contents of the Programme, in particular the Intervention Logic (overall objective, thematic priorities, priority axes, actions to be supported).

The Environmental Report provides, among other things, an **assessment of likely significant effects of the Programme** including secondary, cumulative, short-term and long-term, positive and negative effects of the activities under the Priority axes, taking into account the objectives and the geographical scope agreed upon within the scoping phase. Another important part of the Environmental Report are the recommendations on how to enhance the environmental impact of the Programme and to prevent, reduce and offset adverse effects. Alternatives are also considered, including the zero-option, which is defined as the “baseline” for the overall assessment process. Finally the Environmental Report present different types of measures which can contribute to monitoring of possible significant environmental effects resulting from the implementation of the IPA CBC Bulgaria-Turkey Programme 2014-2020.

The Environmental Report is based on the draft of the Programme June 2014 vers. 1 – which, together with the Environmental Report, will be subject to public consultation.

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framework with indirect, long-term negative impacts. At the same time, long-term environmental benefits have been brought out and enhanced.

<sup>3</sup> Bulgaria transposed the SEA Directive through the Environmental Protection Act No. 91/2002 and by the Ordinance for the conditions and the order for implementing ecological assessment of plans and programmes (Adopted by Council of Ministers Decision № 139 of 24.06.2004, as last amended SG 94 of 30.11.2012).



## 2.2 Methodological approach to the assessment

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With regard to the **assessment methodology**, the SEA of the Programme has been done in an **iterative process**, based on interim results of the programming process and in close coordination with the programming and the ex-ante evaluation team. The assessment is based, *in primis*, on a **quality approach**<sup>4</sup>.

More specifically, **methods and techniques** utilised for environmental assessment and completion of this Environmental Report are those listed in the Commission guidance documents and reports on the application of the SEA Directive, in particular in the following documents:

- Handbook on SEA for Cohesion Policy 2007-2013" (Handbook on SEA) - January 2006, "Green/environmentally friendly regional development programmes";
- Guidance on "Implementation of Directive 2001/42 on the assessment of the effects of certain plans and programmes on the environment;
- Guidance on integrating climate change and biodiversity into Strategic Environmental Assessment - EA, 2013.

National specific legislation, manuals and guidelines developed by Bulgaria and Turkey were also taken into account.

## 2.3 Method of environmental assessment

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The **environmental assessment** has been performed with an identification of the possible effects and impacts resulting from the implementation of the Programme, taking into account their probability, scale, frequency/duration, reversibility, transboundary dimension, uncertainty.

The **assessment of likely effects on environment resulting from the Programme** has been **conducted at the level of Priority Axis and their corresponding Specific Objectives**, taking into account the cross-border actions to be supported.

In this context the assessment at the programme level can only provide a general outline of possible environmental effects. This is due to the fact that more detailed information on the likely environmental effects will occur at the implementation phase of the funded projects.

The environmental assessment have been guided by the following **central question**:

*“Do the Specific objectives (and corresponding cross-border actions) related to the Priority axes identified in the in the Bulgaria- Turkey IPA CBC Programme 2014-2020 have a significantly positive or negative effect on the environmental issues (air and climate; biodiversity, fauna and flora; water ;soil; population and human health; cultural/natural heritage and landscape – and their related cross-cutting themes) in the Programme’s area?”*

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<sup>4</sup> Anyway, the "toolbox" used includes both qualitative (checklists, matrices, etc.) and quantitative (indicators, simple or synthetic indices) tools, as well as intermediate tools.

To answer the central question the assessment has been supported by guiding **Evaluation Questions** consolidated through the identified SEA Objectives (see § 4.7).

The environmental assessment has been carried out on the basis of the following 5-point-scale.

POINT SCALE	DESCRIPTION
+	Possible positive environmental effects
-	Possible negative environmental effects
+/-	Both possible positive and negative environmental effects
0	No significant environmental effects
/	Assessment is not possible (limited availability of information)

The results of the analysis are given in an **environmental assessment matrix**. Cross-cutting themes have been integrated into the assessment of the respective environmental issues. Accordingly, the themes “use of renewable energy sources”, “energy efficiency” and “mobility and transport” have been assigned to “air and climate”; the theme “risk management” have be assigned to the issues “population and human health”, “air and climate”, “soil” and “water”; the theme “sustainable use of natural resources” have be assigned to the issues “water” and “soil”; the theme “waste management and prevention” have be assigned to “soil” and “population and human health”; the theme “adaptation to climate change” have be assigned to the issues “air and climate”, “biodiversity, fauna and flora” and “water”; the theme “sustainable tourism” have be assigned to the issues “biodiversity, fauna and flora”, “water”, “air and climate”, “soil” and “cultural/natural heritage and landscape”; finally the cross-cutting theme “environmental education and awareness raising on environmental issues” have be integrated into the assessment of all the issues selected.

In the context of environmental assessment matrix, the Environmental Report provides a **qualitative description of the potential positive or negative effects (direct, indirect and cumulative)** of the Programme’s Specific Objectives and activities on the respective environmental issues (“**findings**” of the analysis), with **recommendations to prevent, reduce** and as fully as possible **offset** any significant **adverse effects** on the environment of implementing the Programme. These recommendations are also referred to criteria to use in course of the project selection, including eligibility and quality criteria in terms of environmental impact.

## 2.4 Consultation on the Scoping report

According to the SEA Bulgarian Regulation for the terms and conditions of the Environmental Assessment of plans and programmes (EA Regulation, Art. 19a) a public consultation of the Scoping Report is obligatory.

The **Scoping Report** was made available to the relevant authorities<sup>5</sup> which by reason of their specific environmental responsibilities, are likely to be concerned by the environmental effects of implementing plans and programmes, in order to receive their professional comments.

<sup>5</sup> As identified in the Scoping Report.

All the environmental authorities and relevant bodies of both participating countries consulted on the Scoping Report had **14 days to send their remarks**. In this period of time were received the remarks from:

- Basin Directorate for Water Management in the Black Sea Region – Varna
- Ministry of Environment and Water
- Bulgarian Society for the Protection of Birds/ BirdLife partner in Bulgaria

All of the observations received were taken into account for the implementation of the assessment of the environmental effects of the Programme and the implementation of the Environmental Report.

## 2.5 Consultation on the Environmental report

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According to the SEA Directive and the national SEA laws, the **Environmental Report**, its **Non Technical Summary** and the draft of the Operational Programme (OP) must be made available to the relevant authorities and the public in both participating countries for the consultation phase of **30 days**.

The SEA directive makes the following requirements concerning the consultation of the Environmental Report:

- *“2. The authorities referred to in paragraph 3 and the public referred to in paragraph 4 shall be given an early and effective opportunity within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report before the adoption of the plan or programme or its submission to the legislative procedure.*
- *3. Member States shall designate the authorities to be consulted which, by reason of their specific environmental responsibilities, are likely to be concerned by the environmental effects of implementing plans and programmes.*
- *4. Member States shall identify the public for the purposes of paragraph 2, including the public affected or likely to be affected by, or having an interest in, the decision-making subject to this Directive, including relevant non-governmental organisations, such as those promoting environmental protection and other organisations concerned.*
- *5. The detailed arrangements for the information and consultation of the authorities and the public shall be determined by the Member States.”*

In the **SEA public consultation process** of Bulgaria-Turkey IPA CBC Programme 2014-2020 should at least be involved:

- the **competent authority** and other interested and relevant **environmental authorities**<sup>6</sup>;
- the **Districts authorities** of the eligible area of the Programme;
- **representatives of the public and third parties**, which can be affected by the programme implementation;
- **non-governmental organizations** (NGOs);

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<sup>6</sup> As identified in the Scoping Report **Ministry of Environment and Water; Ministry of Health; Regional Inspectorates of Environment and Water (Stara Zagora, Burgas and Haskovo); Basin Directorates of "Black Sea Region" and "East Aegean region".**In Turkey the **Ministry of Environment and Forestry**.

- environmental agencies, professional associations, employer's organizations, trades unions, associations of local self-government, foundations, independent research institutes, the not-for profit media, etc..

The consultations will be formal and (eventually) informal. Formal consultations will be conducted by: official letters (on paper or by e-mail), publications in mass media and/or website of the Managing Authority of the Programme, and the competent authorities; official letters and publications in the press and on the Internet for consultations with the public, the interested authorities and third parties who are likely to be affected by the Programme. Informal consultation could be conducted through informal meetings between SEA experts and representatives of the Managing Authority, representatives of the competent authorities, national authorities.

After the consultation process all the responses will be collected and explanation shall be given showing how the Environmental Report and the consultation replies have been taken into account in the final Programme.

### 3 Description of the Programme CBC Bulgaria – Turkey 2014-2020

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#### 3.1 Geographical area of relevance

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Geographically the implementation of the IPA CBC Programme between Bulgaria and Turkey covers the eligible area of the Programme, which is located in **South-Eastern Europe** and includes the **districts of Burgas, Yambol and Haskovo in Bulgaria** and the **provinces of Edirne and Kırklareli in Turkey**. The overall eligible area is about 29.000 km<sup>2</sup> representing 14.99% of the Bulgarian territory and 1.58% of the Turkey total country territory. The total population is of 1,5 Million people (784.480 in the Bulgarian area and 742.000 in the Turkish one) showing a very low population density from 39,7 inhabitants/km<sup>2</sup> in Yambol to 64,7 inhabitants/km<sup>2</sup> in Edirne. The core Programme area remains the same as in the period 2007-2013.

### Eligible area of the Programme



Source: Description of the CBC Programme Region

## 3.2 Relevant period of time

Environmental trends and Programme effects will be assessed throughout the programming period 2014-2020, until the programme implementation deadline and, when programme effects are considered as long term, even further on (**relevant period for trend and effects**).

## 3.3 Core contents of the Programme

### 3.3.1 General framework and Programme content

The IPA CBC Bulgaria-Turkey Programme 2014-2020 is a European cooperation programme, which *aims to improve and preserve the environment to foster sustainability (in all dimension) and quality of life (Priority Axis 1) and strengthening the tourism sector by capitalising on the cultural and natural heritage in the BG-TR CBC region (Priority Axis 2)*.

The strategic orientation of the Programme considers both EU policies and regulatory framework as well as the specific situation and needs of the Programme area<sup>7</sup>.

Regarding EU strategic and regulatory documents, the most relevant<sup>8</sup> for the Programme are:

- the **Europe 2020 Strategy**<sup>9</sup>;

<sup>7</sup> The strategic orientation further reflects the CBC relevance of potential interventions.

<sup>8</sup> See par. 3.4 for more documents.

<sup>9</sup> This Union Strategy put forward three mutually reinforcing priorities:

- Smart growth: developing an economy based on knowledge and innovation;

- the Framework regulation on the implementation of **ETC initiatives**<sup>10</sup>;
- the **IPA II regulation**<sup>11</sup>;
- the Commission staff working document “**Elements for a Common Strategic Framework 2014 to 2020**”<sup>12</sup>;
- the (draft) **EC Partnership Agreement of the Republic of Bulgaria**<sup>13</sup>;
- the **EC country Strategy Paper 2014-2020 for EU assistance to Turkey**<sup>14</sup>;

The Bulgaria-Turkey IPA CBC Programme (2014-2020) also considers how it could potentially contribute to implement the actions foreseen by the “**Black Sea Synergy – A New Regional Cooperation Initiative**” that focuses on 13 cooperation sectors, including democracy and good governance, managing movement and improving security, “frozen” conflicts, energy, transport, **environment, maritime policy, fisheries**, trade, research and education networks, science and technology, employment and social affairs, and regional development.<sup>15</sup>

In addition, the following **horizontal principals** are taken into consideration for the strategic orientation of the Programme:

- **Sustainable development**;
- Equal opportunities and non discrimination, and
- Equality between man and women.

In particular, sustainable development is one of the main pillars of IPA CBC Programme Bulgaria-Turkey (2014-2020) that supports several specific objectives that focus fully on sustainable development.

### 3.3.2 Key objectives and priorities of the Programme

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The process carried on for the definition of Programme priorities has been characterized by the elaboration of a Regional Analysis and the Analysis of Strengths, Weaknesses, Opportunities, Threats (SWOT) and Needs/Challenges for the Programme’s intervention area.

- Sustainable growth: promoting a more resource efficient, greener and more competitive economy;
- Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.

<sup>10</sup> Regulation (EU) No 1299/2013 of the EP and the Council of 17 December 2013.

<sup>11</sup> Regulation (EU) No 231/2014 of the EP and the Council of 11 March 2014.

<sup>12</sup> The document suggests, in Annex II, a number of characteristics of transnational and cross-border cooperation. Cross-border cooperation, in particular, is characterised by some features, which can be summarised as: coverage of large areas with a high diversity of regions and often conflicting interests; limited budgets in relation to the covered area, population and time frame, which often contradict the scope and objectives of cooperation initiatives; limited ability to deliver direct investment effects, acting as an auxiliary to mainstream programmes; mainly intangible results.

<sup>13</sup> Draft Partnership Agreement of the Republic of Bulgaria outlining the Support from the European Structural and Investment Funds for the 2014-2020 Period, submitted to the EC in April 2014. The Partnership Agreement between Bulgaria and the European Commission defines as main priority areas for cooperation: environmental protection, promotion and development of natural and cultural heritage, tourism and education and social infrastructure, with special emphasis on employment promotion, labour mobility and poverty reduction.

<sup>14</sup> The draft document is available at [www.ipa.gov.tr/.../document/IPA%20II%20CSP%...](http://www.ipa.gov.tr/.../document/IPA%20II%20CSP%...)

<sup>15</sup> [http://eeas.europa.eu/blacksea/index\\_en.htm](http://eeas.europa.eu/blacksea/index_en.htm)

In a final analytical step the results, *in primis*, of the territorial situation as well as the results of the SWOT analysis and need assessment have been “translated” into a “priorisation” and a list of 2 out of 8 **Thematic Priorities** for assistance for territorial cooperation for the period from 2014-2020, as identified in the Annex III of the IPA II regulation:

- Thematic priority 2: **Protecting the environment and promoting climate change adaption, risk prevention and management.**
- Thematic priority 4: **Encouraging Tourism and cultural and natural heritage;**

The selected thematic priorities have been structured into **two Priority Axes (PA)**, which reflect the needs and challenges as identified in the situation analysis of the programme area:

**Tab. 1 Priority Axes identified**

THEMATIC PRIORITY	PRIORITY AXIS
2. Protecting the environment and promoting climate change adaption, risk prevention and management	3. “Environment”
4. Encouraging Tourism and cultural and natural heritage	4. “Sustainable Tourism”

The provisional Programme’s budget is set out around 25 Mio EUR (EU contribution). The programming team have proposed the following proportionate distribution of the financial resources available between the 2 Priority Axes:

**Tab. 2 Distribution of the Programme’s financial resources**

PRIORITY AXES	% <sup>16</sup>
1. “Environment”	45%
2. “Sustainable Tourism”	45%

The proposed **Intervention Logic of the Bulgaria-Turkey IPA CBC Programme 2014-2020**<sup>17</sup> (see the tables below) is structured in **Specific Objectives (SO)** for each (PA); the **results** that are seek to be achieved with the Programme, and the **indicative actions** to be supported under each specific objective.

The operations under cross-border cooperation programmes shall be selected by the JMC<sup>18</sup>. The following general principles will guide the selection of operations:

a) CBC character

- Involvement of beneficiaries of the two participating countries
- Clear identification of cross-border benefit/impact if operation is implemented in a single country

b) Partnership

- The involved project partners are eligible corresponding to the programme’s rules
- The involved project partners have the capacity for the project’s management

c) Regional relevance

<sup>16</sup> 10% on the total amount will be available for “Technical Assistance”.

<sup>17</sup> As presented in the Draft Operational Programme, Version 1.0 – June 2014.

<sup>18</sup> According to article 39 (1), Selection of operations, of Commission Implementing regulation (EU) No 447/214 of 2 May 2014 on the specific rules for implementing Regulation (EU) No 231 of the European Parliament and of the Council establishing an Instrument for Pre-accession Assistance (IPA II)

- the operations are in correspondence to the identified needs and challenges of the CBC area
- The operations contribute to economic, territorial and social cohesion (following the EU-2020 Strategy)
- d) Strategic relevance
  - The operations are in line with the priority axis' specific objectives
  - The operations are coherent with strategies and concept at the regional and the national level
- e) Operations' quality
  - The operations/projects are clear and structured (intervention logic)
  - Expenditures of the operations are effective
  - The projects are based on the concept of sustainability
- f) Horizontal principles
  - The operations take the equality between men and women into account
  - The operations consider non-discrimination principles
  - The operations follow the concept of sustainable development

### Priority Axis 1 intervention Logic

#### Thematic Priority: "Protecting the environment and promoting climate change adaption, risk prevention and management"

Priority Axis 1 "Environment"		
Specific Objective	Results	Indicative actions to be supported
<b>SO-1.1.</b> <b>To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters in the CBC region</b>	<b>R-1.1.1</b> Improved preparedness of the region concerning natural and man-made hazards and disasters R-1.1.2:	<u>Investment measures</u> <ul style="list-style-type: none"> <li>• Development of early warning and disaster management systems</li> <li>• Investments in equipment related to disaster resilience: up-to-date ICT solutions in pre-fire, fire and post-fire activities; supply of specialized fire-fighting equipment; supply of specialized equipment for floods, and for search and rescue interventions; supply of system for air surveillance of the surface and real time transmission of data, etc.</li> <li>• Support of small-scale interventions / investments: sanitation and reforestation of river banks; building flood defence (dikes, canals etc.); forestation of non-permanent vulnerable land; cuttings for emergency situations;</li> <li>• Other appropriate investment activities in relation to flooding and fire protection &amp; early warning systems development and implementation</li> <li>• Soft measures</li> <li>• Joint trainings and raising awareness of public service actors and population for disaster resilience</li> <li>• Developing joint strategies / common guidelines for risk prevention and management of natural and man-made disasters (for disaster protection</li> </ul>
	<b>R-1.1.2</b> Improved capacity for joint interaction in case of fires, floods and other emergency situations	



		<p>and prevention policies and mechanisms, prevention and firefighting management etc.)</p> <ul style="list-style-type: none"> <li>• Awareness campaigns in the field of efficient risk prevention and management.</li> <li>• Conducting joint theoretical-tactical exercises and field trainings for emergency situations management</li> <li>• Trainings in the use of ICT technologies, including introduction of innovative methods for learning (e-learning);</li> <li>• Exchange of experience and good practice (study visits, round-tables, conferences, and others);</li> <li>• Joint trainings and awareness raising of public service actors, youths, volunteers and population for disaster resilience.</li> </ul>
<b>SO-1.2.</b> <b>Improvement of the capacity for nature protection and sustainable use of common natural resources in the CBC area</b>	<b>R-1.2.1</b> Improved conditions of nature-protected sites	<u>Investment measures</u> <ul style="list-style-type: none"> <li>• Small-scale investments for improving accessibility of / to nature protected sites;</li> <li>• Small-scale investment (green infrastructure, etc.)</li> </ul>
	<b>R-1.2.2</b> Improved capacity for nature protection and sustainable use of common natural resources in the CBC area	<u>Soft measures</u> <ul style="list-style-type: none"> <li>• Joint cooperation initiatives targeting the effective management of protected areas</li> <li>• Joint initiatives addressing nature protection in the Black Sea and coastal zones</li> <li>• Joint initiatives towards the protection and restoration of ecosystems and endangered/protected species</li> <li>• Preservation and improvement of the quality of natural resources (air, soil, water)</li> <li>• Building capacities of local authorities in the environment-related matters</li> <li>• Cooperation, exchange of experiences and knowledge between institutions;</li> <li>• Cooperation between authorities, NGOs in the field of safe and sustainable low-carbon economy across borders</li> <li>• Cooperative measures of education and training institutions in the field of environment and low-carbon economy</li> <li>• Development and implementation of joint activities including information and awareness campaigns and exchange of know-how in the fields of environmental &amp; nature protection</li> <li>• Joint initiatives addressing sustainable use of resources, recycling, etc</li> </ul>

For each SO the table below shows the target groups and the potential beneficiaries of the individuated indicative action that will be supported in PA 1.

### Target groups and potential beneficiaries of Priority Axis 1 actions

Priority Axis 1	Specific Objectives	
	SO-1.1.	SO-1.2.
<b>Target groups</b>		
All levels of Local/Regional authorities	x	x
Associations of Local/Regional authorities and of other organisations	x	x
Regional offices and structures of central government institutions/ administrations	x	x
Euro regions and other joint cross border structures and institutions	x	x
Administrations of protected areas	x	x
Affected population of the CBC region	x	
Young people (up to age of 29)	x	
Groups of population of the CBC region	x	x
Youth organizations		x
Educational and training institutions and organizations		x
Business support institutions and organisations - Chambers of commerce, industry and crafts and others		x
<b>Potential beneficiaries</b>		
All levels of Local/Regional authorities	x	x
Associations of Local/Regional authorities and of other organisations		x
Regional and sector development agencies	x	
Central and regional offices and structures of relevant government institutions/ administrations	x	x
Administrations of protected areas		x
Euro regions and other joint cross border structures and institutions		x
<b>Potential beneficiaries to implement soft measures<sup>19</sup></b>		
Educational and training institutions and organizations		x
Youth organizations		x
Business support institutions and organisations - Chambers of commerce, industry and crafts and others		x
NGOs		x

### Priority Axis 2 intervention Logic

Thematic Priority: "Encouraging Tourism and cultural and natural heritage"

Priority Axis 2 "Sustainable Tourism"		
Specific Objective	Results	Indicative actions to be supported

<sup>19</sup> Potential beneficiaries to implement soft measures are individuated only for the Specific Objective 1.2

<p><b>SO-2.1</b>  <b>Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage</b></p>	<p><b>R-2.1.1</b>  Increased tourist attractiveness of the cross-border region</p>	<p><u>Investment measures</u></p> <ul style="list-style-type: none"> <li>• Rehabilitation of access roads to natural, cultural and historic tourism sites</li> <li>• Public utilities upgrade (electricity, water supply, sewerage, etc.)</li> <li>• Small touristic border crossings and related facilities</li> <li>• ICT facilities developed/upgrade</li> <li>• Restoration and maintenance of sites of historical and cultural importance</li> <li>• Conservation and protection of (both tangible and non-tangible) natural, historical and cultural heritage</li> <li>• Cycling routes</li> <li>• Walking paths</li> <li>• Establishment of info-centres and/or kiosks to guide potential visitors</li> </ul> <p><u>Soft measures</u></p> <ul style="list-style-type: none"> <li>• Development of joint GIS platforms</li> <li>• Development of joint platforms for online reservations, payment, etc.</li> <li>• Development of touristic transport schemes and related activities in Black Sea coastal zones</li> </ul>
<p><b>SO-2.2</b>  <b>Improvement of possibilities for sustainable touristic services in the CBC-region</b></p>	<p><b>R 2.2.1</b>  Improved possibilities for sustainable touristic services in the CBC-region</p>	<ul style="list-style-type: none"> <li>• Joint researches on potential niche tourism activities and/or on the demand for new tourist destinations and experience</li> <li>• Research activities to identify tourist products with potential for cross-border branding</li> <li>• Development of local brand/s based on natural, historical and cultural heritage of the region</li> <li>• Support for the development of new products and services</li> <li>• Multi-lingual on-line platforms presenting ready-to-go touristic projects targeted at key investors</li> <li>• Creating knowledge networks for tourism innovations in the border area</li> <li>• Training and consultancy support services for tourism enterprises/establishments to improve skills and performance</li> <li>• Visualisation of local brand/s, incl. 3D visualisation, mobile applications, social networks, tailor-made internet platforms, and other innovative tools</li> <li>• Organisation (and participation in) of fairs and related activities (i.e. exhibitions, conferences, seminars, round tables, presentations, etc.)</li> <li>• Identification and application of best practices in tourism promotion</li> <li>• Development and promotion of alternative forms of tourism, e.g. “gourme”, “eco”, “SPA”, “rural” etc</li> </ul>

<b>SO-2.3</b> <b>Networking sustainable development of tourism potential</b>	<b>R 2.3.1</b> Enhanced cooperation among regional actors related to sustainable tourism	<u>Soft measures</u> <ul style="list-style-type: none"> <li>• Organisation of events, training courses network possibilities for exchange of good practices in sustainable tourism management, incl. online forums</li> <li>• Organisation of networking events, incl. initiatives for strengthening existing and establishing new partnerships in the area of sustainable tourism</li> <li>• Surveys on domestic and international demand for cross-border tourism experiences; surveys on quality of extant services, projects to monitor sustainable tourism development and related services, etc.</li> <li>• Organisation of joint events to promote cross-border natural and cultural heritage, such as one-day festivals, exhibitions, performances, etc.</li> <li>• Promotion and cultivation of the common traditions of the borderland areas</li> <li>• Awareness raising campaigns on the values of regional cultural and natural heritage, incl. among youth</li> <li>• Joint actions for regional and local cross-border cooperation and capacity building in the field of tourism – trainings, best practice &amp; networking events, surveys, researches on the legal framework in the field of tourism, on-line forums, conferences, seminars, round tables, presentations and others</li> <li>• Joint local development initiatives for specific target groups (youth, migrants, and others)</li> <li>• Joint marketing and networking activities</li> </ul>
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For each SO the table below shows the target groups and the potential beneficiaries of the individuated indicative action that will be supported in Axis 2.

### Target groups and potential beneficiaries of Axis 2 actions

Priority Axis 2	Specific Objectives		
	<u>SO-2.1.</u>	<u>SO-2.2.</u>	<u>SO-3.2.</u>
<b><u>Target groups</u></b>			
All levels of regional/local authorities	<b>x</b>	<b>x</b>	<b>x</b>
Associations of Local/Regional authorities and of other organisations			<b>x</b>
Central and regional offices and structures of relevant government institutions/ administrations		<b>x</b>	<b>x</b>
Administrations of protected areas	<b>x</b>	<b>x</b>	<b>x</b>
Touristic organisations and associations	<b>x</b>		

Residents of the cross-border area and the visitors (tourists)	X		X
Registered NGOs in the field of tourism		X	X
Business support institutions and organisations - Chambers of commerce, industry and crafts and others		X	X
Tourist boards and associations		X	X
NGOs		X	
Educational and training institutions and organizations			X
Community organisations and institutions involved in development of civil society and/or promotion of education, culture and sports			X
Youth organisations		X	X
<b>Potential beneficiaries</b>			
All levels of regional/local authorities	X	X	X
Regional and sector development agencies	X		
Central and regional offices and structures of relevant government institutions/ administrations	X	X	X
Administrations of protected areas		X	X
Registered NGOs in the field of tourism		X	
Public cultural institutes (museum, library, community centres, etc.)	X		
Registered regional touristic associations	X		
Registered NGOs			X
Business support institutions and organisations - Chambers of commerce, industry and crafts and others	X	X	X
Tourist boards and associations		X	X
NGOs	X		
Educational and training institutions and organizations	X	X	X
Community organisations and institutions involved in development of civil society and/or promotion of education, culture and sports			X
Youths organizations			X
Public ultural institutes (museum, library, community centres, etc.)		X	

Under both PA **strategic projects** could be identified outside calls for proposals for the achievement of the Programme objectives and priority specific objectives. Strategic projects contribute to achievement of a bigger impact through real and strong cross-border impact

and long-term results, in respect of the Programme's objectives. Strategic Projects must be effective and answer the territory's needs as envisaged by the Programme and result in a significant and long-lasting change or improvement on the whole or large parts of Programme area. The basic principles for the eligibility of a strategic project could be the following

- to address key specific objectives that can be achieved only through the involvement of large partnerships and /or of key stakeholders on the two sides of the border;
- to be based on a larger financial size than ordinary projects, proportionate to the relevance of the objectives and results;
- to produce lasting effects and catalyze further actions.

Concerning "**sustainable development**" into the Programme's text it is stated:

*Generally, all three dimensions of sustainability, including the ecological, the economic as well as the social one, will be taken into consideration within the IPA BG-TR Programme; therefore the programme contributes directly to the Europe 2020 Strategy's components of smart, sustainable and inclusive growth.*

*Within all axes of the programme strategy, sustainable development is seen as a cross-cutting issue with all three pillars (economic, social and environmental) equally represented in the two Programme priority axes. Especially the Programme's **Priority Axis 1**, which targets cooperation on natural and cultural resources for sustainable growth, takes into account environmental protection, resource efficiency, climate change (include both mitigation and adaptation) as well as natural hazards, disaster and risk resilience, prevention and management. In these fields, the Programme mainly contributes to the generation and dissemination of knowledge and capacities on the protection and sustainable use of natural resources and addresses issues of resource management. **Priority Axis 2**, which deals with sustainable tourism, targets cooperation on the creation of sustainable tourist services and tourism attractiveness will capitalise on the existing natural and cultural resources, which shall be managed and preserved in a sustainable way.*

*Besides actions within the Programme priorities, which may foster sustainable development, a number of activities have been identified which may be implemented in projects submitted under any chosen priority axis.*

*All projects and interventions of the IPA BG-TR Programme can integrate measures to ease the burden of emissions of their actions, e.g. by:*

- *actively tackle wider environmental concerns*
- *actively tackle environmental issues of specific concern, including climate change as well as the maintaining of biodiversity and ecosystems*
- *carrying out environmental management (structured experience sharing, capacity development, etc.)*
- *actively tackle sustainability issues, including ecological, economic and social concerns*
- *adopting measures for the organisation and implementation of conferences and events in a sustainable way*

*Additionally, all projects funded by the Programme should:*

- *contribute to the implementation of the reviewed European Union Strategy for Sustainable Development (2009), which shall be proved by each project applicant in a conclusive and transparent way which shall be assessed as project selection criterion.*

- *consider the principles of the Community Policy regarding the protection and improvement of natural heritage and biodiversity as well as related amendments, such as the Flora-Fauna-Habitat directive and the Birds directive being the “cornerstone of Europe’s nature conservation policy” (European Commission, 2013: online<sup>20</sup>).*
- *consider greater use of renewable energy.*

### 3.4 Relations to other relevant programmes and strategies

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The Bulgaria-Turkey IPA CBC Programme (2014-2020) is designed in the framework of the European strategy for a smart, inclusive and sustainable growth and of the Common Strategic Framework 2014 to 2020, in which employment, demographic change and education are addressed as issues of cross-border relevance. Additionally, sustainable development, climate change mitigation and natural disasters (developing integrated cross-border natural risk management) as well as biodiversity are outlined as relevant issues.

The framework of the Programme also includes the European Territorial Cooperation (ETC)<sup>21</sup> strategy that, in general – and Cross-border cooperation, in specifics – contributes under the ETC goal *“to the thematic objectives of developing an economy based on knowledge, research and innovation, including through the fostering of cooperation between businesses, particularly between SMEs, and through the promotion of the establishment of systems for crossborder information exchange in the area of ICT; promoting a greener, more resource efficient and competitive economy, including through the promotion of sustainable crossborder mobility; fostering high employment that results in social and territorial cohesion, including through activities supporting sustainable tourism, culture and natural heritage as part of a territorial strategy aimed at achieving employment-friendly growth; and developing administrative capacity”*.

In this context, the Instrument for Pre-Accession Assistance (IPA), as an instrument of the implementation of the EU cohesion policy, supports cross-border co-operation along the external borders of the Union and its general objective aims at supporting *“beneficiaries [...] in adopting and implementing the political, institutional, legal, administrative, social and economic reforms required by those beneficiaries in order to comply with the Union’s values and to progressively align to the Union’s rules, standards, policies and practices, with a view to Union membership”*.

The overall context for the cooperation programmes and the strategic anchor of the IPA CBC is the EU Cohesion policy framework that supports the objectives of the Europe 2020 Strategy.

The **IPA CBC Programme Bulgaria-Turkey (2014-2020)** is also directly linked to other EU policy documents which are developed in order to support EU 2020 Strategy. The ex ante evaluation assess the coherence (see chapter 2.2.1: *External coherence including Europe 2020*<sup>22</sup>) of the Programme to these documents, hereafter identified:

- EU Strategy for more Growth and Jobs Coastal and Maritime Tourism;
- Programme for the Environment and Climate Action (LIFE Programme) for the period 2014-2020;

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<sup>20</sup> Cf. EU COM (2013): The Habitats Directive. URL:

[http://ec.europa.eu/environment/nature/legislation/habitatsdirective/\(June,2014\)](http://ec.europa.eu/environment/nature/legislation/habitatsdirective/(June,2014))

<sup>21</sup> as **defined in regulation 1299/2013**.

<sup>22</sup> Ex ante evaluation IPA CBC Bulgaria-Turkey, Final Report–DRAFT, 30 June 2014.

- Community Mechanism for Civil Protection (CMCP);
- EU Strategy Black Sea Region;
- Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea
- Black Sea Synergy – A New Regional Cooperation Initiatives;
- EU Strategy Danube Region (EUSDR).

The Programme is also related with a number of national and regional level planning strategies/programmes and documents of both countries. The ex ante evaluation also applies the assessment of the external coherence to the following documents:

- National Development Programme (NDP): Bulgaria 2020;
- National Reform Programme of the Republic of Bulgaria in the implementation of strategy Europe 2020, 2014;
- National Strategy for Regional Development of Bulgaria (NSRD) 2012-2022;
- the (draft) EC Partnership Agreement (PA) of the Republic of Bulgaria<sup>23</sup>;
- Bulgarian Position Paper (PP);
- Bulgarian OP Environment 2014-2020;
- Bulgarian OP Regional Development 2014-2020;
- Bulgarian OP Human Resources Development 2014-2020;
- Bulgarian OP Administrative Capacity 2014-2020;
- Draft EC Strategy Paper for Turkey 2014-2020;
- Tenth Development Plan 2014-2018;
- Trakya Region 2014-2023 Draft Region Plan;
- Turkey OP Environment;
- Turkey OP Regional Competitiveness;
- Turkey OP Human Resources Development.

#### 4 **Environmental policy framework: relevant plans, programmes and Environmental protection objectives which are relevant to the Programme and identification of SEA Objectives**

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For each of the defined environmental issues (**1) air and climate; 2) biodiversity, fauna and flora; 3) water; 4) soil; 5) population and human health; 6) cultural/natural heritage and landscape**) and cross-cutting themes<sup>24</sup>, this chapter presents an overview of the environmental policy framework that has been taken into account for the identification of all of the relevant **environmental protection objectives**, in order to evaluate the consistency of the IPA CBC Bulgaria-Turkey 2014-2020 with international, EU, regional and national environmental goals and objectives. The choice of environmental policies is based on the relevance of their objectives to each of the defined environmental issues and cross-cutting themes.

<sup>23</sup> Draft Partnership Agreement of the Republic of Bulgaria outlining the Support from the European Structural and Investment Funds for the 2014-2020 Period, submitted to the EC in April 2014.

<sup>24</sup> issues like “use of renewable energy sources”, “energy efficiency”, “adaptation to climate change”, “mobility and transport”, “waste management and prevention”, “risk management”, “sustainable tourism”, “sustainable use of natural resources” and “environmental education and awareness raising on environmental issues”.



Besides the specific policies for each of the defined environmental issues, superordinate strategies and programmes, at EU and regional level, will also be considered. An example:

- The **7<sup>th</sup> EU Environmental Action Programme (EAP)** “*Living well, within the limits of our planet*“ which will be guiding European environment policy until 2020 and its key objectives:
  - To protect, conserve and enhance EU’s natural capital;
  - To turn the EU into a resource efficient, green and competitive low-carbon economy;
  - To safeguard EU citizens from environment-related pressures and risks to health and wellbeing;
  - To maximize the benefits of EU environment legislation;
  - To improve the evidence base for environmental policy;
  - To secure investment for environment and climate policy and get the prices right;
  - To improve environmental integration and policy coherence;
  - To enhance the sustainability of EU cities;
  - To increase the EU’s effectiveness in addressing regional and global environmental and climate challenges.
- The **Europe 2020 Strategy** with the three priorities: smart growth: developing an economy based on knowledge and innovation; sustainable growth: promoting a more resource efficient, greener and more competitive economy; inclusive growth: fostering a high-employment economy delivering social and territorial cohesion;
- and the underpinning **flagship initiative Resource Efficient Europe** (to help decouple economic growth from the use of resources, by decarbonising the economy, increasing the use of renewable sources, modernising the transport sector and promoting energy efficiency);
- The **EU Sustainable Development Strategy** with the overall aim to develop actions to enable the EU to achieve a continuous long-term improvement of quality of life through the creation of sustainable communities able to manage and use resources efficiently, able to tap the ecological and social innovation potential of the economy and in the end able to ensure prosperity, environmental protection and social cohesion.
- The **“Black Sea Synergy – A New Regional Cooperation Initiative”** that focuses on 13 cooperation sectors, including democracy and good governance, managing movement and improving security, “frozen” conflicts, **energy, transport, environment, maritime policy, fisheries**, trade, research and education networks, science and technology, employment and social affairs, and regional development and the **Strategic Action Plan for the Environmental Protection and Rehabilitation of the Black Sea**.

Also at the national level superordinate strategies and policies can be relevant for the identification of **environmental protection objectives**.

For Bulgaria, the legal and environmentally relevant policy framework considered includes, among all:

- **National Development Programme “Bulgaria 2020”** (adopted by the Council of Ministers on 19/12/2012), a leading strategic and programming document which defines the objectives and policies for the development of the country by 2020. The main purpose is to achieve quality and balanced long-term economic growth. Three goals are set out:
  1. raising the standard of living through competitive education and training, creating conditions for quality employment and social inclusion and ensuring accessible and quality health care.

2. building of infrastructure networks, providing optimal conditions for the development of the economy and quality and healthy environment for the population.
  3. enhancing the competitiveness of the economy by ensuring a favourable business environment, promotion of investments, application of innovative solutions and improving resource efficiency.
- **National Regional Development Strategy (NRDS) 2012-2022** fundamental document defining the strategic framework of the government policy for attaining balanced and sustainable development of the country's regions and for overcoming the intra- and interregional differences/disparities in the context of the all-European policy of cohesion and achieving smart, sustainable and inclusive growth. The key strategic goal of NRDS is to achieve sustainable integrated regional development based on the utilization of local potential and cohesion between the regions in an economic, social and territorial aspect.
  - **Guidelines for Mainstreaming the Environment Policy (EP) and the Climate Change Policy (CCP) into the Funds of the Cohesion Policy, the Common Agricultural Policy and the Common Fisheries Policy for the period 2014-2020**, developed by the Ministry of Environment and Water, Bulgaria (approved by the Council of Ministers on 01.03.2013);

For Turkey the environmental strategic framework is based on the **EU integrated environmental approximation strategy 2007-2023**, the strategy by which Turkey aligns its legislation, institutional structures and work practices with the requirements of the Environmental European legislation (Chapter 27 of the *Acquis communautaire*). The framework also includes:

- **The Tenth Development Plan (2014-2018)** of the Republic of Turkey centres amongst other things upon the main goal of livable places and sustainable environment; main objectives include the construction of disaster-resistant living places and the extension of environment friendly practices and the sustainable use of natural resources;

In the following chapters are available for each of the defined environmental issue and cross-cutting themes the corresponding **relevant environmental legislation and policies** and their qualitative **environmental objectives** as well as by the resulting **guiding questions** which will be used as a valid instrument for the environmental assessment (chapter 8).

#### 4.1 Air and climate

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For the environmental issue **Air and Climate** the main pressure is air pollution that needs to be reduced in order to win the battle against climate change as to prevent from acidification, eutrophication and ground-level ozone pollution. At the international level climate change has been addressed by the United Nations Framework Convention on Climate Change (UNFCCC). The long-term objective is to stabilise atmospheric greenhouse gas concentrations at a level that would prevent dangerous anthropogenic interference with the climate system. The **Kyoto Protocol** sets international binding emission targets for GHG emissions. The first commitment period ended in 2012, while the follow-up protocol **Kyoto II** defines the second one from 2013 to 2020.

Furthermore, energy and transport sectors are interlinked and tightly related to this issue where they have been analysed. In fact, the cross-cutting themes integrated in the environmental issue Air and Climate are: “use of renewable energy sources”, “energy efficiency”, “adaptation to climate change”, “risk management” “environmental education and awareness raising on environmental issues” and “mobility and transport”.

The following table shows the list of relevant EU and national legal and policy framework from which the environmental objectives and the corresponding evaluation questions have been driven:

Relevant EU legislation and policies	Relevant Bulgarian legislation and policies	Relevant Turkey legislation and policies	Environmental Objectives	Evaluation questions
<p>EU Directive on ambient air quality and cleaner air for Europe (2008/50/EC)</p> <p>Thematic Strategy on Air pollution (COM(2005) 446)</p> <p>EU climate and energy package 2020</p> <p>EU Energy Efficiency Directive (2012/27/EU)</p> <p>EU Renewable Energy Directive (RED) (2009/28/EC)</p> <p>EU Strategy on adaptation to climate change (COM(2013) 216)</p> <p>EU White Paper for Transport (COM(2011)144)</p>	<p>Climate change mitigation Act</p> <p>Energy Strategy of Bulgaria to 2020</p> <p>Energy Act</p> <p>National action plan for renewable energy sources 2020</p> <p>Energy from Renewable Sources Act</p> <p>Third National Action Plan on Climate Change 2013-2020</p> <p>Ambient Air Purity Act</p> <p>Strategy for the development of the transport system of the republic of Bulgaria until 2020</p> <p>National Strategy for the Development of Forestry</p>	<p>law on Ambient Air Quality Assessment and Management</p> <p>Climate Change Strategy 2010-2020</p> <p>Climate Change ACTION PLAN 2011-2023</p> <p>National Climate Change Adaptation Strategy and Action Plan</p>	<i>Reduction of air pollution</i>	Will the specific objective have an effect on the reduction of air pollution?
			<i>Reduction of the GHG emissions</i>	Will the specific objective have an effect on the reduction of the GHG emissions?
			<i>Improvement of energy efficiency and increase of use of renewable energy resources</i>	Will the specific objective have an effect on the improvement of energy efficiency and increase of use of renewable energy resources?
			<i>Support of environmentally friendly transports</i>	Will the specific objective have an effect on the support of environmentally friendly transports?
			<i>Promotion of fire fight management and prevention</i>	Will the specific objective have an effect on the promotion of forest fire fight management and prevention?
			<i>Promotion of resilience to climate change and climate-related disasters</i>	Will the specific objective have an effect on the promotion of resilience to climate change and climate-related disasters?
			<i>Promotion of responsible behaviour of the public by involving the citizens into fighting climate change</i>	Will the specific objective have an effect on the promotion of responsible behaviour of the public by involving the citizens into fighting climate change?

The protection of air and climate is reflected in several regulations at the EU level. First of all the **EU Directive on ambient air quality and cleaner air for Europe** (2008/50/EC) in order to attain "levels of air quality that do not give rise to significant negative impacts on, and risks to human health and environment", establishes specific long-term objectives for air pollution and proposes measures for achieving them by 2020:

- 47% reduction in loss of life expectancy as a result of exposure to particulate matter;
- 10% reduction in acute mortalities from exposure to ozone;
- reduction in excess acid deposition of 74% and 39% in forest areas and surface freshwater areas respectively;
- 43% reduction in areas or ecosystems exposed to eutrophication.

In addition the **EU Thematic Strategy on Air pollution** (COM(2005) 446) sets objectives for reducing certain air pollutants (as SO<sub>2</sub>, NH<sub>3</sub>, VOC, NO<sub>x</sub> and PM 2.5).

In light of the Kyoto protocol that have been ratified by the EU Member States the EU adopted the **climate and energy package 2020**: a set of binding legislations which aims to ensure the European Union meets its ambitious climate and energy targets for 2020:

- A 20% reduction in EU greenhouse gas emissions from 1990 levels and a 20% improvement in the EU's energy efficiency, main goals linked to the **EU Energy Efficiency Directive** (2012/27/EU);
- Raising the share of EU energy consumption produced from renewable resources to 20%, objective promoted by the **EU Renewable Energy Directive** (RED) (2009/28/EC);

Not least, in the climate and energy policy framework for 2030, the European Commission proposes that the EU set itself a target of reducing emissions to 40% below 1990 levels by 2030.

In the contest of climate policy the overall aim of the **EU Strategy on adaptation to climate change** (COM(2013) 216) is to contribute to a more climate-resilient Europe. This means enhancing the capacity to respond to the impacts of climate change at local, regional, national and EU levels, developing a coherent approach and improving coordination.

Mobility and transport is viewed as a cross-cutting theme and is related also to the air and climate issue due to his high contribution to climate change. The transport related carbon emissions must be reduced and according to the roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system (**EU White Paper for Transport** (COM(2011)144) – sustainable mobility must be promoted. The roadmap of 40 concrete initiatives for the next decade, proposes to reduce Europe's dependence on imported oil and cut carbon emissions in transport by 60 % by 2050).

In Bulgaria:

The main priorities of the **Energy Strategy of Bulgaria to 2020** can be summarized in the following five directions: to guarantee the security of energy supply; to attain the targets for renewable energy; to increase the energy efficiency; to develop a competitive energy market and policy for the purpose of meeting the energy needs, and to protect the interests of the consumers.

The principal purposes of the **Energy Act** are to create conditions for:

- high-quality and secure supply of electricity, heat and natural gas to the general public;

- energy development and energy security through efficient use of energy and resources;
- generation, import, export, transmission, distribution and trade in electricity, heat, natural gas, oil and oil products shall be carried out under the guaranteed protection of the life and health of citizens, the property, the environment, the security of supplies, etc..

The **National action plan for renewable energy sources 2020** has the following objectives:

- promoting the development and use of technologies for production and consumption of: energy from renewable and alternative energy sources; biofuels and other renewable fuels;
- diversification of energy supplies;
- increase the capacity of small and medium producers of energy from renewable and alternative sources of energy and producers of biofuels and other renewable fuels;
- environmental protection;
- create conditions for achieving sustainable development at local and regional level.

The objectives of the **Energy from Renewable Sources Act** include among all:

- promotion of production and consumption of energy produced from renewable sources;
- creating conditions for achieving sustainable and competitive energy policy and economic growth through innovation, and implementation of new products and technologies;
- creating conditions for achieving sustainable development at regional and local levels;
- environmental protection and restricting climate change.

The **Climate Change Mitigation Act** (promulgated in March 2014) codifies the entire regulation in the field of climate change mitigation and fully transposes the current European legislation on climate change.

The main strategic objective of the **Third National Action Plan on Climate Change 2013-2020** is to outline the framework for action in the fight against climate change for the period 2013-2020, and to turn the country's efforts to actions that reduce the negative impact of climate change and the implementation of commitments. The main goal of the plan is reducing greenhouse gases in Bulgaria and implementation of existing EU legislation in the field of climate change.

The goal of the **Ambient Air Purity Act** (reinforced by the Environment Protection Act) is to protect the people's and their generation's health, the animals and the plants, their communities and habitats, the natural and cultural values from harmful effects, as well as to prevent the occurrence of dangers and damages to society in case of changes in the ambient air quality resulting from various activities.

The vision of the **National Strategy for the Development of Forestry 2013-2020** is to have vibrant, productive and multifunctional forests, sustainable, competitive and innovative forestry and biodiversity preserved, quantity and quality of water resources in forest areas. The sector will contribute the utmost to mitigate the effects of climate change and ensure the maintenance of a healthy environment. One of the strategic objectives is to increase the contribution of the forest sector in the green economy.

In relation to the cross-cutting theme of mobility and transport one of the strategic goals of the **Strategy for the Development of the Transport System of the Republic of Bulgaria for the period until 2020** is the development of sustainable transport sector through:

Reduction of the negative impact of transport on the environment and change; Integration of the Bulgarian transport system in Europe; provision of high level of safety and security of transport systems.

In Turkey:

The **law on Ambient Air Quality Assessment and Management** includes the implementation calendar for 13 different pollutants defined in the framework directive and daughter directives and covers the necessary instruments such as clean air and action plans to improve air quality, while aiming at monitoring, sanctioning and institutional strengthening in the field of air pollution control and air quality.

The **Climate Change Strategy 2010-2020** and the **Climate Change ACTION PLAN 2011-2023**. In the Strategy Document, Turkey's Strategic Targets within the scope of basic principles are listed as follows:

- to integrate policies and measures for mitigating and adapting to climate change into national development plans, consistent with the UNFCCC principle of “common but differentiated responsibilities” and its special circumstances,
- to contribute to the global greenhouse gas emission mitigation policies and measures, within its own capacity, by limiting the rate of growth of national greenhouse gas emissions, without disrupting its development program aligned with sustainable development principles,
- to increase national preparedness and capacity in order to avoid the adverse impacts of global climate change and to adapt to these impacts; to share emerging experiences and knowledge from such efforts with other countries in the region; and to develop bilateral and multilateral joint research projects for mitigation and adaptation,
- to comply with the design and implementation of global strategic objectives of mitigation, adaptation, technology transfer and finance that accounts for responsibilities of the parties, and to take active role in international activities,
- to increase access to the financial resources required for undertaking mitigation and adaptation activities,
- to develop national research and development (R&D) and innovation capacities towards clean production and to establish national and international financial resources and incentive mechanisms aimed at increasing competitiveness and production in this area by taking into consideration our current technology and development levels,
- to facilitate climate change adaptation and mitigation activities by ensuring efficient and continuous coordination and decision making processes based on transparency, stakeholder participation, and a strong reliance on a science focus,
- to raise public awareness in support of changing consumption patterns in climate friendly manner through joint efforts of all parties such as the public sector, private sector, universities and NGOs,
- to establish an integrated information management system in order to increase the flow and exchange of knowledge in national climate change efforts.

The Turkey's **National Climate Change Adaptation Strategy and Action Plan** have focused on five important fields Water Resources Management, Agricultural Sector and Food Security, Ecosystem Services, Biodiversity and Forestry, Natural Disaster Risk Management, and Public Health.

#### **4.2 Biodiversity, fauna and flora**

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One sphere of environmental policy that the programme could not neglect concerns Biodiversity, fauna and flora issue.

At the international level the **UN Convention on Biological Diversity (CBD, 1992) with its commitments (Nagoya protocol - 2010, Cartagena protocol on biosafety - 2000)** aims to the conservation of biological diversity, the sustainable use of the components of biological diversity.

The cross-cutting themes integrated in this environmental issue are and “sustainable tourism”, “environmental education and awareness raising on environmental issues”.

The following table shows the list of relevant EU and national legal and policy framework from which the environmental objectives and the corresponding evaluation questions have been driven:

Relevant EU legislation and policies	Relevant Bulgarian legislation and policies	Relevant Turkey legislation and policies	Environmental Objectives	Evaluation questions
<b>EU 2020 Biodiversity Strategy</b>  <b>EU Habitats Directive (92/43/EEC)</b>  <b>EU Birds Directive (2009/147/EC)</b>  EU Thematic Strategy on sustainable use of natural resources (COM(2005) 670)	Environment Protection Act	National Climate Change Adaptation Strategy and Action Plan  <b>Regulation on Protection of Wetlands</b>  <b>Environmental Law</b>	<b><i>Preservation of biodiversity, habitats and ecosystems and their services</i></b>	Will the specific objective have an effect on the preservation of biodiversity, habitats and ecosystems and their services?
	<b>Protected Areas Act</b>		<b>Preservation of the natural diversity of fauna, flora, and habitats in protected areas and Natura 2000 sites</b>	Will the specific objective have an effect on the preservation of the natural diversity of fauna, flora, and habitats in protected areas and Natura 2000 sites?
	<b>Biological Diversity Act</b>		<b>Protection of endangered species (plants and animals)</b>	Will the specific objective have an effect on the protection of endangered species (plants and animals)?
	<b>National priority action framework for Natura 2000</b>		<b>Decrease in loss of biodiversity</b>	Will the specific objective have an effect on the decrease in loss of biodiversity?
	Plant Protection Act		<b>Promotion of responsible behaviour of the public by involving the citizens in protecting biodiversity and natural areas</b>	Will the specific objective have an effect on the promotion of responsible behaviour of the public by involving the citizens in protecting biodiversity and natural areas?
	<b>National Strategy for the Development of Forestry</b>		<b>Promotion of tourism that would ensure</b>	Will the specific objective have an effect on the
	National Wetland Protection Plan for the Period 2013-2020			
Tourism Act				

			<i>high degree of nature conservation</i>	promotion of tourism that would ensure high degree of nature conservation?
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The **EU Biodiversity Strategy**, adopted in 2012 “Our life insurance, our natural capital: the EU biodiversity strategy to 2020” calls to halt the loss of biodiversity and ecosystem services in the EU by 2020. There are six main targets, and 20 actions to help Europe reach its goal. The six targets cover:

- Full implementation of EU nature legislation to protect biodiversity;
- Better protection for ecosystems, and more use of green infrastructure;
- More sustainable agriculture and forestry;
- Better management of fish stocks;
- Tighter controls on invasive alien species;
- A bigger EU contribution to averting global biodiversity loss.

The protection of endangered species in another objective. In relation to this is useful to remark the IUCN Global Species Programmes that provides the “red list of threatened species” in order to assess the conservation status and the degree to which they are endangered by extinction.

Biodiversity conservation and protection of wild birds and natural habitats are the core of the two **EU directives: Habitats and Birds**. In particular, the Habitats Directive establishes the Natura 2000 network of protected areas which aims to promote and assure long-term protection of threatened species and habitats.

In Bulgaria:

**The National priority action framework for Natura 2000** Bulgaria sets specific strategic conservation priorities for the period 2014 - 2020 to be implemented in the territory of protected areas NATURA 2000. These strategic priorities are the following: 1) Management planning of NATURA 2000 protected areas; 2) Sustainable management of NATURA 2000 protected areas; 3) Sustainable use of ecosystem services for optimum public benefits, and other factors for socio-economic development of regions; 4) Elaboration, development and maintenance of a shared vision for the ecological network Natura 2000 in Bulgaria; 5) technical assistance.

The purpose of the **Protected Areas Act** is to conserve and preserve protected areas as a national and universal human wealth and asset and as a special form of conservation of Bulgarian nature, conducive to the advancement of culture and science and to public welfare.

The **Biological Diversity Act** have the following objectives:

- conservation of natural habitat types representative of the Republic of Bulgaria and of Europe and habitats of endangered, rare and endemic plant and animal species within a National Ecological Network;
- conservation of the protected plant and animal species of the flora and fauna of the Republic of Bulgaria, as well as of those as are subject to use and trade;
- conservation of the genetic resources and the diversity of plant and animal species outside the natural surroundings thereof;
- regulation of the introduction of non-native and the reintroduction of native plant and animal species into the wild;
- regulation of trade in specimens of endangered species of wild flora and fauna;
- conservation of centuries-old and remarkable trees.



The vision of the **National Strategy for the Development of Forestry** is: by 2020, Bulgaria will have vibrant, productive and multifunctional forests, sustainable, competitive and innovative forestry and biodiversity preserved, quantity and quality of water resources in forest areas. The sector will contribute to the economic development of the country, will contribute to mitigate the effects of climate change and ensure the maintenance of a healthy environment. Realization of the vision is to achieve strategic objectives in the medium term as ensuring sustainable development of the forestry sector by achieving optimal balance between environmental functions and their ability to provide long-term tangible benefits and services.

In Turkey:

The purpose of the **Regulation on Protection of Wetlands** is to define the principles and rules of protecting wetlands and their habitats, and their rational handling and management.

The objective of the **Environmental Law** is to protect and improve the environment which is the common asset of all citizens; make better use of, and preserve land and natural resources in rural and urban areas; prevent water, land and air pollution; by preserving the country's vegetative and livestock assets and natural and historical richness, organize all arrangements and precautions for improving and securing health, civilization and life conditions of present and future generations in conformity with economical and social development objectives, and based on certain legal and technical principles.

### 4.3 Water

The main general objective for this issue is the protection of all the different water body types (surface, transitional, coastal waters and groundwater). In relation to the issue “Water” the analysis takes into account also the following cross-cutting themes: “risk management”, “sustainable use of natural resources”, “sustainable tourism” “environmental education and awareness raising on environmental issues” and “adaptation to climate change”.

The following table shows the list of relevant EU and national legal and policy framework from which the environmental objectives and the corresponding evaluation questions have been driven:

Relevant EU legislation and policies	Relevant Bulgarian legislation and policies	Relevant Turkey legislation and policies	Environmental Objectives	Evaluation questions
<b>EU Water Framework Directive</b> (2000/60/EC)	Environment Protection Act <b>Water Act</b>	National Climate Change Adaptation Strategy and Action Plan	<b>Reduction of water pollution from point and diffuse sources</b>	Will the specific objective have an effect on the reduction of water pollution from point and diffuse sources?
<b>EU Groundwater Directive</b> (2006/118/EC)	<b>National Strategy for Management and Development of the Water Sector</b>	<b>Regulation on the management of surface water quality</b>		<b>Reduction of eutrophication</b>
<b>EU Floods Directive</b> (2007/60/EC)		Environmental	<b>Improvement of ecological and</b>	Will the specific objective have an

<b>Water Directive</b> (91/271/EEC)  EU Thematic Strategy on <b>sustainable use of natural resources</b> (COM(2005) 670)  EU <b>Nitrate Directive</b> (91/676/EEC)  EU Landfill Directive (99/31/EC)  EU Waste Framework Directive (2008/98/EC)  EU <b>Marine Strategy Framework Directive</b> (2008/75/EC)  EU Thematic Strategy for more Growth and Jobs in Coastal and Maritime Tourism	<b>management and development of water supply and sewerage</b>  <b>National Wetland Protection Plan for the Period 2013-2020</b>  Tourism Act  <b>Est Aegean River Basin Management plan (2010-2015)</b>  <b>Black Sea Basin Management Plan(2010-2015)</b>  <b>Strategic Action Plan for Environmental Protection and Rehabilitation of the Black Sea</b>  Management Plans for River Basins for the period 2016-2021  Flood Risk Management Plans	Law	<b>chemical status of water bodies</b>	effect on the improvement of ecological and chemical status of water bodies?
			<b>Promotion of sustainable use of water resources</b>	Will the specific objective have an effect on the promotion of sustainable use of water resources?
			<b>Reduction of flood risks</b>	Will the specific objective have an effect on the reduction of flood risks?
			<b>Promotion of sustainable tourism towards water resources preservation</b>	Will the specific objective have an effect on the promotion of sustainable use of sustainable tourism towards water resources preservation?
			<b>Promotion of responsible behaviour of the public by involving the citizens into sustainable water use</b>	Will the specific objective have an effect on the promotion of responsible behaviour of the public by involving the citizens into sustainable water use?
			<b>Promotion of good environmental status of marine waters</b>	Will the specific objective have an effect on the promotion of good environmental status of marine waters?

The **EU Water Framework Directive** (WFD) is the main EU policy for the “Water” issue. The Directive aims to different aspects:

- Improvement of the ecological and chemical state of all water bodies to achieve good qualitative and quantitative status by 2015;
- Prevention and reduction of water pollution;
- Promotion of sustainable water resource use;
- Contribution to mitigate the effects of floods and droughts.

In order to achieve the good state and Member states have to adopt and continuously revise management plans for river basin districts.

Complementary to the WFD the **EU Groundwater Directive** (2006/118/EC) includes quality standards for the chemical state of groundwater and aims to reduce and prevent indirect pollution resulting from the penetration of pollutant into the soil.

Other EU directives are relevant for the water sector and are the basis for several of the protection objectives mentioned above. The **EU Urban Waste Water Directive** aims for a better management of waste waters and provides for the mitigation of negative effects of discharges of urban waste water. The **EU Nitrates Directive** promotes the protection from water pollution caused, in particular, by nitrates from agricultural sources.

The **EU Floods Directive** (RL 2007/60/EG) aims at prevention and limitation of floods, possible risks and resulting negative impacts on human health, environment, cultural heritage, infrastructures and economic activities after flood events.

The objective of the **EU Landfill Directive** is to prevent or reduce as far as possible negative effects on the environment from the landfilling of waste, by introducing stringent technical requirements for waste and landfills. The Directive is intended to prevent or reduce the adverse effects of the landfill of waste on the environment, in particular on soil, water and human health. Also the disposal of the **EU Waste Framework Directive** concerns the environmental issue “Water” as discharged harmful substances (waste) pollute water bodies and soil.

The **Marine Strategy Framework Directive** aims to achieve Good Environmental Status of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend.

#### In Bulgaria:

The objective of the **Water Act** is to ensure integrated water management in the interest of society and for protection of public health, as well as to create conditions to:

- ensure a sufficient supply and good quality of surface waters and groundwater for sustainable, balanced and equitable water use;
- reduce the pollution of waters;
- protect surface waters and groundwater and the waters of the Black Sea;
- eliminate the pollution of the marine environment with natural or synthetic substances;
- eliminate the discharges, emissions and losses of priority hazardous substances;
- prevent or reduce the harmful consequences for human life and health, the environment, cultural heritage and economic activity associated with water-related damage and loss.

The long-term strategic objective of the country in the water sector is “Sustainable use of water resources, providing optimum levels for present and future needs of the population and the economy, and aquatic ecosystems”. Main aims of the **National Strategy for Management and Development of the Water Sector** (to 2037) are: 1) Ensure the provision of water for households and businesses in terms of climate change leading to drought; 2) Maintaining and improving the condition of surface and underground waters; 3) Improving performance in integrated water management as economic resource; 4) Reduce the risk of flood damage.

The main objective of **Strategy for the management and development of water supply and sewerage** is to improve the management of water and wastewater sector and to improve the quality of water and sewerage services. It is based on this four objectives: 1) Creating conditions for effective management of the sector and an integrated approach to solving problems; 2) Creating conditions for the involvement of the private sector, the interests of society; 3) Application of structural management approach, taking into account regional planning and to ensure economies of scale; 4) Improving the quality of water and

sewerage services and reaching levels and standards of these services in the European Union.

The main objective of the **Management plan for the river basins in the Danube region (2010-2015)** is to optimize water management through integrated approach at the basin level, sustainable use of water resources and achieve good status in all waters. All waters and water bodies shall be protected from depletion, pollution and damage in order to maintain the required quality and quantity of water and a healthy environment, conservation of ecosystems, landscape preservation and prevention of economic damages, including:

- achieve good ecological status of surface waters;
- good quantitative and chemical status of groundwater;
- reducing the need for water treatment prior to use;
- ensuring the development of aquatic ecosystems and associated terrestrial ecosystems.

The main objective of the **Black Sea Management Plan (2010-2015)** is all waters, including coastal sea waters and associated ecosystems to reach "good status" by 2015. Specific objectives of the Plan are related to prevention of deterioration and improvement of the water quality and aquatic ecosystems; ensuring the sustainable use of water, reduce pollution and mitigate the effects of floods and droughts; climate change.

The **Strategic Action Plan for Environmental Protection and Rehabilitation of the Black Sea 2007 (SAPEPRBS)** has three key principles of environmental management. They are: Integrated Coastal Zone Management (ICZM); Ecosystem approach; and Integrated River Basin Management (IRBM).

In Turkey:

The **Regulation on the management of surface water quality** sets forth the rules and procedures for the determination and classification of biological, chemical, physicochemical and hydromorphological quality of surface waters, coastal waters and transitional waters. It also provides for the rules and procedures of monitoring of the water quality and quantity. The Regulation further sets forth provisions concerning the sustainable use of water, and measures to be taken to maintain or achieve good surface water status.

The objective of the **Environmental Law** is to protect and improve the environment which is the common asset of all citizens; make better use of, and preserve land and natural resources in rural and urban areas; prevent water, land and air pollution; by preserving the country's vegetative and livestock assets and natural and historical richness, organize all arrangements and precautions for improving and securing health, civilization and life conditions of present and future generations in conformity with economical and social development objectives, and based on certain legal and technical principles.

#### 4.4 Soil

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The Seventh Environment Action Programme recognizes that soil degradation is a serious challenge. It provides that by 2020 land is managed sustainably in the Union, soil is adequately protected and the remediation of contaminated sites is well underway and commits the EU and its Member States to increasing efforts to reduce soil erosion and increase soil organic matter and to remediate contaminated sites.

In relation to the issue "Soil" the analysis takes into account also the following cross-cutting themes: "risk management", "sustainable use of natural resources", "waste management and

prevention” “environmental education and awareness raising on environmental issues” and “sustainable tourism”.

The following table shows the list of relevant EU and national legal and policy framework from which the environmental objectives and the corresponding evaluation questions have been driven:

Relevant EU legislation and policies	Relevant Bulgarian legislation and policies	Relevant Turkey legislation and policies	Environmental Objectives	Evaluation questions
EU Thematic Strategy on Soil protection (COM(2006) 231) EU Thematic Strategy on sustainable use of natural resources (COM(2005) 670) EU Landfill Directive (99/31/EC) EU Waste Framework Directive (2008/98/EC)	Environment Protection Act	National Climate Change Adaptation Strategy and Action Plan	<b>Preservation of the soil functionality</b>	Will the specific objective have an effect on the preservation of the soil functionality
	Soils Act			
	Disaster protection Act	Regulation regarding point source land pollution and soil contamination control	<b>Reduction of soil degradation and pollution</b>	Will the specific objective have an effect on the reduction of soil degradation and pollution
	Tourism Act			
	National Waste Management Plan	Environmental Law	<b>Promotion of sustainable use of soil resource</b>	Will the specific objective have an effect on the promotion of sustainable use of soil resource
	National Plan for Reduction of biodegradable Waste for Landfilling			
				<b>Reduction of waste generation, increase in waste recover and recycling of all waste</b>
			<b>Promotion of sustainable tourism towards land preservation</b>	Will the specific objective have an effect on the promotion of sustainable tourism towards land preservation?
			<b>Promotion of sustainable land management preventing risk and hazards</b>	Will the specific objective have an effect on the promotion of sustainable land management preventing risk and hazards?
			<b>Promotion of responsible behaviour of the public by increasing education and</b>	Will the specific objective have an effect on the promotion of responsible behaviour of the

			<b>awareness on soil protection</b>	public by increasing awareness on soil protection?
			<b>Promotion of a better waste management in costal areas</b>	Will the specific objective have an effect on the promotion of a better waste management in costal areas

The overall objective of the EU **Thematic Strategy for Soil Protection** is the protection, the preservation of its capacity to perform its functions and the 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 calls for soil protection by preventing and reducing contamination and degradation processes such as desertification, erosion or sealing: objectives outlined also in the Proposal for a Soil Framework Directive (COM(2006) 232).

Furthermore, the strategy is in line with the general provision of the **UN Convention to combat Desertification** (UNCCD, 1994) that aims to prevent and reduce soil degradation through the preparation of national and regional action programmes for its implementation.

Also the overall objective of the Thematic Strategy on sustainable use of natural resources, to reduce the negative environmental impacts generated by the use of natural resources, is taken into account in the identification of the environmental objectives for the “Soil” issue.

The objective of the **EU Landfill Directive** is to prevent or reduce as far as possible negative effects on the environment from the landfilling of waste, in particular on soil, water and human health. Also the disposal of the **EU Waste Framework Directive** concerns the environmental issue “Soil” as discharged harmful substances (waste) pollute soil and water bodies.

In Bulgaria:

The purposes of the **Soil Act** are:

- prevention of soil degradation and damage to soil functions;
- lasting protection of soil functions;
- restoration of damaged soil functions.

The same Act explicates that, soil protection, use and restoration shall be based on the following principles:

- an ecosystem and comprehensive approach;
- sustainable use of soils;
- a priority of preventive control to forestall or limit soil degradation and damage to soil functions;
- applying good practices in soil use;
- the polluter pays for the damage caused;

- public awareness of the environmental and economic benefits of soil protection from degradation and of measures to preserve soils.

The main objective of the **National Waste Management Plan for the programming period 2014-2020** is to break the link between economic growth and waste, improve the hierarchy of waste management by developing the first sub-program and measures to prevent waste generation, set concrete targets for preparation for reuse, recycling and other recovery of specific waste streams. The plan sets 10 strategic objectives, including on the prevention and reduction of waste, increasing quantities of recycled and recovered waste, environmentally friendly waste disposal and others.

#### In Turkey:

The objective of the **Environmental Law** is to protect and improve the environment which is the common asset of all citizens; make better use of, and preserve land and natural resources in rural and urban areas; prevent water, **land and air pollution**; by preserving the country's vegetative and livestock assets and natural and historical richness, organize all arrangements and precautions for improving and securing health, civilization and life conditions of present and future generations in conformity with economical and social development objectives, and based on certain legal and technical principles.

### 4.5 Population and human health

The environment is a major determinant of human health and the prevention and reduction of adverse effects is a main goal at international and EU level. In 2010 was signed the **Parma Declaration on Environment and Health** (WHO, World Health Organization) pledging to reduce the adverse health impact of environmental threats. In Europe, the major environment-related health concerns are related to outdoor and indoor air pollution, poor water quality, poor sanitation, waste management and hazardous chemicals. In this content, the cross-cutting themes considered under this issue are: “risk management”, “environmental education and awareness raising on environmental issues” and “waste management and prevention”.

The following table shows the list of relevant EU and national legal and policy framework from which the environmental objectives and the corresponding evaluation questions have been driven:

Relevant EU legislation and policies	Relevant Bulgarian legislation and policies	Relevant Turkey legislation and policies	Environmental Objectives	Evaluation questions
EU Health Strategy "Together for Health"	Environment Protection Act	National Climate Change Adaptation Strategy and Action Plan	<b>Reduction of diseases caused by environmental risks</b>	Will the specific objective have an effect on the reduction of diseases caused by natural hazards?
Third EU health programme (2014-2020)	Disaster protection Act	Environmental Law	<b>Prevention of environmental noise exposure</b>	Will the specific objective have an effect on the prevention of environmental noise exposure?
EU Environmental Noise Directive (2002/49/EC)	Waste Management Act	Regulation on the Assessment and Management of Environmental	<b>Promotion of controls of environmental</b>	Will the specific objective have an effect on the
EU Waste Framework	National Waste Management Plan			

Directive (2008/98/EC)  EU Landfill Directive (99/31/EC)  EU Floods Directive (2007/60/EC)  EU Urban Waste Water Treatment Directive (91/271/EEC)	<b>National Plan for Reduction of biodegradable Waste for Landfilling</b>  Water Act	<b>Noise Regulation on the Storage of Wastes</b>  <b>Law on Solid Waste Control</b>  <b>By-Law on Control of Packaging Waste</b>	<i>related health risks and hazards</i>	promotion of controls of environmental related health risks and hazards?
			<i>Promotion of risk prevention and management of natural and man-made disasters</i>	Will the specific objective have an effect on the promotion of risk prevention and management of natural and man-made disasters?
			<i>Promotion of sustainable waste management to protect human health</i>	Will the specific objective have an effect on the promotion of sustainable waste management to protect human health?
			<i>Promotion of environmentally-responsible behavior of the public by involving the citizens into the solution of environmental problems</i>	Will the specific objective have an effect on the promotion of environmentally-responsible behavior of the public by involving the citizens into the solution of environmental problems?

The **EU Health Strategy "Together for Health"** supports the overall Europe 2020 strategy one prerequisite of which is a population in good health. The EU Health Strategy has 3 main objectives

- fostering good health in an ageing Europe,
- protecting citizens from health threats,
- supporting dynamic health system and new technologies,

and express the need to protect human health tackling health risks and determining factors, including the environment.

The **third EU health programme (2014-2020)**<sup>25</sup> is the main instrument the EC uses to implement the EU health strategy. The programme has 4 overarching objectives. It seeks to:

1. Promote health, prevent diseases and foster supportive environments for healthy lifestyles taking into account the 'health in all policies' principle,
2. Protect Union citizens from serious cross-border health threats,
3. Contribute to innovative, efficient and sustainable health systems,
4. Facilitate access to better and safer healthcare for Union citizens.

The Seventh Environment Action Programme recognizes that human health and well-being must be protected from environmental affects. In this content, in many EU Directives (Noise Directive, Landfill Directive, Floods Directive, Waste Framework Directive, etc.) human health protection is a main objective.

<sup>25</sup> Adopted with the EU Regulation No 282/2014 of 11 March 2014.



The **Environmental Noise Directive** relates to the assessment and management of environmental noise. As part of the effort to tackle noise pollution, the European Union has laid down a common approach to avoiding, preventing or reducing on a prioritised basis the harmful effects on human health from environmental noise.

The **EU Waste Framework Directive** aims to reduce the amount of waste generated and to promote sustainable waste management contribution to the protection of the environment and of human health from adverse effects. It introduces the "polluter pays principle" and the "extended producer responsibility", including two new recycling and recovery targets to be achieved by 2020: 50% preparing for re-use and recycling of certain waste materials from households and other origins similar to households, and 70% preparing for re-use, recycling and other recovery of construction and demolition waste.

The **EU Floods Directive** (RL 2007/60/EG) aims at prevention and limitation of floods, possible risks and resulting negative impacts on human health, environment, cultural heritage, and economic activities after flood events.

The objective of the **EU Landfill Directive** is to prevent or reduce as far as possible negative effects on the environment from the landfilling of waste, in particular on human health, soil and water.

#### In Bulgaria:

The **Disaster Protection Act** settle providing in case of disasters caused by natural phenomena and/or human activity, leading to negative consequences for the life or health of the population, property, economy and the environment and which the capacity of the system servicing the routine activities related to protection of society would be insufficient to prevent, bring under control and overcome.

The **Waste Management Act** promotes and provides that waste shall be managed for the purpose of prevention, mitigation or limitation of the harmful impact of waste on human health and on the environment. The main objective of the **National Waste Management Plan for the programming period 2014-2020** is to break the link between economic growth and waste, improve the hierarchy of waste management by developing the first sub-program and measures to prevent waste generation, set concrete targets for preparation for reuse, recycling and other recovery of specific waste streams. The plan sets 10 strategic objectives, including on the prevention and reduction of waste, increasing quantities of recycled and recovered waste, environmentally friendly waste disposal and others. Furthermore, the main goal of the **National Plan for Reduction of biodegradable Waste for Landfilling** is the reduction of the amount of biodegradable organic waste incoming for disposal.

The objective of the **Water Act** is to ensure integrated water management in the interest of society and for protection of public health, as well as to create conditions to:

- prevent or reduce the harmful consequences for human life and health, the environment, cultural heritage and economic activity associated with water-related damage and loss.

#### In Turkey:

The **Regulation on the Assessment and Management of Environmental Noise** takes preventive measures for the negative effects of noise pollution on peace and comfort, physical and mental health of the society. The regulation further contains topics such as; informing the public about the negative effects of environmental noise, building up an action plan to prevent and reduce high level of noise and to determinate degrees of exposure according to the reports and noise maps.

The aim of the **By-Law on Control of Packaging Waste** is to minimise the generation of packaging waste and to also increase the rate of recycled packaging waste which cannot be avoided within the method of production. The regulation also includes principles and standards for packaging waste to be collected separately at its source, then sorted and transported within a certain system.

#### 4.6 Cultural/natural heritage and landscape

The protection and preservation of cultural heritage (sites, monuments and groups of buildings) and of natural heritage (natural features, geological and physiographical formations and natural sites) is ensured at the international level by the **UNESCO World Cultural and Natural Heritage Convention 1972**. The Convention initiated the World Heritage Programme which promote the conservation of several tangible and intangible significant sites. Interlinked and often included in the protection of natural and cultural heritage can be considered the protection of the landscape. The cross-cutting themes hereafter considered are “sustainable tourism” and “environmental education and awareness raising on environmental issues”.

The following table shows the list of relevant EU and national legal and policy framework from which the environmental objectives and the corresponding evaluation questions have been driven:

Relevant EU legislation and policies	Relevant Bulgarian legislation and policies	Relevant Turkey legislation and policies	Environmental Objectives	Evaluation questions	
<b>EU Landscape convention 2000</b>  <b>2010 communication on tourism</b>  EU Floods Directive (2007/60/EC)	Environment Protection Act	Tourism Strategy of Turkey 2023	<b><i>Protection and rehabilitation of cultural and natural heritage</i></b>	Will the specific objective have an effect on the protection and rehabilitation of cultural and natural heritage?	
	<b>Biological Diversity Act</b>  <b>Water Act</b>	Law for the Preservation of Deteriorated Historical and Cultural Immovable Properties by Renovation and Re-use		<b><i>Promotion of sustainable management and planning of cultural and natural landscape</i></b>	Will the specific objective have an effect on the promotion of sustainable management and planning of cultural and natural landscape?
	<b>Protected Areas Act</b>  <b>Strategic Plan for the Development of Cultural Tourism</b>	Legislation for the Conservation of Cultural and Natural Heritage	<b><i>Promotion of sustainable use of natural resources towards sustainable tourism</i></b>		Will the specific objective have an effect on the promotion of sustainable use of natural resources towards sustainable tourism?
	<b>Tourism Act</b>				<b><i>Promotion of responsible behaviour of the public by</i></b>

			<b>increasing education and awareness on heritage and landscape preservation and protection</b>	responsible behaviour of the public by increasing awareness on heritage and landscape preservation and protection?
			<b>Protection of coastal and maritime cultural landscapes</b>	Will the specific objective have an effect on the protection of coastal and maritime cultural landscapes?

The aims of the **European Landscape Convention** are to promote cultural and natural landscape protection, management and planning, and to organise European co-operation on landscape issues.

After the Agenda for a sustainable and competitive European Tourism, 2007, the Communication **“Europe, the world's No 1 tourist destination – a new political framework for tourism in Europe”** (COM(2010) 352) identifies four priorities for action:

- stimulate competitiveness in the European tourism sector
- promote development of sustainable, responsible, high-quality tourism
- consolidate Europe's images as a collection of sustainable, high-quality destinations
- maximise the potential of EU financial policies for developing tourism.

This European action framework aims first of all to encourage the prosperity of tourism in Europe., but it must also respond to concerns relating to social matters, territorial cohesion and the protection of and capitalisation on natural and cultural heritage.

The **EU Floods Directive** aims at prevention and limitation of floods, possible risks and resulting negative impacts on human health, environment, cultural heritage, and economic activities after flood events.

In **Bulgaria**:

The objective of the **Water Act** is to ensure integrated water management in the interest of society and for protection of public health, as well as to create conditions to:

- prevent or reduce the harmful consequences for human life and health, the environment, cultural heritage and economic activity associated with water-related damage and loss.

The **Biological Diversity Act** have, among others, the following purposes that can be linked to the issue “Cultural/natural heritage and landscape”:

- conservation of natural habitat types representative of the Republic of Bulgaria and of Europe;
- conservation of centuries-old and remarkable trees.

The purpose of the **Protected Areas Act** is to conserve and preserve protected areas as a national and universal human wealth and asset. Protected sites shall be managed for the purpose of preservation of the features of the landscape and provision of opportunities for tourism and public appreciation.

The purpose of the **Strategic Plan for the Development of Cultural Tourism** is to create a plan for sustainable development of the regions in order to meet the needs of Bulgarian and

foreign tourists who are in search of new places and experiences, establishing social contacts with local people learning of local products and others. In addition, the **Tourism Act** regulates the social relations associated with the implementation of governance and control in tourism, the interaction of the State and municipalities in the implementation of activities related to tourism, as well as the participation of not-for-profit legal entities and natural persons in the said activities.

**In Turkey:**

The **Tourism Strategy 2023** exhibit a planning approach that supports economic growth, is physically applicable and socially oriented and fairly reflects the principle of sustainable tourism.

The aim of the **Legislation for the Conservation of Cultural and Natural Heritage** is to define movable and immovable cultural and natural property to be protected, regulate proceedings and activities, describe the establishment and duties of the organisation that shall set principles and take implementation decisions in this field.

**4.7 SEA Objectives and Evaluation Questions**

Taking into account the above mentioned environmental legislation and policy framework, for each defined environmental issue (and cross-cutting themes), **qualitative SEA Objectives** are compiled.

Through the identified SEA Objectives the guiding **Evaluation Questions** have been consolidated following the **central question**: *“Do the Specific objectives (and corresponding cross-border actions) related to the 3 Priority axes identified in the Bulgaria-Turkey IPA CBC Programme 2014-2020 have a significantly positive or negative effect on the environmental issues (air and climate; biodiversity, fauna and flora; water; soil; population and human health; cultural/natural heritage and landscape – and their related cross-cutting themes) in the Programme’s area?”.*

Environmental Issue	SEA Objectives	Evaluation questions
Air and Climate	<ol style="list-style-type: none"> <li>1. Reduction of air pollution</li> <li>2. Reduction of the GHG emissions</li> <li>3. Improvement of energy efficiency and increase of use of renewable energy resources</li> <li>4. Support of environmentally friendly transports</li> <li>5. Promotion of fire fight management and prevention</li> <li>6. Promotion of resilience to climate change and climate-related disasters</li> <li>7. Promotion of responsible behaviour of the public by involving the citizens into fighting climate change</li> </ol>	<ol style="list-style-type: none"> <li>1. Will the specific objective have an effect on the reduction of air pollution?</li> <li>2. Will the specific objective have an effect on the reduction of the GHG emissions?</li> <li>3. Will the specific objective have an effect on the improvement of energy efficiency and increase of use of renewable energy resources?</li> <li>4. Will the specific objective have an effect on the support of environmentally friendly transports?</li> <li>5. Will the specific objective have an effect on the promotion of forest fire fight management and prevention?</li> <li>6. Will the specific objective have an effect on the promotion of resilience to climate change and climate-related disasters?</li> </ol>

Environmental Issue	SEA Objectives	Evaluation questions
		<p>7. Will the specific objective have an effect on the promotion of responsible behaviour of the public by involving the citizens into fighting climate change?</p>
<p><b>Biodiversity, Flora and Fauna</b></p>	<ol style="list-style-type: none"> <li>1. Preservation of biodiversity, habitats and ecosystems and their services</li> <li>2. Preservation of the natural diversity of fauna, flora, and habitats in protected areas and Natura 2000 sites</li> <li>3. Protection of endangered species (plants and animals)</li> <li>4. Decrease in loss of biodiversity</li> <li>5. Promotion of responsible behaviour of the public by involving the citizens in protecting biodiversity and natural areas</li> <li>6. Promotion of tourism that would ensure high degree of nature conservation</li> </ol>	<ol style="list-style-type: none"> <li>1. Will the specific objective have an effect on the preservation of biodiversity, habitats and ecosystems and their services?</li> <li>2. Will the specific objective have an effect on the preservation of the natural diversity of fauna, flora, and habitats in protected areas and Natura 2000 sites?</li> <li>3. Will the specific objective have an effect on the protection of endangered species (plants and animals)?</li> <li>4. Will the specific objective have an effect on the decrease in loss of biodiversity?</li> <li>5. Will the specific objective have an effect on the promotion of responsible behaviour of the public by involving the citizens in protecting biodiversity and natural areas?</li> <li>6. Will the specific objective have an effect on the promotion of tourism that would ensure high degree of nature conservation?</li> </ol>
<p><b>Water</b></p>	<ol style="list-style-type: none"> <li>1. Reduction of water pollution from point and diffuse sources</li> <li>2. Reduction of eutrophication</li> <li>3. Improvement of ecological and chemical status of water bodies</li> <li>4. Promotion of sustainable use of water resources</li> <li>5. Reduction of flood risks</li> <li>6. Promotion of sustainable tourism towards water resources preservation</li> <li>7. Promotion of responsible behaviour of the public by involving the citizens into sustainable water use</li> <li>8. Promotion of good environmental status of marine waters</li> </ol>	<ol style="list-style-type: none"> <li>1. Will the specific objective have an effect on the reduction of water pollution from point and diffuse sources?</li> <li>2. Will the specific objective have an effect on the reduction of eutrophication?</li> <li>3. Will the specific objective have an effect on the improvement of ecological and chemical status of water bodies?</li> <li>4. Will the specific objective have an effect on the promotion of sustainable use of water resources?</li> <li>5. Will the specific objective have an effect on the reduction of flood risks?</li> <li>6. Will the specific objective have an effect on the promotion of sustainable tourism towards water resources preservation?</li> <li>7. Will the specific objective have an effect on the promotion of responsible behaviour of the public by involving the citizens into sustainable water use?</li> </ol>

Environmental Issue	SEA Objectives	Evaluation questions
		<p>8. <i>Will the specific objective have an effect on the promotion of good environmental status of marine waters?</i></p>
Soil	<ol style="list-style-type: none"> <li>1. <i>Preservation of the soil functionality</i></li> <li>2. <i>Reduction of soil degradation and pollution</i></li> <li>3. <i>Promotion of sustainable use of soil resource</i></li> <li>4. <i>Reduction of waste generation, increase in waste recover and recycling of all waste</i></li> <li>5. <i>Promotion of sustainable tourism towards land preservation</i></li> <li>6. <i>Promotion of sustainable land management preventing risk and hazards</i></li> <li>7. <i>Promotion of responsible behaviour of the public by increasing education and awareness on soil protection</i></li> <li>8. <i>Promotion of a better waste management in costal areas</i></li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Will the specific objective have an effect on the preservation of the soil functionality</i></li> <li>2. <i>Will the specific objective have an effect on the reduction of soil degradation and pollution</i></li> <li>3. <i>Will the specific objective have an effect on the promotion of sustainable use of soil resource</i></li> <li>4. <i>Will the specific objective have an effect on the reduction of waste generation, increase in waste recover and recycling of all waste</i></li> <li>5. <i>Will the specific objective have an effect on the promotion of sustainable tourism towards land preservation?</i></li> <li>6. <i>Will the specific objective have an effect on the promotion of sustainable land management preventing risk and hazards?</i></li> <li>7. <i>Will the specific objective have an effect on the promotion of responsible behaviour of the public by increasing education and awareness on soil protection?</i></li> <li>8. <i>Will the specific objective have an effect on the promotion of a better waste management in costal areas</i></li> </ol>
Population and Human Health	<ol style="list-style-type: none"> <li>1. <i>Reduction of diseases caused by environmental risks</i></li> <li>2. <i>Prevention of environmental noise exposure</i></li> <li>3. <i>Promotion of controls of environmental related health risks and hazards</i></li> <li>4. <i>Promotion of risk prevention and management of natural and man-made disasters</i></li> <li>5. <i>Promotion of sustainable waste management to protect human health</i></li> <li>6. <i>Promotion of environmentally-responsible behavior of the public by involving the citizens</i></li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Will the specific objective have an effect on the reduction of diseases caused by natural hazards?</i></li> <li>2. <i>Will the specific objective have an effect on the prevention of environmental noise exposure?</i></li> <li>3. <i>Will the specific objective have an effect on the promotion of controls of environmental related health risks and hazards?</i></li> <li>4. <i>Will the specific objective have an effect on the promotion of risk prevention and management of natural and man-made disasters?</i></li> <li>5. <i>Will the specific objective have an effect on the promotion of sustainable waste</i></li> </ol>

Environmental Issue	SEA Objectives	Evaluation questions
	<i>into the solution of environmental problems</i>	<i>management to protect human health?</i> 6. <i>Will the specific objective have an effect on the promotion of environmentally-responsible behavior of the public by involving the citizens into the solution of environmental problems?</i>
<b>Cultural/Natural Heritage and Landscape</b>	<ol style="list-style-type: none"> <li>1. <i>Protection and rehabilitation of cultural and natural heritage</i></li> <li>2. <i>Promotion of sustainable management and planning of cultural and natural landscape</i></li> <li>3. <i>Promotion of sustainable use of natural resources towards sustainable tourism</i></li> <li>4. <i>Promotion of responsible behaviour of the public by increasing education and awareness on heritage and landscape preservation and protection</i></li> <li>5. <i>Protection of coastal and maritime cultural landscapes</i></li> </ol>	<ol style="list-style-type: none"> <li>1. <i>Will the specific objective have an effect on the protection and rehabilitation of cultural and natural heritage?</i></li> <li>2. <i>Will the specific objective have an effect on the promotion of sustainable management and planning of cultural and natural landscape?</i></li> <li>3. <i>Will the specific objective have an effect on the promotion of sustainable use of natural resources towards sustainable tourism?</i></li> <li>4. <i>Will the specific objective have an effect on the promotion of responsible behaviour of the public by increasing education and awareness on heritage and landscape preservation and protection?</i></li> <li>5. <i>Will the specific objective have an effect on the protection of coastal and maritime cultural landscapes?</i></li> </ol>

An assessment of the **consistency of the Priority Axes and Specific Objectives of the IPA CBC Bulgaria-Turkey Programme 2014-2020 to the defined SEA Objectives** is given in a matrix summarizing the integration of the environmental objectives in the Draft OP (see matrix at the following page). This consistency assessment has been carried out on the basis of the approach described in the table below:

Coerence level	Quality assessment
High	
Neutral	
Uncertain	
Low	

SEA Objectives	Priority Axis 1 “Environment”		Priority Axis 2 “Sustainable Tourism”		
	SO 1.1 To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters in the CBC region	SO 1.2 Improvement of the capacity for nature protection and sustainable use of common natural resources in the CBC area	SO 2.1 Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage	SO 2.2 Improvement of possibilities for sustainable touristic services in the CBC-region	SO 2.3 Networking for sustainable development of tourism potential
Reduction of air pollution					
Reduction of the GHG emissions					
Improvement of energy efficiency and increase of use of renewable energy resources					
Support of environmentally friendly transports					
Promotion of fire fight management and prevention					
Promotion of resilience to climate change and climate-related disasters					
Promotion of responsible behaviour of the public by involving the citizens into fighting climate change					
Preservation of biodiversity, habitats and ecosystems and their services					
Preservation of the natural diversity of fauna, flora, and habitats in protected areas and Natura 2000 sites					
Protection of endangered species (plants and animals)					
Decrease in loss of biodiversity					
Promotion of responsible behaviour of the public by involving the citizens in protecting biodiversity and natural areas					
Promotion of tourism that would ensure high degree of nature conservation					
Reduction of water pollution from point and					



SEA Objectives	Priority Axis 1 “Environment”		Priority Axis 2 “Sustainable Tourism”		
	SO 1.1 To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters in the CBC region	SO 1.2 Improvement of the capacity for nature protection and sustainable use of common natural resources in the CBC area	SO 2.1 Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage	SO 2.2 Improvement of possibilities for sustainable touristic services in the CBC-region	SO 2.3 Networking for sustainable development of tourism potential
diffuse sources					
Reduction of eutrophication					
Improvement of ecological and chemical status of water bodies					
Promotion of sustainable use of water resources					
Reduction of flood risks					
Promotion of sustainable tourism towards water resources preservation					
Promotion of responsible behaviour of the public by involving the citizens into sustainable water use					
Promotion of good environmental status of marine waters					
Preservation of the soil functionality					
Reduction of soil degradation and pollution					
Promotion of sustainable use of soil resource					
Reduction of waste generation, increase in waste recover and recycling of all waste					
Promotion of sustainable tourism towards land preservation					
Promotion of sustainable land management preventing risk and hazards					
Promotion of responsible behaviour of the public by increasing education and awareness on soil protection					
Promotion of a better waste management in costal areas					

SEA Objectives	Priority Axis 1 “Environment”		Priority Axis 2 “Sustainable Tourism”		
	SO 1.1 To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters in the CBC region	SO 1.2 Improvement of the capacity for nature protection and sustainable use of common natural resources in the CBC area	SO 2.1 Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage	SO 2.2 Improvement of possibilities for sustainable touristic services in the CBC-region	SO 2.3 Networking for sustainable development of tourism potential
Reduction of diseases caused by environmental risks					
Prevention of environmental noise exposure					
Promotion of controls of environmental related health risks and hazards					
Promotion of risk prevention and management of natural and man-made disasters					
Promotion of sustainable waste management to protect human health					
Promotion of environmentally-responsible behavior of the public by involving the citizens into the solution of environmental problems					
Protection and rehabilitation of cultural and natural heritage					
Promotion of sustainable management and planning of cultural and natural landscape					
Promotion of sustainable use of natural resources towards sustainable tourism					
Promotion of responsible behaviour of the public by increasing education and awareness on heritage and landscape preservation and protection					
Protection of coastal and maritime cultural landscapes					

## 5 Current state of the environment and its likely evolution without the implementation of the Programme (zero-option scenario)

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Alongside other **data sources**, the data used in the Environmental report is primarily based on **statistical sources**.

Data used for the **description of the current state of the environment** within the cross-border area and its **likely evolution without Programme implementation (zero-option scenario)**<sup>26</sup> are based, for example, on the analysis of **secondary data**. The evaluation of the initial status and trends are mainly based on data at national level. Nevertheless, when regional/territorial specific environmental information and database has been available, the evaluation is undertaken at that level. The description of the current state of the environment includes also an overview of the relevant environmental characteristics of areas likely to be significantly affected as well as of any existing environmental problems which are relevant to the Programme including, in particular, those relating to any areas of a particular environmental importance (e.g. areas designated pursuant to **Directives 2009/147/EC and 92/43/EEC**)<sup>27</sup>. In order to depict the current state of the environment within the Programme, the *status quo* of the environmental issues has been considered. The description cover only those environmental issues<sup>28</sup> which have been identified as relevant in, as well as in the case of the assessment of likely significant effects on the environment. The main characteristic of these environmental issues has been described using corresponding indicators. Alongside other sources (as an example: ESPON 2013 Database), the description is based on data provided by Eurostat Publications as well as on data published by **European Environmental Agency (EEA)**. An outline of the environmental state (and trends) for the cross-border region is given using as a basic source the publication of EEA "**The European Environment-State and Outlook 2010**". In other cases other national data sources mentioned in the following list has been be used:

- Statistical Reference Book, 2010-2013, National Statistical Institute of the Republic of Bulgaria (NSI);
- Statistical Yearbook, 2010-2012, National Statistical Institute of the Republic of Bulgaria (NSI);
- Bulgarian District Development Strategies (2014-2020) – Vidin, Montana, Vratsa, Sofia, Pernik, Kyustendil.
- Turkish Statistical Institute
- Turkish Ministry of Transport, Transport Operational Program, Ankara September 2007

Furthermore, secondary sources (background documents, specific sector database, etc.) has been gathered during detailed and systematic **literary review**.

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<sup>26</sup> The zero-option scenario will describe the anticipated development of environmental factors in the Programme area without the implementation of the future OP 2014-2020. Thus, it will form the baseline for the subsequent assessment of the potential effect of the Programme on the environment. The possible evolution of the environment will be estimated on the basis of data trends providing an appropriate forecast horizon up to 2020.

<sup>27</sup> Relevant for the procedure of **Compatibility Assessment (CA)** that must be carried out on the Programme with the object and purpose of the conservation of the protected areas of the ecological network "Natura 2000" (according to the Bulgarian legislation: Ordinance on CA).

<sup>28</sup> The description of cross-cutting themes will be integrated into the description on respctive environmental issues.

The assessment of likely significant effects on the environment has been elaborated upon the relevant information based on the different stages of Programme development. Thus lead to an optimized version of the CBC Programme.

## 5.1 Air and climate

Ambient **air conditions in the CBC region are comparatively good**. The main reasons for air pollution are emissions of fuel used in industry and for households heating and exhaust gases of vehicles. Along with excellent quality of the air in the mountain area “hot spots” are registered (for example, in Bulgarian town of Dimitrovgrad, three major polluters of the air and water are placed – nitrogen plant “Neochim”, thermo-electric power station “Maritsa-3”, and cement plant “Vulkan). According to the national legislation of both countries most of the industrial enterprises are required to be equipped with the necessary air purification facilities. In general for the past several years, the index of general air contamination is decreasing for both sides of the co-operation area<sup>29</sup>.

Nevertheless, the principle air polluters are the emissions from the industry and domestic heating, and gases from the transport. Air quality in Bulgaria is comparatively good, while air quality in both Turkish provinces is not satisfactory but is improving.

**Air pollution** caused by transport remains an environmental challenge to be addressed in the border districts by raising awareness and by implementing measures on the safeguards of clean environment<sup>30</sup>. In fact, a negative effect on the air quality is the intense traffic in the bigger towns and major connection roads as well as the massive use of solid fuel (timber, coal) by the households especially within the Bulgarian side<sup>31</sup>.

Concentration levels depend on year-by-year variations in weather conditions including sunlight; natural emissions of ozone precursor substances by vegetation; the increase in global background ozone concentrations; and transportation of ozone and of ozone precursor substances from source areas outside Europe. All these contributing factors mean that European emission reductions of pollutants contributing to the formation of ozone may not result in equivalent reductions of ozone concentrations. The pollutants’s emissions contribute to the warming and thus to the climate change.

**Climate change** is a significant threat for regions, it represents a multidimensional and complex challenge which poses serious environmental and socio-economic consequences and threatens national securities and its range of potential impacts represent one of humanity's most important threat facing future generations.

Particularly, the eligible Bulgaria - Turkey cross-border co-operation area is situated in South–Eastern Europe, at the south-eastern part of the Balkan Peninsula. In this area, the influence of the Black Sea and Aegean Sea; Strandja, Sakar, Balkan Range and Eastern Rhodopes Mountains as well as Maritza and Tundja/Tunca Rivers set the patterns of the climate over the cooperation area. The climate varies from transitional-continental to continental-Mediterranean.

In the following countries’ profiles it will be taken in exam the features and the available data on the current state of climate system and air pollution status of Bulgaria and of Turkey.

### Bulgaria

The **climate in the cross-border region has a wide range** from moderate-continental, transitional-continental and mountainous to Mediterranean along the river valleys.

<sup>29</sup> Cfr. IPA Cross-border Programme Bulgaria – Turkey, p.19

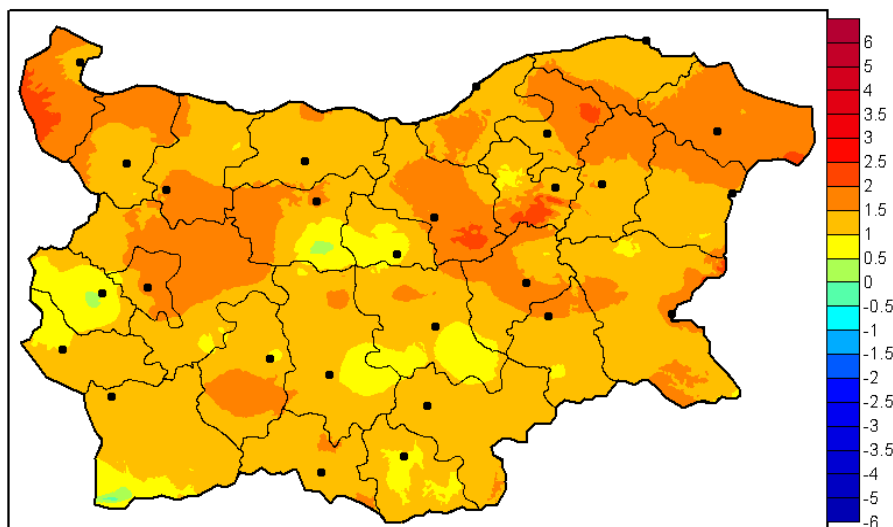
<sup>30</sup> Ibidem, p.18

<sup>31</sup> Cfr. Region description BG\_MK, p.15 -16

Particularly, in **Bulgaria** the **climate is temperate continental** with a transition towards a subtropical climate in its Mediterranean version (in the southern parts of the country), with four seasons.

In recent years, increased frequency of extreme weather and climate events were registered. In 2012, the average annual temperature in Bulgaria is  $1,3 \pm 0,3$  ° C above normal climate rate (average annual temperature for the period 1961-1990), which keeps the trend of more than 1 ° C in the last 5-6 years. According to simulations of climate change made on the basis of the main emission scenarios temperatures in Bulgaria are expected to increase between 2 and 5 degrees by the end of the 21st century.

#### Deviation of the annual climatic norm (10,5 ° C) of air temperature in Bulgaria in 2012



Source: NIMH (National report on the status and conservation of the environment,2014)

The **increase of the temperature** impacts on environmental and socio-economic systems will be damaging. The larger changes and the rate of changes in climate, the more adverse effects will predominate.

In Bulgaria the adverse impacts are related, for example, the winter tourism, increased flooding and droughts and the prevalence of pests and diseases. Positive impacts could be possible growth of productivity in agriculture and forestry and decreased need for heating energy. According to The "Fifth National Communication of Bulgaria on Climate Change" from the year 2010 the average temperature in the country could rise. Extreme weather events, such as storms, droughts and heavy rains, are likely to increase<sup>32</sup>.

#### Air quality status

Concerning to the **emission of pollutants**, for a 10 year period the atmospheric **concentration of nitrogen dioxide** has **decreased with 53%**, of **sulphur dioxide with 65%** (mainly because of the decrease of Thermal power plant emissions as a result of installing sulphur-cleaning installations), of ammonium with 62%, of the non-metal volatile organic compounds with 85%<sup>33</sup>.

<sup>32</sup> Cfr. EEA 2012, url. <http://eea.government.bg/bg/output/unfccc/NIR-12-eng.pdf>

<sup>33</sup> Cfr, EEA (National report on the status and conservation of the environment, 2014)

According to the Statistical Reference Book 2013 published by the National Statistical Institute<sup>34</sup>, the Emission of pollutants in the air are:

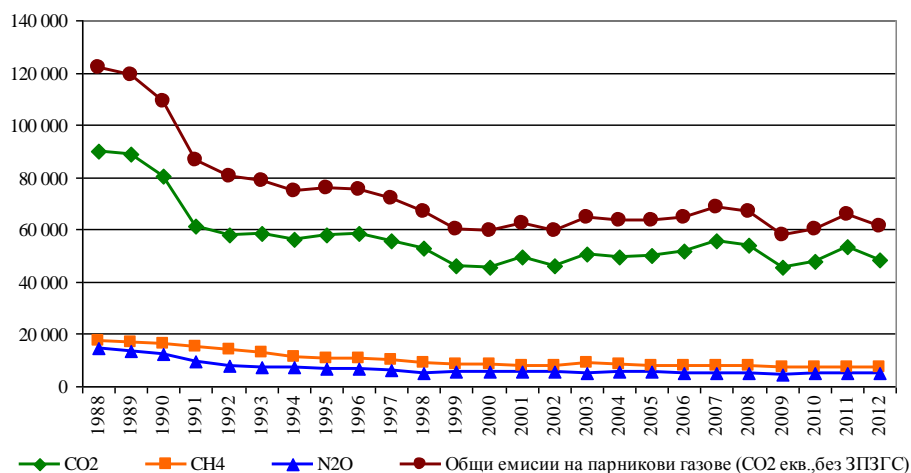
**Emissions of pollutants in the air (thousand tons) 2012 – Bulgaria**

	Sulphur oxides	Nitrogen oxides	Non-methane volatile organic compounds	Methane	Carbon oxide	Carbon dioxide	Dinitrogen oxide	Ammonia oxides
Industrial heating processes	283	54	0	1	2	34.740	7	0
Industrial processes	36	27	17	442	25	3.698	0	3
Other sources	10	47	272	333	419	16.081	39	43
<b>Total</b>	<b>329</b>	<b>127</b>	<b>290</b>	<b>775</b>	<b>446</b>	<b>54.519</b>	<b>47</b>	<b>46</b>

Source: Statistical Reference Book 2013 published by the National Statistical Institute<sup>35</sup> 2012

In 2012 the **total GHG emissions** are **61,045.63 Gg CO2-eq.** or 50.1% of the emissions in the base year.

**Trend in emissions of GHGs - CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O and total GHG emissions (including HFCs, PFCs and SF<sub>6</sub>) for the period 1988-2012, Gg CO<sub>2</sub> - eq.**



Source: EEA, National inventory report on GHG emissions for 2012

Over the past century, atmospheric concentrations of **carbon dioxide** (CO<sub>2</sub>), methane (CH<sub>4</sub>), **nitrous oxide** (N<sub>2</sub>O) and halogenated hydrocarbons, i.e. greenhouse gases, have increased as a consequence of human activity. Greenhouse gases prevent the radiation of heat back to space and cause warming of the climate. According to the Fourth Assessment

<sup>35</sup> Cfr. Statistical Reference Book 2013 published by the National Statistical Institute, p.253

Report of the International Panel of Climate Change (IPCC 2007), the atmospheric concentrations of CO<sub>2</sub> have increased by 35%, CH<sub>4</sub> concentrations have more than doubled and N<sub>2</sub>O concentration has risen by 18%, compared with the pre-industrial era<sup>36</sup>.

Transport is the major source of emissions of nitrogen oxides, as their quantity reaches 28.3% of national emissions. As regards other substances, precursors of ozone, transport is a less important source, as only carbon monoxide emissions represent 9.25% of national emissions.

## Turkey

### Air quality status

According to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), Turkey has the lowest values in per capita greenhouse gas emission, per capita primary energy consumption.

Considering its economic and demographic development status, Turkey cannot make a greenhouse gas emission reduction commitment by taking a specific baseline year. Turkey plans to limit its greenhouse gas emissions through a set of measures that will not compromise its sustainable development and poverty reduction priorities.

Based on 2007 data, while **Turkey's greenhouse gas emissions per capita** was **5.3 tons of CO<sub>2</sub> equivalent**, the average value of the 27 member states of the European Union was 10.2 tons of CO<sub>2</sub> equivalent<sup>37</sup>.

In Turkey, the **total Greenhouse gas emission** in **2010** amounted to **401.9 million tonnes CO<sub>2</sub> equivalent**; transport's sector is responsible of 46.3 million tonnes CO<sub>2</sub> equivalent.<sup>38</sup> The **Total CO<sub>2</sub> emissions** in Turkey in 2010 amounted to 326.5 million tonnes and from transport, 45.6 million tonnes.

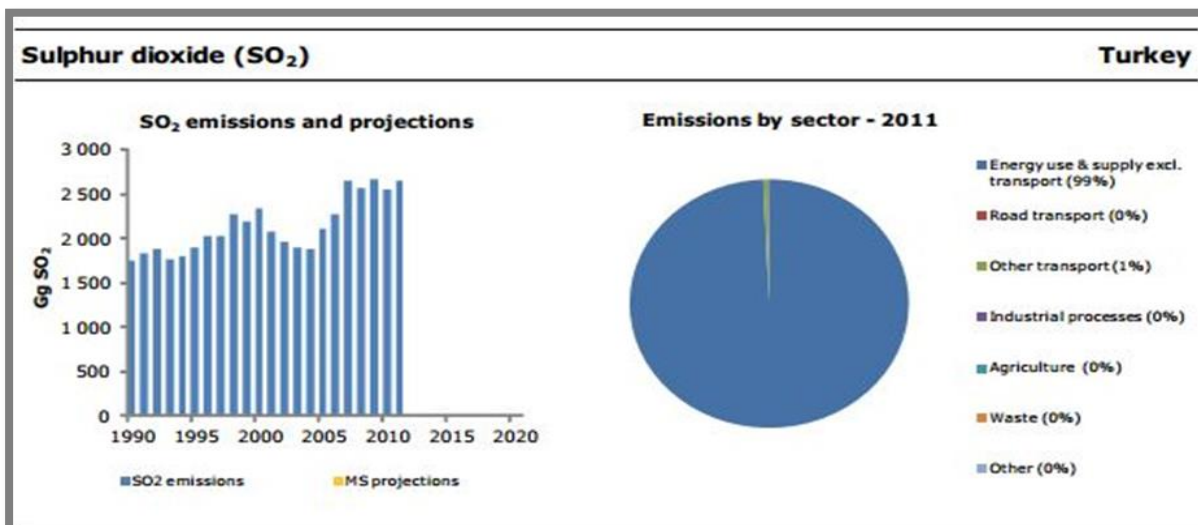
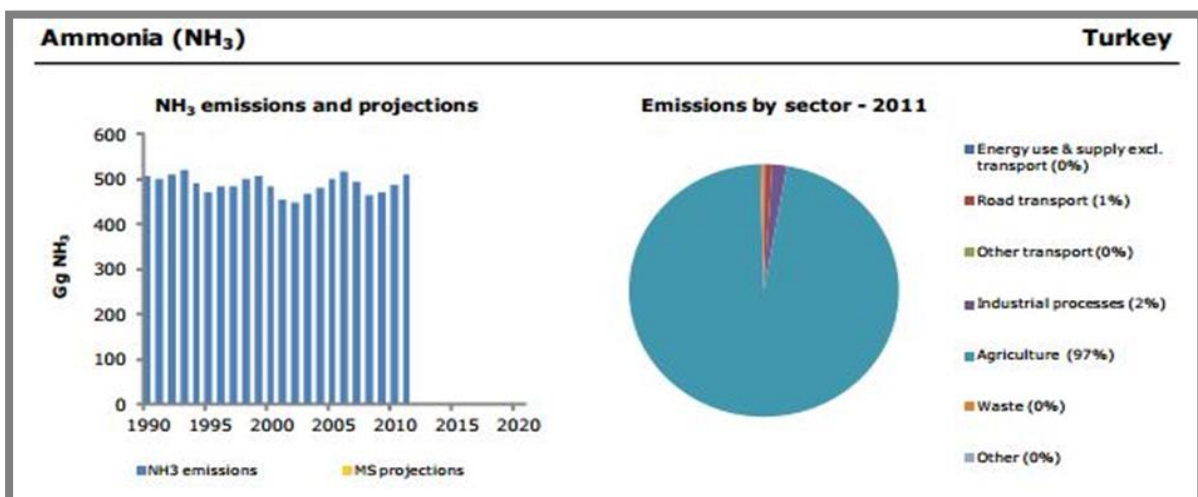
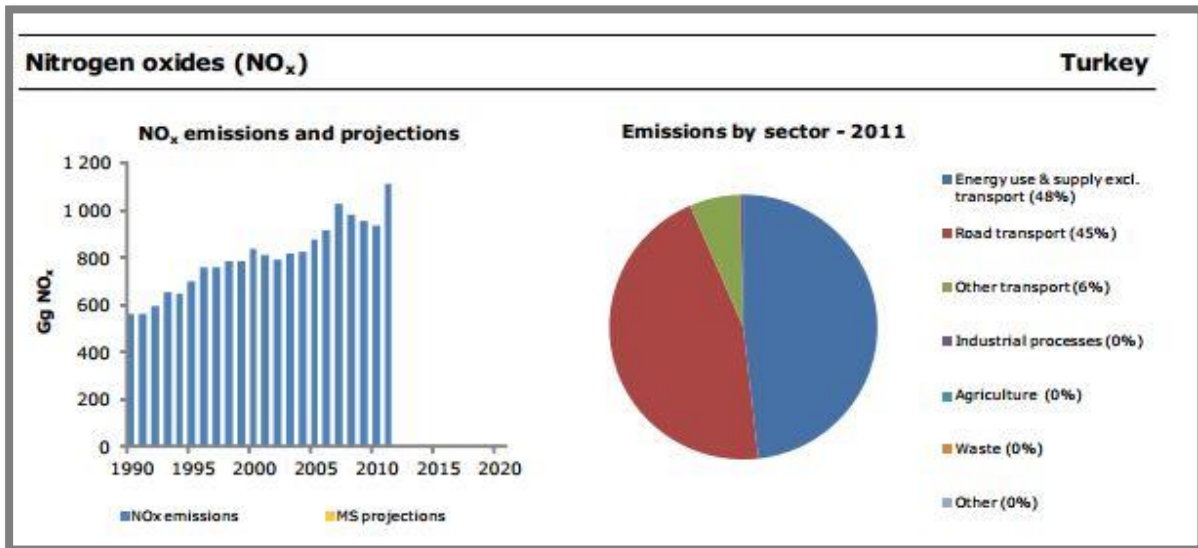
More specifically, the following section shows information on the past emission trends of key air pollutants.

<sup>36</sup> Cfr. National inventory report 2012 for Greenhouse Gas Emissions - Submission under the UNFCCC and the Kyoto Protocol, p. 25. url: <http://eea.government.bg/bg/output/unfccc/NIR-12-eng.pdf>

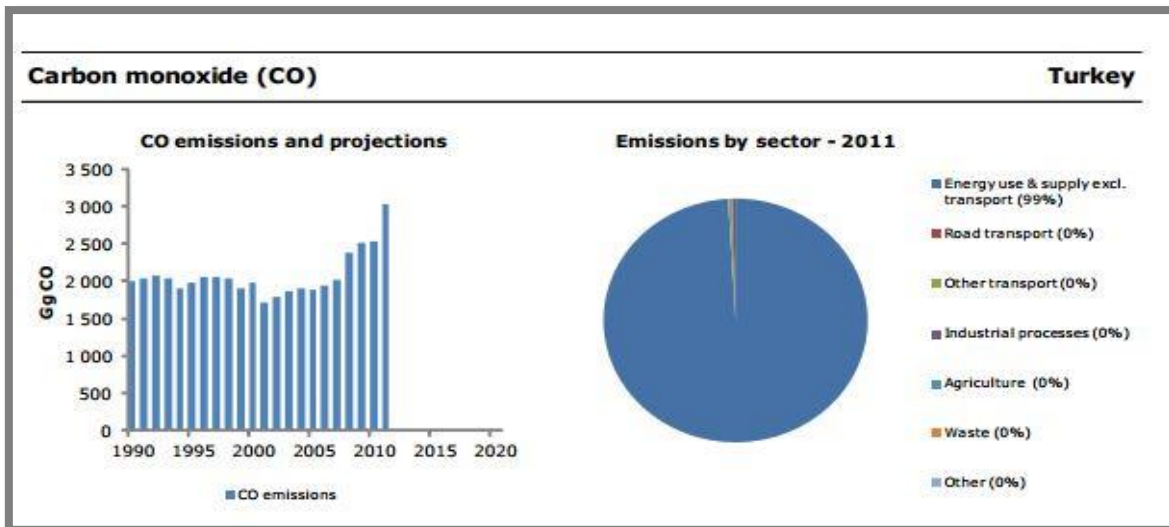
<sup>37</sup> Cfr. National Climate Change Strategy 2013, Turkish Ministry of environment and urbanization url:[http://iklim.cob.gov.tr/iklim/Files/Stratejiler/%C4%B0DES\\_ENG.pdf](http://iklim.cob.gov.tr/iklim/Files/Stratejiler/%C4%B0DES_ENG.pdf)

<sup>38</sup> Cfr. European Commission, Statistical pocketbook 2013, EU transport in figure,, 2013, url: [http://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2013\\_en.htm](http://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2013_en.htm)

Emission trends of key air pollutants (2011)







Source: EEA , Air pollution fact sheet 201339<sup>40</sup>

## Climate change

Turkey is located in the Mediterranean Basin that is especially vulnerable to the adverse impacts of climate change.

According to the **National Climate Change Strategy 2010 – 2020** approved in 2010 by the Turkish Higher Planning Council Decision, Turkey aims to support, and facilitate its emission reduction and adaptation efforts by benefiting from financing and technology transfer facilities available to countries with similar economic development levels as Turkey.

The National strategy identify activities to be implemented urgently. The actions to be implement are:

- the construction of flood prevention structures within the context of 2010 as the year of flood protection;
- the preparation of Regional flood plans and integration into provincial disaster plans;
- the improvement of water quality that has been degraded due to the negative impacts of climate change;
- the strengthening of capacity to combat animal diseases and plant pests resulting from climate change;
- activities on combating desertification and erosion will be developed and expanded.
- Scientific studies on the sustainable use of natural resources will continue, taking into consideration the interaction between climate change and sectors

All **domestic resources**, primarily **hydro** and **wind**, will be used at maximum levels, using **cleaner production** technologies and best available techniques, in line with energy security and climate change goals and within the framework of internal and external financing opportunities.

Furthermore, use of low and **zero greenhouse gas emission technologies**, primarily **renewable energy** and **clean coal technologies**, as well as nuclear energy, shall be

<sup>39</sup> Cfr. EEA, Air pollution fact sheet 2013

<sup>40</sup> Ibidem

fostered, R&D activities on clean technologies and energy resources shall be carried out and domestic industries shall be supported in these ventures.

Zero-option scenario:

Turkey's First National Communication to UNFCCC in 2007 presents specially commissioned studies on past and predicted climatic trends. Simulations predict a mean annual temperature increase of 2-3oC for Turkey by 2100. In the western half of the country, summer temperatures are expected to increase up to 6oC.

## 5.2 Biodiversity, fauna and flora

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The cross border cooperation area is rich in terms of presence of biodiversity element, due to varieties of typologies of landscapes, from medium high mountains to the coast of the black sea. In particular regarding the black sea are important to underline the threats to coastal and marine biological diversity can be listed as the entry of foreign species, over fishing, illegal fishing, pollution, the destruction of habitats, tourism activities, and interventions with the water regime.

The **Black Sea** is the largest enclosed sea of the world and the most isolated from oceans. In the Black Sea, there are 151 fish species, 1,619 fungus, alga and high water plant species and 1,983 invertebrate species. Fish species such as the sturgeon which are important both for biological diversity and for economic value and 4 sea mammal species live in the Black Sea. There are 6 different sea meadow species (*Zostera marina*, *Z. Noltii*, *Potamogeton pectinatus*, *Ruppia maritima*, *R. Spiralis* and *Zannichellia major*) which are the spawning grounds of 34 fish species even if the areas covered by them are getting smaller.

### Bulgaria

Bulgaria is one of the **richest countries in biological diversity** in Europe with high amount of endemic species (e.g. 5% in case of plant species of the entire flora, or almost 9% of invertebrates – excluding insects). Bulgaria also offers almost all main types of natural habitats represented in Europe. Bulgaria is one of the countries with the greatest biodiversity in Europe.

A variety of landscapes, geology and microclimates and thousands of years of human activity have resulted in a **rich diversity of species**, communities and natural habitats. Bulgaria contains three bio-geographic areas (Alpine, Black Sea and Continental), a variety of communities and ecosystems and almost all major European habitat types. Bulgaria's genetic plant and animal resources play an important economic, cultural and biological role. They represent a variety of wild and semi-wild relatives of crops, local types and breeds, many of which are under threat.

**Some major risk could affect this asset**, in fact still exist a lot of anthropogenic threats to the biodiversity in Bulgaria. The loss and degradation of the natural habitats and ecosystems, as well as pollution of air, soils and waters are the main dangers for the biodiversity. Sectors like forestry, industry – energy and mining, agriculture, tourism have in some cases quite negative impacts to the biodiversity especially on the local level. These includes also e.g. illegal collection of edible mushrooms, medicinal plants, snails, reptiles and amphibians, sport hunting of big animals and birds etc. Changes in land's ownership also creates some threats for the biodiversity – especially if farmers and local authorities are not fully informed about and warned to protect and restore land, taking into account the necessity to preserve

the biodiversity within and outside of the protected areas. The fires represent quite significant adverse effect to the biodiversity at present.

Over the past few years the protection of the environment and biodiversity is one of the top priorities of Bulgaria. **In 2012, the area of protected natural scenery in Bulgaria amounts to 583.876** Hectares or 5.3 % of the country's territory and compared to 2011 there is an increase by 1 754 ha. At the end of 2012 in Bulgaria exist 973 protected natural areas, which is by 19 more compared to the previous year.<sup>41</sup>

#### Protected Natural Scenery in 2013

PROTECTED NATURAL AREAS	NUMBER	AREA (HA)
<b>Total Natural Areas</b>	<b>1.009</b>	<b>584.587,1</b>
Reserves	55	77.044,1
Natural landmarks	344	16.844,2
Protected areas	561	79.353,4
National parks	3	150.362,3
Natural parks	11	256.455,7
Maintained reserves	35	4.518,0

Source: Republic of Bulgaria- NSI, Statistical Reference Book 2014.

The diversity of Bulgarian flora and fauna has a significant economic dimension as a biological resources of importance to the Bulgarian people and the national economy. The most important source of flora and fauna is **Bulgaria's forests which cover a third of the country**. Although there is still no economic assessment of the ecosystem services they offer, they play a vital environmental role as a source of oxygen, water, timber and non-timber products, including grassland, forest fruit and herbs, habitats for plant and animal species and a place for tourism, sports and recreation.<sup>42</sup>

The implementation of the **NATURA 2000 network** in Bulgaria will bring the significant positive effects to the biodiversity protection. On the other hand, it is also possible to suppose further pressures to the biodiversity out of the protected areas due to economic development of the country.

The following table illustrate the number and surface which is under Natura 2000 in Bulgaria on 2012.

#### Protected Zones from "Nature 2000" in 2012

	NUMBER	AREA (HA)			SHARE OF PROTECTED ZONES IN THE TOTAL COUNTRY'S TERRITORY (%)
		TOTAL	TERRITORY	AQUATORY	
<b>By directive of birds</b>					

<sup>41</sup> Source: Republic of Bulgaria- NSI, Statistical Reference Book 2013.

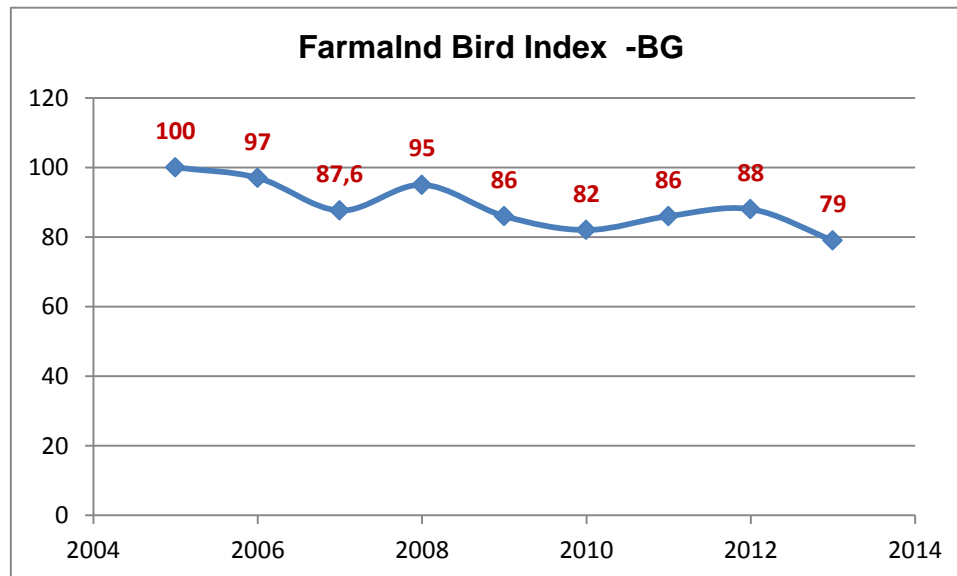
<sup>42</sup> [http://www.eea.europa.eu/soer/countries/bg/soertopic\\_view?topic=biodiversity](http://www.eea.europa.eu/soer/countries/bg/soertopic_view?topic=biodiversity)

	NUMBER	AREA (HA)			SHARE OF PROTECTED ZONES IN THE TOTAL COUNTRY'S TERRITORY (%)
		TOTAL	TERRITORY	AQUATORY	
Approved by Decision of the Council of Ministers	118	2.566.588	2.512.559	54.029	22,6
of which: announced by Order of the Minister of environment and water	114	1.781.026	1.729.192	51.937	15,7
<b>By directive of habitats</b>					
Approved by Decision of the Council of Ministers	231	3.391.225	3.330.115	61.110	30,0
of which: announced by Order of the Minister of environment and water	-	-	-	-	-
<b>Total by both directives</b>					
Approved by Decision of the Council of Ministers	336	3.905.989	3.808.430	97.559	34,3
of which: announced by Order of the Minister of environment and water	114	1.781.026	1.729.192	51.937	15,7

Source: Republic of Bulgaria- NSI, Statistical Reference Book 2013.

Bulgaria has some of the most diverse cave fauna in Europe, with 33 species of bat. The first ever trend projections for **38 common bird** species were published in 2007, along with an index of birds in agricultural habitats – an important indicator of sustainability in farmland management. Of the 38 species tracked in the period 2005-2007, a total of **17 were classified as farmland birds**. In the first eight years of its existence, the **FBI index declined as shown on the figure below**, highlighting the risk of decreasing of birds in agricultural area, and loss of biodiversity.

Index of farmland birds in Bulgaria (17 species), (%)



Source: Bird Life Bulgaria – [www.bsp.org/monitoring](http://www.bsp.org/monitoring)

Concerning the Cross Border Area covered by the Programme it is important to underline how the **Districts of Burgas** is varied: parts of the Balkan mountains and the Rear Balkan kettles (the Karnobat kettle), the Burgas lowlands, the Middle Tundzha lowland and the low-hilly area, the Sakar-Strandzha hilly and low-mountainous area alternate in direction north-south. The eastern Balkan is segmented by the longitudinal valleys of the rivers Kamchiya and Hadzhijaska. The southern part of the district is occupied by the low borderline mountains – Strandzha, the Dervent highlands and Sakar. In this area there is one of the richest districts of biological species. Due to the extremely varied climatic, geological, topographic and hydro-geological conditions on its territory are found 64 mammal species, 298 bird species, 18 reptile species, 9 amphibian species, 190 Black Sea and freshwater fish species, approximately 2,500 insect and other invertebrate species, more than 3,000 higher and 5,000 lower plants and fungi.

The largest **natural park** in Bulgaria, **the Strandzha** is located in the District of Burgas in whose boundaries are included 5 reservations: the Biosphere Reservation “Uzunbudzhak – Class I according to the World Conservation Union (IUCN) and the reservations “Vitanovo”, “Sredoka”, “Tisovitsa” and “Silkosiya”, all of which are categorized Class I (IUCN); 43 protected localities and 38 natural landmarks, as well as four protected areas of natural and international importance.

The **District of Yambol** is relatively poor in terms of natural resources and valuable biological species. There are 3 reservations and 6 protected localities, as well as two landmarks on its territory. Dense riverine forests are preserved along the river course of the Tundzha river. In order to preserve the natural datum in these woods the localities “Gorna Topchiya”, “Dolna Topchiya” and “Balabana” have been pronounced reservations. The more important fauna representatives, which inhabit the territory permanently or temporarily and are of direct or indirect importance for the hunting are: fallow deer, roe and wild-boar.

The northern and central part of the **District of Haskovo** is occupied by the Upper Thracian valley and is characterized by broad riverine lowlands and high level groundwater facilitating the intensive use of the agricultural areas. A broad territory of the district is occupied in southward direction by low branches of the Eastern Rhodopes and the western slopes of Sakar mountain. Large parts of these mountainous areas are covered by poor skeleton soils

and are denuded of forests. Built of unstable volcanic rocks, these lands are characterized by intense erosive processes.

On the territory of the District of Haskovo there is a total of 47 protected natural territories over an area of 5,254.39 ha, including 28 landmarks and protected age-long and rare trees, 18 protected localities and one well-kept reservation – “Boraka”. The well-kept reservation “Boraka” keeps and protects the natural funds of *Pinus nigra* Arn in the Eastern Rhodopes. More important of the protected localities are:

- Protected locality “Zlato pole” (Class IV/V according to IUCN)
- Protected locality “Chernata skala” (Class IV/V according to IUCN)
- Protected locality “Defileto” (Class IV/V according to IUCN)

These protected localities preserve various habitats and ecosystems. The protected locality “Zlato pole” is the largest wet zone of natural character along the river course of the Maritza river. The protected locality “Defileto” in the vicinity of the town of Harmanli has been pronounced protected locality with a view to preserve the beautiful landscape.

There are numerous protected territories along the **Black Sea coast** that include wet zones of national and international importance for the preservation of the biodiversity. Among these are:

- Reservation “Ropotamo” (Class I according IUCN)
- Well-kept reservation “Atanasovsko ezero” (Class IV according to IUCN)
- Protected locality “Pomorijsko ezero” (Class IV/V according to IUCN)
- Well-kept reservation “Vodnite lilii” (Class IV according to IUCN)
- Protected locality “Poda” (Class IV/V according to IUCN)
- Landmark “Alepu” (Class III according to IUCN)

## Turkey

Turkey’s genetic diversity becomes important with plant genetic resources in particular because Turkey is located at the intersection of the Mediterranean and Near Eastern gene centers. These two regions have a key role in the emergence of cereals and horticultural crops.

A range of protected areas such as national parks, nature parks, Ramsar sites, etc. have been designated and their number has increased over the last few years. In Turkey, there are 41 national parks (898.044 ha), 31 nature protection areas (46.575 ha), 34 nature parks (79.299 ha), 103 nature monuments (5.541 ha), 14 special protected areas (1.211.254 ha), 81 wildlife protection areas (1.201.285 ha) and 13 Ramsar sites (203762 ha) declared as protected areas. The proportion of protected areas under various statuses to the country’s total surface area increased from 4 % to about 6 % after 2000.

There are two protected territories in the **District of Kirklareli**: the Kastura Kjorfezi Reservation where the population of *Pinus nigra* Arn is of interest, and the Saka Lake Reservation.

The Via Pontika/Northern Anatolika passes along the Black Sea coast, crossing also the territories of the Province of Kirklareli.

The Gala Lake national park is located on the territory of the **District of Edirne**. It represents a wet zone (Class I according to IUCN) and occupies an area of 2,369 ha. 111 bird species

are found in the park, many of which are exceptionally rare and endangered. In the Gala Lake within the delta of the Maritza river are found 6 vegetation formations. There are 5 forest natural reservation in the area, as well as other 5 wet zones of the same statute (Class I according to IUCN).

In addition to the Gala lake, the area where also the lakes Gyolbaba and Egribyuk are located occupies approximately 1500 ha and is designated a wet zone – Class I natural site (Resolution No. 4218 dated 25.09.1997 of the Council for Protection of the Cultural and Natural Resources of Edirne at the Ministry of Culture).

The locations corresponding to the definition of ‘wet zone’ in the region are: the delta of the Maritza river, the Saros bay and the river course of the Ergene river.

#### Zero-option scenario:

For the **Bulgaria** side of the OP the Outlook 2020 highlight how “the area covered by protected areas is set to increase in stages from 2008-2018 to reach about 7 % of the country's surface area, mainly at the expense of the natural monuments and protected sites categories. Plans are also envisaged for the adoption of 48 new protected area management plans and an update of the 30 plans currently being implemented.”<sup>43</sup>

For the **Turkey** side of the CBC OP is important to observe that having regard to Turkey's plant genetic diversity, the In-situ Conservation of Plant Genetic Diversity National Plan was adopted in 1998. The plan establishes legal, institutional and financial requirements for the in-situ conservation of the species that are important for agriculture, food, economy and culture ([www.bcs.gov.tr](http://www.bcs.gov.tr)). However, **an effective system has not been developed** for the in-situ conservation of agricultural genetic diversity due to gaps in the legislation and to insufficient infrastructure. There is a need for strengthening the infrastructure for ex-situ conservation. Despite having rich agricultural genetic resources and other medical and aromatic plant genetic resources which offer a very important economical potential, Turkey can use the least of its current potential in improvement, cultivation and production due to insufficient financial resources and to gaps in the conservation program. Another aspect of this is the lack of legal and institutional mechanisms that will re export to Turkey the benefits the other countries gain from the Turkish genetic resources<sup>44</sup>

### 5.3 Water

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The rivers whose waters are common for the Republic of Bulgaria and the Republic of Turkey are subject to consideration within the framework of the CBC OP between the two states and those are: the **rivers Maritza, Tundzha and Arda**. The major pollutants of the surface waters are the domestic and fecal waters from the urban sewerage systems of the large settlements and the industrial wastewater discharged without treatment into the rivers.

Also the **basin of the black sea** is a common area of water management of the Programme but this will be taken in to account in a wider assessment and management of the basin area.

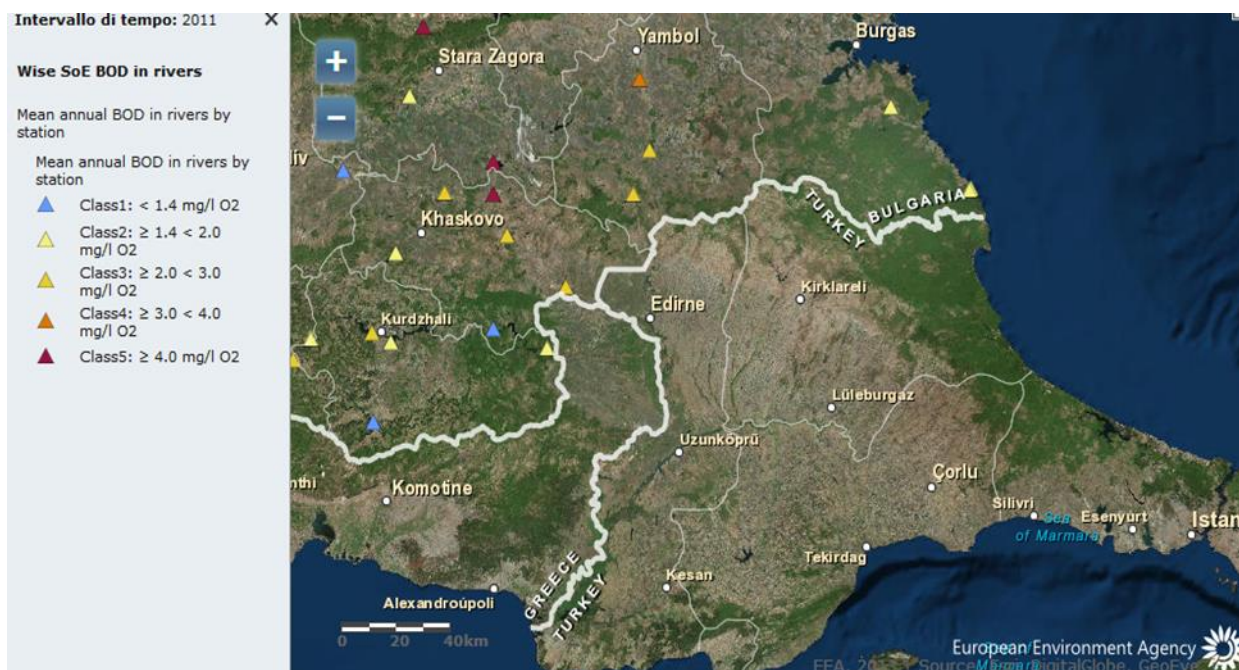
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<sup>43</sup> See [http://www.eea.europa.eu/soer/countries/bg/soertopic\\_view?topic=biodiversity](http://www.eea.europa.eu/soer/countries/bg/soertopic_view?topic=biodiversity)

<sup>44</sup> See [http://www.eea.europa.eu/soer/countries/tr/soertopic\\_view?topic=biodiversity](http://www.eea.europa.eu/soer/countries/tr/soertopic_view?topic=biodiversity)

Also is important to address the states of surface water for the cross border area, the following map highlights the mean of annual concentrations of BOD (Biochemical oxygen demand) measured at Eionet-Water River monitoring stations from 1992 till 2011. All data are annual means (no data are available for the Turkish side of the CBC area Programme). The purpose of the map is to provide an overview of the annual concentrations of BOD in rivers. BOD (Biological - or biochemical - Oxygen Demand) refer to the amount of organic matter present in water that will consume oxygen as it is decomposed by micro-organisms. Large quantities of organic matter (microbes and decaying organic waste) in water are a potential risk to aquatic ecosystems and human health. A reduction in the amount of oxygen in water as a result of the decomposition of organic matter can endanger aquatic life through asphyxiation and disrupt the ecological balance of the water. It can also pollute water used for drinking and bathing. High levels of BOD can indicate such pollution.

#### WISE SoE BOD in rivers in Cross Border Area Bulgaria and Turkey – 2011



Source: European Environmental Agency<sup>45</sup>

Is important to observe that main reason for polluted water is the lack of sewerage systems in the majority of smaller municipalities. For groundwater, is pollution with phosphates or nitrates. In Haskovo and Jambol districts nearly 70% of the population live in areas with public sewerage systems, that is close to the national average, whereas in Burgas region almost the total population live in areas with public sewerage systems (cf. Regional Profiles, 2014: online).

In the Turkish provinces Edirne and Kirklareli 100% of the population is served by water supply networks (2010). The rate of population served by drinking water treatment plant amounts 41% in Edirne and 24% in Kirklareli. This is also mirrored in the actual investments in water supply facilities, whereas the province of Kirklarlíe shows a quite higher expenditure (more than 210.000 TL) than the province of Edirne, which resembles the need for improvement in Kirklareli (about 6.000 TL) (cf. Turkish Statistical Institute, 2010).

<sup>45</sup> See <http://www.eea.europa.eu/data-and-maps/explore-interactive-maps/wise-soe-bod-in-rivers>



Another issues is linked to access to public water and supply services, the Table below highlight the percentage of people of the CBC area who can benefit of these services. The two border are presents quite similar context condition except for the Water treatment, in fact in Turkey side.

**Percentage of Population of the CBC Programme area covered by water supply services**

District/Province	Population covered by		
	Water supply network (%)	Sewerage system (%)	WWTP (%)
<b>Bulgaria</b>			
Burgas	99.6	68.6	52.7
Yambol	100	63.8	0.0
Haskovo	99.3	69.0	0.0
<b>Turkey</b>			
Kirklareli	91	85	0
Edirne	93	85	0

Source: SEA BG TR 2007/2013

**Bulgaria**

Water management in the Republic of Bulgaria is carried out at national and basin level. The following regions water management at basin level are designated:

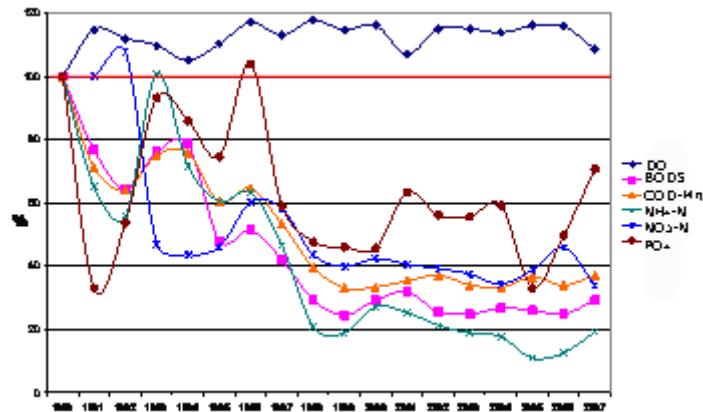
- Danube region with the center in Pleven;
- Black Sea region with the center in Varna;
- East Aegean Region with the center in Plovdiv; and
- West Aegean Region with the center in Blagoevgrad.

The indicative activities of the CBC OP have the potential to affect the surface water bodies at one of the basin directorates, namely:

- **Black Sea region** with the center in Varna (which is relevant for Burgas. Yambol and Haskovo district)

**Surface waters are in good condition.** The rivers are contaminated in areas around big settlements, especially those with no treatment plants for wastewater. Transition to market economy and the decline in production from industry and agriculture has led to a reduction in pollutants discharged into water, including reducing the loads of major nutrients (nitrogen and phosphorus). As a result, nearly 75% of the length of rivers in the country meet the standards for good quality. The improvement of water quality started 1998 - there is a clear trend of sustainability and slight improvement of all indicators for water quality between 1998 and 2007.

**Change of the concentration of the main indicators:  
NH4-N, NO3-N, DO, COD-Mn, BOD5, PO4 (1990 = 100%) for the period 1990-2007**



Source: EEA- The European environment – state and outlook 2010<sup>46</sup>

Nevertheless it is important to note that In relation with the quality of the water, the specific Districts in which the Programme will be implemented has a number of river parts with **destroyed ecological status**. The Ogosta artificial lake, in **Montana District**, and the Ogosta river valley are polluted with heavy metals, mainly arsenic and lead.

## Groundwater

Groundwater quality assessment for 2007 has been carried out in compliance with European Water Framework Directive by groundwater bodies (GWBs) and by River Basin Districts.

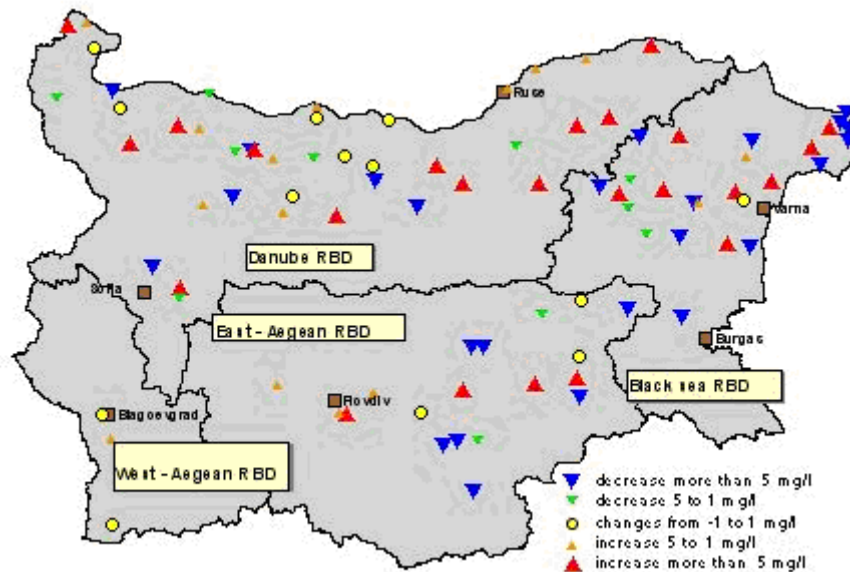
Groundwater status was estimated as mean values of Nitrate contents of all the country for a four-year period, corresponding to the different groundwater monitoring types of points. **Nitrates are the main pollutant of groundwater in the country**. Groundwater were classified by nitrates content in four quality classes for the average nitrate concentrations in groundwater

The results of trend analyses by monitoring station types show prevalence of trend of decrease in water type 0 phreatic (shallow) groundwater; for type 1, deep phreatic groundwater slow predominance have increasing trends, while decrease trends are predominantly detected in Captive groundwater. Increasing trends predominate for Type 3 - Karstic groundwater (inclusive Karstic springs) with 64,71%.<sup>47</sup>

<sup>46</sup> Cfr <http://www.eea.europa.eu/data-and-maps/data/waterbase-rivers-6>

<sup>47</sup> Cfr. EEA, Bulgaria State and Outlook 2010, Fresh Water  
[http://www.eea.europa.eu/soer/countries/bg/soertopic\\_view?topic=freshwater](http://www.eea.europa.eu/soer/countries/bg/soertopic_view?topic=freshwater)

**Trend classes between previous and current monitoring period for Nitrates \u2013 2013 time periods  
2000-2003 and 2004-2007**



Source: EEA- The European environment – state and outlook 2010<sup>48</sup>

In general is possible to underline how due to the geographical location, specific atmospheric circulation and landscape structure, the **water balance in Bulgaria is unfavorable**. Concerning water resources per capita, Bulgaria takes the bottom position on the Balkan Peninsula. Bulgaria also faces serious challenges, mainly related to the location of Bulgaria in the dry area in relation to global climate change, unequal distribution of water resources in its territory, high degree of amortization of water supply systems and low level of building of sewerage systems. Long-term priorities are a reduction of the negative effects of the increasing air temperature and decreasing rainfall. Building of the sewerage and wastewater treatment plants lags in comparison to building of the water supply system, and many aquatic ecosystems in Bulgaria are still at risk.

**Water supply** is carried out by water suppliers and through self-supply. Main **water users are**: agriculture, industry and domestic sector (households and services).

The level of water use in the country is mainly determined by **water usage of the energy production**, which requires significant volumes of water for cooling processes.

**After use**, water is discharged into public sewerage network and water bodies. Two categories are distinguished – wastewater and water from cooling processes. Wastewater discharged into water bodies is formed by public sewerage network (incl. of non-point sources), economic units and households.

**Wastewater treatment** is done locally or in urban wastewater treatment plants. The estimate on population supplied with services on wastewater discharge and treatment is based on information from PWS operators and municipalities with organized discharge of water into urban wastewater treatment plant (UWWTP). It is possible that the share of this population to be overestimated due to settlements with partially built sewerage network. Population, whose waters are transported in tanks to the sewerage system or UWWTP, is not included.

<sup>48</sup> Cfr <http://eea.government.bg/eng>

**Water abstraction, water use, wastewater (Million m<sup>3</sup>/year)**

	2008	2009	2010	2011	2012
<b>Gross fresh water abstraction</b>	<b>6.425</b>	<b>6.121</b>	<b>5.960</b>	<b>6.385</b>	<b>5.715</b>
<b>Water use - total</b>	5.168	4.911	4.821	5.178	4.559
Agriculture, hunting and forestry (incl. fishing)	291	326	309	348	296
of which: Irrigation	272	296	283	322	262
Industry	4.530	4.245	4.180	4.497	3.927
of which: For cooling in energy production	3.848	3.624	3.560	3.795	3.284
Other activities (services)	76	68	68	66	66
Households	271	271	264	266	271
<b>Wastewater discharged into water bodies – total</b>	793	757	811	791	787
<b>Cooling water discharged into water bodies</b>	3.550	3.308	3.241	3.560	3.055

Source NSI Statistical References 2014, RoB, Sofia, 2014

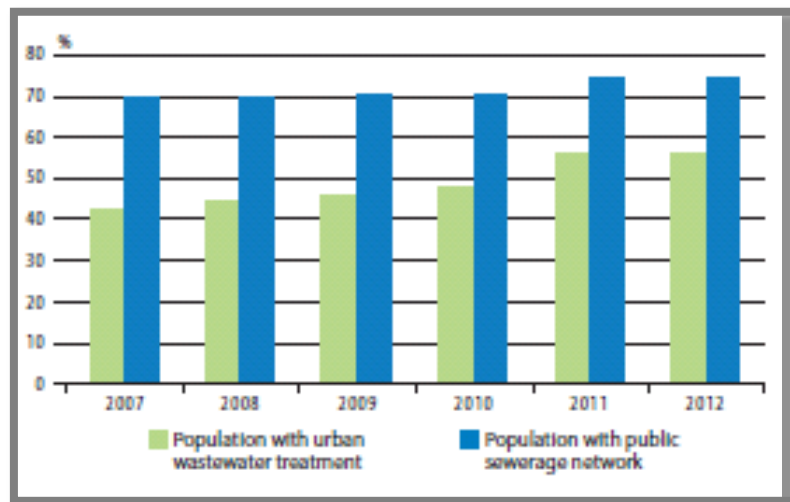
The **water supply system** is well developed in Bulgaria and provides connection for the 98.8% of population of the country. However, due to the unfavourable conditions of the water supply network, Bulgaria observes high percentage of water losses during distribution of the water that amount to 59.5% in average.

The border region is in a much better position in terms of availability of water supply resources and infrastructure compared to many of other areas and localities in both countries. However, the obsolescent equipment, mostly asbestos pipes, leads not only to health and hygienic problems but also to ineffective operation (water losses, frequent need of repairs, etc.). Considering the activities planned e.g. within operational programmes the situation should improve during next years.

Regarding the **sewerage system** in Bulgaria only 69.2% of population is connected to the network. Connection to sewerage system is more favourable for towns, in which 70,5% of the population is connected to the sewerage network, while in the villages the percentage hardly reaches 2.1%. Only 39.9% of the total population of Bulgaria is connected to waste water treatment plans.

Only the main settlements (bigger municipalities) have sewerage systems in the cross-border region. The majority of waste waters produced in the region flow directly to the rivers causing damages and significant environmental problems. As this issue is strongly connected with improving of the water quality, the significant improvement can be expected during next years.

Basic indicators related to population and the water services (%)



Source NSI Statistical References 2014, RoB, Sofia, 2014

## Turkey

In Turkey, the effective use of water resources and protection of those resources have become essential as a result of population increase, rapid urbanization and industrialization. Turkey is not an affluent country in terms of water resources and **water resources are not distributed equally over the country**. There are 25 river basins but only 4 of them correspond to the 37 per cent of the annual precipitation that means accessibility of water resources can not meet the demands on right time and right location. Turkey can not control its water resources because of the topographical irregularities. Moreover, Turkey is geologically very young and its rivers flow unsteadily. It is not possible to use water before carrying out necessary arrangements because of high mean basin slopes. Turkey should take precautions not to be a problematic country about water. The quality and the potential of water are critically significant for Turkey. For the accurate management of water resources, water quality and water quantity should be managed simultaneously.

Because of climatic condition in Turkey, the precipitation-flow relationships which change seasonally also display considerable differences from year to year and natural water supply falls to minimum levels in the summer when the demand is maximum. Country's water resources are very sensitive to drought conditions and drought is seen in every fifteen year period. In addition to irregular regime character, floods threaten natural life and create great hazards. Therefore, the periodic droughts necessitate the construction of dams to regulate water in one year or longer.

The main reasons for the degradation of Turkey's water quality are: excess use of natural resources on account of rapid industrialization and urbanization, domestic, industrial and agricultural activities.

In Turkey lakes and dams are important for industrial, agricultural and drinking water supply. Domestic-Industrial waste water and fertilizers-pesticides negatively affect the quality of water of the lakes by causing the deterioration of the nitrogen-phosphorus balance in contrast to normal standards.

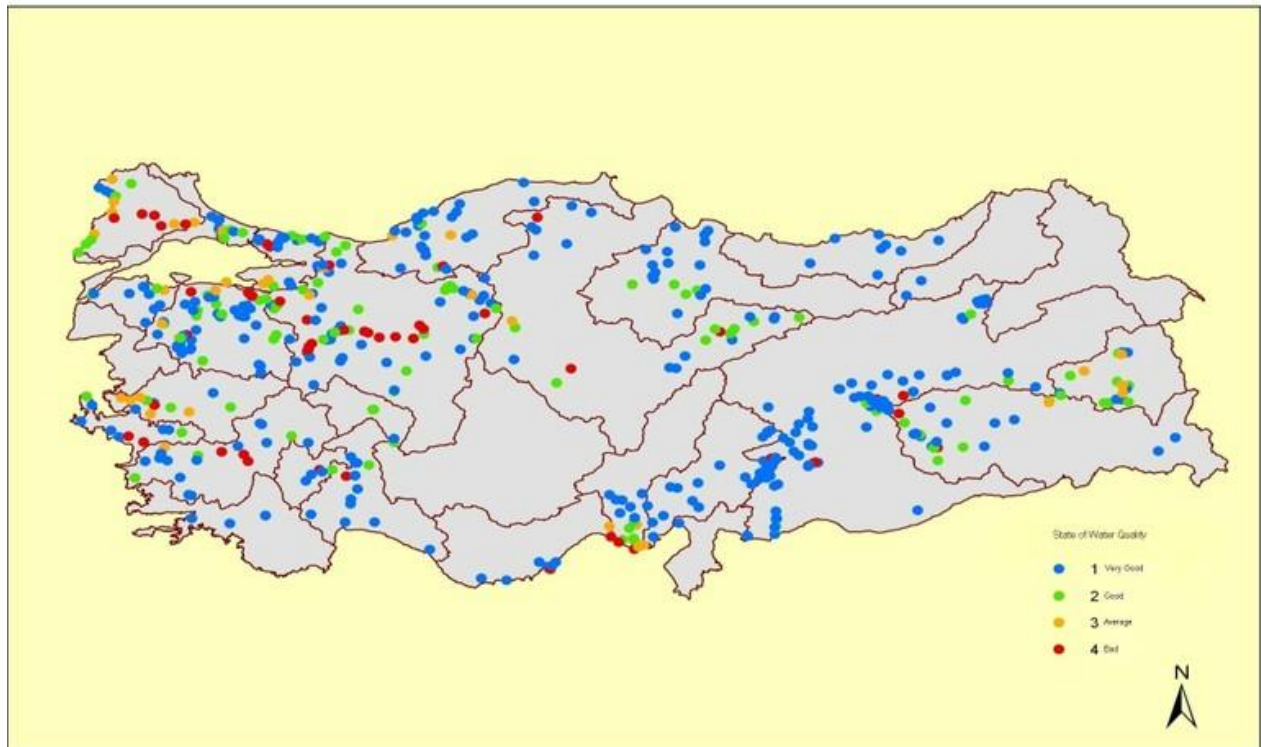
Rivers are important for drinking water supply, irrigation and fishery. The most important pollution factor of Turkey's rivers is the discharge of the domestic, industrial and agricultural wastewater to the rivers. In Turkey, there are still many highly polluted and bad looking rivers. Another reason for the pollution of rivers is erosion. As a result of the soil erosion,

phosphorus with solid materials is moved from the agricultural area to the surface waters and this causes eutrophication. Population increase, urbanization, industrial activities, pesticide use and excess use of fertilizers are the other factors that increase river pollution rapidly.

If in the coming years environmental problems and the pollution of surface water increase, the quality and quantity of groundwater will play an important role. The reasons of groundwater pollution are domestic and industrial wastes and pollutants related with agriculture.

A study measured results for 2006, provided by General Directorate of State Hydraulic Works, were used and with the assistance of those data the water quality map of Turkey was prepared as below in the Figure. The measured results of heavy metal concentrations in water belonging to 2006 are lower than the measurement results of organic concentration amount in water for the same year.

**Water Quality of Turkey, 2006**



Source: European Environmental Agency<sup>49</sup>

Concerning **water quality** in the districts in which the CBC Programme will be implemented, according to data received from the Turkish party, pollution of the rivers with heavy metals has been found as follows:

- ✓ It was found in the course of the analyses of the **Maritza river** at the point of entry in Turkey that in terms of the contents of nitrites, ammonia, iron, copper, chromium, cobalt, nickel and lead, the river shows different levels of pollution of Class II, III and IV on different days. The Maritza river receives some pollution also within the Turkish section, but since the river Tundzha and Arda mouth in it, the flow rate increases and a reduction is observed.

<sup>49</sup> See [http://www.eea.europa.eu/soer/countries/tr/soertopic\\_view?topic=freshwater](http://www.eea.europa.eu/soer/countries/tr/soertopic_view?topic=freshwater)

- ✓ It was found in the course of the analyses of the **Tundzha river** at the point of entry in Turkey that in terms of the contents of nitrites, copper, chromium, cobalt, nickel and lead the river has Class II and Class III pollution degree.
- ✓ It was found in the course of the analyses of the **Arda river** at the point of entry in Turkey that it meets the requirements of Class I; however in terms of the contents of nitrites, cobalt, nickel and lead the river meets the requirements of Class II and Class III.

### Water supply, sewerage and wastewater treatment

Finally It is important to address the status of the use of water by population living the CBC OP area. The figures below shows the trends in use and access to water by local population, is an evidence an increase on use of water in the last years and also a decrease of water discharged into water body, linked with an increase of people who have access to wastewater treatment plants (in particular for the Edeirne province).

	EDİRNE				KIRKLARELİ			
	2006	2008	2010	2012	2006	2008	2010	2012
Used water <sup>50</sup>	10 141	10 333	11 077	12 177	9 031	8 959	9 850	10 063
Water supply and water use <sup>51</sup>	18 433	16 583	18 269	21 907	28 140	24 410	17 833	18 416
Water used by households from public water supply <sup>52</sup>	7 118	7 743	8 367	9 332	7 472	7 531	8 332	8 517
Wastewater and cooling water discharged into water body <sup>53</sup>	12.656	14.046	13.372	15.631	11.132	10.704	11.471	9.962
Population connected to public water supply, sewerage and wastewater treatment plants <sup>54</sup>	293.487 261.923 1.864	293.443 270.576 2.164	290.772 267.105 3.243	304.724 286.369 8.575	259.716 233.509 514	259.511 248.916 1.029	264.713 249.826 983	275.385 268.424 696

Source: Bulgarian Border Dialogues, Developing a Regional CBC Data Center

#### Zero-option scenario:

Concerning **Bulgarian** side of the CBC OP area is important to observe that “due to the geographical location, specific atmospheric circulation and landscape structure, the water balance in Bulgaria is unfavorable. Concerning water resources per capita, Bulgaria takes the bottom position on the Balkan Peninsula. Bulgaria also faces serious challenges, mainly related to the location of Bulgaria in the dry area in relation to global climate change, unequal distribution of water resources in its territory, high degree of amortisation of water supply systems and low level of building of sewerage systems. Long-term priorities are a reduction

<sup>50</sup> Unit (1000 m3/year), only water used which supplied by public water supply is included.

<sup>51</sup> Unit (1000 m3/year), only water distributed by public water supply is included.

<sup>52</sup> Unit (1000 m3/year)

<sup>53</sup> Unit (1000 m3/year), only wastewater discharged by municipal sewage system to environment is included

<sup>54</sup> Population (public water supply/sewerage/wastewater treatment plants)

of the negative effects of the increasing air temperature and decreasing rainfall. Building of the sewerage and wastewater treatment plants lags in comparison to building of the water supply system, and many aquatic ecosystems in Bulgaria are still at risk.”<sup>55</sup>

For the **Turkish** side of the CBC is important to observe that in last years EU aided project about **implementation of 3 EU water directives** which are WFD, Urban Waste Water Treatment Directive and Dangerous Substances Directive in Turkey. The main results of the project are that analysing the laws, directives, foundations and preparing application plans in the light of those EU directives. In addition, 14 directives related to water quality have been harmonized and there is a harmonisation study for the others. Finally Taking into consideration the population of 2007 which is 70,6 million, the quantity of water per capita per year is 1,586 m3. Countries regarded as being rich in water resources have 8-10 thousand m3 water per capita per year. The available water per capita per year in Turkey is about 1/5 of the water-rich countries. It is estimated by the experts that, in 2023, the amount of available water will likely to be less than 1000 m3/capita/year.<sup>56</sup>

## 5.4 Soil

### The current condition of land use, land cover and organic farming

Out of 111 thousand hectares of **Bulgaria** in 2012:

- 32.2% were crop land and 16,8% grassland,
- 42.5% woodland,
- 1.01% waters and wetland, and
- 2.3% artificial land

#### Land cover overview (value in %)

LAND COVER	Total	Artificial land	Cropland	Woodland	Shrubland	Grassland	Bare land	Water	Wetland
<b>Bulgaria</b>	100	2.3	32.2	42.5	4	16.8	1.1	1	0.1

Source: Eurostat, 2012

From the National report on the status and protection of the environment in Bulgaria in 2012, in the period 2007-2012, the land use in Bulgaria has been variable. In 2012 the utilized agricultural area (UAA)<sup>57</sup> was the 46.2% of the whole country and, compared to 2011, it increased by 0.7%. Uncultivated lands<sup>58</sup> occupy the 3.2% of the country, decreasing by 10.1% compared to the previous year. During 2012 the area of land for agricultural use (AFSJ)<sup>59</sup> results 5,481,222 ha representing approximately 50% of the territory the country. Arable land increased by 2.1% compared to 2011 occupying 3,294,685 ha and represent 64.3% of the UAA (Fig. below).

<sup>55</sup> See [http://www.eea.europa.eu/soer/countries/bg/soertopic\\_view?topic=freshwater](http://www.eea.europa.eu/soer/countries/bg/soertopic_view?topic=freshwater)

<sup>56</sup> See [http://www.eea.europa.eu/soer/countries/tr/soertopic\\_view?topic=freshwater](http://www.eea.europa.eu/soer/countries/tr/soertopic_view?topic=freshwater)

<sup>57</sup> UAA includes arable land, permanent crops, permanent grassland areas under glass and kitchen gardens.

<sup>58</sup> Non-arable land: land not included in the rotation during the year and are not used for agricultural production more than two years.

<sup>59</sup> AFSJ - formed by arable land, permanent crops, permanent grassland for agricultural use (including mountain pastures and grassy surfaces with low productive potential), family gardens and uncultivated more than three years farmlands



Employment of agricultural land,%



Source: MAF; Agricultural Report 2012

In Turkey agricultural land covers in 2013 38 428 thousand of hectares, half of which are represented by permanent meadows and pastures, as the table below shows.

Agriculture Land cover overview (value in Thousand Hectares)

	Toplam tarım alanı Total utilized agricultural land	Tahıllar ve diğer bitkisel ürünlerin alanı Area of cereals and other crop products		Sebze bahçeleri alanı Area of vegetable gardens	Süs bitkileri alanı Area of ornamental plants	Meyveler, içecek ve baharat bitkileri alanı Area of fruits, beverage and spice crops	Çayır ve mera arazisi Land under permanent meadows and pastures
		Ekilen alan Sown area	Nadas Fallow land				
2001	40 967	17 917	4 914	909	-	2 610	14 617
2002	41 196	17 935	5 040	930	-	2 674	14 617
2003	40 644	17 408	4 991	911	-	2 717	14 617
2004	41 210	17 962	4 956	895	-	2 780	14 617
2005	41 223	18 005	4 876	894	-	2 831	14 617
2006	40 493	17 440	4 691	850	-	2 895	14 617
2007	39 505	16 945	4 219	815	-	2 909	14 617
2008	39 122	16 460	4 259	836	-	2 950	14 617
2009	38 911	16 217	4 323	811	-	2 943	14 617
2010	39 012	16 333	4 249	802	-	3 011	14 617
2011	38 231	15 692	4 017	810	4	3 091	14 617
2012	38 399	15 463	4 286	827	5	3 201	14 617
2013 <sup>(*)</sup>	38 428	15 618	4 148	808	5	3 232	14 617
Kaynak: Çayır ve mera arazisi için 2001 Genel Tarım Sayımı, diğerleri için Gıda, Tarım ve Hayvancılık Bakanlığı				Source: For land under permanent meadows and pastures 2001 General Agricultural Censuses, for other Ministry of Food, Agriculture and Livestock			
Not. Rakamlar yuvarlamadan dolayı toplamı vermeyebilir.				Note. Figures may not be equal to total due to rounding off.			
Avrupa Birliğinin faaliyetlere göre Ürünlerin İstatistikî Sınıflamasına (CPA 2002) göre gruplandırılmıştır.				Data are grouped according to Statistical Classification of Products By Activity in European Economic Community (CPA 2002).			

(*) Bilgiler geçicidir.		(*) Data are provisional	
Bin Hektar		Thousand Hectares	

In Turkey organic crop production increased from 203 811 hectares in 2005 to 769 014 in 2013.

### Organic crop production overview 2002-2013

	Ürün sayısı		Çiftçi sayısı		Alan - Area <sup>(1)</sup>		Üretim - Production	
	Number of crops		Number of holdings		Hektar - Hectares		Ton - Ton	
	(Adet - Number)	(Adet - Number)	(%)	(%)	(Hektar - Hectares)	(%)	(Ton - Ton)	(%)
2002	150	12 428	-		89 827	-	310 125	-
2003	179	14 798	19,1		113 621	26,5	323 981	4,5
2004	174	12 751	-13,8		209 573	84,4	377 616	16,6
2005	205	14 401	12,9		203 811	-2,7	421 934	11,7
2006	203	14 256	-1,0		192 789	-5,4	458 095	8,6
2007	201	16 276	14,2		174 283	-9,6	568 128	24,0
2008	247	14 926	-8,3		166 883	-4,2	530 224	-6,7
2009	212	35 565	138,3		501 641	200,6	983 715	85,5
2010	216	42 097	18,4		510 033	1,7	1 343 737	36,6
2011	225	42 460	0,9		614 618	20,5	1 659 543	23,5
2012	204	54 635	28,7		702 909	14,4	1 750 127	5,5
2013	213	60 797	11,3		769 014	9,4	1 620 466	-7,4
<b>Kaynak: Gıda, Tarım ve Hayvancılık Bakanlığı</b>					Source: Ministry of Food, Agriculture and Livestock			
(1) Doğal toplama alanları dahildir.					(1) Natural harvest areas are included.			

In particular, in the two regions eligible of the Programme (Edirne and Kırklareli) the table below shows the reduction of total arable land in the last 4 years. For the organic production data are not available at regional level.

Year	Region Code	Region Name	Organic crop production (transition period included): Production area (Hectare)	Land use : Total arable land (hectare)
2010	TR212	Edirne	*	358207
2011	TR212	Edirne	*	324606
2012	TR212	Edirne	*	297761
2013	TR212	Edirne	*	286228
2010	TR213	Kırklareli	94	230587
2011	TR213	Kırklareli	*	223081
2012	TR213	Kırklareli	*	189300
2013	TR213	Kırklareli	*	209515

The forestry sector in Turkey can count on more that 21 millions heactars of forest, 52% of which is productive(data in 2010). The table below shows the distribution of forest land in the years.

<b>1.1 Orman alanları dağılımı, 1973, 1999, 2005, 2009, 2010</b>						
Distribution of forest land, 1973, 1999, 2005, 2009, 2010						
Orman formu - Forest form	Toplam - Total		Normal - Productive		Bozuk - Degraded	
	Hektar - Hectare	%	Hektar - Hectare	%	Hektar - Hectare	%
<b>1973</b>	<b>20 199 296</b>	<b>100</b>	<b>8 856 457</b>	<b>44</b>	<b>11 342 839</b>	<b>56</b>
Koru ormanı - High forest	10 934 607	54	6 176 899	31	4 757 708	23
Baltalık ormanı - Coppice forest	9 264 689	46	2 679 558	13	6 585 131	33
<b>1999</b>	<b>20 763 248</b>	<b>100</b>	<b>10 027 568</b>	<b>49</b>	<b>10 735 680</b>	<b>51</b>
Koru ormanı - High forest	14 418 340	69	8 237 753	40	6 180 587	29
Baltalık ormanı - Coppice forest	6 344 908	31	1 789 815	9	4 555 093	22
<b>2005</b>	<b>21 188 747</b>	<b>100</b>	<b>10 621 221</b>	<b>50</b>	<b>10 567 526</b>	<b>50</b>
Koru ormanı - High forest	15 439 595	73	8 940 215	42	6 499 380	31
Baltalık ormanı - Coppice forest	5 749 152	27	1 681 006	8	4 068 146	19
<b>2009</b>	<b>21 389 783</b>	<b>100</b>	<b>10 972 509</b>	<b>51</b>	<b>10 417 274</b>	<b>49</b>
Koru ormanı - High forest	16 305 210	76	9 494 322	44	6 810 888	32
Baltalık ormanı - Coppice forest	5 084 573	24	1 478 187	7	3 606 386	17
<b>2010</b>	<b>21 537 091</b>	<b>100</b>	<b>11 202 837</b>	<b>52</b>	<b>10 334 254</b>	<b>48</b>
Koru ormanı - High forest	16 662 379	77	9 782 513	45	6 879 866	32
Baltalık ormanı - Coppice forest	4 874 712	23	1 420 324	7	3 454 388	16

Not: Bu tablo 5 yılda bir güncellenecektir. Note: This table will be updated every 5 years.

Source: Forestry Statistics 2011, Official Statistics Programme, Ministry of Forestry and Water Affairs.

In particular, in the period 2008-2011 each year were afforested around 40 thousand hectares of forest in all Turkey. The focus of this following figure is on the two eligible regions of the CBC Programme.

<b>4.3 Ağaçlandırma faaliyetleri, 1946-2011 (devam)</b>								
Afforestation activities, 1946-2011 (continued)								
(Hektar-Hectare)								
İBBS <sup>(1)</sup> - 3. Düzey		2005	2006	2007	2008	2009	2010	2011 <sup>(2)</sup>
SR <sup>(1)</sup> - Level 3								
TR	Türkiye	21 439	25 319	18 228	39 467	46 872	41 857	39 964
TR100	İstanbul	-	-	-	439	346	366	667
TR211	Tekirdağ	337	-	220	456	261	255	37
TR212	Edirne	337	-	171	576	653	485	395
TR213	Kırklareli	114	110	200	267	170	298	364

Source: Forestry Statistics 2011, Official Statistics Programme, Ministry of Forestry and Water Affairs.

During the same period has been carried out in all Turkey but also in the tow regions Edirne and Kırklareli rehabilitation activities in degraded forests.

#### 4.4 Bozuk orman alanlarında gerçekleştirilen rehabilitasyon faaliyetleri, 1992-2011 (devam)

Rehabilitation activities realised in degraded forest lands, 1992-2011 (continued)

(Hektar - Hectare)

İBBS <sup>(1)</sup> - 3. Düzey		2007	2008	2009	2010	2011
SR <sup>(1)</sup> - Level 3						
TR	Türkiye -Turkey	313 659	336 910	374 728	346 902	344 570
TR100	İstanbul	1 034	1 530	1 458	1 964	1 278
TR211	Tekirdağ	1 514	1 102	894	597	925
TR212	Edirne	1 129	2 626	2 728	2 500	2 888
TR213	Kırklareli	2 551	2 511	2 581	2 562	2 253

Source: Forestry Statistics 2011, Official Statistics Programme, Ministry of Forestry and Water Affairs.

Turkey is one of the countries subject to a high degree of erosion due to its topographical structure, climate, the incorrect agricultural methods used, the excess pasture and forest destruction and the fact that most land is prone to erosion. In addition, the slope conditions make agricultural processes difficult and facilitate erosion which also pose a significant land problem in Turkey. The rapid population increase and industrialisation has increased rural to urban migration and led to the establishment of settlement areas replacing productive agricultural land in certain regions. The small areas of land in agricultural enterprises cause the producers to use non-productive fields (grassland-pasture, forest) for agricultural production. Tourism investments that are not sensitive to the environment may cause irreversible damage in coastal and forest areas. Human activity that has negative impacts on wetlands causes the degradation of ecosystems

#### 4.5 Erozyon kontrolü faaliyetleri, 1946-2011 (devam)

Erosion control activities, 1946-2011 (continued)

(Hektar-Hectare)

İBBS <sup>(1)</sup> - 3. Düzey		2005	2006	2007	2008	2009	2010	2011 <sup>(2)</sup>
SR <sup>(1)</sup> - Level 3								
TR	Türkiye	47 493	60 776	42 984	53 917	50 352	61 401	67 088
TR100	İstanbul	-	-	-	-	-	59	-
TR211	Tekirdağ	-	-	-	-	-	-	-
TR212	Edirne	-	-	-	-	116	-	167
TR213	Kırklareli	-	-	-	-	40	-	-

Source: Forestry Statistics 2011, Official Statistics Programme, Ministry of Forestry and Water Affairs.

#### The current condition of soil conditions, processes of soil degradation and erosion, pollution of soil

The soil is a constituent part of the environment, together with the atmosphere and the hydrosphere, and it represents the most precious natural resource without which human, animal and plant life would be impossible. The soil has numerous ecological functions, which are of essential importance for the environment, but also for the economy and the development of the society as a whole. The influences on soil caused by human activities continuously increase. This leads to unsustainable level of soil erosion, as well as its chemical contamination and biological degradation. Additionally, the use of agricultural soils of good quality has changed with the spread of urbanisation and infrastructure development.

The prevention of soil degradation presents a big challenge. This is achieved by special measures of soil protection and management policy, as well as by including the issues of soil protection in the other sector policies, i.e. agriculture, forestry, water management, transport and others.

On **Bulgarian** territory only local spots of polluted soils are in industrial areas and along the main transport infrastructure – the rail line Sofia – Thesaloniki and First class road E-79. Disrupted territories are at the places of raw material extraction (coal, rocks, inert materials). According to the National Report on the state and condition of the environment (2014 edition) soils in the country are in good ecological status in the period 2005-2012 as regards the availability of nutrients / organic matter, as well as contamination with heavy metals, metalloids and persistent organic pollutants (PAHs, PCBs and organochlorine pesticides). PCBs are below the limit of detection, and 98.9% of PAHs were below the MRLs.

In the period 2007-2012 a tendency of limiting the water erosion is observed, both in terms of size distribution and in terms of average annual soil loss. In 2012, there was little change in the average intensity of water erosion on agricultural land, which is 7,26 t/ha. the average erosion estimate during the year was 53.8 million tonnes, which is manifested in extent and intensity. The average intensity of water erosion in agricultural land varies depending on the ways of land management: 6,25 t/ha/y in pastures; 6,77 t/ha/y in the fields; 20,40 t/ha/y in plantations and in the areas occupied by other crops it is 7,24 t/ha/y.

Soil losses from wind erosion are retained, but areas with low risk are reduced at the expense of those with moderate and high risk.

In Turkey The data collection and inventory studies on soil pollution statistics will be implemented within the scope of the Soil Pollution Control and Point Source Contaminated Sites Regulation by the Ministry of Environment and Urbanization. Studies will be started from June of 2013 according to the amendment to the regulation. The first data will be published in 2015.

#### Zero-option scenario:

For Bulgaria no scenarios have been developed to date and no major changes are anticipated for 2020, however no significant alteration is expected in the proportions of areas and their long-term use. It is hoped that it will be possible to develop organic farming (by increasing the area under cultivation to reach average European levels); minimise farmland lying fallow due to a lack of interest by farmers and restrict irregular development in coastal and mountains resorts. The main driving forces that generate pressures on land use are economic sectors like agriculture, transport, as well as the high level of urbanisation. The pressure level of the specific driving forces varies in different parts of the country. The pressures on the agriculture area can be categorised as:

- land abandonment, mainly caused by changes in land ownership. Land managed by co-operatives and enterprises returned to private owners, only a small number of whom were interested in agriculture;
- low level or absence of support and subsidies for agriculture. As a result, some agricultural enterprises collapsed and new ones were not established;
- establishment of new reservoirs such as the Kozjak artificial lake of approximately 13 km<sup>2</sup> – part of the country's strategy based on the Vardar Valley Project.

Urban spread of housing and commercial sites has occurred around larger cities, mainly the capital Skopje and cities in the west of the country. A small part of land take is for transport development, mostly linked to the construction of highways.

Turkey: Land use plays an important role both in food safety and in carbon sequestration. Regional and national land use plans need to be conducted taking environmental factors into account, and land use changes and requests should be carefully scrutinised. Financial and ecological decisions should be mutually evaluated within the framework of sustainable development. Consequently, the functionality and enforcement of the Land Protection and Area Use Laws should be increased and made enforceable. The Corine land cover project will determine land use and its changes at specific intervals. These and other data will be used to create stable and integrated data systems regarding the environment and its monitoring, inspection and reporting structure. These data and systems will enable accurate and quick decisions so that rapid intervention will become possible ensuring a healthier environment.

## 5.5 Cultural/natural heritage and landscape

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Both countries Bulgaria and Turkey have strong relationships over the years - from the very beginning of the CBC cooperation and of course in the current Bulgaria-Turkey IPA CBC Programme 2007-2013.

The culture and nature in the area are rich, unique as well as diverse and are possible basis for continuation of traditional actions as well as establishment of new joint touristic development actions.

Although the major tourist destinations are at the Bulgarian Black Sea coast, in the recent years some new forms of “all seasons tourist destinations/attractions” has occurred, e.g. SPA tourism, cultural tourism, historical tourism, alternative tourism, rural tourism, sport tourism, etc. On one hand the cultural heritage of the region is broadening its importance both at national and international level – for example Edirne City was awarded “*2008 European Tourist Destination of Excellence in Intangible Heritage*” (cf. EU COM, 2014: online); **Sozopol, Nesebar and South Bulgarian Black sea Coast** (from Sozopol to the Turkish border) are involved in the the famous Michelin Guide “Top 1000 worldwide places to visit”<sup>60</sup>. On the other hand for the past several years one of the most popular attractions from the “all inclusive tourist packages” of Bulgarian Black sea hotels are short one or two days visits of the natural, cultural and historical places in the CBC region. Based on the assessment of the CBC Programme 2007-13, the touristic potential of the Turkish regions of the CBC region continues to be unexploited (cf. Bulgaria-Turkey IPA CBC Programme 2007-2013, 2011: 13), but meanwhile over the years 2011 – 2013 some new four and five stars hotels have been build in Edirne City so to further develop the tourism sector of the province.

### Bulgaria

The relief of the Regions of Burgas and Yambol is varied: Parts of the Balkan mountains and the Rear Balkan kettles (the Karnobat kettle), the Burgas lowlands, the Middle Tundzha lowland and the low-hilly area, the Sakar-Strandzha hilly and low-mountainous area alternate in direction north-south. The eastern Balkan is segmented by the longitudinal valleys of the

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<sup>60</sup> <http://travel.michelin.com/web/destination/Bulgaria/tourist-attractions>

rivers Kamchiya and Hadzhijska. The southern part of the district is occupied by the low borderline mountains – Strandzha , the Dervent highlands and Sakar.

The northern and central part of the District of Haskovo is occupied by the Upper Thracian valley and is characterized by broad riverine lowlands and high level groundwater facilitating the intensive use of the agricultural areas. A broad territory of the district is occupied in southward direction by low branches of the Eastern Rhodopes and the western slopes of Sakar mountain. Large parts of these mountainous areas are covered by poor skeleton soils and are denuded of forests. Built of unstable volcanic rocks, these lands are characterized by intense erosive processes.

A cultural and historic heritage of specific value are the historic and archaeological and architectural reservations, which are abundant in the *District of Burgas*. The most important is the town of Nesebar as a town-monument under the protection of UNECISO. Numerous Thracian tumuli and prehistoric settlement tumuli have been registered on the territory of the *District of Burgas*. The archaeological reservations in the regions are: “Deultum – Debel” with a total area of 85.3 ha and “Ulpia Anhialeion Paleokastro” near the town of Pomorie, with total area of 139.4 ha. The number of the monuments of culture in the district (state 2005) is 1,693, of which one is of world importance and 70 are of natural importance. There are also 5 reservations. In the *District of Yambol* there are 236 monuments of culture. The most important of these are: the ancient town of Kabile, the ruins of a Roman bath in the center of the town of Yambol (not exposed), the preserved walls and tower of the Medieval fortress in Yambol, one of the largest roofed markets in Bulgaria from the 15. century – the Bazaar, which has the best acoustics in Bulgaria. The number of the monuments of culture in the district (state 2005) is 496, of which 6 of national importance, and one reservation. The *District of Haskovo* is one the richest regions with historic and archaeological sites. Traces from the neolith, halcolite and bronze age have been found along the valley of the Maritza river, and in Sakar have been found traces from the iron age. The development of ancient civilizations can be traced in this district. The more important historic monuments in this district are: the Roman fortress in the village of Mineralni Bani; the rock vinery in the Hisarya locality, the Thracian tomb and the Byzantine castle at the village of Mezek. The number of the monuments of culture in the district (state 2005) is 579, of which 47 are of national importance.

## Turkey

There is a potential for development of joint projects between community centers in Bulgaria and NGOs in Turkey in the area of creative industries, exchange of experience, good practices, etc. On Turkish side of the programme area there are 1 theatre, 3 museums and 23 libraries.

Accordingly culture presents an important potential that can contribute to good neighborhood relations development. On the other hand, culture should also be understood as a potential generator of new products and employment possibilities in connection to other sectors.

There is no information about the Province of Kirklareli. There are 307 building complexes – monuments in the Province of Edirne, including mosques, *medresahs* (clerical schools), *turbees* (sanctuaries), *mesjits* (chapels), *charshiyas* (bazaar), baths, bridges, feretories, reservoirs, cemeteries, etc.

## **6 The environmental characteristics of areas likely to be significantly affected**

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The CBC Programme is prepared for the whole territory of the cross-border region. Since it is not possible to identify the territorial locations of the priorities and activities planned (neither specific projects) within the CBC Programme (the strategic level of the programme is on the scale of the region) the environmental analysis of the characteristics and issues provided in the chapter 5 is applicable and responds to the needs of this particular item of the content, as required by the national law and the EC Directive.

Environmental characteristics of the areas, where the certain projects to be supported under the CBC OP will be carried out shall be assessed by EIA procedure where applicable.

## **7 The existing environmental problems ascertained at different levels which are relevant to the Programme including, in particular, those relating to any areas of a particular environmental importance**

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In the environment, climate change adaptation and mitigation & risk prevention and management sector the Programme has identified the following challenges and needs:

### Challenges

- The region is vulnerable towards natural hazards and coastal threats, which negatively corresponds to the intensified effects of climate change manifesting themselves through an increase of the frequency and intensity of natural hazards (flooding, droughts, etc.).
- The region as a low energy efficient area and its high dependency on fossil fuels faces challenges of energy security in energy supply.
- The increasing pressure on the environment due to urbanisation, intensified agriculture, and transport worsens the existing negative situation of local environmental pollution in different sectors.
- Despite existing initiatives for the protection of the Black Sea, the region faces a number of major challenges including the decrease of biological resources, declining diversity of spaces and the reduction of aesthetic values.

### Needs

- Integrated and coordinated territorial approaches as well as more and better measures, including a higher degree of information sharing, are needed for the effective management of natural hazards and climate change risks which will gain in gravity and frequency.
- Existing (economic) pressure on natural resources needs to be reduced, as e.g. economic growth needs to be decoupled from the use of natural resources; labour intensive pollutant sectors like textile, leather and chemistry therefore need to be modified.
- The good environmental conditions of the region need to be kept and developed; natural parks and ecological zones need to be further improved.
- A sustainable management and the protection of natural resources is a necessity for the CBC region to improve the efficiency of use of natural resources in the area.
- A better integration of the protected areas into spatial development is needed.
- Actions and common approaches are needed to improve the environmental state and the conditions of the Black Sea (incl. coastal zones) and to further promote and encourage already existing initiatives in the area.



- In the field of sustainability, all activities need to take the well-being of the natural environment, the society and the economy – as well as their reciprocal influences – into consideration.

Relevant for the analysis is also the Tourism and cultural and natural heritage sector that is characterized by the identified challenges and needs:

#### Challenges

- Climate change and its variety of negative territorial impacts illustrate major threats for the region's summer tourism, which is especially for the Black Sea region (summer resorts) a main economic factor.
- The touristic exploitation of the region, including mass tourism, illustrates a major danger for the high valued landscapes, natural habitats and ecological corridors of the area; innovative tourism practises should be implemented in order to regulate and better prevent the exploitation of protected areas.

#### Needs

- There exists the need of a common cooperative management of cultural heritage in a sustainable way, taking into account the environmental needs of the protected areas, as well as coastal zones and nature reservoirs.
- New and better diversified tourist products and services are needed.

Hereafter the Environment, climate change adaptation and mitigation, risk prevention and management Weaknesses and Threats identified in the SWOT analysis of the Programme:

<b>Weakness</b>	
1	Local environmental pollution, including groundwater pollution with phosphates or nitrates
2	Lack of sewerage systems in the majority of small municipalities
3	Bad environmental state of the Black Sea including decrease of biological resources, declining diversity of spaces and reduction of aesthetic values
4	Burden of nature hazards, caused by combinations of several hazards such as droughts, extreme temperatures, forest fires and floods, mainly in highly vulnerable Bulgarian regions
5	Larger areas are effected by erosion, mainly in the province of Kirklareli
6	Vulnerability towards the adaptation to climate change and below average performances in adaptive capacities
7	Inefficient cooperation in management of natural resources and inadequate coordination for environment protection purposes; protected areas are not sufficiently integrated into the spatial development of the region
8	Low energy efficiency and high dependency on fossil fuels
9	Missing management of energy problems
<b>Threats</b>	
1	Increasing frequency of natural hazards (incl. flooding, droughts, fires etc.) as one result of climate change
2	Decreasing summer precipitation (water scarcity) and increasing temperatures
3	Gradually changing climatic conditions
4	Partly polluted rivers, aquifering underground water and are lowering continuously
5	Increasing pressure on the environment due to urbanisation, intensification of agriculture, transport, etc.
6	Overconstruction on the Black Sea coast line
7	Inefficient water resource management and flood protection
8	Water and coastal zone pollution from various sources (e.g. Danube, Sea of Marmara, Mediterranean) are out of control of the regional authorities
9	Inefficient use and management of favourable natural conditions and resources to enhance the development potential

**8 Possible effects and impacts on the environment resulting from the implementation of the Programme and recommendations to mitigate significant negative effects**

**8.1 Expected effects and impacts of the envisaged actions on the environment**

The results of the analysis are given in an **environmental assessment matrix for each Specific Objective included in a Priority Axis**. The **matrices** (see tables below) provide an overview of the possible effects of the Programme on the involved environmental issues (the cross-cutting themes have been integrated into the assessment of the respective environmental issues).

It has to be noticed that the **likely significant effects** and impacts on the environment resulting from the implementation of the Programme are both of **indirect nature** (linked mainly to “Soft measures”), but also in some case more direct (“Investment measures”).

Only actions that can have effects on environment are included in the lists of “Indicative actions foreseen” of the following tables.

**Evaluation assessment of SO 1.1 To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters**

<b>Priority Axis 1: “Environment”</b>			
<b>SO 1.1 To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters</b>			
<b>Indicative actions foreseen</b>	<b>Investment measures</b> <ul style="list-style-type: none"> <li>• Development of early warning and disaster management system</li> <li>• Investments in equipment related to disaster resilience</li> <li>• Support of small-scale interventions/investments (reforestation of river banks, flood defence, forestation of non-permanent vulnerable land; cuttings for emergency situations, etc.)</li> <li>• Other appropriate investment activities in relation to flooding and fire protection &amp; early warning systems</li> </ul>		
	<b>Soft measures</b> <ul style="list-style-type: none"> <li>• Joint trainings and raising awareness of public service actors and population for disaster resilience</li> <li>• Developing joint strategies / common guidelines for risk prevention and management of natural and man-made disasters (for disaster protection and prevention policies and mechanisms, prevention and fire fighting management etc.)</li> <li>• Awareness campaigns in the field of efficient risk prevention and management.</li> <li>• Conducting joint theoretical-tactical exercises and field trainings for emergency situations management</li> <li>• Trainings in the use of ICT technologies, including introduction of innovative methods for learning (e-learning);</li> <li>• Exchange of experience and good practice (study visits, round-tables, conferences, and others)</li> <li>• Joint trainings and awareness raising of public service actors, youths, volunteers and population for disaster resilience</li> </ul>		
<b>Environmental issue involved</b>	Biodiversity, Flora and Fauna	<b>Assessment</b>	<b>+</b>

	Water		+
	Soil		+
	Air and Climate		+
	Population and human health		+
	Cultural/Natural Heritage and Landscape		+
<b>Possible effects on environment</b>	<ul style="list-style-type: none"> <li>• Negative effects of natural disasters (wood fires, floods) on landscape and natural heritage can be avoided or mitigated</li> <li>• Emissions of CO<sub>2</sub> due to fires can be avoided</li> <li>• Capacity of woods to retain CO<sub>2</sub> can be maintained</li> <li>• Avoiding the destruction of habitats by fire or floods, it can be preserved the local biodiversity, flora and fauna</li> <li>• Maintaining the coverage of trees it can be preserved as well the quality of soils, avoiding the erosion due to rainfall and the losses of topsoil, the richest in terms of organic matter</li> <li>• A positive effect on water quality can be detected too, considering the filtering action of tree coverage</li> </ul>		
<b>Recommendations</b>	None		

**Evaluation assessment of SO 1.2 Improvement of the capacity for nature protection and sustainable use of common natural resources**

<b>Priority Axis 1: "Environment"</b>			
<b>SO 1.2 Improvement of the capacity for nature protection and sustainable use of common natural resources</b>			
<b>Indicative actions foreseen</b>	<p><b>Investment measures</b></p> <ul style="list-style-type: none"> <li>• Small-scale investments for improving accessibility of / to nature protected sites;</li> <li>• Small-scale investment (green infrastructure, etc.)</li> </ul> <p><b>Soft measures</b></p> <ul style="list-style-type: none"> <li>• Joint cooperation initiatives targeting the effective management of protected areas</li> <li>• Joint initiatives addressing nature protection in the Black Sea and coastal zones</li> <li>• Joint initiatives towards the protection and restoration of ecosystems and endangered/protected species</li> <li>• Preservation and improvement of the quality of natural resources (air, soil, water)</li> <li>• Building capacities of local authorities in the environment-related matters</li> <li>• Cooperation, exchange of experiences and knowledge between institutions;</li> <li>• Cooperation between authorities, NGOs in the field of safe and sustainable low-carbon economy across borders</li> <li>• Cooperative measures of education and training institutions in the field of environment and low-carbon economy</li> <li>• Development and implementation of joint activities including information and awareness campaigns and exchange of know-how in the fields of environmental &amp; nature protection</li> <li>• Joint initiatives addressing sustainable use of resources, recycling, etc</li> </ul>		
	<b>Environmental issue involved</b>	<b>Assessment</b>	
	Biodiversity, Flora and Fauna		<b>+</b>
	Water		<b>+</b>
	Soil		<b>+</b>
	Air and Climate		<b>+</b>
	Population and human health		<b>+</b>
	Cultural/Natural Heritage and Landscape		<b>+</b>

<b>Possible effects on environment</b>	<ul style="list-style-type: none"> <li>• Improvement of the quality of natural areas, in terms of Biodiversity, Flora and Fauna</li> <li>• Preservation of the traditional landscape, <i>condition sine qua non</i> for the attractiveness of the area (also considering objectives of Priority Axis 2)</li> <li>• Augmented resilience to climate changes and capacity of CO2 storage</li> <li>• Positive effects on soil and water quality</li> <li>• Availability of natural areas for the population can contribute to human well being</li> <li>• Improved capacities of local authorities to deal with “green economy”</li> <li>• Improved awareness of local authorities and local populations on environment related matters</li> </ul>
<b>Recommendations</b>	None

**Evaluation assessment of SO2.1. Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage**

<b>Priority Axis 2: “Sustainable Tourism”</b>			
<b>SO2.1. Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage</b>			
<b>Indicative actions foreseen</b>	<b>Investment measures</b>		
	<ul style="list-style-type: none"> <li>• Rehabilitation of access roads to natural, cultural and historic tourism sites</li> <li>• Public utilities upgrade (electricity, water-supply, sewerage, etc.)</li> <li>• ICT facilities developed/upgrade</li> <li>• Restoration and maintenance of sites of historical and cultural importance</li> <li>• Conservation and protection of (both tangible and non-tangible) natural, historical and cultural heritage</li> <li>• Cycling routes, walking paths</li> </ul>		
	<b>Soft measures</b>		
	<ul style="list-style-type: none"> <li>• Development of touristic transport schemes and related activities in Black Sea coastal zones</li> </ul>		
<b>Environmental issue involved</b>	Biodiversity, Flora and Fauna	<b>Assessment</b>	+/-
	Water		+/-
	Soil		+/-
	Air and Climate		+/-
	Cultural/Natural Heritage and Landscape		+/-

<b>Possible effects on environment</b>	<p>Augmentation of tourist presence induced by Programme's initiatives - if not properly managed - could originate different risks, that should be avoided if all Programme's components will be implemented:</p> <ul style="list-style-type: none"> <li>• negative effects on air pollution caused by increased traffic will be counterbalanced by the improvement of sustainable transportation system</li> <li>• in some natural habitat (especially protected areas) threats of negative effect on biodiversity, flora and fauna can be avoided adopting existing regulation;</li> <li>• improvement of water supply and sewerage systems will absorb the increased consumption of water and negative effects on water quality</li> </ul> <p>Restoration/maintenance of sites of historical and cultural importance and conservation/protection of natural and cultural heritage will allow to preserve and improve traditional landscape.</p>
<b>Recommendations</b>	<ul style="list-style-type: none"> <li>• The higher accommodation capacity that could be induced by the Programme's initiatives must be accompanied by appropriate improvements of the water supply and sewerage systems</li> <li>• Appropriate restrictions for utilisation of natural areas needing of specific protection should be strictly applied (application of existing norms, or creation of new ones);</li> <li>• It should be implemented as well a specific legislation and technical prescriptions on permits for new facilities/tourist accommodation/buildings, that must be coherent with the traditional landscape, utilising possibly local materials and construction techniques.</li> </ul>

**Evaluation assessment of SO 2.2. Improvement of possibilities for sustainable touristic services**

<b>Priority Axis 2: "Sustainable Tourism"</b>			
<b>SO 2.2. Improvement of possibilities for sustainable touristic services</b>			
<b>Indicative actions foreseen</b>	None of the actions foreseen is expected to produce effects on environment		
<b>Environmental issue involved</b>	-----	<b>Assessment</b>	-----
<b>Possible effects on environment</b>	None		
<b>Recommendations</b>	None		

**Evaluation assessment of SO 2.3 Networking for sustainable development of tourism potential**

<b>Priority Axis 2: "Sustainable Tourism"</b>			
<b>SO 2.3 Networking for sustainable development of tourism potential</b>			
<b>Indicative actions foreseen</b>	<b>Soft measures</b> Different actions for promoting sustainable tourism (events, training courses, awareness raising campaigns, capacity building activities, etc.)		
<b>Environmental issue involved</b>	All	<b>Assessment</b>	+

<b>Possible effects on environment</b>	Although the expected effects are indirect, all foreseen activities could have a positive effect on the sustainability of tourist sector to be developed.
<b>Recommendations</b>	None

The following table provides an overview of the global possible effects on the environment of the implementation of the activities foreseen by the Programme.

### Overview of the environmental effects of the Programme

	Environmental issue					
	Air and Climate	Biodiversity, Flora and Fauna	Water	Soil	Population and Human Health	Cultural/Natural Heritage and Landscape
<b>Priority Axis 1: "Environment"</b>						
<i>SO1.1. To prevent and mitigate the risks and consequences of natural and man-made hazards and disasters</i>	+	+	+	+	+	+
<i>SO 1.2. Improvement of the capacity for nature protection and sustainable use of common natural resources</i>	+	+	+	+	+	+
<b>Priority Axis 2: "Sustainable tourism"</b>						
<i>SO 2.1. Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage</i>	+/-	+/-	+/-	+/-	0	+/-
<i>SO 2.2. Improvement of possibilities for sustainable touristic services</i>	0	0	0	0	0	0
<i>SO 2.3. Networking for sustainable development of tourism potential</i>	+	+	+	+	+	+

	Environmental issue					
	Air and Climate	Biodiversity, Flora and Fauna	Water	Soil	Population and Human Health	Cultural/Natural Heritage and Landscape
<b>Accumulation of impacts</b>	+	+	+	+	+	+

### 8.1.1 Cumulative effects

No significant negative cumulative impact is expected from activities financed by the Programme.

Instead, positive cumulative effects are expected on all environmental issues considered, since the whole Programme assumes protection of environment and sustainable development of productive activities as the strategic approach on which all activities are based, according also to European and national policies.

Most important positive results are expected to be achieved on protection of natural resources of the project area, thanks to improved capacity to manage critical situations (wood fires and other natural disasters) but also to information/training activities targeted on local authorities and local communities on the importance of the management/protection of natural, cultural and historical heritage of the Region.

Preservation and amelioration of water resources are expected as well. The development of tourist sector can be considered as “sustainable” only if it is accompanied by the parallel improvement of the existing water supply and sewerage systems, but also local population can benefit of such structures.

The implementation of the interventions financed by the Programme should not have any negative impact, as also stated by specific analysis already carried out by Ministry of Environment and Water, with respect to the requirements of Art. 31 of the Biological Diversity Act (BDA). According to this study, “*the program is not likely to have a significant negative impact on natural habitats, populations and habitats of species subject to conservation in protected areas from the Natura 2000 network*”.

Potential risks for the environment can be linked mainly to the same subject, namely the development of uncontrolled initiatives related to tourist sector: structures for accommodation without appropriate infrastructures for water supply and treatment, deficiencies of public transports, proliferation of structures with negative impacts on landscape.

Some additional negative impacts can be expected during the construction phase of the foreseen facilities, but they can be considered as temporary effects.

## 9 Reasons for selecting the alternatives

The SEA legislation requests also to identify **reasonable alternatives to the Programme**. In fact, there is no alternative for a fundamental change of the overall structure of the Programme, as thematic priorities and priority axes have to refer to IPA II regulation and the Framework regulation on the implementation of ETC initiatives.



As already mentioned in previous paragraphs, there are no major negative effects expected that could suggest the opportunity to consider an alternative to this Programme. Some suggestions to increase the sustainability of the intervention are indicated in previous paragraph.

## 10 Description of the measures envisaged concerning monitoring

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According to the SEA Directive Article 10, possible significant environmental effects of the implementation of the Programme shall be monitored in order to identify at an early stage unforeseen adverse effects, and to enable the Programme Managing Authority to undertake appropriate remedial actions. In this context this chapter present, at both programme and project levels, different types of indicators which can contribute to identification and monitoring of possible significant environmental effects resulting from the implementation of the IPA CBC Bulgaria-Turkey Programme 2014-2020.

The proposed monitoring system defines appropriate environmental indicators (“**SEA indicators**”) **integrated in the monitoring and evaluation framework of the Programme**<sup>61</sup>, in order to avoid duplication of monitoring, as required by SEA legislation.

### 10.1 SEA indicators

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The proposed monitoring system was developed on the basis of the possible significant environmental effects of the implementation of the Programme, detected in the environmental assessment presented in chapter 8. The following common and specific output indicators, made available in the Draft Operational Programme (Version 2.0 – July 2014) will be used.

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<sup>61</sup> Already including environmental indicators (output, result and impact indicators).

**Common and programme specific output indicators**

<b>ID</b>	<b>Measurement unit</b>	<b>Target value (2023)</b>	<b>Source of data</b>	<b>Frequency of reporting</b>
<b>OI-1.1-1</b>	Number	3	Progress and Annual Implementation Reports	Annually
<b>OI-1.1-2</b>	Number	3	Progress and Annual Implementation Reports	Annually
<b>OI-1.1-3</b>	Number	6	Progress and Annual Implementation Reports	Annually
<b>OI-1.2-1</b>	Number	5	Progress and Annual Implementation Reports	Annually
<b>OI-1.2-2</b>	Number	3	Progress and Annual Implementation Reports	Annually
<b>OI-2.1-1</b>	Kilometres	5	Progress and Annual Implementation Reports	Annually
<b>OI-2.1-2</b>	Kilometres	8	Progress and Annual Implementation Reports	Annually
<b>OI-2.1-3</b>	Number	10	Progress and Annual Implementation Reports	Annually
<b>OI-2.1-4</b>	Number	15	Progress and Annual Implementation Reports	Annually

### Programme specific result indicators

ID	Indicator	Measurement unit	Target value (2023)	Source of data	Frequency of reporting
RI-1.1-1	Increased interventions in the field of risk prevention and management	%	<i>Increase</i>	Survey Progress and Annual Implementation Reports	2019 2023
RI-1.1-2	Increased joint initiatives in the field of risk prevention and management	%	<i>Increase</i>	Survey Progress and Annual Implementation Reports	2019 2023
RI-1.2-1	Surface area of land addressed by environmental protection interventions	%	<i>Increase</i>	Survey Progress and Annual Implementation Reports	2019 2023
RI-1.2-2	Improved capacity and sustainable use of common natural resources in the CBC area through joint initiatives for nature protection	%	<i>Increase</i>	Survey Progress and Annual Implementation Reports	2019 2023

## 10.2 Environmental Self-assessment

At project level, a preliminary impact assessment on environmental issues is recommended: the applicants could make an **Environmental Self-assessment** about the environmental aspects of the proposed projects following the list of defined Evaluation Questions as a scoring sheet.

Hereafter an example of possible questionnaire for the environmental Self-assessment based on an indicative possible action foreseen under Priority Axis 2: “Sustainable Tourism” – SO2.1. “Increasing the tourist attractiveness of the border area through better utilisation of natural and cultural heritage: *Rehabilitation of access roads to natural, cultural and historic tourism sites.*”

This action can have both possible positive and negative environmental effects on Biodiversity, Flora and Fauna, Water, Soil, Air and Climate, Cultural/Natural Heritage and Landscape (see chapter 8 for the environmental assessment).

### Example of Self-Assessment questionnaire

Environmental Issue	Evaluation questions	Measurement unit
<b>Air and Climate</b>	<p>8. Will the project have an effect on the reduction of the GHG emissions?</p> <p>9. Will the project have an effect on the support of environmentally friendly transports?</p> <p>10. Will the project have an effect on the promotion of forest fire fight management and prevention?</p> <p>11. Will the project have an effect on the promotion of responsible behaviour of the public by involving the citizens into fighting climate change?</p>	Ordinal scale (e.g. 1-10)
<b>Biodiversity, Flora and Fauna</b>	<p>7. Will the project have an effect on the preservation of biodiversity, habitats and ecosystems and their services?</p> <p>8. Will the project have an effect on the decrease in loss of biodiversity?</p> <p>9. Will the project have an effect on the promotion of responsible behaviour of the public by involving the citizens in protecting biodiversity and natural areas?</p> <p>10. Will the project have an effect on the promotion of tourism that would ensure high degree of nature conservation?</p>	Ordinal scale (e.g. 1-10)
<b>Water</b>	<p>9. Will the project have an effect on the improvement of ecological and chemical status of water bodies?</p> <p>10. Will the project have an effect on the promotion of sustainable use of water resources?</p> <p>11. Will the project have an effect on the promotion of sustainable use of sustainable tourism towards water resources preservation?</p> <p>12. Will the project have an effect on the promotion of responsible behaviour of the public by involving the citizens into sustainable water use?</p>	Ordinal scale (e.g. 1-10)
<b>Soil</b>	<p>1. Will the project have an effect on the preservation of the soil functionality</p> <p>2. Will the project have an effect on the promotion of sustainable use of soil resource</p> <p>3. Will the project have an effect on the promotion of sustainable tourism towards land preservation?</p> <p>4. Will the project have an effect on the promotion of responsible behaviour of the public by increasing education and awareness on soil protection?</p>	Ordinal scale (e.g. 1-10)
<b>Cultural/Natural Heritage and Landscape</b>	<p>6. Will the project have an effect on the protection and rehabilitation of cultural and natural heritage?</p> <p>7. Will the project have an effect on the promotion of</p>	Ordinal scale (e.g. 1-10)

Environmental Issue	Evaluation questions	Measurement unit
	<p><i>sustainable management and planning of cultural and natural landscape?</i></p> <p>8. <i>Will the project have an effect on the promotion of sustainable use of natural resources towards sustainable tourism?</i></p> <p>9. <i>Will the project have an effect on the promotion of responsible behaviour of the public by increasing education and awareness on heritage and landscape preservation and protection?</i></p>	

## 11 Conclusions and recommendations

Following the environmental review of BG-TR CBC 2014-2020 on possible environmental impacts related to Priorities Axes and Specific Objectives of the Programme, the recommendations suggest these interventions:

- Appropriate restrictions for utilisation of natural areas needing of specific protection should be strictly applied (application of existing norms, or creation of new ones);
- It should be implemented as well a specific legislation and technical prescriptions on permits for new facilities/tourist accommodation/buildings, that must be coherent with the traditional landscape, utilising possibly local materials and construction techniques
- Programme's initiatives are expected to induce the development of private initiatives related to tourist sector, but this growth must go hand in hand with the upgrade of related infrastructures (water and sewerage systems, transport facilities, etc.), otherwise the sustainability of the whole system could be weakened;
- Similarly, also an uncontrolled development of tourist structures could lead to a depletion of the natural, historical and traditional heritage of the area and of the related local landscape. Therefore, it could be appropriate to prepare specific legislation on permits for new facilities/tourist accommodation/buildings, that must be coherent with the traditional landscape, utilising possibly local materials and construction techniques;
- Identification/application of specific restrictions for utilisation of natural areas needing of specific protection should be foreseen, where appropriate.

## Annex 1 - Cross cutting issues

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### Energy Overview on the cross-border area

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#### Energy efficiency

Energy efficiency and renewable energy are topics where cross-border cooperation and exchange of good practices can further boost developments in the related fields.

In spite of the Black Sea region illustrates an expanding market with major development potential for energy, Bulgaria and Turkey are both featured by low energy efficiency and high dependency on fossil fuels.

Specifically, the need to improve **Energy Efficiency in Bulgaria** is one of the main priorities of the Bulgarian government. The country has significant potential for implementation of Energy Efficiency measures. One of the measures that Bulgarian government has taken to improve Energy Efficiency is the **Energy Efficiency Act**. The Act implements the requirements of Directive 2006/32/EC. Based on Directive 2006/32/EC and the Energy Efficiency Act are developed National Action Plans on Energy Efficiency. In this Plans Bulgaria adopted a national indicative targets for energy savings by 2016 in an amount not less than 9% of final energy consumption for 9 years (average 1% per year).

In 2007, **Turkey** adopted **the Energy Efficiency Law**, adopted in 2007, sets the rules for energy management in industry and in large buildings, project support, energy efficiency consultancy companies, voluntary agreements, etc. In 2009, the regulation on Increased Energy Efficiency in the Use of Energy Resources and Energy put in place authorizations and certifications for universities, engineering organizations and energy consultancy companies to support energy efficiency projects in industry through voluntary agreements. The Energy Strategy Plan sets a 20 percent primary energy intensity reduction target for 2023 compared with the 2008 level resources<sup>62</sup>.

#### Energy consumption and production

One of key problem to be faced by Bulgaria is the high consumption of energy. In this country, the **Total final consumption of energy** in 2012 was 9045 ktoe, the distribution by sector is transport - 31.7%, industry - 28.5%, households - 26.5%, services - 11.1% and agriculture - 2.2%<sup>63</sup>. Since 2000 total energy consumption increased by 5.6% as a result of increased consumption sectors "Transport", "Households, community organizations and other" and reduction in the "industry." In 2013, the **production of petroleum** amounted at 3.38 thousand Barrels per Day and a consumption of 114.99 (estimated) thousand barrels per day. Regarding to Coal's production, the amount is 35.846 Million short tons with a consumption of 38.279 million short tons. The **Total production of primary energy** is **0.476 Quadrillion btu**. Moreover, Bulgaria has another obstacle to face is the considerable import dependency of energy resources – around 70% (given 40% EU average)<sup>64</sup>.

The following tables provides an overview on the energy production/consumption by sector (1) and by type of energy sources (2) in Bulgaria and Turkey.

<sup>62</sup> Cfr. EIA-Country Analysis Brief Overview. url: <http://www.eia.gov/countries/country-data.cfm?fips=tu>

<sup>63</sup> Cfr. EEA - <http://eea.government.bg/bg/soer/2012/energetics/index>

<sup>64</sup> Cfr. EIA- U.S Energy Information Administration, Independent Statistics & Analysis, Section: Overview data for Bulgaria. url: <http://www.eia.gov/countries/country-data.cfm?fips=rb>

### Final Energy Consumption by sector 2011 (Mtoe)

	Industry	Transport	Households, services etc
<b>Bulgaria</b>	2.7	2.9	3.6
<b>Turkey</b>	28.8	16.0	36.1

Source: European Commission<sup>65</sup>

### Energy consumption and production in BG and MK (2013)

COUNTRY	TPOLOGY	PRETROLEUM (THOUSAND BARRELS PER DAY)	NATURAL GAS (BILLION CUBIC FEET)	COAL (MILLION SHORT TONS)	ELECTRICITY (BILLION KILOWATTHOURS)
<b>BG</b>	<b>Production</b>	3.38	3.53	35.846	46.65
	<b>Consumption</b>	114.99	108.42	38.279	31.60
<b>MK</b>	<b>Production</b>	58.14	22.32	76.622	228.08
	<b>Consumption</b>	734.62	1.598.15	108.397	187.13

Source: EIA (2013)<sup>66</sup>

In Turkey, the **Energy consumption per capita** is low and in 2011 amounted to **1.6 toe**, ie, slightly below the world average (1.9 toe) and equal to half of the European Union (EU) average.

**The final energy consumption** amounts at **80.9 Mtoe** and the production of **Total primary energy** amounts at **1.379 Quadrillion btu** and the **primary energy consumption** amounts at **0.130 Quadrillion btu**<sup>67</sup>.

Turkey's importance in world energy markets is growing, both as a regional energy transit hub and as a growing consumer. Turkey's energy demand has increased rapidly over the past few years and likely will continue to grow in the future. Over the past decade, Turkey's economy expanded, and its petroleum and other liquids consumption has increased. Thus, Turkey plays an increasingly important role in the transit of oil also for its strategical location at crossroads between Middle East and the European demand centers. The country is increasingly dependent on natural gas imports as its domestic consumption rises each year. Natural gas is used domestically mainly in the electric power sector. Coal-fired power plants are important to Turkey's electricity generation mix. The country imported 23% of its total coal supply in 2012. Natural gas is increasingly becoming a good alternative for cheaper and environmentally friendly energy source for both households and industry. The construction of the gas distribution networks in the major centres of the region is already in progress.

<sup>65</sup> Cfr. European Commission, "EU transport in figures/Statistical pocketbook 2013, p. 116

<sup>66</sup> Ibidem

<sup>67</sup> Source: EIA- U.S Energy Information Administration, Independent Statistics & Analysis, Section: Overview data for Turkey. url: <http://www.eia.gov/countries/country-data.cfm?fips=rb>

Volumes of imported coal may rise in the future as coal's importance for electricity generation increases.

## Renewable energy sources (RES)

The cross-border region is richness of **renewable and alternative energy resources** and high potential for the generation of solar power

The potential of RES in **Bulgaria** is in use of **geothermal energy, wind and solar energy**. The share of energy from renewable sources is 16,3% of the total. Particularly, the share relating to the transport sector is 0,3% to the electricity is 17%, to heating and cooling amounts at 27,5%<sup>68</sup>. The share of hydro electricity in the total electricity generation forecast for the period 2005-2015 (without substantial additional effort) is around 5.5% on average. Approximately 116 GWh (10 ktoe) electricity is produced by biomass and more precisely by black lye in the cellulose and paper factories<sup>69</sup>.

In **Turkey**, there is a substantial potential for the renewable energy resources, the country ranks seventh in the world and first in Europe in terms of **geothermal energy**. Turkey also aims at further increasing its use of hydro, wind and solar energy resources.

Specifically, the **hydroelectricity** is the largest renewable source of electricity however solar power looks likely to increase rapidly. **Wind power** in Turkey is mainly in the west. The production of electricity from renewable sources has increased significantly (99%). However, since the overall production of electricity has increased much more rapidly (162%), the percentage of renewables in total electricity production decreased by 24%. The carbon intensity of electricity production decreased by 11%. It is interesting to note that in the period 1998-2001, despite the rapid decrease in the percentage of renewables in overall electricity production, the increase in the intensity of electricity production was limited. It is believed that increase in the utilization of natural gas in that period was the main driving force in reaching this result. The rapid increase in the utilization of renewable sources of electricity was the main factor in decreasing the overall carbon intensity of electricity after 2001<sup>70</sup>. In addition, Turkey ranks seventh in the world and first in Europe in terms of geothermal energy.

## The current state of mobility and transport system

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### Transport mode

The **Bulgaria – Turkey cross – border region** is served by a number of transport infrastructures, additionally three border crossings are in operation in the area: Kapitan–Andreevo/Kapikule, Lesovo–Hamzabeyli and Târnovo–Kırklareli.

In the specific, it would be necessary to improve road connectors with Turkey. In fact, there are discrepancies in terms of the quality of the **road network** on both sides of the border. The roads in Bulgaria, more precisely the second and third class roads, are in a very poor condition and require a serious rehabilitation, while the condition of the roads in Turkey is much better although there are several critical locations where the condition of the roads can be improved.

<sup>68</sup>Source: EUROSTAT (2014)

rl:[http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg\\_ind\\_335a&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_ind_335a&lang=en)

<sup>69</sup> Cfr. Republic of Bulgaria, The National Strategic reference framework 2007 – 2013, p.

<sup>70</sup> See. Environmental Assessment of the Operational Program for Cross-Border Cooperation “Bulgaria – Turkey 2007 – 2013”, p.23



The cross-border region is crossed by the A1 Trakia Motorway from Sofia to Burgas on the Bulgarian side of the border. Furthermore a rather new motorway, the A4 Maritsa Motorway, is crossing the Turkish borderregion and connects the provinces of Haskovo and Edirne. The O-3 Motorway in Turkey furthermore connects the province of Edirne with Istanbul. The main share of roads in Edirne and Kırklareli includes village roads, in Edirne village roads amount around 1.800 kilometres, in Kırklareli around 1.900 km<sup>71</sup>. Both provinces hold just a small share of motorways (51 kilometres in Edirne and 70 kilometres in Kırklareli).

In the field of TEN-T and the core network, the region is part of the Orient/ East-Med corridor. The Orient/East-Med Corridor connects the maritime interfaces of the North, Baltic, Black and Mediterranean Seas, allowing optimising the use of the ports concerned and the related Motorways of the Sea. Including Elbe as inland waterway, it will improve the multimodal connections between Northern Germany, the Czech Republic, the Pannonian region and Southeast Europe. It extends, across the sea, from Greece to Cyprus.

According to the European Commission<sup>72</sup>, some progress has been achieved in alignment of the transport sector, except for the railway sector in the Turkish side. The **railway network** in the cross-border area is operated by the Bulgarian State Railways (BDZ) on the Bulgarian side and by the Turkish Republic State Railways (TCDD) on the Turkish side of the CBC region. Regarding railway service, there exists only one cross border connection (for railways) which is located at the border of Bulgaria, Turkey and Greece (Kapitan–Andreevo/Kapıkule). The length of railway kilometres amounts 96 kilometres in Edirne, and 110 kilometres in Kırklareli .In terms of other means of transport, the cooperation area is also served by - existing railway transport infrastructure as well as one operational international airport and one operational international sea port (Town of Burgas). Istanbul International airport is the nearest to Turkish side of the cooperation area.

The biggest **airport** of the region is located in the district of **Burgas**. The Burgas Airport served 2,4 Mio. passengers in 2012 and is the second biggest airport in Bulgaria.

Regarding the **water transport**. Turkey has made progress in the area of Trans-European networks particular in the TEN transport area. Particularly, the integration of the Black Sea harbours and the enhancement of the North-South connection of the region are relevant issues.

The **harbour** of Burgas is the largest harbour in Bulgaria and within the CBC Region. The provinces of Edirne and Kırklareli do not have a port worth considering.

In terms of passenger transport, in **Bulgaria** is growing the number of **passenger cars**, in 2011 was 48,1 billion pkm; while the use of buses is declining (10,8 billion p pkm); **tram and underground** register 0,9 billion pkm and the railways 2.1 billion pkm<sup>73</sup>. In **Turkey**, it is registered an high number of passenger cars: 133.2 billion pkm (2011) a similar result for buses & coaches with 111.2 billion pkm.

At the recent data collected in 2011, the performance of **railways passenger transport** in both countries was: Turkey amounts at 5.9 bilion pkm while in Bulgaria at 2.1 bilion pkm<sup>74</sup>.

### Main impacts on the environment

<sup>71</sup> See Turkish Statistical Institute, 2012

<sup>72</sup> See. [COM(2011) 666 final – SEC(2011) 1201

<sup>73</sup> EU Transport in figures – Statistical pocketbook 2013, url: <http://ec.europa.eu/transport/facts-fundings/statistics/doc/2013/pocketbook2013.pdf>

<sup>74</sup> Ibidem

Transport has major environmental impacts in terms of greenhouse gas emissions (GHG), local air emissions and noise; thus, lowering the GHG intensity of future transport growth represents a key challenge.

In 2010, the **total greenhouse gas emission** in **Bulgaria** amounted to 61,4 million tonnes CO<sub>2</sub> equivalent of which 8.8 million tonnes CO<sub>2</sub> GHG emissions are derived by the transportation that corresponds to 14,2% of the total. Concerning **Turkey's GHG emission**, the total greenhouse gas emission is 401.9 million tonnes CO<sub>2</sub> equivalent. Particularly, during the period 1990-2002, the absolute and relative increase of Turkey's greenhouse gas (GHG) emissions has been low in comparison to many other emerging economies.

As follows, the portion of GHG emission attributable to the transport sector splitted in each transportation mode in both countries.

#### GHG emission from transport by mode in Bulgaria and in Turkey - 2010

COUNTRY	UNIT	TOTAL CIVIL AVIATION	ROAD TRANSPORTATION	RAILWAYS	TOTAL NAVIGATION	OTHER TRANSPORT
BG	Share %	6,3	85	0,8	4,3	3,7
	Million tonnes CO <sub>2</sub> equivalent	0,6	7,5	0,1	0,4	0,3
TR	Share %	11.5	86.2	1.0	5.3	-
	Million tonnes CO <sub>2</sub> equivalent	3.5	40.0	0.5	2.4	-

Source: EU Transport in figures – Statistical pocketbook 2013<sup>75</sup>

In addition, there has been a large increase of **CO<sub>2</sub> emissions in Turkey**: from 26.0 million tonnes in 1990 to 45.6 million tonnes registered in 2010; in **Bulgaria** from 2009 to 2010 the CO<sub>2</sub> emissions from transport are decreased (from 9.2 to 8.7 million tonnes)<sup>76</sup>.

Concerning the **consumption of fuel**, in Bulgaria the total final consumption of petrol and diesel for transport amounts to 2.089 ktoe (2011) and of biofuels 17 ktoe; while in Turkey 11.436 ktoe with high level of consumption for Gas diesel oil (9535 kto) with a little portion from the designed for the use of biofuels: 16 kto<sup>77</sup>.

#### The status of waste system in Bulgaria- Turkey cross border area

The **CBC waste management policy** is tributary to the objectives of the EU waste prevention policy and aims to reduce resource use and to apply the waste hierarchy in practice.

Nevertheless, the financial sources from state budgets are insufficient for financing environmental infrastructure and the related inefficient prevention and management of

<sup>75</sup> Cfr. EU Transport in figures – Statistical pocketbook 2013: 124, 125

<sup>76</sup> Ibidem, p.127

<sup>77</sup> EU Transport in figures – Statistical pocketbook 2013, p. 118.

climate related risks in the border region. Much investment is still required in relation to solid waste collection and treatment.

The key objective in the environmental infrastructure sector is to optimize the waste system management by establishing financially sustainable integrated water and waste management systems in order to improve the quality of life of the population, try rational use and protection of the environment. At the same time it is essential to strengthen the administrative capacity of the institutions responsible for the management of CSF and improve the interaction between institutions; at the same time changing the attitudes of all citizens in the adoption of sustainable behaviors.

The following country's profiles illustrate the current state of waste system both in Bulgaria and in Turkey in order to deepen on the key problems to be solved in terms of waste management (i.e with the objective to develop a sectoral strategy to reduce the greenhouse gas emissions; prevent waste generation; reduce the amount of landfilled organic waste).

## Bulgaria

According to the review-report on waste management performance in the EU Member States published by the European Union in 2012, Bulgaria was ranked in the group of countries with the largest gaps in the implementation of waste management.

Since Bulgaria reported 0 % recycling for 2010, in order to achieve the 50 % recycling target for MSW by 2020 it will require that the recycling rate increases on an average annually with five percentage points from 2010 to 2020. Such a yearly increase rate has not been achieved by any European country in the period from 2000 to 2010. Even if packaging waste was included in the reporting to Eurostat on the recycling of municipal solid waste, it will require an exceptional effort in Bulgaria to fulfill the recycling target of 50 % by 2020.

However, it is likely that some recent initiatives taken after 2010 by the Bulgarian government will contribute to improve the recycling rate in the country.

Indeed, the Republic of Bulgaria has launched a **National strategic plan for the management of waste** from construction and demolition of the Republic of Bulgaria for the period 2011-2020, the main goals are:

- the prevention and reduction of amount of CSF generated;
- the introduction of the selective destruction and separate collection and storage of CSF at the construction site in manner that ensures maximum extent their subsequent economic and technical appropriate recycling and utilization;
- the creation of conditions for recycling and recovery of waste from construction burst and 70% reached recycling by 2020 of generated in the country CSF under the new framework directive 2008/98/EC on waste.

In the meanwhile, the public awareness regarding environmental concerns of waste is not sufficiently developed.

For this reason, one of the priorities of the National Waste Management Programme (2009-2013) concerns measures to raise awareness of citizens in all fields of waste management through different campaigns<sup>78</sup>.

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<sup>78</sup>Cfr. European Commission, Country Factsheet Bulgaria (BG) 070307/2011/606502/SER/C2

The following section shows the current state of waste system in Bulgaria. At first it will be shown the available data related to the packaging waste at national level and then the description will focus on the municipal waste system that featured the Bulgarian waste recycling.

## Data Overview on Packaging waste system

### Incinerated in combustion installation packaging waste

Material	2009	2010	2011	2012
Plastic	278	558	M	3250
Paper/cardboard (incl. composites)	581	24	M	46
Metal	M	M	M	M
Wood	120	148	2482	0
Glass	M	M	M	M
Other	50	28	M	14
<b>Total</b>	<b>1028</b>	<b>758</b>	<b>2482</b>	<b>3310</b>

Source: NSI 2012

### Generated packaging waste

Material	2010	2011	2012
Plastic	81978	94963	96123
Paper/cardboard (incl. composites)	138716	110270	122270
Metal	15744	13414	14587
Wood	18741	21444	20121
Glass	63962	69374	70521
Other	2055	5174	5174
<b>Total</b>	<b>321197</b>	<b>314639</b>	<b>328797</b>

Source: NSI 2012<sup>79</sup>

## Municipal solid waste (MSW)

Municipalities (264 in total) play an important role in the implementation of the policy in the environmental sector. Municipalities are organised in Regional Municipal Associations, which are responsible to implement the national waste management policy on the regional level<sup>80</sup>.

According to the Eurostat data no material and organic recycling of municipal waste was reported by Bulgaria from 2001 to 2010. At the same time Bulgaria packaging waste is not included in the reporting to Eurostat on the recycling of municipal solid waste. Specifically, there has been a significant increase in the packaging waste recycling from 2004 to 2010. The largest proportion of recycled packaging waste is linked to paper and cardboard.

<sup>79</sup> Cfr. EEA, NSI url: <http://www.nsi.bg/en/content/5177/generated-packaging-waste>

<sup>80</sup> Ibidem

**Composition of recycled packaging waste in Bulgaria in 2004, 2006, 2008 and 2010. Stated in tonnes**

	2004	2006	2008	2010
<b>Total packaging waste recycling</b>	100 610	129 129	152 057	197 958
Plastics	7 622	17 996	12 084	33 553
Paper/cardboard (including composites)	74 898	65 770	73 945	113 543
Metals	5 875	1 498	11 806	8 052
Wood	-	-	2 827	10 074
Glass	12 215	43 767	51 395	32 735
Other	-	98	-	-

Source: Bulgarian National Statistical Institute, 2012<sup>81</sup>

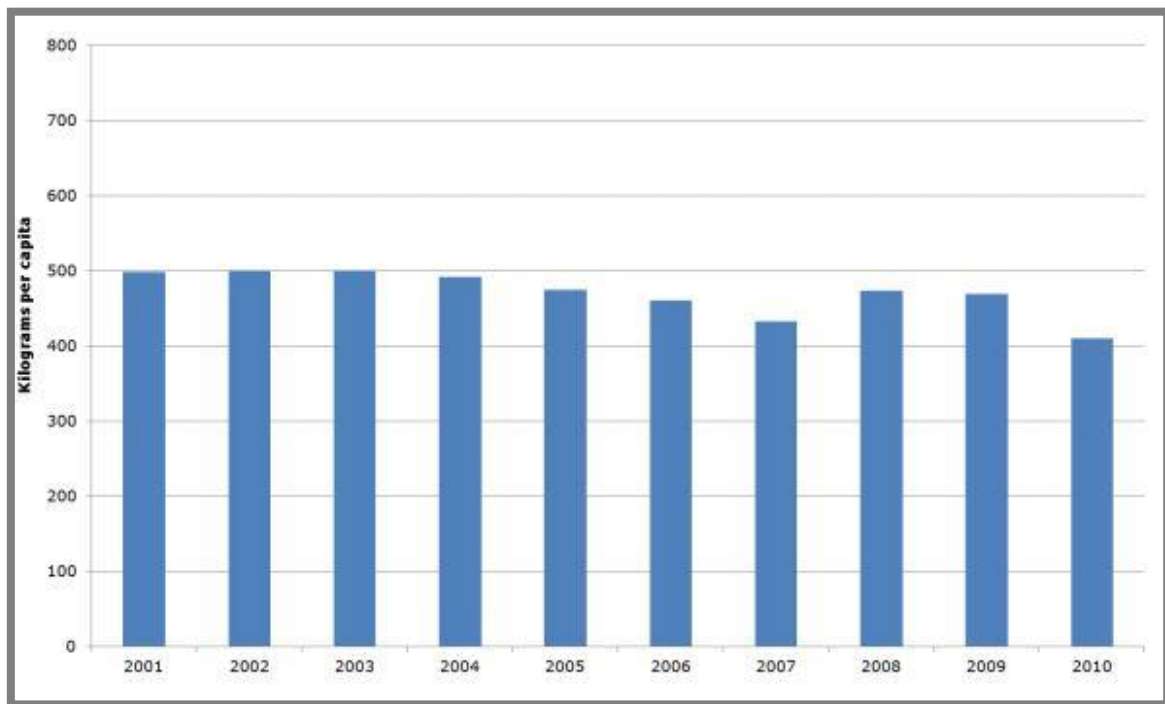
A very large proportion of the municipal waste in Bulgaria is landfilled. The amount of municipal waste deposited into landfills was 3 million tonnes in 2010, representing 98 % of the generated amount (3.1 million tonnes)<sup>82</sup>.

The following Figure shows the development of MSW generation per capita in Bulgaria from 2001 to 2010. There has been a decrease in MSW generation per capita during the period.

<sup>81</sup> Cfr. EEA, Municipal waste management in Bulgaria 2013, p.6

<sup>82</sup> ibidem

### MSW generations per capita in Bulgaria



Source: Eurostat, 2012

### Turkey

Waste generation and management have been recognized as a priority for Turkey and policies are being developed to overcome existing obstacles. The great majority of the solid waste in the country are still not being disposed in accordance with the legislation. Furthermore, Waste system management has been a pressure point for Turkey while being a candidate country for EU accession.

In solid waste production, primarily the amount of waste produced should be reduced. Moreover, the need for awareness raising in households for separation of waste at the source, to make it ready for collection, is ongoing. Existence of many local administrative units in the same region makes it compulsory to have cooperation and coordination in solid waste services like in other infrastructural services.

Regarding the situation around packaging waste, is necessary legal and technical arrangements are established in order to reduce the environmental pollution caused by the packaging waste as an important component in the solid waste in the country and to recover these as economical assets. Particularly, Municipalities are responsible for developing packaging waste management plans which define how, when and in which way packaging waste will be collected and are obliged to carry out their work in this scope.

### Municipal Solid Waste (MSW)

According to the Turkish Ministry of Environment and Urbanisation, the management of municipal waste is under the responsibility of municipalities. Since 2003, municipalities are implementing municipal waste management projects by cooperating with other municipalities in the region (through the municipalities union).

Capacities of the municipalities are to be developed in terms of planning, project design, implementation and operation of environmental infrastructure services. Turkey has **3215 municipalities** (16 of them are metropolitan municipalities). They are responsible for providing all services regarding collection, transportation, separation, recycling, disposal and storage of solid wastes, or to appoint others to provide these services (ETC/SCP, 2009).

According to the results of Municipal Waste Statistics Survey 2012, which was applied to all municipalities, waste services were given in 2 894 municipalities out of 2 950. The **amount of waste** collected from municipalities receiving waste collection services was **14.6 million tonnes** in summer and 11.2 million tonnes in winter, adding up to an annual total of 25.8 million tonnes.

Out of the 25.8 million tonnes of waste collected by municipalities that were providing waste collection services, 59.9% was transferred to controlled landfills, 37.8% was disposed of in municipal dumping sites, 0.6% was brought to composting plants and 1.7% was disposed of by other methods.<sup>83</sup>

The following Table shows the main municipal waste indicators within the period 2002 – 2012.

#### Municipal waste indicator 2002 - 2012

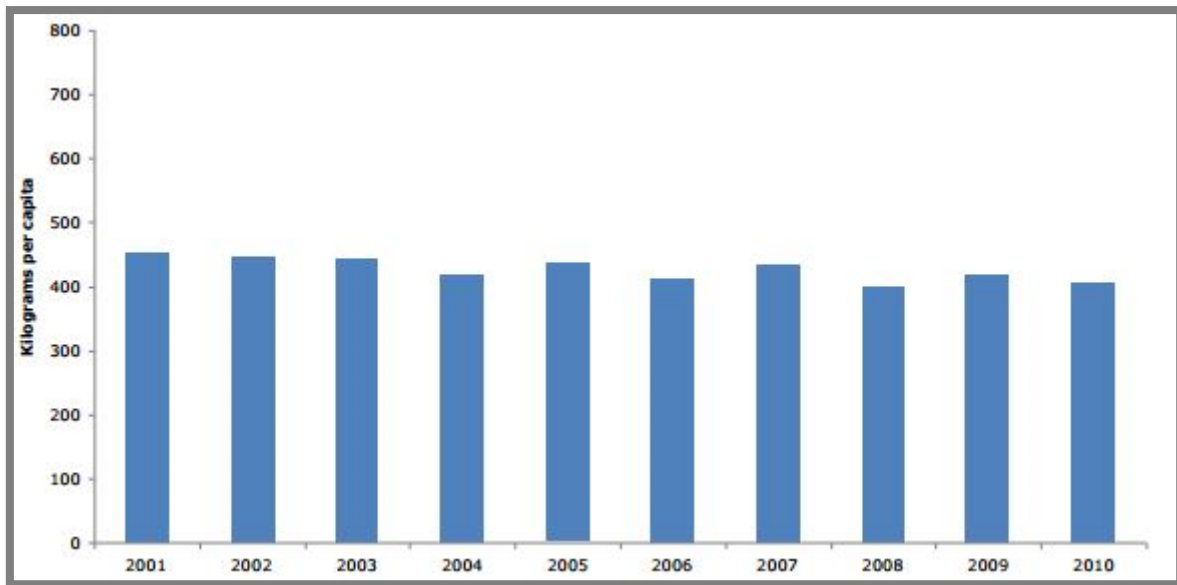
	2002	2004	2006	2008	2010	2012
Total number of municipalities	3 227	3 225	3 225	3 225	2 950	2 950
Number of municipalities receiving waste services	2 984	3 028	3 115	3 129	2 879	2 894
Amount of municipal waste collected (thousand tonnes/year)	25 373	25 014	25 280	24 361	25 277	25 845
Average amount of municipal waste per capita (kg/capita-day)	1,34	1,31	1,21	1,15	1,14	1,12
Amount and disposal methods of waste (thousand tonnes/year)						
Municipality's dumping site	16 310	16 416	14 941	12 678	11 001	9 771
Controlled landfill site	7 047	7 002	9 428	10 947	13 747	15 484
Composting plant	383	351	255	276	194	155
Burning in an open area	221	102	247	239	134	105
Lake and river disposal	197	155	70	48	44	33
Burial	500	426	144	100	34	94
Other	716	563	195	73	122	202

Source: TurkStat 2012

The Figure below shows the relatively stable waste generation which is slightly declining, starting from 454 kg/cap in 2001 and falling to 407 kg/cap in 2010.

#### MSW generation per capita in Turkey

<sup>83</sup> Cfr. TurkStat, url: <http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=16170>



Source: Eurostat, 2012

According to Eurostat data, no MSW is material recycled in Turkey. However, the Turkish Ministry of Environment and Urbanization reports the **total amount of recycled packaging waste** in 2009 to be **2.5 million tonnes**, and certainly part of this recycled packaging waste is from MSW sources, but the share is unknown<sup>84</sup>.

<sup>84</sup> Cfr. EEA, Municipal waste management in Turkey 2013