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Strategic Environmental Assessment of Italy – Croatia Cross-Border Cooperation Programme

Environmental report

Prepared by t33

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ACRONYMS

CBC : Cross Border Cooperation Programme

CP: Cooperation Programme

DPSIR: Driving force, Pressure, State, Impact, Response model

EA : Environmental Authority

EC : European Commission

EU : European Union (28 countries)

IP : Investment Priority

IUCN : International Union for the Conservation of Nature

Ktoe : Thousand tonnes oil equivalent

LUCF: Land Use Change and Forestry

MA : Managing Authority

MS : Member State(s)

SEA : Strategic Environmental Assessment

SO : Specific Objective

TF : Task Force

TO : Thematic Objective

Teq : Tonne Equivalent CO₂

UNCCD: United Nations Convention to Combat Desertification

UNECE: United Nations Economic Commission for Europe

UNFCCC: United Nations Framework Convention on Climate Change

WFD : Water Framework Directive

WHO : World Health Organization

PART I – FRAMEWORK AND PROGRAMME BACKGROUND

1. GENERAL PRESENTATION AND OBJECTIVE OF THE SEA

This draft Environmental report provides an environmental evaluation of the CBC Programme Italy-Croatia 2014-2020, in compliance with Directive 42/2001/EC¹ (the ‘SEA Directive’).

As stated in Article 1 of the Directive *"The objective of this Directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations in the preparation and adoption of plans and programmes with a view to promoting sustainable development [...]"*

The Italy – Croatia Operational Programme (hereinafter OP) is a cross border cooperation Programme between Italy and Croatia, co-financed by the European Regional Development Fund (ERDF). The Programme contributes to the European cohesion policy, which pursues harmonious development across the Union by strengthening economic, social and territorial cohesion in order to stimulate growth.

The cooperation Programme extends to both sides on the Adriatic Sea and includes the following NUTS 3 regions:

- Provinces of Udine, Gorizia, Pordenone, Trieste, Venezia, Padova, Rovigo, Ferrara, Ravenna, Forlì-Cesena, Rimini, Pesaro e Urbino, Ancona, Macerata, Fermo, Ascoli

¹ Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (OJ L 197, 21.7.2001, p. 30).

Piceno, Teramo, Pescara, Chieti, Campobasso, Foggia, Barletta-Andria-Trani, Bari, Brindisi, Lecce.

- County of Primorje-Gorski Kotar, County of Lika-Senj, County of Zadar, County of Šibenik-Knin, County of Split-Dalmatia, County of Istria, County of Dubrovnik-Neretva, County of Karlovac.

Figure 1: INTERREG VA Italy – Croatia CBC Programme area



According to the European territorial cooperation goal stated by Regulation n. 1299/2013, *"Interregional cooperation should aim to reinforce the effectiveness of cohesion policy by encouraging exchange of experience between regions on thematic objectives and urban development, including urban-rural linkages, to improve implementation of territorial*

*cooperation programmes and actions as well as promoting analysis of development trends in the area of territorial cohesion through studies, data collection and other measures"*²

The cooperation Programme contributes to the European Union (EU) cohesion policy for the achievement of EU 2020 Strategy goals.

1.1 THE SEA PROCEDURE

The Strategic Environmental Assessment (SEA) legislative dispositions³ states that environmental assessment must be carried out for all plans and programmes which are likely to have significant effects on the environment.

The directive includes the following steps:

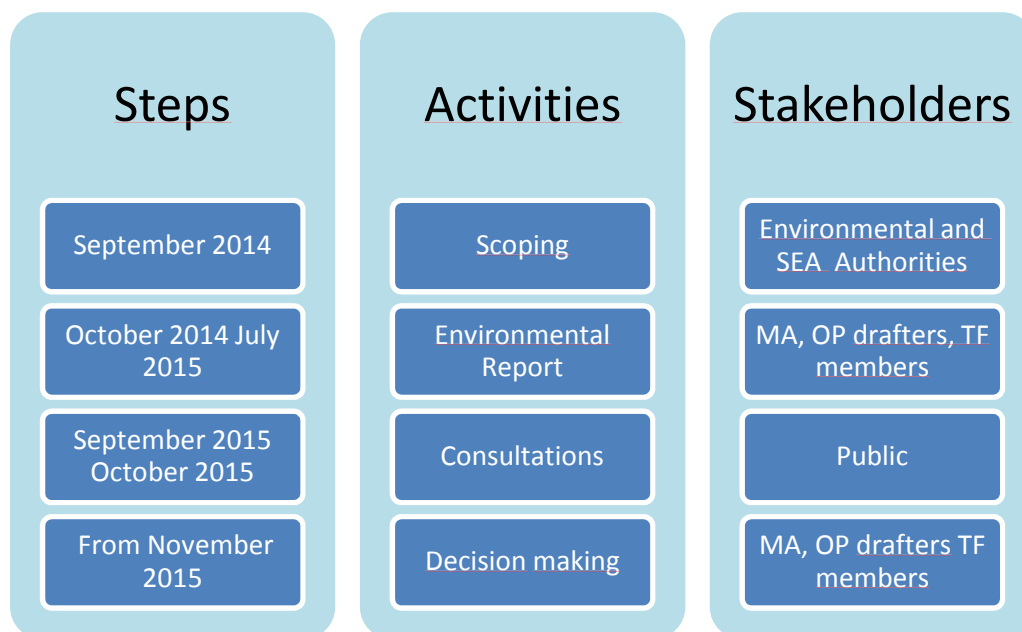
- a consultation with environmental authority about the contents of the Environmental Report (scoping phase);
- the preparation of the Environmental Report for the assessment of environmental effects;
- the public consultation on Environmental Report and Programme;
- the decision on SEA.

For the Italy - Croatia Cross-Border Cooperation Programme 2014-2020, the SEA steps have been carried out according to the Table 1.

² See recital 7 of Regulation (EU) No 1299/2013 of the European Parliament and of the Council of 17 December 2013 on specific provisions for the support from the European Regional Development Fund to the European territorial cooperation goal (OJ L 347, 20.12.2013, p. 239).

³ Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment. OJ L 197, 21.7.2001, p. 30

Table 1: Steps of the SEA procedure for the Italy-Croatia OP



1.2 THE SCOPING PHASE

The SEA Directive establishes that environmental authorities have to be consulted “*when deciding on the scope and level of detail of the information which must be included in the environmental report*”⁴.

On the basis of the draft of the OP, a scoping report has been prepared. The consultation has taken place in September 2014 and has involved Environmental Authorities (EA) of all the Italian and Croatian administration implicated in the OP.

According to the SEA Directive, the EAs have presented suggestions and observations for the Environmental Report (ER). During the scoping consultation, the Environmental Authorities involved have provided numerous contributions. These include important suggestions for the improvement of the Environmental Report. For the inclusion of the contributions in the final draft of the ER, the following general criteria have been applied:

⁴ Art.5, c.3 Directive 2001/42/EC

- Environmental objectives, if pertinent to the OP contents, to the territorial scale of the cooperation area and to the scope of the SEA procedure, have been included in the ER;
- Plans or Programs at regional and sub-regional level, have not been used for the coherence analysis, but they have been listed in Appendix 3 for further in-depth analysis at project level;
- Environmental data, indicators or studies have been taken into account only if information were available for the most part of the territory covered by the Programme;
- The methodology followed for the assessment has been made explicit considering the single effects, the cumulative effects and the scenario assessment;
- A logical scheme (as the DPSIR one) has been used to integrate the information from the context analysis to the construction of the monitoring system, through the assessment phase.

As requested, an incidence analysis is now included in the ER.

The analysis of alternative scenarios has been also included, and the CO₂MPARE model has been used for a preliminary assessment of the possible contribution of the Programme to the reduction of CO₂ emissions.

In addition, during the scoping consultation, Environmental Authorities have proposed some suggestions to improve the sustainability of the Programme. The following table summarised the first orientation measures proposed, as emerged from the scoping review

Table 2: Suggestion for the improvement of sustainability of the Programme

Administration	Suggestion
Friuli Venezia Giulia: regional Agency for environmental protection	Geothermic energy: sustain the experience in course and the “good practice”
	Include the requalification of brownfields (military and industrial areas)
	Adopt the “smart community approach” for the energy efficiency
	The electrification of quays must be considered in IP 6
Marche: SEA Authority	Ensure coherency between the Programme and the main objectives of the Macro region Adriatic Ionian

It is worthwhile to note that the Italy-Croatia OP is a complex Programme, concerning a broad area and involving different administrative levels. The context analysis included in the first part of this ER has used data as much homogeneous as possible for the whole area (see section 3). As a consequence, some specific and localized data source suggested during the scoping has not been used for the analysis. Similarly, for the coherence analysis (see section 4) only strategies relevant at CBC area level have been considered.

The scoping phase is devoted to collect suggestion on the scope and the content of the further environmental report. Nevertheless, the EAs consulted have also presented some suggestions to improve the sustainability of the OP. These suggestions, listed in Table 2, have been included in an Intermediate SEA Report presented to the MA in November 2014.

2. PRESENTATION OF THE PROGRAMME

During a first step in the analysis, SEA experts should provide ‘an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes’.⁵

Four Priority Axes are proposed in the Cooperation Programme draft version, i.e.:

- Priority Axis 1 on Blue Innovation
- Priority Axis 2 on Safety and resilience
- Priority Axis 3 on Environment and cultural heritage
- Priority Axis 4 on Maritime transport

Priority Axis 1: Blue innovation

Specific Objective 1.1: Enhance the framework conditions for innovation through cooperation of the system players mainly in the sectors of the blue economy

- **Investment Priority:** 1.b - Promoting business investment in innovation and research and developing links and synergies between enterprises, R&D centres and higher education

⁵ See Annex I(a) of the SEA Directive.

Priority Axis 2: Safety and resilience

Specific Objective 2.1: Implementing of climate change monitoring or planning of adaptation measures

- Investment Priority: 5.a - Supporting investment for adaptation to climate change, including ecosystem-based approaches

Specific Objective 2.2: Safeguard the Programme area from natural and man-made disaster

- Investment Priority: 5.b - Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems

Priority Axis 3: Environment and culture heritage

Specific Objective 3.1: Make natural and cultural heritage a leverage for economic and territorial development

- Investment Priority: 6.c
- Conserving, protecting, promoting and developing natural and cultural heritage

Specific Objective 3.2: Contribute to protect and restore biodiversity in the Adriatic Basin

- Investment Priority: 6.d
- Protecting and restoring biodiversity and soil and promoting ecosystem services, including through Natura 2000, and green infrastructure

Specific Objective 3.3: Improve the environmental quality conditions of the Adriatic Basin by use of sustainable and innovative technologies and approaches

- Investment Priority: 6.f
- Promoting innovative technologies to improve environmental protection and resource efficiency in the waste sector, water sector and with regard to soil, or to reduce air pollution

Priority Axis 4: Maritime transport

Specific Objective 4.1: Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the programme area

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

Environmental authorities and the public were consulted on the Cooperation Programme

The provisional overall allocation of the Programme is **EUR 236.890.847,00**. This is an estimation, which may change before the Programme is definitively adopted.

This budget will be used to co-finance cross-border cooperation projects. The maximum co-financing rate priority level is still under discussion.

The exact rate of co-financing of projects will be determined in the context of the implementation of the Programme. Applied rates may differ for different calls for projects or types of projects to optimize the achievement of Programme objectives.

The provisional breakdown of ERDF allocation per priority axis (%) is set as follows (enclosed Technical assistance):

Priority Axis	Link with regulatory framework	Number of SOs	Budget share in%
1 - Blue innovation	Thematic Objective 1, IP 1b	1	12 %
2- Safety and resilience	Thematic Objective 5, IP 5a,5b	2	25,5 %
3 - Environment and cultural heritage	Thematic Objective 6, IP 6c,6d, 6f	3	35 %
4 – Maritime transport	Thematic Objective 7, IP 7c	1	21,5 %
Technical Assistance	N/A	2	6

3. CONTEXT ANALYSIS, ENVIRONMENTAL INDICATORS AND CHARACTERISTICS OF THE AREA TO BE SIGNIFICANTLY AFFECTED.

SEA directive requires the analysis of the status of the environment in absence of the Programme as basis for the further evaluation of environmental effects. In this chapter, a brief presentation of the main environmental issues related to the CBC Programme will be presented and possible environmental criticality will be pointed out. According to the DPSIR (Determinant, Pressure, State, Impact, Response) model, here state and pressure indicators will be described. The state indicators used here to describe the context, will be part of the SEA monitoring system (see Section 8).

3.1 CLIMATE CHANGE ADAPTATION AND ASSOCIATED RISKS

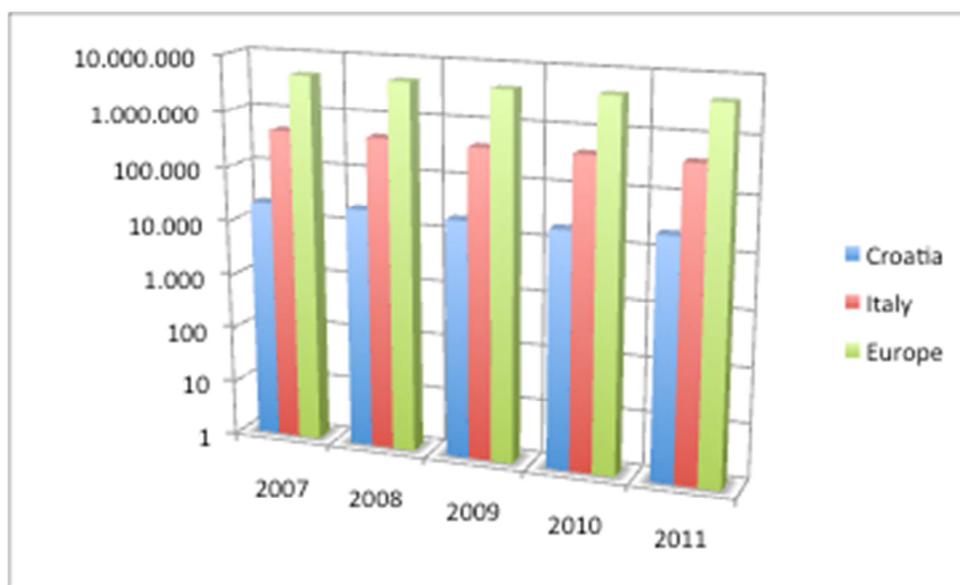
The main human-caused driving of climate change are GHG emissions.⁶ Among the primary consequences are increases in average temperature and sea level, a decrease of the average precipitation level and an increasing frequency of extreme weather events such as heat waves, storms and floods. There are also potential increases in pests and diseases due to changes in climate conditions e.g. the northward migration of the tiger mosquito, which transmits numerous pathogens. The **GHG emissions** are monitored inside the United Nations Framework Convention on Climate Change (UNFCCC). In Croatia, for the year 2012 the total GHG emission (considering also those becoming from land use, land use change and forestry - LULUCF) were 20494,4 Gg of CO₂ eq., with a reduction of ~18.6% in respect to year 1990. In Italy, the emissions including LULUCF in 2012 were 441527,2 Gg CO₂ eq., with a reduction of ~14.3% in respect to year 1990.

Considering CO₂ emissions only from the burning of fossil fuels and cement manufacture (see Figure 2) a negative trend is not evident. The main responsible for GHG emission in Italy is the

⁶ See the Fifth IPCC report, which confirms the global trends and underline the human responsibility to global warming, available on the International Plant Protection Convention's website at www.ipcc.ch.

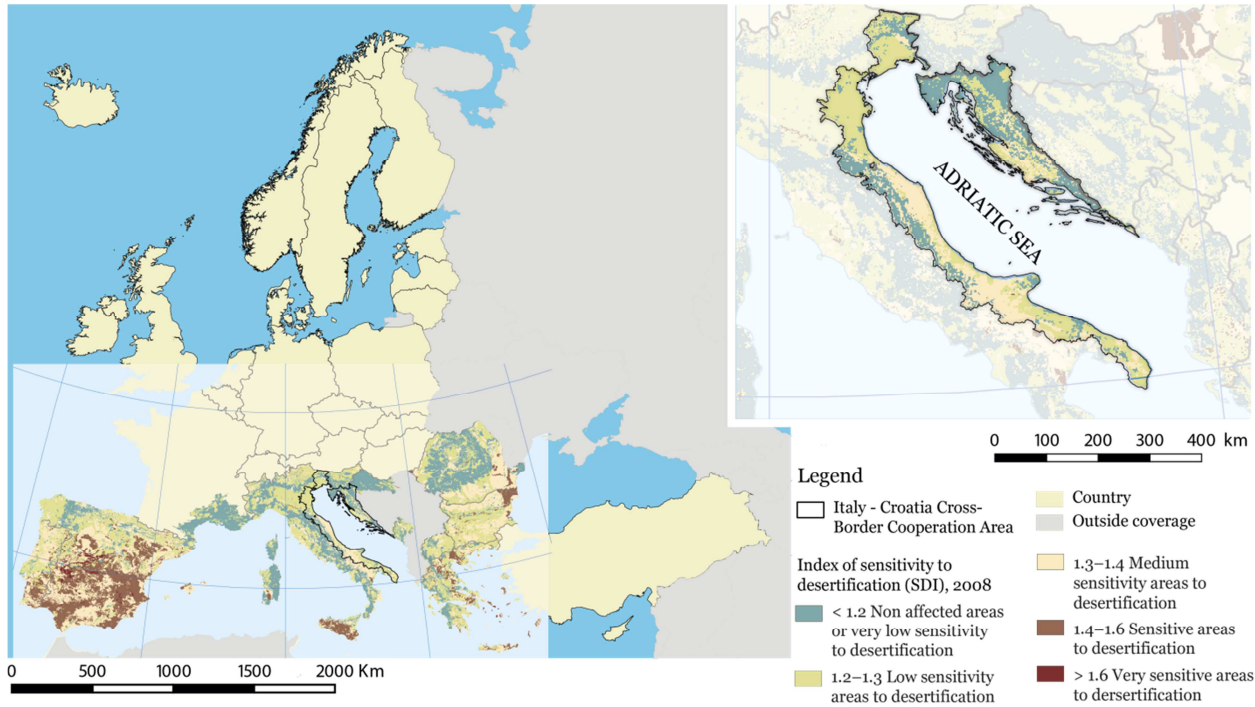
Energy sector (supply: 28.1%, use: 31.2) followed by Transport (23.7%). Other sources of CO₂ emissions are less important such as industrial process (6.7%), agriculture (6.3%) and waste (3.6%).

Figure 2: Emissions CO₂ (in Million Metric Tons, the scale is logarithmic for visualisation purpose) from human activity. Source: T33 elaboration on data of United States Department of Energy's Carbon Dioxide Information Analysis Center (CDIAC) for the United Nations



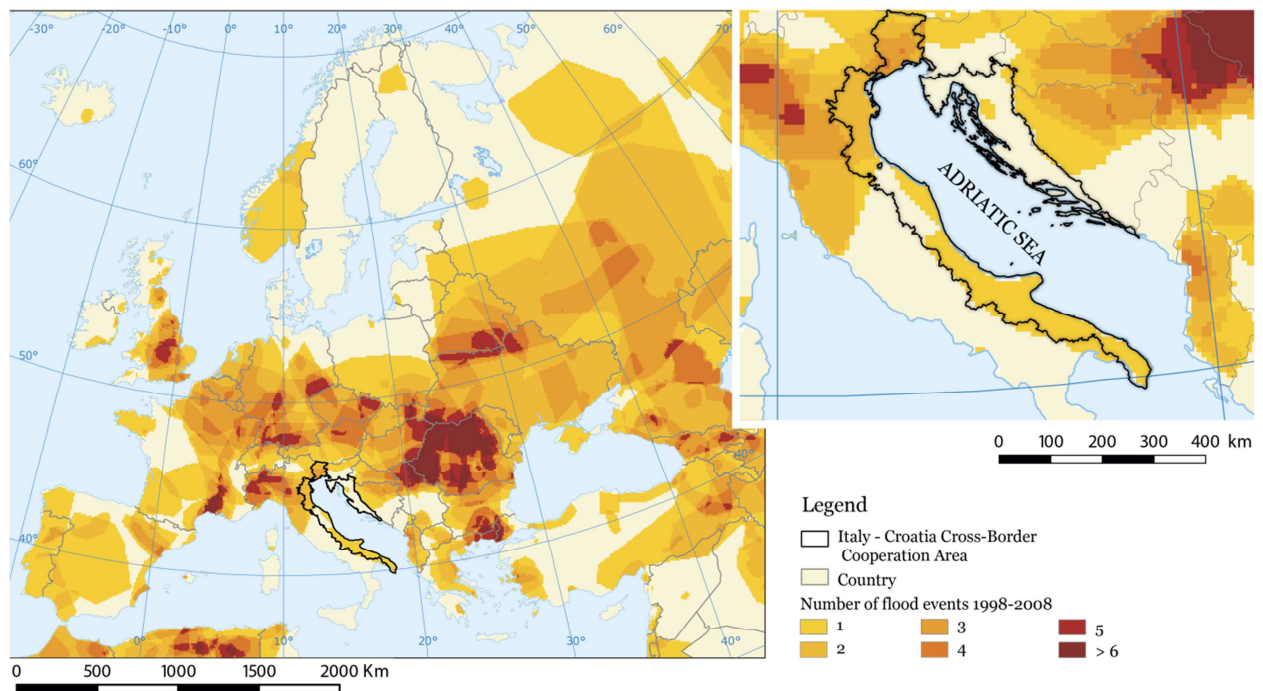
The increasing **risk of desertification** is one of the main consequences of climate change in the Mediterranean region. Desertification has been neatly defined in the UNCCD as "*land degradation in arid, semi-arid and dry sub-humid regions resulting from various factors, including climatic variations and human activities*". The "sensitivity to desertification index (SDI), based on soil quality, climate and vegetation parameters and developed inside the DISMED project (Desertification Information System for the Mediterranean), shows a low to medium sensitivity in the CBC area. The most vulnerable area results the central and southern region of Italian side.

Figure 3: Sensitivity to desertification (elaboration: t33. data source: DISMED Project)



Change in the magnitude and frequency of **floods** at regional scale can be associated to climate change as well as land use and engineering. In recent decades, the number of major flood events and associated economic loss has risen in Europe. In Italy, more than 1000 floods and about 12.000 landslides have occurred from 1991 to 2001. In addition to the major events, there are many smaller flooding events which causing significant damages in agricultural areas and urban areas, but no human victims (Fourth National Communication UNFCCC). In Croatia, the hydrological variability is more pronounced than the climate diversity; during last decades Croatia has not suffered from floods that could be classified as natural disasters and the floods event, mainly in urban areas, are linked to poor training of small watercourses (UNFCCC initial Communication).

Figure 4: Number of flood events in Europe from 1998 to 2008 (Data Source: European environmental Agency. Elaboration: t33.)



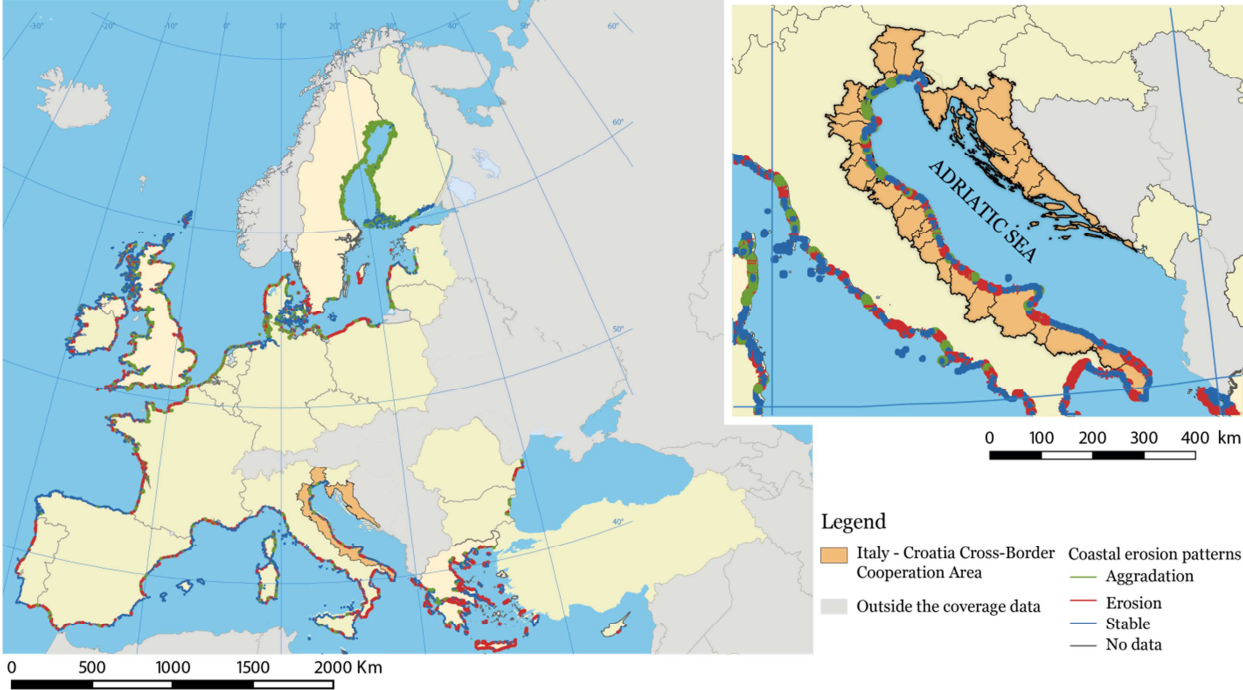
Coastal erosion is a threat that is increasing in last years, both for climate change causes (especially sea level rise) and human pressure. The Croatian coastline extends for 5835 km and consists mostly of carbonate rocks. Due to its characteristic composition, coastline in Croatia is more subject to karst processes that mechanical weathering. The vulnerability of the Croatian coastal zone to erosion has been assessed only for a sea level rise greater than 20 cm⁷.

On the other side, about the 42% of Italian beaches, are already under erosion. This problem is stressed in the Adriatic coastline, in reason of its predominant composition of beaches and low elevation coast (see Figure 5). In the Po delta, high erosion rates can be observed (10 m/year retreat). According to a survey carried out in 2008 (Pranzini et al., 2013), most pocket beaches longer than 300 m are eroding in Italy.

⁷ Republic of Croatia, Ministry of Environmental Protection and Physical Planning (2001)

Principal factors inducing beach erosion in Italy are dam construction in rivers (with consequent reduction of sediment supply to the coast) and land subsidence of river deltas (from water extraction for agriculture and industry, and gas extraction).

Figure 5: Pattern of coastal erosion (Data Source: EEA. Elaboration: t33.)



Situation, trend and threats for the CBC area

The effort at international and national level for the GHG reduction have contrast, also in the CBC area, the past rising trend of emission. The trend of GHG emission has been reduced in 2012 relative to 1990 of ~14% for Italy and ~18% for Croatia.

Natural risks associated to climate change are increasing, and they represent a threat for the CBC area. Risk of desertification, in terms of “sensitivity to desertification index” varies mainly between low to medium in the CBC area.

Mainly due to morphological reason, floods and landslides represent a criticality more in the Italian side than in the Croatian one.

Similarly, coastal erosion is particularly strong in the Italian side of the CBC area, whereas Croatian coastlines are more subject to karst processes than mechanical weathering.

Macro-indicators for the theme Climate Change

Indicator	State	Trends
GHG emission	☺	➡
Risk of desertification	☺	➡
Flood events	☹	↘
Coastal erosion	☹	↘

3.2 INLAND WATER QUALITY AND SUPPLY

Water is essential for life, for meeting basic human needs, in sustaining economic and social development and it plays a key role in the climate regulation cycle. As stated by Eurostat (2013), *‘The management and protection of water resources, of fresh and salt water ecosystems and of the water we drink and bathe in is therefore one of the cornerstones of environmental*

protection.' The continental water issue is addressed in this section looking at quality and supply. The Water Framework Directive⁸ (WFD) is the main EU Directive for water-related issues.

Water supply and sewage systems

A reliable supply of safe drinking water and sanitary disposal of excreta are two of the most important means of improving human health and protecting the environment.

Data on access to an improved water source measure the percentage of the population with direct access to water for domestic purposes, based on surveys and estimates of service users provided by governments to the Joint Monitoring Programme of the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). The coverage rates are based on information from service users on household use rather than on information from service providers, which may include non-functioning systems. Access to drinking water from an improved source does not ensure that the water is safe or adequate, as these characteristics are not tested at the time of survey. While information on access to an improved water source is widely used, it is extremely subjective; terms such as "safe," "improved," "adequate" and "reasonable" may have different meanings in different countries. Even in high-income countries treated water may not always be safe to drink. Access to an improved water source is equated with connection to a supply system; it does not account for variations in the quality and cost of the service.

Data for Croatia for 2010 show that public sewage systems connected only 43% of the population, but also that wastewater was purified for only about 27% of them. The coverage ratio (share of the population able to connect to the public water supply system) on the level of the Republic of Croatia is on the average 80-82%. The connection ratio (share of the population connected to the public water supply system) is somewhat lower and it is estimated at is on the average 74%. There are significant differences in the level of coverage between regions. The differences are even larger between the counties and in particular between towns and municipalities.

Italy shows slightly better situation with public sewage system serving 84.7% of the population (164.473 km)⁹. Wastewater network connects 72.3% of the population. Also in Italy the situation

⁸ . Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (OJ L 327, 22.12.2000, p. 1.).

is heterogeneous, with relevant differences region by region. In the Northern-centre regions of the CBC area, the rate is 77.6% while in Abruzzo the rate is 68.8%, Molise 79.4% and Puglia 68% showing significant improvements¹⁰. Situation of water availability is even better, with a rate of population connected to public water supply system of 95.9%.

It is evident that situation regarding water supply and sewage systems is getting better rapidly in cooperation area with specific difficulties in micro locations, especially in rural areas.

Inland water quality

The CBC area presents some problems in water quality. The pollution tends to be localised in hot spots downstream of cities, industrialised and agricultural areas and mining regions.

Croatia entails two (international) river basin districts (RBDs), as established following the requirements of the WFD: the Danube river basin district and the Adriatic river basin district. According to Hrvatske code, a legal entity for water management established by the Water Act, there are six water management departments (WMDs) on the territory of the Republic of Croatia: Middle and Lower Sava River, Upper Sava River, Mura and Upper Drava Rivers, Danube and Lower Drava Rivers, Northern Adriatic Basins, and Southern Adriatic Basins. Data on quality status according to the Water Framework Directive are still not available.

Italy has eight RBDs: Eastern Alps, Po Basin, Serchio, Northern Apennines, Central Apennines, Southern Apennines, Sardinia, and Sicily. Three Italian RBDs share catchments with other European States. According to a 2012 EC Report on the implementation of the WFD on River Basin Management Plans, more than the 29% of the Italian surface water bodies had at least a good ecological status, as defined by the Water Framework Directive.

⁹"Blue Book 2014", Utilitatis

¹⁰http://www.dps.tesoro.it/obiettivi_servizio/servizio_idrico.asp

Situation, trend and threats for the CBC area

The sewage system shows remarkable differences between the two Countries involved in the CBC Programme. In Italy, even if with difference between regions, the majority of population (~85%) is connected to sewage systems, while in Croatia this is true only for the 27% of inhabitants.

The situation is more uniform for water supply, with a connection ratio around the 80% in both sides.

The ecological status is good or higher for the 29% of Italian water bodies. Not uniform information are available for the Croatian side, according to the Water Framework Directive.

Macro-indicators for the theme Water

Indicator	State	Trends
Population connected to public water supply system	☹️	➡️
Population connected to public sewage system	☹️	➡️
Inland water quality	☹️	➡️

3.3 INLAND BIODIVERSITY AND ECOSYSTEM

Biodiversity is the richness of life and the diversity of its forms. Biodiversity also provides ecosystem services that are, following the definition of the Millennium Ecosystem Assessment, “the multiple benefits supplied by ecosystems to humankind”. These include the production of food and water, the control of climate and disease as well as spiritual and recreational benefits.

Despite its importance, biodiversity is threatened everywhere and its loss is accelerating all over Europe. Recent European studies, in particular the SOER 2012 thematic assessment (EEA,

2010), and the EU 2010 Biodiversity Baseline (EEA, 2010), assessed the current status, trend and key drivers.

European strategies and policies addressing the problem have been implemented during recent decades. The most recent is the EU Biodiversity Strategy to 2020¹¹ that aims to halt the loss of biodiversity and ecosystem services in the EU by 2020. It sets targets on nature conservation and restoration, sustainable agriculture, forestry and fisheries and control of alien species. Definitions of a protected area and threatened species vary a lot between countries and regions, inventories are not regular and information is limited to specific areas and periods of time. According to the International Union for the Conservation of Nature (IUCN) definition, a protected area is a “defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature”. In Croatia, it is the Croatian State Institute for Nature Protection that carried out professional state tasks regarding nature protection. In Italy, the legal framework for natural protected area is the D.P.R 357/97.

An important tool for biodiversity protection is the Natura 2000 network, based on the Habitats Directive 12 and Birds Directive 13 to protect habitat and species of peculiar importance. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. Natura 2000 is based on management and assessment tools and not on strict reserves. It works for the sustainable management (both ecological and economical) of ecosystems. The Natura 2000 network includes Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and incorporates Special Protection Areas (SPAs) which are designated under the 1979 Birds Directive. Natura 2000 it is not based on prohibitions but drives the use of social and economic activity as instruments for conservation. This allows conservation goals to be integrated into ordinary management and improves ecological connectivity between separated protected areas.

¹¹ EC, COM(2011) 244 final

¹² Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L 206, 22.7.1992, p. 7).

¹³ Council Directive 147/2009/CE of 30 novembre 2009 on the conservation of wild birds (OJ L 20, 26.01.2010).

Nationally designated protected areas

In Croatia, with the Nature Protection Act, 433 areas have been placed under protection in eight national parks and 11 nature parks which in total cover 515.093 ha. All the eight national parks and seven of the 11 nature parks are located in the Mediterranean region (Adriatic River Basin).

In the Regions of Italy, involved in the CBC, the national natural protected areas cover a surface of 674.176 ha and are represented for over 90% (610.801 ha) by National Natural Parks. The typology of ecosystem protected range from the mountain Alpine and Apennine environment (Gran Sasso, Dolomiti Bellunesi) to the characteristic Mediterranean environment (Gargano).

A list of National Natural Parks and National Nature Reserve and Nature Parks is drawn in Table 3.

Table 3: List of Natural Protected areas at National levels in the Administration involved in the CBC Programme

	National Parks	Nature Parks / Natural reserves		
Italy (CBC area)	Abruzzo Lazio e Molise Alta Murgia Dolomiti Bellunesi Foreste Casentinesi, Monte Falterona Gargano Gran Sasso e Monti della Laga Maiella Monti Sibillini	Cucco Rio Bianco Badia Prataglia Bassa dei Frassini Bosco della Mesola Campigna Destra Foce Fiume Reno Duna costiera P.to Corsini Duna costiera ravennate e foce Torrente Bevano Dune e Isole della Sacca di Gorino Foce del Fiume Reno Guadine Pradaccio Pineta di Ravenna Po di Volano Sacca di Bellocchio I Sacca di Bellocchio II Sacca di Bellocchio III Salina di Cervia Sasso Fratino Collemeluccio Montedimezzo Pesche	Somadida Bus della Genziana Campo di Mezzo - Pian Parrocchia Monte Faververghera Monte Pavione Monti del Sole Piani Eterni - Errera - Val Falcina Piazza del Diavolo Schiara occidentale Abbadia di Fiastra Gola del Furlo Montagna di Torricchio Colle di Licco Fara San Martino - Palombaro Feudo Intramonti Feudo Ugni Lago di Campotosto Lama Bianca di Sant'Eufemia a Majella Monte Rotondo Monte Velino Pantaniello Piana Grande della Maielletta Pineta di Santa Filomena Quarto S.Chiera	Valle dell'Orfento I Valle dell'Orfento II Val Tovanella Valle Imperina Valle Scura Vette Feltrine Vincheto di Cellarda Falascone Foresta Umbra Il Monte Ischitella e Carpino Isola di Varano Lago di Lesina (parte orientale) Marinella Stornara Masseria Combattenti Monte Barone Murge Orientali Oasi WWF Le Cesine Palude di Frattarolo Saline di Margherita di Savoia San Cataldo Sfilzi Stornara Torre Guaceto
Croatia (CBC Area)	Brijuni Kornati	Nature park Biokovo Nature park Kopačkirit		

	Krka Mljet Paklenica Plitvičkajezera Risnjak Sjeverni Velebit	Nature park Lastovskootočje Nature park Telašćica Nature park Učka Nature park Velebit Nature park Vranskojezero
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Natura 2000 network

For Croatia, the State Institute of Nature Protection has drafted a proposal for Natura 2000 network based on analysis of collected data on distribution of Natura 2000 species and habitat types. The proposal also includes Sites selected for species and habitat types specific for Croatia for which an amendment of Annexes I and II of the Habitats Directive has been required.

In Italy, the Regions involved in the CBC Programme host 674 sites (SPA+SAC) for a surface of 1,963,347 ha (correspondent to ~30%) of national surface of Natura 2000. Abruzzo, is the Region with the highest percentage of territory covered by Natura 2000 (~36%) followed by Molise (~26%), Apulia (~24%) and Veneto (~22%). The region with the highest number of sites is Emilia Romagna (158 sites).

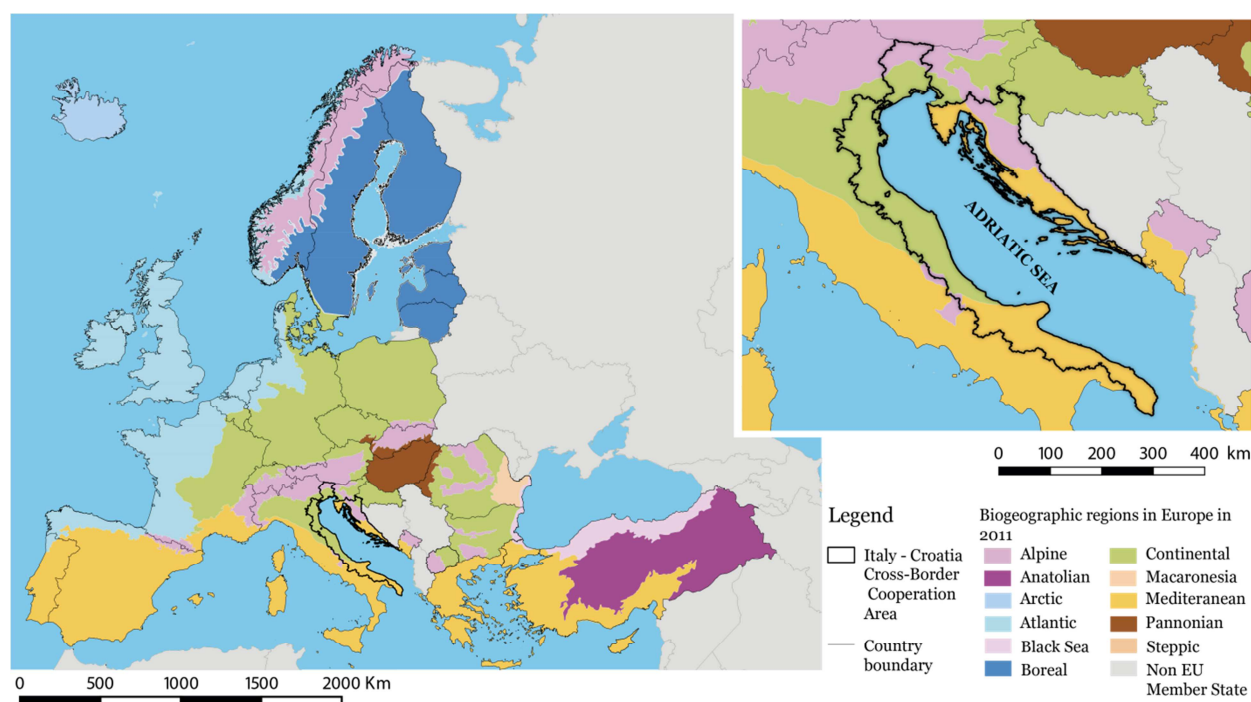
Table 4: List of Natura 2000 Network sites in the Italian Administration involved in the Programme

~36%REGION	SPA			SAC			SAC/SPA			Natura 2000		
	n. sites	sup. (ha)	%	n. sites	sup. (ha)	%	n. siti	sup. (ha)	%	n. siti	sup. (ha)	%
Abruzzo	4	288114	26,7	53	236117	21,9	1	19886	1,8	58	390495	36,2
Emilia Romagna	19	29458	1,3	71	78149	3,5	68	162205	7,3	158	269812	12,2
Friuli	4	59819	7,6	53	75569	9,6	4	56631	7,2	61	149764	19,1
Marche	20	117205	12,1	69	95345	9,8	7	10087	1,0	96	141935	14,6
Molise	3	33875	7,6	76	65607	14,8	9	32143	7,3	88	118724	26,8
Apulia	6	101182	5,2	73	303035	15,6	4	162486	8,4	83	474598	24,5
Veneto	26	189263	10,3	63	202538	11,0	41	170606	9,3	130	418019	22,7
TOT CBC*	82	818916		458	1056360		134	614044		674	1963347	
TOT IT	277	3021599	10,0	1942	3424974	11,5	330	1372044	4,6	2576	6379090	21,2

Natural and semi-natural ecosystem

According to the Habitat Directive, nine Biogeographical regions have been defined in EU countries, (see Figure 6), each with its own characteristic blend of vegetation, climate and geology. The definition has been extended to the territory and for the EMERALD Network set up under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). Sites in the CBC area belong to the *Mediterranean* and to the *Continental* Biogeographic regions.

Figure 6: Biogeographic regions for the Habitats Directive (92/43/EEC) and for the EMERALD Network (Data Source: European environmental Agency. Elaboration: t33.)



The *Continental* biogeographic region has some of the continent's most productive Ecosystems. At European level, Agriculture covers most of the half of the area, whereas Forests cover around the 27%¹⁴.

The *Mediterranean* biogeographic region has around one third agricultural land, including grasslands. Areas with agro-forestry were formerly much more widespread, but still play a locally important role. Wine, olive and fruit growing are widespread. Vegetable production is increasing, largely in green-houses around the bigger urban areas. Forests and other wooded land, scrub and heathlands with dwarf shrubs together dominate more than half of the region. Abandonment of agricultural practice and fires lead spontaneously to scrub formations and from that to secondary forests, but afforestation is also increasing¹⁵.

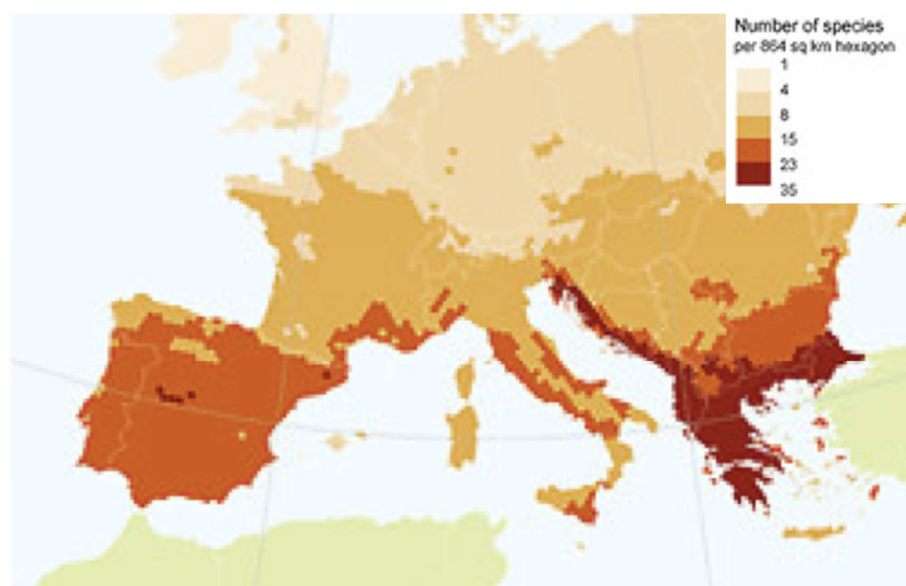
¹⁴ Condé, Sophie, et al. (2002). The Continental biogeographical region. European Environment Agency, Copenhagen
¹⁵ idem

Species protection

In Croatia, conservation of wild animal and plant species is based on the Croatian Nature Conservation Law (1976). In Italy main instruments of species protection are natural protected area and Natura 2000 Network. One of the most important fact-finding tools about species conservation is the IUCN European Red List¹⁶. The CBC area is interested by species richness usually greater than the European average (see for example Figure 7 for the mammals). The area hosts also the greatest concentration of threatened species, for amphibian (see

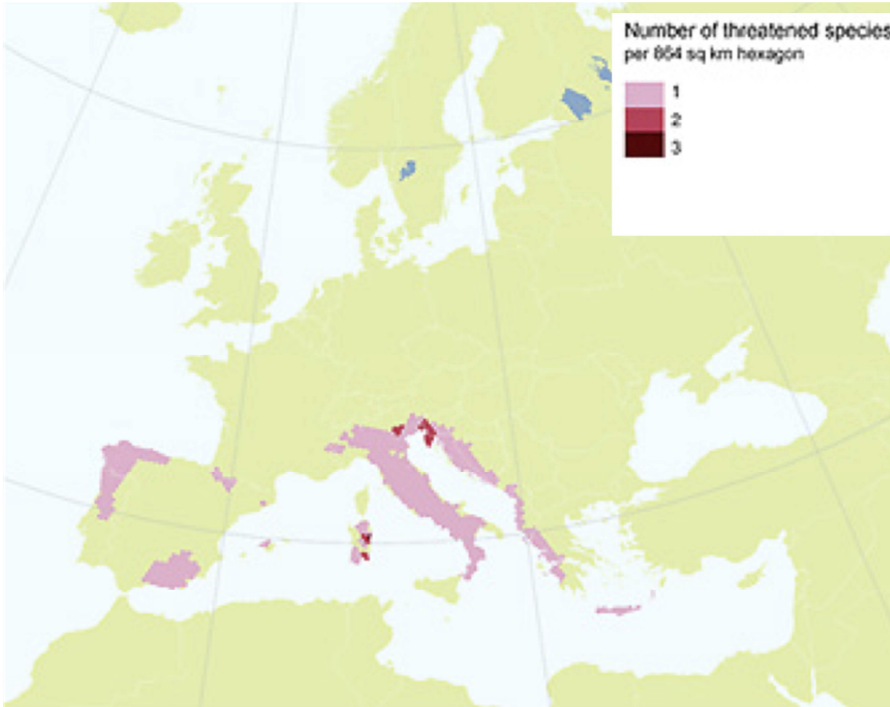
Figure 8), and reptiles (in the Croatian side).

Figure 7: Species richness for mammals (Source: IUCN's Red List)



¹⁶ http://ec.europa.eu/environment/nature/conservation/species/redlist/index_en.htm

Figure 8: Distribution of threatened amphibians (Source: IUCN’s Red List)



Situation, trend and threats for the CBC area

The area interested by the CBC Programme hosts numerous Natural Protected areas, mainly National Parks. For the Croatian side, most of the Parks are in the Adriatic Basin region. The Natura 2000 Network has been recently implemented with the inclusion of the new Croatian sites. Richness of wild species is particularly pronounced in the area, but there is also the highest percentage in Europe of threatened amphibian and reptile species.

Macro-indicators for the theme Inland Biodiversity and Ecosystem

Indicator	State	Trends
Nationally designated protected areas	😊	➡
Natura 2000 network	😊	➡
Species conservation	😊	➡
Natural and semi natural ecosystem	😞	➡

3.4 MARINE ECOSYSTEM AND NATURAL RESOURCES

To address marine issues and improve the quality of marine and coastal ecosystems, the Commission has provided a clear framework of intervention in the EU marine areas, the *Marine Strategy Framework Directive* (Directive 2008/56/EC)¹⁷ with the objective of preserving the natural resources upon which human activities depend. The Directive wants to achieve a “Good Environmental Status” for the marine water, defined by the following parameter¹⁸:

- Ecosystems, including their hydro-morphological (i.e. the structure and evolution of the water resources), physical and chemical conditions, are fully functioning and resilient to human-induced environmental change;
- The decline of biodiversity caused by human activities is prevented and biodiversity is protected;
- Human activities introducing substances and energy into the marine environment do not cause pollution effects. Noise from human activities is compatible with the marine environment and its ecosystems.

In accordance with these principles, the Commission also underlined the opportunity offered by the *Blue economy strategy (Blue growth COM (2012) 494 final)*¹⁹ and the potential for the development of marine activities in a sustainable way.

The Italy-Croatia CBC area of cooperation is characterised by long coast lines: hundreds of kilometres of beaches, cliffs, estuaries and human infrastructure along the coasts of Adriatic Sea.

Marine protected areas

The Adriatic Sea has 2.0% of its area covered by marine protected areas (MPAs) i.e. 199 sites altogether covering 2,441 km².

There are seven marine protected areas in Croatia: Brijuni and the Lim Canal off the Istria peninsula's coast, near Pula and Rovinj respectively; Kornati and Telašćica in the Middle

¹⁷ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) (OJ L 164, 25.6.2008, p. 19).

¹⁸ http://ec.europa.eu/environment/marine/good-environmental-status/index_en.htm

¹⁹ *Blue growth COM (2012) 494 final*.

Adriatic basin, near Šibenik; and Lastovo, Bay of Mali Ston (Croatian: *Malostonskizaljev*) and Mljet in southern Dalmatia.

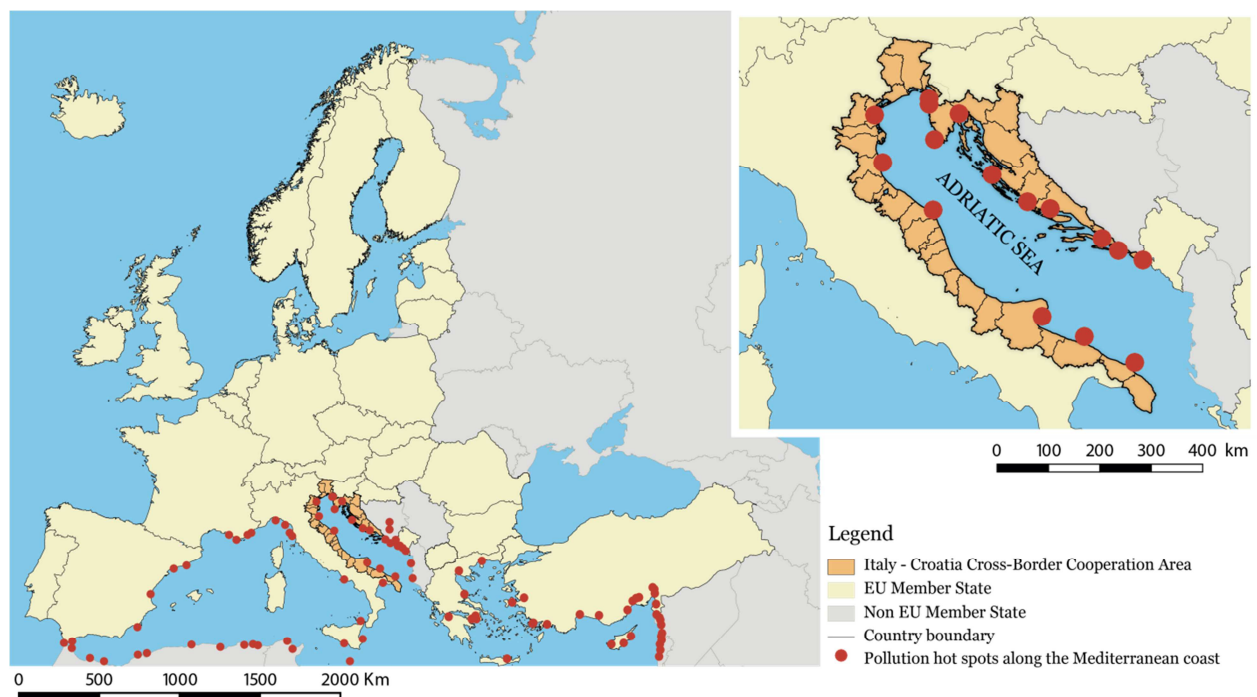
Along the Adriatic coasts in the Italian side, there are five marine protected areas, three of them in Apulia Region: the Marine Natural Reserve of Tremiti Islands, that of Porto Cesareo and that of Torre Guaceto. The other two are the Marine Natural Reserve of Torre Cerrano in Abruzzo region and the reserve of Miramare in the Gulf of Trieste (Friuli Venezia Giulia).

Pollution issues

Marine areas in Italy and in Croatia are facing major environmental problems such as urban effluents and solid wastes, oily effluents, coastal eutrophication and coastal urbanisation.

In 2006 an EEA report gathered information on pollution hotspot (red points on Figure 9) and causes on Mediterranean coastal and marine environment.

Figure 9: Coastal pollution hotspots in Italy and Croatia (Data Source: EEA, 2006. Elaboration: t33.)



In Croatia, major pollution problems are urban wastewater, eutrophication of coastal waters, and urbanisation and destruction of the marine coastal habitat in several cities. Rijeka, Zadar, Pula, Sibenik and Dubrovnik coastal areas are mainly altered by untreated wastewater from urban and industrial sources. The Kastela Bay, between the cities of Trogir and Split, faced the same problem, ultimately causing eutrophication and accumulation of organic matter, metals and organohalogen compounds in the sediment. Over-fertilisation in the agricultural areas

around the bay of Liopetri and Ayia Napa is leading to nitrogen leaching while mining activities close to the Vassilikos bay resulted in the marine environment being contaminated by metals.

In Italy, major pollution problems are urban and industrial wastewater, agricultural run-off and shipping. Eutrophication problems caused by the nutrients carried by the Po River and by coastal discharges have altered the Gulf of Trieste, the lagoons of Venice and Comacchio. Due to intense maritime traffic, the Adriatic harbours of Trieste, Venice, Ravenna, Ancona, Taranto, and Brindisi face contamination by petroleum hydrocarbon.

Bathing water quality

The bathing water quality in 2014 in Croatia is for the 98% in compliance with guide values (the 96.4% is of excellent quality) and only the 0.38% is not compliant with mandatory values or of poor quality and no bathing water results banned or closed. The overall quality of coastal bathing water has not have significant change in last year, being the percentage almost constant from 2011 to 2014. ²⁰

In Italy, the 96.6% bathing water is compliant with guide values (the 90% is of excellent quality), the 2.2% is of poor quality and the 0.04% is banned or closed. The share of bathing water with at least sufficient quality is increase from 2011.

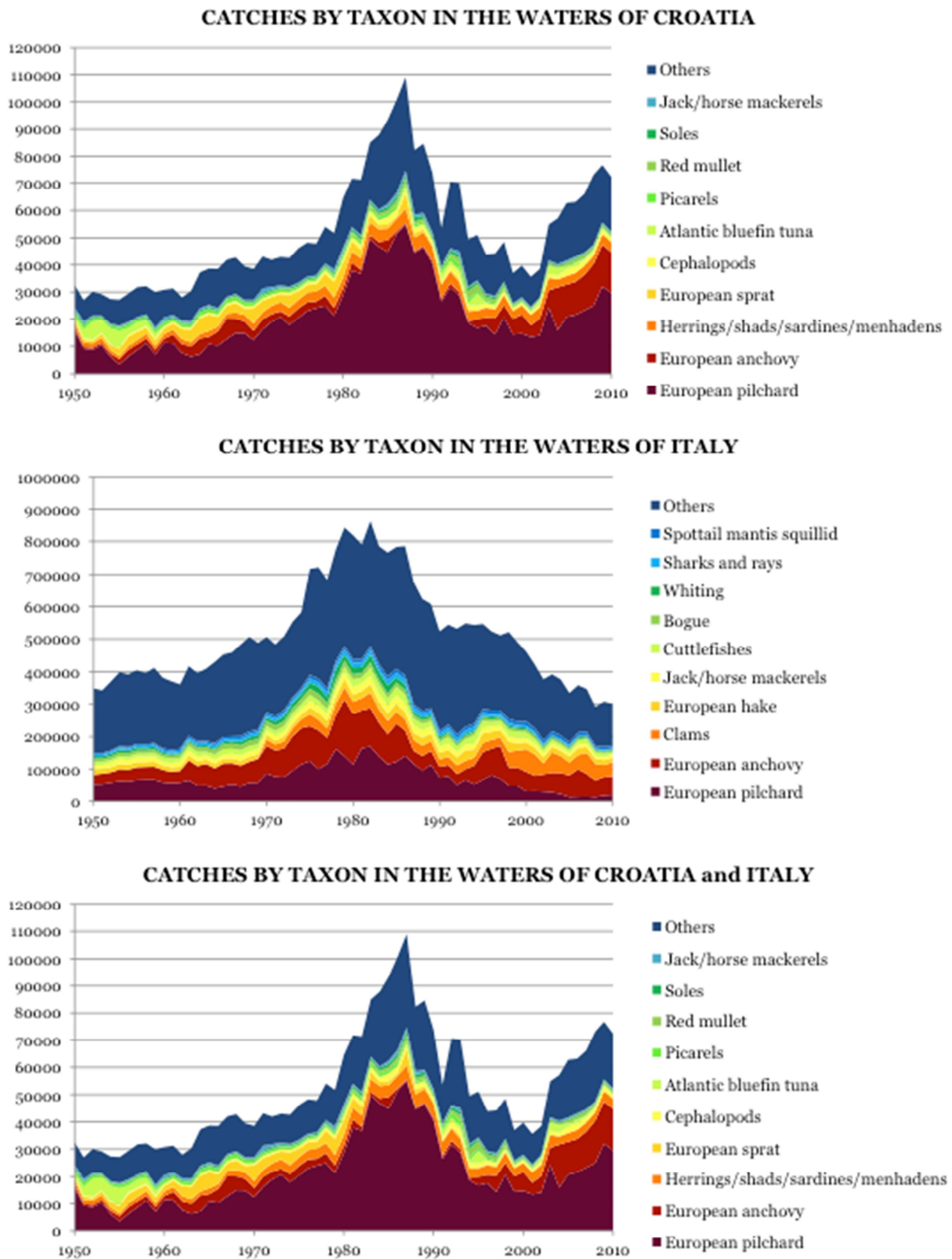
Pressure on marine system from human activities

The activity that traditionally represents a main pressure on marine ecosystem is the fishery. Overfishing and several techniques of fishing contribute directly or indirectly to the disruption of ecosystems, habitats and species. Over-exploitation causes the loss of genetic diversity within species, and it also reduces the absolute number of species in an area.

The catches by the two Countries involved in the CP is consistent. In Italy a peak was registered at the end of '80^{thies} with values of over 100.000 tons. In Croatia, after a peak in 1980, we assist to a decrease in catches values. For both, catches are focused on a few number of species (mainly anchovy and pilchard).

²⁰ Source: EEA, national bathing water reports 2014

Figure 10: Catches by taxon for Italy and Croatia (Data Source: <http://webmail.timwills.com/cgi-bin/ajaxmail>. Elaboration: t33.)











Situation, trend and threats for the CBC area

The area interested by the CBC Programme hosts numerous Marine Protected areas. Despite this, marine areas along Adriatic coasts are facing major environmental problem such as urban effluents and solid wastes, oily effluents, coastal eutrophication and coastal urbanisation. The quality of bathing water shows fewer problems in Croatia than along the Italian coasts, but is in both sides of good quality for a very high percentage.

Fishing represent a pressure in Adriatic Sea for marine ecosystem. The number of catches is quite elevate, even if it is not possible detect a clear trend for the past years, and it is characterize by the taking of few taxa.

Macro-indicators for the theme Marine Ecosystem and natural resources

Indicator	State	Trends
Marine protected area		
Pollution sources		
Bathing water quality		
Catches		

3.5 SOIL QUALITY AND LAND USE

Soil is a non-renewable resource with many vital functions. The Soil Thematic Strategy²¹ sets the basis for a framework Directive and an Impact Assessment on this issue at EU level. Soils provide physical support to economic activities, especially for buildings, human settlements and urban infrastructure. Soil also provides numerous ecological services: it regulates the water, nitrogen and carbon cycles, it represents a carbon sink and it is life support system for many species of animals and plants. For years, soil has been under human pressure in the Italy-Croatia cooperation area.

²¹ EC COM (2006) 231, see also the Proposal for a Soil Framework Directive – COM (2006) 232

Soil degradation and artificial soils and surfaces

Artificial soils range from agricultural to natural. Artificial soils are sealed soils including buildings and roads. Sealing entails a loss of ecosystem functions and adversely affects biodiversity. Increased soil sealing can also amplify the heat island effect in cities with higher localised temperatures in urban areas compared to neighbouring (rural) areas (Figure 11).

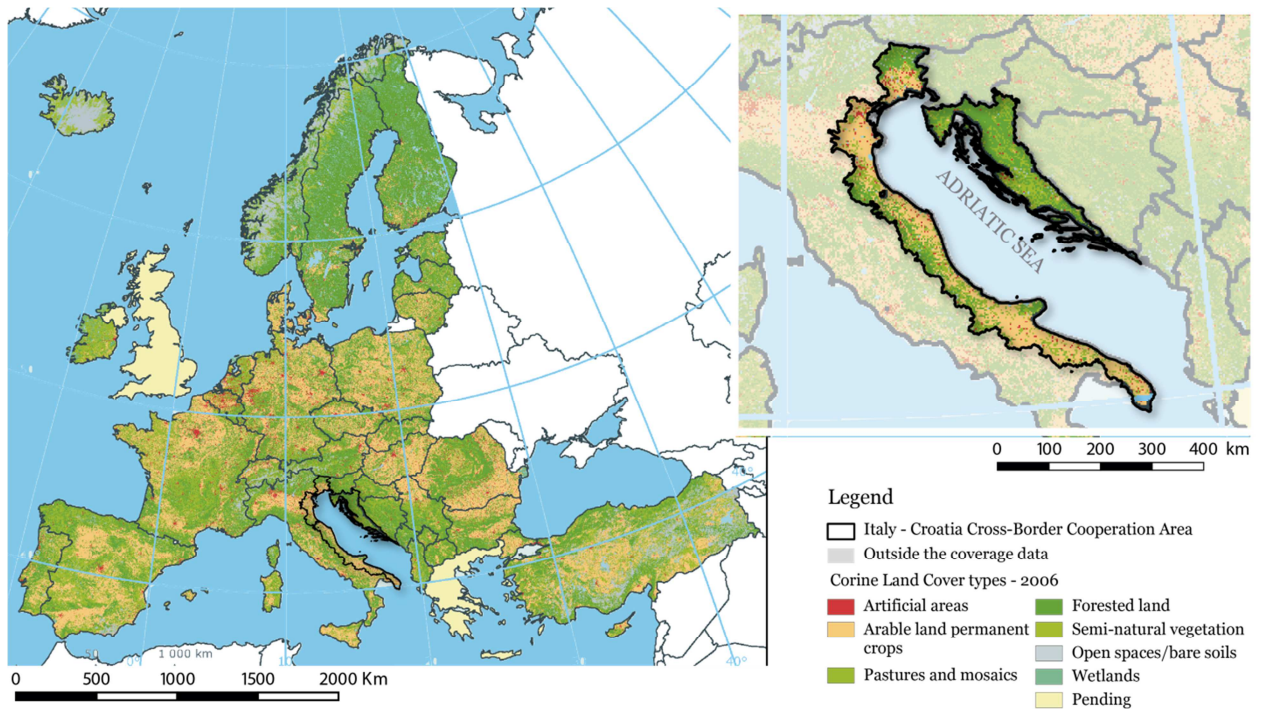
Both Italy and Croatia have above European average degree of soil sealing. According to the Corine Land Cover data of the European Environmental Agency²², the percentage of total land taken for urban and infrastructure development between years 2000 and 2006 corresponds in Italy to 2.81% of the total land area and in Croatia to 2.11%. These figures are much lower than the European average, corresponding to ~6%.

In Croatia, between 2000 and 2006, an accelerated artificial sprawl driven by highway construction was observed. Agricultural areas were characterised by the uptake of pasture by arable and complex cultivation land, while forests were expanding through the loss of open spaces and re-growth of the many-burnt areas.

In Italy, during the same time lapse, a growth of economic sites in particular along the Po lowland in northern Italy and recycling of urban land occurred. Outside the city, agricultural areas faced: loss of farmland, less farming withdrawal and arable/pasture transition, reduced expansion on to farmland, transitions of natural land cover.

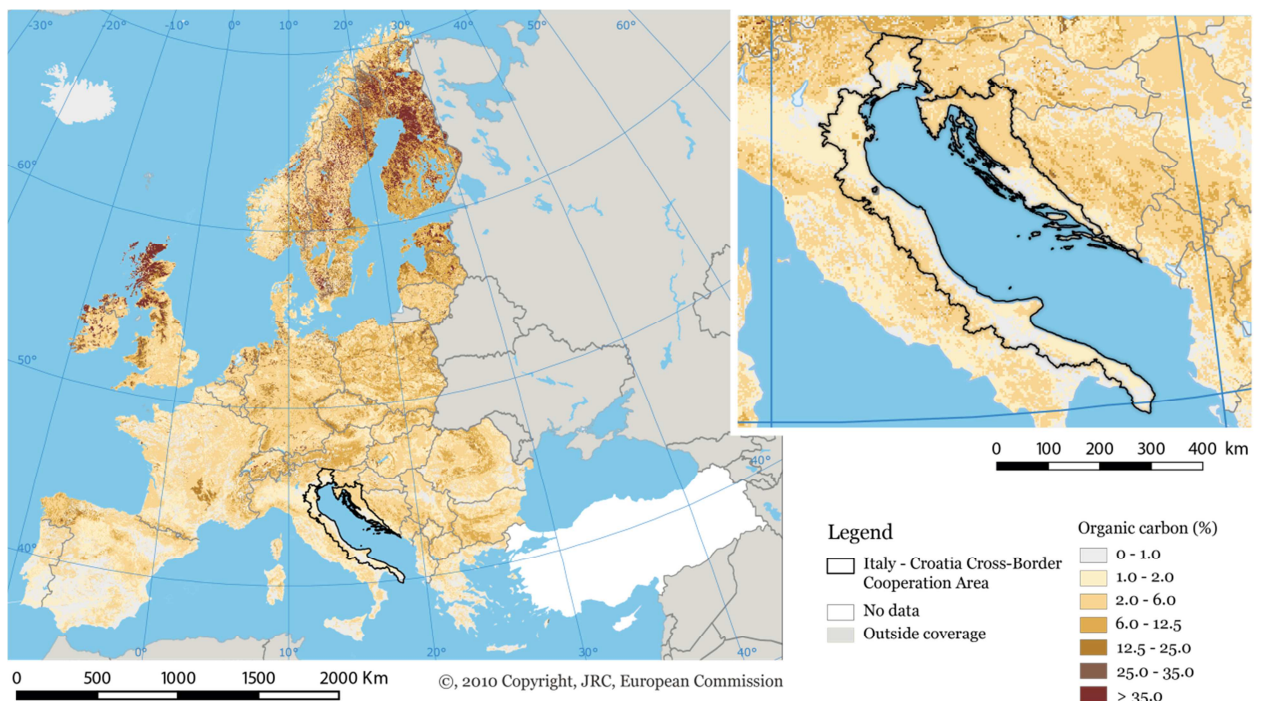
²² <http://www.eea.europa.eu/publications/CORo-landcover>.

Figure 11: Soils types in the cooperation area and at European level (Data Source: EEA. Elaboration: t33.)



The map in Figure 12 shows the percentage of organic carbon content in the surface horizon of soils in Europe. The darker regions correspond to soils with high values of organic carbon. The CBC area is mainly covered by the classes of organic carbon percentage “1.0-2.0” and “2.0-6.0”. Only few areas (as those in Apulia) are in the class “0-1.0”.

Figure 12: Topsoil organic carbon content



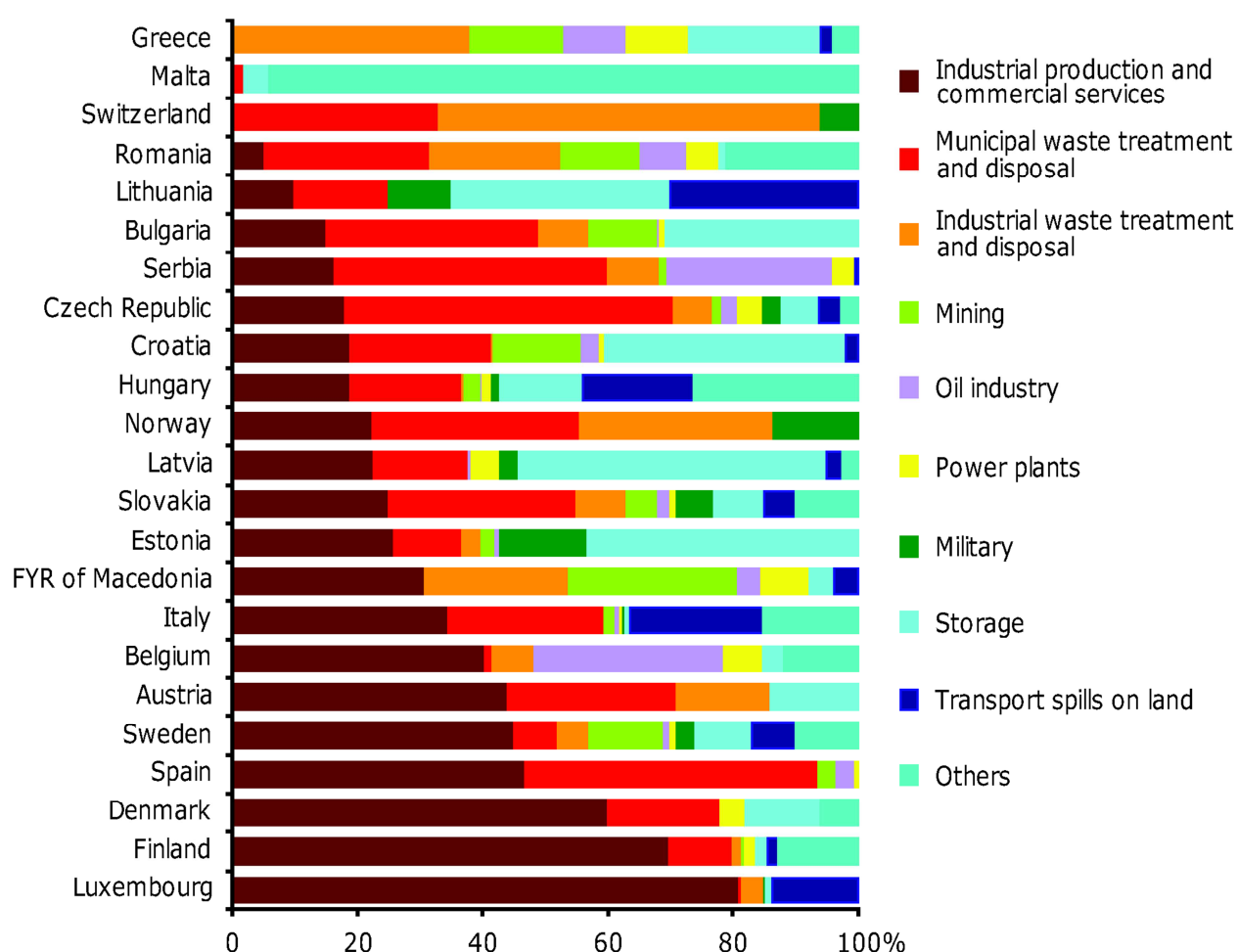
Soils act as significant carbon sink. Land-use and land-cover therefore strongly influence climate change. The conversion of grasslands, forest or wetlands to other type of use cause a decrease in the level of organic matter and organisms in soil, as well as in the CO₂ sequestration capacity. Forest fires, occurring in the Adriatic area, also diminish the GHG sinks.

Contaminated sites

Various human activities contaminate soils with environmentally hazardous substances, such as heavy metals, organic materials and pesticides.

Brown-field sites, including derelict land contaminated by former industrial, commercial or governmental operations, are an example of land-use potential that is not efficiently exploited.

Figure 13: Main sources causing soil contamination by country (Source: EEA)



Both Croatia and Italy have below average (41.4%) share of soil contamination caused by industrial production and commercial service. Both countries noticeably have above average

share of soil contamination due to waste treatment and disposal. Croatia also has a significant share of soil contamination linked to mining activities (Figure 13).

Situation, trend and threats for the CBC area

Soil and landscape quality in the cooperation area is threatened by soil sealing and contamination, from both agricultural practices and industry, in particular in Italy.

Most partners have realised the importance of greenbelts and are now setting limits for urban development, which is one of the main factors in soil sealing. The area also favours soil decontamination, using brownfields in new development projects. However, there is still a loss of organic matter in agricultural soil, putting future production at all the more risk since soil is a non-renewable resource that performs many vital functions.

Macro-indicators for the theme Soil quality and Landscape

Indicator	State	Trend
Artificial soils and surfaces	☹️	➡️
Contaminated sites	☹️	➡️

3.6 TECHNOLOGICAL RISKS

Technological risks refer to specific industrial activities such as chemical plants, energy production sites and the transport of hazardous substances. Issues in the Italy-Croatia CBC territory include the shipping of harmful products by sea, industrial chemical sites and energy production. Of utmost relevance is the presence of populated areas and public infrastructure close to at-risk industrial sites.

Accidents and associated damages

The Catholic University of Louvain, Belgium feeds the OFDA/CRED International Disaster Database, systematically collecting and analysing data on international disasters. They collect information on technological risks based on four criteria: 10 or more people reported killed, 100

people reported affected, a call for international assistance and a declaration of a state of emergency.

Following these criteria, since 1990 in Croatia four transport accidents have been reported, causing on average 30 deaths and affecting 14 people. No damages to property, crops, and livestock were reported.

Figures for Italy show that since 1990, one industrial accident affected 700 people, seven miscellaneous and 42 transport accidents were reported, a majority of which concerning water transport. On average, each miscellaneous accident caused 26 deaths and nine persons injured while transport accidents killed 39 people and affected 57 others. No damages to property, crops, and livestock were reported. The number of accidents and the associated persons killed and injured tended to decrease in the last fifteen years.

Situation, trend and threats for the CBC area

Only a few major accidents occurred in the cooperation area in the last twenty years. Transport, especially the maritime one, is the most represented category. No damages to property, crops, and livestock were reported for both countries.

Macro-indicators for the theme Health, Sanitary risks and Nuisance

Indicator	State	Trends
Accidents	😊	➡
Associated damages	😊	n.c

n.c: unpredictable events and/or trends unknown

3.7 AIR QUALITY AND HEALTH

Health, sanitary risks and nuisances are difficult to monitor; the situation very much depends on local conditions and people, who are differently impacted according to age, origin and behaviour. Transport, and in particular road traffic, has important consequences on people’s health, especially in urban, industrial and populated areas where traffic concentrates.

All CBC regions fall under the NEC Directive on national emission ceilings.²³ Regarding the particular issue of air quality, the Directive 2008/50/EC²⁴ on ambient air quality and cleaner air for Europe entered into force on 11 June 2008. Also relevant for this marine-oriented Programme, Directive 2012/33/UE addresses sulphur and particulate matter emissions from marine shipping. Since the Channel is considered a fragile ecosystem, the maximum sulphur content of marine fuels will be limited to 0.1% by 2015.

Note that Member States have also been pursuing air quality policies. Croatia adopted its Environmental Strategy and National Environmental Action Plan (Official Gazette [46/02](#)) and an Air Quality Protection and Improvement Plan for the Period 2008-2011.

Air pollution

Environmental pollutants significantly affect health in all Programme regions. Particulate matter is mainly produced by traffic pollution, particularly from diesel engines. Emissions tend to be concentrated in urban areas and along major roads.

Atmospheric pollution of particulate matter with aerodynamic diameter less than 10 µm (PM₁₀) is a widespread problem in Croatia. The particles primarily come from traffic, large combustion plants and large point sources. Indeed, the energy sector contributes with 61.2% of total PM₁₀ emissions (EEA, 2008). Between 1990 and 2008, air pollutants emissions generally decreased in Croatia, except for particulate matter.

In Italy, a downward trend of emissions has also been observed between 1990 and 2008. However, the most critical pollutants remain tropospheric ozone (O₃) during summer time, PM₁₀ atmospheric particulate, especially in the winter months, and nitrogen dioxide (NO₂) (EEA, 2010). Road transport is responsible for about half the nitrogen oxide (NO + NO₂) emissions and about 70% of overall emissions of PM₁₀ and NMVOC, while industrial emissions significantly dropped since the 1990s.

Air quality is a critical problem especially in urban areas where the levels of population and transport density are highest (Figure 14).

²³ Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants (OJ 309, 27.11.2001)

²⁴ Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe. (OJ L 152, 11.6.2008)

Figure 14: Urban population exposed to air pollutant concentrations above the EU air quality objectives (2010-2012) (Source: EEA, 2014)

Croatia	EU reference value	Exposure estimate (%)		
		2010	2011	2012
PM ₁₀	day (50 µg/m ³)	37.6	86.0	0.0
O ₃	8-hour (120 µg/m ³)	100.0	No data	100.0
NO ₂	year (40 µg/m ³)	0.0	0.0	25.1

Italy	EU reference value	Exposure estimate (%)		
		2010	2011	2012
PM ₁₀	day (50 µg/m ³)	50.5	62.5	50.7
O ₃	8-hour (120 µg/m ³)	66.6	66.3	62.1
NO ₂	year (40 µg/m ³)	41.3	46.1	25.2

The colour coding of exposure estimates refers to the fraction of urban population exposed to concentrations above the reference level:

0%	< 5 %	5-50 %	50-75 %	> 75 %
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Situation, trend and threats for the CBC area

The area is not homogeneous regarding health, sanitary risks and nuisances. However, risks related to particulate matter emission and exposure to ozone are clearly affecting the whole territory, all the more where the cooperation area is densely populated and has major international communication axes.

Trends are towards a decrease in atmospheric pollution and better monitoring of emissions. However, hot spots still remain, dispersed over the cooperation area, especially related to transport emissions in urban centres and highly populated territories. Air pollutant mobility is high and therefore the problem has to be tackled at all scales: local, national and global.

Macro-indicators for the theme Health, Sanitary risks and Nuisance

Indicator	State	Trends
Particulate matter emissions	☹️	➡️
Other air pollutant emissions	😊	↘️
Exposure to pollutants in urban areas	☹️	➡️

3.8 LANDSCAPE AND CULTURAL HERITAGES (INCLUDING ARCHITECTURAL AND ARCHAEOLOGICAL HERITAGES)

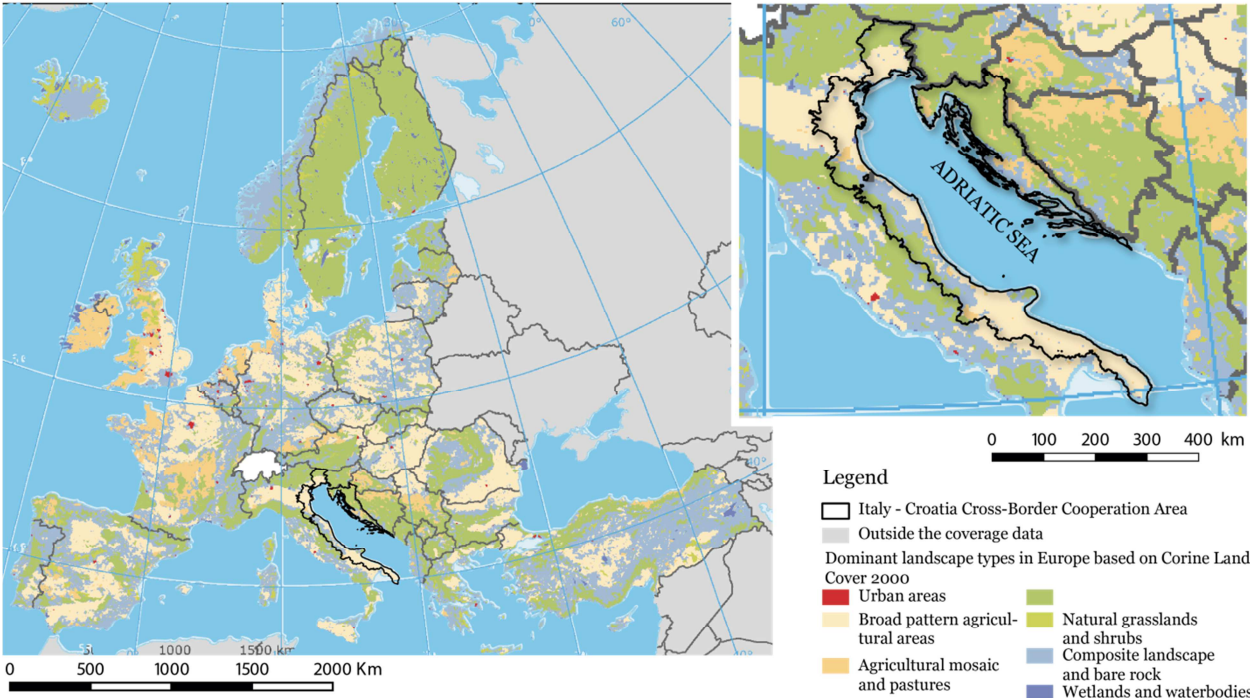
Natural and cultural heritages are part of the landscape, as well as being sources of recreational, aesthetic or historic values for inhabitants and people visiting them. Such heritages include buildings, monuments, gardens, parks, battlefields and all the surrounding natural and built-up areas, which give them value and sense. Tourism takes particular advantage of natural and cultural heritages sites.

The European Landscape Convention is also known as the Florence Convention. It was adopted on 20th October 2000 in Florence (Italy) and came into force on 1st March 2004. The convention promotes European landscape protection, management and planning and organises European co-operation on these issues. Regarding cultural and natural heritage, the UNESCO World Cultural and Natural Heritage Convention 1972 is today still the main policy for protection and preservation at an international level. The Convention for the Protection of the Archaeological Heritage of Europe 1992, also known as the Valletta Convention, supplements the general provisions of the UNESCO World Heritage Convention. It is an international treaty covering Europe as a whole, which establishes the basic common principles to be applied in national archaeological heritage policies.

Landscape

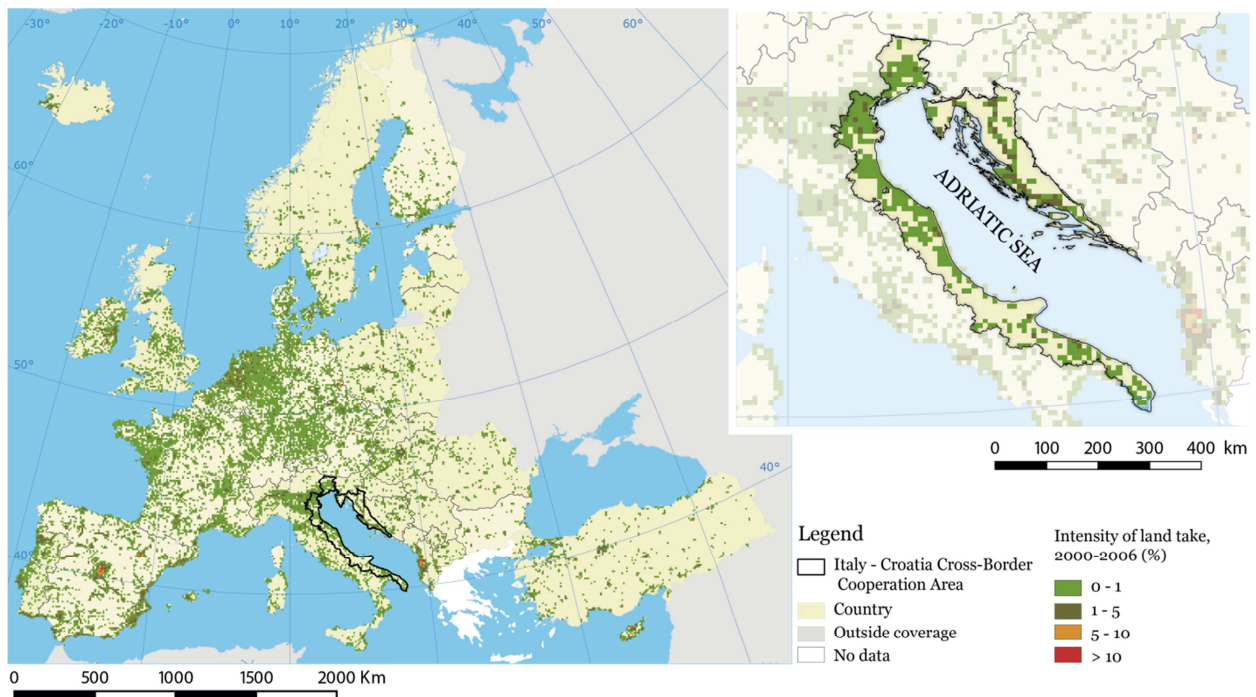
The dominant landscape types of the Programme region include mountains, forests and farmland, with little urban and industrial zones (Figure 15).

Figure 15: Dominant landscape types based on Corine Land Cover 2000 (Data Source: EEA. Elaboration: t33.)



Land use and landscape fragmentation are two burning issues. Comparing Corine land cover of the years 1990, 2000 and 2006, we can clearly notice a widespread increase of urban areas at the expenses of agricultural and to a less extent forest and semi natural areas. In the period 2000-2006 agricultural areas decreased progressively (143,000 hectares less between 1990 and 2000, 40,000 between 2000 and 2006) all over the country. Italy and Croatia both also have a high level of landscape fragmentation, due in many built-up coastal areas along the Adriatic coast (Metis, 2014).

Figure 16: Intensity of land take 2000-2006 (Data Source: EEA, 2013. Elaboration: t33.)



Protected sites

CBC regions of both countries entail outstanding sites and hotspots. In addition to the above-quoted Plitvice Lakes National Park, which belongs to natural heritage, Croatia counts six others properties inscribed on the World Heritage List: the Episcopal Complex of the Euphrasian Basilica in the Historic Centre of Poreč, the Historic City of Trogir, the Historical Complex of Split with the Palace of Diocletian, the Old City of Dubrovnik, the Stari Grad Plain and the Cathedral of St James in Šibenik. Cultural goods are also protected by the Croatian law since the Act on the protection and preservation of cultural goods a Register of Cultural Goods has been established.²⁵ Italy is well endowed with World Heritage Sites. As of July 2014, it has fifty sites inscribed on the list, making it the country with most sites. Seven of them are located in the CBC area, i.e. the Archaeological Area and the Patriarchal Basilica of Aquileia, the Botanical Garden in Padua, Castel del Monte in Andria, Ferrara, City of the Renaissance, and its Po Delta, the two longobards - places of the power (568-774 A.D.) – of Cividale del Friuli in the province of Udine

²⁵ Act on the protection and preservation of cultural goods (OG 69/99)





and Monte Sant'Angelo in the province of Foggia, the Trulli of Alberobello in the province of Bari and, last but not least, Venice and its lagoon.

Situation, trend and threats for the CBC area

CBC regions of both countries entail outstanding heritage sites and hotspots, also under the UNESCO convention.

Italy and Croatia both also have a high level of landscape fragmentation, due in many built-up coastal areas along the Adriatic coast. Landscape qualities often come off worse in regional decision-making. Cultural and natural heritage landscape values have to face several threats from urbanisation, infrastructure development, agricultural production, as well as habitat creation and restoration projects. The cooperation area’s predominantly coastal character is a double-edged sword. On the one hand tourism development brings new resort development, which adds pressures on this already fragile environment. On the other hand, however, natural and cultural are irreplaceable resources feeding tourism flows.

Macro-indicators for the theme Natural and Cultural heritage

Indicator	State	Trends
Landscape		
Protected sites		

3.9 ENERGY

A significant proportion of energy is imported for domestic consumption and dependency on fossil fuel remains high. Reducing fossil fuel consumption is at the heart of the strategy to prevent climate change and to increase resource consumption efficiency. In addition, the development of renewable energy technologies is a key factor for increasing European companies’ competitiveness in emerging markets.

To reduce dependency on fossil energy in Europe and to promote the development of alternative energy sources by 2020, European institutions elaborated the ‘energy package’, legislative commitments addressing climate and energy issues in the EU.²⁶ The 2020 European strategy set ambitious objectives for EU territories: an increase of 20% in renewable energy production and an increase of 20% in energy efficiency. Targets have been broken down by MS, to account for national characteristics, costs and different potential for improvements in energy efficiency.

Energy efficiency

In 2008, Croatia adopted its National Energy Efficiency Action Plan (NEEAP) to comply with the requirements of EU Directive 2006/32/EC on energy end-use efficiency and energy services. Before this action plan for resource efficiency, the concept of an efficient and sustainable management of natural resources was included into the Croatian national environmental legislation e.g. the Strategy for Sustainable Development²⁷. A specific purpose fund – the Environmental protection and Energy Efficiency Fund – has been established to finance projects related to renewable energy and energy efficiency. Through the implementation of energy efficiency measures, Croatia has registered a reduction in energy consumption of ~13% in 2013 relative to 1990.

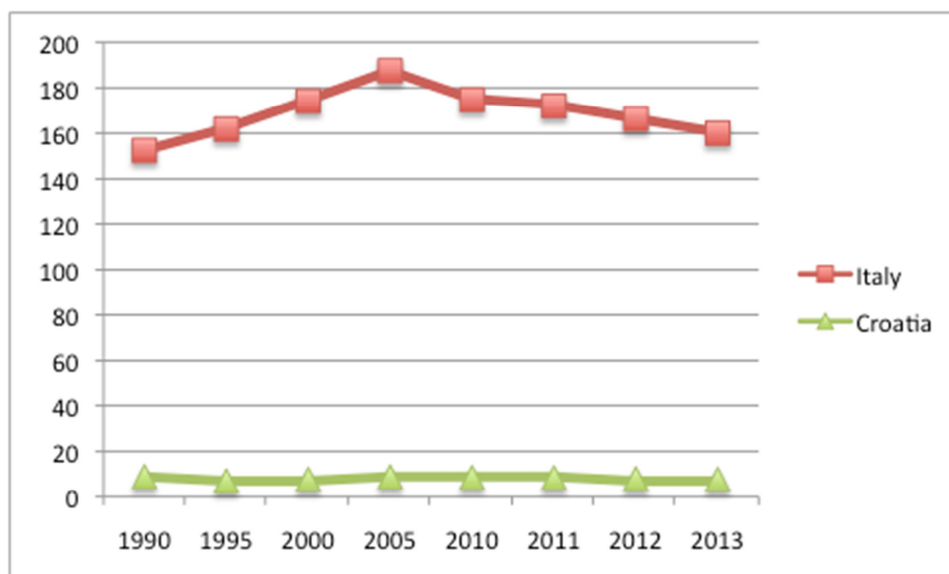
In Italy, the energy consumption in 2013 is ~+5% higher than in 1990 but significantly lower if compared with the 2005 value (-18%). Energy consumption in Italy presents remarkable difference between regions. The increments between 1990 and 2005 (+22%) are partially motivated by the economic growth, as the reduction after 2005 is probably linked to the global crisis.

²⁶ The ‘Energy Package’ is made of the following regulatory documents : Directive 2003/87/CE establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, the ‘Effort Sharing Decision’, the ‘Renewable energy’ Directive (2009/31/EC) and Directive 2009/31/EC of 23 April 2009 on the geological storage of carbon dioxide.

²⁷ Strategy for sustainable development of the Republic of Croatia (Official Gazette [30/2009](#))

Figure 17: Energy consumption from 1990 to 2013 in Italy and in Croatia in million tonnes of oil equivalent. Source: Eurostat

Source: ODYSSEE-MURE Country profile, 2012



Renewable energy

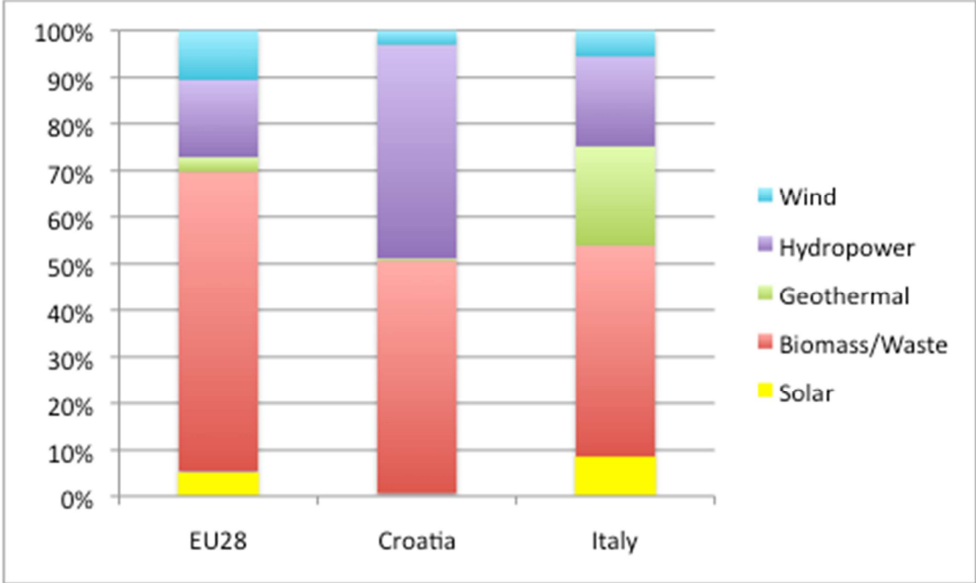
The Croatian National Renewable Energy Action Plan (NREAP) sets the target of increasing the share of energy from renewable energy sources in gross final consumption from 12.8% in 2005 to 20.0% in 2020 (Croatian Ministry of Economy, 2014). Italy's National Renewable Energy Action Plan (NREAP) sets the target of increasing the share of energy from renewable energy sources in gross final consumption from 4.9% in 2005 to 17.0% in 2020²⁸. However, Italy was in 2010 along with five other Member States expected to have a deficit in 2020 compared to their binding target for the share of renewable energy in their final energy consumption²⁹.

The primary production of energy from renewable sources is significantly incremented from 2003 to 2013 in both Italy (+87%) and Croatia (+135%), even more than the European average (+85%). The main share of renewable energy is produced by biomass/waste, followed by hydropower. In Italy, geothermal production is of importance.

²⁸ <http://www.odyssee-mure.eu/publications/national-reports/>

²⁹ EEA (2013) Indicators: Share of renewable energy in final energy consumption

Figure 18: Share of renewable energy produced by sources (%) in 2013. Source: Eurostat



Situation, trend and threats for the CBC area

Energy consumption has increased in Italy from 1990 but its trend shows a decrease from 2005. In Croatia, there is a reduction in consumption in the last decades.

However, in a business as usual scenario, while energy efficiency should continue to improve in the near future, additional efforts are needed regarding renewable energy consumption, in particular in Italy.

The renewable energy production shows a remarkable increase from 2003 in Italy and Croatia, at rate even higher than the European average.

Macro-indicators for the theme Energy

Indicator	State	Trends
Energy consumption	☹️	➡️
Renewable energy	😊	➡️

3.10 WASTE MANAGEMENT

Waste production is a major source of pressure on the environment. It contributes to the overconsumption of natural resources and is a source of pollution for soil and water, which increases the ecological footprint of economic activities. Better waste management, such as recycling, lowers the cost of waste disposal and helps reduce the impact of economic activity on ecosystems.

Three main documents guiding waste management have been adopted at EU level. The Waste Framework Directive³⁰ sets basic concepts and definitions related to waste management and lays down some basic waste management principles. The Commission Decision 94/3/EC³¹ establishes a list of waste, while Council Directive 1999/31/EC³² frames the landfill of waste.

In both Member States, the legislative framework has been completed e.g. the Italian Legislative Decree 152/2006 and in Croatia the Waste Framework Directive has been transposed into the national legislation by the Sustainable Waste Management Act³³. The Waste Management Strategy for the Republic of Croatia³⁴, the Waste Management Plan³⁵ and the Waste Act³⁶ have also been adopted to build a truly integrated waste management system for the country.

Waste production and landfill deposit

The 2020 target of 95 % of population and municipalities covered by organised municipal waste collection set by the Waste Management Strategy of Croatia has already been reached. Indeed, municipal waste collection increased from 86 % in 2004 to 96 % in 2010.

However, constantly increasing municipal waste volume is a lasting issue in both countries, even though it is tending to stabilise. The generation of municipal waste in Croatia has increased from 0.98 tonnes in 1995 to 1.63 tonnes in 2010 i.e. 369 kg per capita. The level peaked in 2008 with 403 kg per capita. In Italy, after many years of high growth, municipal waste generation

³⁰ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives(OJ L 312, 22.11.2008, p. 3).

³¹ Commission Decision 94/3/EC of 20 December 1993 establishing a list of waste pursuant to Article 1a of Council Directive 75/442/EEC on waste (OJ L 5, 7.1.1994, p. 15).

³² Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (OJ L 182, 16.7.1999, p. 1).

³³ Sustainable Waste Management Act (Official Gazette [94/13](#))

³⁴ Waste Management Strategy (Official Gazette [130/05](#))

³⁵ Waste Management Plan for the Republic of Croatia 2007 - 2015 (Official Gazette [85/07](#))

³⁶ Waste Act (Official Gazette [178/04](#), [111/06](#), [60/08](#), [87/09](#))

stabilised at about 32 Mt³⁷. Municipal waste generation per capita was 531 kg in 2010, with however high disparities across regions e.g. in 2010, waste generation ranged from 413 kg/inhabitant per year in Molise to 677 kg/inhabitant per year in Emilia Romagna. Waste generation is indeed known to be strictly correlated with socio-economic indicators such as GDP and household consumption³⁸.

In both countries only part of the municipal waste volume ends up being recovered while the rest is landfilled. Croatia would need to make an exceptional effort in order to fulfil the diversion targets of the EU Landfill Directive³⁹. Indeed, the Landfill Cadastre still lists about 280 registered landfills.

Remediation has been carried out on a small number of landfills only e.g. Lemić brdo, Bakar, Sovjak, TP Plomin, Obrovac, TEF Šibenik, Jugovinil, Mravinacka Kava. By 2020, official landfills i.e. legal disposal sites, sites in the process of being legalised, official sites and negotiated sites, should be reduced to 30 while the share of remediate landfills is planned to be 85% of the number established for 2000.

Italy traditionally landfills most of its municipal waste, even if the landfill rates have constantly decreased. However, substantial differences among regions remains e.g. from 7 % in Friuli Venezia Giulia and 9 % in Veneto to 93% in Sicilia⁴⁰. Moreover, illegal landfill remains a problem, particularly in southern Italy. At national level, percentages of landfilled municipal waste tend to decrease. Furthermore, a national strategy for the reduction of biodegradable waste going to landfills has been adopted. This strategy identifies the waste types to be considered as bio-waste and defines specific targets.

Recycling

The separate collection rates of municipal waste are increasing in the whole country and for all waste fractions. In particular, Italy seems to be on the right path to reach the EU recycling target of 50 % by 2020. However, the cross-regional differences are huge⁴¹. By 2010, Italy recycled about 35 % of its municipal waste and if improvements in this regards go on this way, the country should be able to meet the EU 2020 target. Recycling is strongly linked to separate

³⁷ EEA-ETC/SCP (2013) Municipal waste management in Italy, 21 p.

³⁸ EEA (2010) Croatia Country Assessment - Waste. SOER 2010
http://www.eea.europa.eu/soer/countries/hr/soertopic_view?topic=waste

³⁹ EEA-ETC/SCP (2013a) Municipal waste management in Croatia, 13 p.

⁴⁰ ISPRA (2014) Rapporto Rifiuti Urbani, 222 p.

⁴¹ EEA-ETC/SCP (2013b) Municipal waste management in Italy, 21 p.

collection. Yet, the higher separate collection rates have been achieved by the northern regions of the Italian side of the CBC areas. Southern regions are lagging behind e.g. Puglia, Molise, Abruzzo and Marche regions have not reach the 2008 target of 45% of separate collection of municipal waste.

Croatia has low data quality on this issue. Indeed, recycling of municipal waste only started in 2007 and the recycling rate is still low at 4 %. According to the EEA Report “Municipal Waste management in Croatia (2013), the main challenge is to increase separate collection from municipal waste and to develop the infrastructure for recycling of municipal waste such as waste management centres. Therefore, Croatia’s effort in order to fulfil the 50 % target of the Waste Framework Directive by 2020 is huge and the risk is high that it will not be achieved. However, recycling is expected to be high on the agenda in the future⁴². Waste management centres are planned to be constructed before the end of 2018. Cooperation funds for this issue are of importance e.g. in the 2007-2009 period, the IPA Programme assigned EUR 24.5 million to the construction of county waste centres in the Primorsko-Goranska, Istarska and Splitsko-Dalmatinska counties⁴³.

Updating national legislations and regulations, modernising old infrastructures including the creation of regional waste disposal systems, construction and exploitation of large scale waste treatment plants. Both countries are moving towards a European recycling society.

⁴² National Report of the Republic of Croatia to the UN Commission for Sustainable Development CSD - 18/19 (2011)

⁴³ EEA, Croatia Country Assessment - Waste. SOER 2010
http://www.eea.europa.eu/soer/countries/hr/soertopic_view?topic=waste

Situation, trend and threats for the CBC area

In recent years waste collection and processing have generally been upgraded, both for the amount of waste collected by local public services and the share of waste recovery compared to landfill. However, there is still a large room for improvement for Croatian and Italian regions regarding the amount of waste produced and the share of recovered or recycled waste. On this issue the CBC cooperation area is homogeneous.

The overviews have a positive trend regarding all waste management indicators.

Macro-indicators for the theme Waste

Indicator	State	Trends
Waste production	☹️	↘️
Landfill deposit	☹️	↘️
Recycling	☺️	↗️

PART II – VERTICAL AND HORIZONTAL INTEGRATION OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

4. SYNERGY WITH OTHER PLANS AND PROGRAMMES RELEVANT FOR THE ITALY-CROATIA AREA

According to Annex I(e) of the SEA Directive⁴⁴ an external coherence analysis should compare the Italy - Croatia Programme with other key plans or strategies for the cooperation area and that deal with environmental issues covered by the Programme strategy.

Coherence was analysed at the level of the Italy - Croatia Programme ‘Specific Objectives’ and related ‘Investment Priorities’ using a specific assessment matrix. External coherence analysis was built on the list of relevant documents drawn up by SEA experts and completed by the EAs, during the Scoping Report consultation.

The following coherence levels were established using a joint-methodology developed with the ex-ante evaluators:

- **CONTRAST (C):** where the Programme strategy could potentially clash with local stakeholder interests or the Programme differs from strategic goals;
- **NEUTRAL (N):** where the Programme strategy and key plans have no common fields of interaction, neither at target group level nor at objective level;

⁴⁴ ‘The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.’

- COHERENT (S/O): where the Programme strategy and the key plans and strategies share similar strategic goals, actions and target groups.

In this section, the framework of policy and strategy at European level is presented for all environmental issues, and the coherence with the Programme is described. A final table synthesizes the coherence analysis for all the issues.

4.1 COHERENCE WITH THE COMMUNITY-LEVEL POLICIES

4.1.a *Biodiversity, Landscape and Cultural Heritage Policy Framework*

The European framework on nature protection is stated by the EU 2020 Biodiversity Strategy (COM (2011) 0244), which main objective is “Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.” The Strategy then set a list of target involving economic sector as agriculture (“maximize areas under agriculture across grasslands, arable land and permanent crops that are covered by biodiversity”), forestry (through the promotion of Sustainable Forest Management) and fisheries (“achieve Maximum Sustainable Yield)

Another basic document in nature protection is the Pan-European Biological and Landscape Diversity Strategy (PEBLDS), adopted at the 3rd Ministerial Conference "An Environment for Europe" held in October 1995 in Sofia, Bulgaria, as a follow up of the Rio Earth Summit and of the "Convention on Biological Diversity". The principal aim of the Strategy is to find a consistent response to the decline of biological and landscape diversity in Europe and to ensure the sustainability of the natural environment. The strategy differs from previous attempts to conserve biodiversity in four important ways⁴⁵:

- it has a vast geographical scope, covering virtually the entire continent of Europe and northern and central Asia;
- it aims to ensure that the ecosystems on which species depend continue to function, rather than protecting only threatened species or a limited number of valuable sites;

⁴⁵ <http://www.mainstreaminginnovation.org/content/landscapeandbiodiversity/256,253/>

- it brings together the conservation of biodiversity and landscapes into an integrated framework;
- it provides for a systematic programme of concrete actions that are designed to ensure that long-term conservation objectives are achieved.

The long-term objectives set by the strategy consist in the establishment of a Pan-European Ecological Network to conserve ecosystems, habitats, species and landscapes that are of European importance, in the sustainable management and use of Europe's biodiversity and in integrating biodiversity conservation and sustainability into the activities of other sectors. In addition the strategy aims to improve awareness and understanding on biodiversity issues.

The IUCN Global Species Programme provides the framework for planning, implementing, monitoring and evaluating the conservation work undertaken by the Commissions and the Secretariat with and on behalf of IUCN Members.

It has three Programme Areas:

1. Valuing and Conserving Nature enhances IUCN's heartland work on biodiversity conservation, emphasizing both tangible and intangible values of nature.
2. Effective and Equitable Governance of Nature's Use consolidates IUCN's work on people-nature relations, rights and responsibilities, and the political economy of nature.
3. Deploying Nature-based Solutions to Global Challenges in Climate, Food and Development expands IUCN's work on nature's contribution to tackling problems of sustainable development, particularly in climate change, food security and social and economic development.

The European Landscape Convention ("Florence Convention", Council of Europe Treaty Series no. 176) promotes the protection, management and planning of European landscapes The scope of the Convention is extensive as it applies to the entire territory of the Parties and relates to natural, urban and peri-urban areas, whether on land, water or sea.

The EU Thematic Strategy on the Urban Environment (COM (2005) 718) outlined the problems and challenges facing Europe's urban areas: urban environmental management, urban transport, sustainable construction and urban design. Its aim is to improve the environmental performance and quality of urban areas and to secure a healthy living environment for Europe's urban citizens. The Strategy will reinforce the environment contribution to the sustainable development of urban areas.

The UNESCO World Cultural and Natural Heritage Convention 1972 still represents the main policy for the protection and preservation of cultural and natural heritage at the international level, linking together the nature conservation and the conservation of cultural properties. The convention initiated the World Heritage Programme which promotes the conservation of several tangible and intangible significant sites.

The Convention for the Protection of the Archaeological Heritage of Europe 1992 (Valletta Convention) is a Europe-wide international treaty which establishes the basic common principles to be applied in national archaeological heritage policies. It supplements the general provisions of the UNESCO World Heritage Convention 1972.

Priority Axis	Specific Objectives	Interaction with the policy	Coherence results
Priority Axis 1: Blue Innovation	SO1.1: Enhance the framework conditions for innovation through cooperation of the system players mainly in the sectors of the blue economy	No interaction found	N
Priority Axis 2: Safety and resilience	SO2.1: Enhance the implementation of climate change monitoring or planning of adaptation measure	This SO act in the direction delineated by the IUCN Global Species Programme	S/O
	SO2.2: Safeguard the Programme area from natural and man-made disaster	No interaction found	N
Priority Axis 3: Environment and cultural heritage	SO3.1: Make natural and cultural heritage a leverage for economic and territorial development	This SO act in the direction delineated by the European Landscape Convention and by the UNESCO World Cultural and Natural Heritage Convention 1972 (and Valletta Convention)	S/O

	SO3.2: Contribute to protect and restore biodiversity in the Adriatic Basin	This SO act in the direction delineated by EU 2020 Biodiversity Strategy, by the PEBLDS, by the IUCN Global Species Programme	S/O
	SO3.3: Improve the environmental quality conditions of the Adriatic Basin by use of sustainable and innovative technologies and approaches	No interaction found	N
Priority Axis 4: Maritime Transport	SO4.1: Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the Programme area	No interaction found	N

4.1.b Air quality and Climate change

The main reference for the Climate Change issues is Kyoto Protocol (UNFCCC 1997), an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets. The reduction set in Europe for 2008- 2012 in respect to 1990 levels is 8%.

In 2013, the Commission adopted an EU Adaptation Strategy (COM (2013) 216) with the aim to anticipating the adverse effects of climate change and taking appropriate action to prevent or minimise the damage they can cause. It promotes adaptation in key vulnerable sectors such as agriculture, fisheries and cohesion policy.

The Convention on Long-range Trans-boundary Air Pollution (CLRTAP) of the United Nations Economic Commission for Europe (UNECE) is finalized to limit and, as far as possible, gradually reduce and prevent air pollution including long-range transboundary air pollution. Parties develop policies and strategies to combat the discharge of air pollutants through exchanges of information, consultation, research and monitoring. Currently, a special focus is given to the implementation of the Convention and its protocols across the Eastern Europe.

The Thematic Strategy on Air Pollution (COM 2005 446) aims to obtain "levels of air quality that do not give rise to significant negative impacts on, and risks to human health and environment". It establishes objectives for air pollution and proposes measures for achieving them by 2020: modernising the existing legislation, placing the emphasis on the most harmful pollutants, and involving to a greater extent the sectors and policies that may have an impact on air pollution.

Priority Axis	Specific Objectives	Interaction with the policy	Coherence results
Priority Axis 1: Blue Innovation	SO1.1: Enhance the framework conditions for innovation through cooperation of the system players mainly in the sectors of the blue economy	No interaction found	N
Priority Axis 2: Safety and resilience	SO2.1: Enhance the implementation of climate change monitoring or planning of adaptation measure	This SO contributes to the achievement of Kyoto Protocol target. Moreover it acts in the direction delineated by the EU Adaptation Strategy	S/O
	SO2.2: Safeguard the Programme area from natural and man-made disaster	No interaction found	
Priority Axis 3: Environment and cultural heritage	SO3.1: Make natural and cultural heritage a leverage for economic and territorial development	No interaction found	N
	SO3.2: Contribute to protect and restore biodiversity in the Adriatic Basin	No interaction found	N
	SO3.3: Improve the environmental quality conditions of the Adriatic Basin by use of sustainable and innovative technologies and approaches	No interaction found	N

<p>Priority Axis 4: Maritime Transport</p>	<p>SO4.1: Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the Programme area</p>	<p>The enhancement of environmental sustainability of marine and coastal transport services and nodes contributes to reduce emissions (Kyoto Protocol, EU Adaptation Strategy) and to improve air quality (CLRTAP, Thematic Strategy on Air Pollution)</p>	<p>S/O</p>
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4.1.c Soil

The Soil Thematic Strategy was adopted by the European Commission on 2006 (COM(2006) 231), with objective to protect the soil while using it sustainably, through the prevention of further degradation, the preservation of soil function and the restoration of degraded soils. The strategy is based on four main pillars, namely awareness raising, research, integration, and legislation. Recently the European Commission have prepared a report on the implementation of the strategy (COM(2012) 46) which provides an overview of the actions in Europe to implement the four pillars of the Strategy. It underlines that at the March 2010 Environment Council a minority of the strategy and also presents current soil degradation trends both in Europe and globally, as well as future challenges to ensure protection.

The UN Convention to Combat Desertification (UNCCD) was adopted on 17 June 1994 by the Intergovernmental Negotiating Committee and it aims to combat desertification and mitigate the effects of, through international cooperation and partnership with a view to achieving sustainable development; to implement long-term integrated strategies that focus simultaneously on improved productivity of land, and the rehabilitation, conservation and sustainable management of land and water resources, leading to improved living conditions; to encourage the use of existing financial mechanisms.

Priority Axis	Specific Objectives	Interaction with the policy	Coherence results
Priority Axis 1: Blue Innovation	SO1.1: Enhance the framework conditions for innovation through cooperation of the system players mainly in the sectors of the blue economy	No interaction found	N
Priority Axis 2: Safety and resilience	SO2.1: Enhance the implementation of climate change monitoring or planning of adaptation measure	No interaction found	N
	SO2.2: Safeguard the Programme area from natural and man-made disaster	This SO acts in the direction delineated by the Soil Thematic Strategy	N
Priority Axis 3: Environment and cultural heritage	SO3.1: Make natural and cultural heritage a leverage for economic and territorial development	No interaction found	N
	SO3.2: Contribute to protect and restore biodiversity in the Adriatic Basin	This SO acts in the direction delineated by the Soil Thematic Strategy	S/O
	SO3.3: Improve the environmental quality conditions of the Adriatic Basin by use of sustainable and innovative technologies and approaches	This SO acts in the direction delineated by the Soil Thematic Strategy	S/O
Priority Axis 4: Maritime Transport	SO4.1: Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the Programme area	No interaction found	N

4.1.d *Water and Marine ecosystem*

The EU Water Framework Directive (2000/60/EC) is the cornerstone of EU's water legislation. The purpose of this Directive is to establish a framework for the protection of surface waters and groundwater. It sets a number of objectives to meet 'good status' for all waters by 2015. The

Directive also requires Member States to establish river basin management. Developed in response to the requirements of Article 17 of the Water Framework Directive, the Groundwater Directive (2006/118/EC) is designed to specifically prevent and combat groundwater pollution. Other European regulations have an indirect impact on water bodies such as the Nitrates Directive (91/676/EEC), which aims at reducing nitrate and organic matter pollution from agricultural land, but also the Urban Waste Water Treatment Directive (91/271/EEC) aimed at reducing pollution from sewage treatment works and certain industries, the Integrated Pollution Prevention and Control Directive IPPC (96/61/EEC) aimed at controlling and preventing the pollution of water by industry and the Drinking Water Directive (98/83/EC).

The Marine Strategy Framework Directive (2008/56/EC) applies to marine waters. It provides a common framework for joined up governance of the marine environment and set the overarching goal of achieving 'Good Environmental Status' (GES) by 2020 across Europe's marine environment. Also here Member States must establish monitoring programmes in order to evaluate on a regular basis the status of their marine waters. Linked to this Directive, the 'New Bathing Water Directive' (2006/7/EC) concerning the management of bathing water quality provides a more proactive approach to informing the public about water quality using quality categories for bathing waters from 'poor', to 'excellent'.

Priority Axis	Specific Objectives	Interaction with the policy	Coherence results
Priority Axis 1: Blue Innovation	SO1.1: Enhance the framework conditions for innovation through cooperation of the system players mainly in the sectors of the blue economy	No interaction found	N
Priority Axis 2: Safety and resilience	SO2.1: Enhance the implementation of climate change monitoring or planning of adaptation measure	No interaction found	N
	SO2.2: Safeguard the Programme area from natural and man-made disaster	No interaction found	N
Priority Axis 3: Environment and	SO3.1: Make natural and cultural heritage a leverage for economic and territorial development	No interaction found	N

cultural heritage	SO3.2: Contribute to protect and restore biodiversity in the Adriatic Basin	No interaction found	N
	SO3.3: Improve the environmental quality conditions of the Adriatic Basin by use of sustainable and innovative technologies and approaches	This SO acts in the direction delineated by the EU Water Framework Directive (for coastal and transitional water) and by the Marine Strategy Framework Directive	S/O
Priority Axis 4: Maritime Transport	SO4.1: Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the Programme area	No interaction found	N

4.1.e *Synthesis of the coherence of the Programme with policies at European level*

Analysis of the draft CBC Programme revealed that Priority Axis (PAs), Strategic Objectives (SOs) and associated actions address a high number of environmental issues. These include climate change monitoring and adaptation, safeguard from natural and manmade disasters, environment and culture heritage protection and valorisation, biodiversity protection, marine water quality, air quality and eco-innovation related to European legislation and strategies adopted during the last ten years in the European Union (see sections above) .

Furthermore, some proposed actions have more than one environmental thematic reference. The proposal covers a large number of key economic sectors in the cooperation area with significant environmental impact including transport systems, maritime infrastructure and shipping, and SMEs.

The strategy delineated by the CP well match with the policies and strategies drafted at European and international level on environmental and sustainability issues.

4.2 COHERENCE WITH STRATEGIC POLICIES FOR THE COOPERATION AREA

4.2.a Cross-border level relevant strategies on environmental issues

EU Strategy for the Adriatic and Ionian Region (EUSAIR)

The EUSAIR is a strategy focalized on the Region of Adriatic and Ionian SEAs and it covers eight countries: four EU Member States (Croatia, Greece, Italy, Slovenia) and four non-EU countries (Albania, Bosnia and Herzegovina, Montenegro, Serbia). The Communication and Action Plan have been transmitted to the other EU institutions and bodies, and will be discussed in the Council during the second semester of 2014 with a view of its endorsement by the European Council before the end of the year. The Strategy incorporates the Maritime Strategy for the Adriatic and Ionian Seas⁴⁶, adopted by the Commission on 30 November 2012. The general objective of the new Strategy is to promote economic and social prosperity and growth in the region by improving its attractiveness, competitiveness and connectivity. It should also play an important role in promoting the EU integration of Western Balkans. The Action Plan indicates the four pillars of the strategy, each with its own specific objectives:

1- Blue Growth:

- Promotion of research, innovation and business opportunities in blue economy sectors;
- Adaptation to sustainable seafood production and consumption;
- Improvement of sea basin governance;

2- Connecting the Region

- Strengthening of maritime safety and security and development of a competitive regional intermodal port system;
- Development of reliable transport networks and intermodal connections with the hinterland, both for freight and passengers;
- Achievement of a well-interconnected and well-functioning internal energy market

⁴⁶ It will use the existing resources, legislation and structures to foster cross-border partnerships and prioritise objectives around which local, regional and national actors can be mobilized to turn the priorities of the Europe 2020 Strategy into targeted actions.

3- Environmental Quality

- Ensuring a good environmental and ecological status of the marine and coastal environment by 2020;
- Contribution to the goal of the EU Biodiversity Strategy to halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restore them in so far as feasible;
- Improvement of waste management by reducing waste flows to the sea and, to reduce nutrient flows and other pollutants to the rivers and the sea.

4- Sustainable Tourism

- Diversification of tourism offer (products and services);
- Sustainable and responsible tourism management (innovation and quality).

Strategic Programme for Mediterranean forests (SPMF)

This Programme was approved in 2013 and includes nine Strategic Lines:

- Improve sustainable production of goods and services by Mediterranean forests
- Enhance the role of Mediterranean forests in rural development
- Promote forest governance and land tenure reforms at landscape level
- Promote wildfire prevention in the context of global changes
- Manage forest genetic resources and biodiversity to enhance adaptation of Mediterranean forest to climate change
- Restore degraded Mediterranean forest landscapes
- Develop knowledge, training and communication on Mediterranean forests
- Reinforce international cooperation
- Adapt existing financial schemes and develop innovative mechanisms to support implementation of forest policies and programmes⁴⁷

⁴⁷ <http://iii-med.forestweek.org/content/strategic-framework-mediterranean-forests-sfmf>

Priority Axis	Specific Objectives	Interaction with the policy	Coherence results
Priority Axis 1: Blue Innovation	SO1.1: Enhance the framework conditions for innovation through cooperation of the system players mainly in the sectors of the blue economy	This SO act in the direction delineated by EUSAIR – Pillar 1.	S/O
Priority Axis 2: Safety and resilience	SO2.1: Enhance the implementation of climate change monitoring or planning of adaptation measure	This SO acts in the direction delineated by the SPMF	S/O
	SO2.2: Safeguard the Programme area from natural and man-made disaster	These SOs do not address explicitly any objectives related to water and marine ecosystems	N
Priority Axis 3: Environment and cultural heritage	SO3.1: Make natural and cultural heritage a leverage for economic and territorial development	This SO act in the direction delineated by EUSAIR – Pillar 4.	S/O
	SO3.2: Contribute to protect and restore biodiversity in the Adriatic Basin	This SO act in the direction delineated by EUSAIR – Pillar 3 SPMF	S/O
	SO3.3: Improve the environmental quality conditions of the Adriatic Basin by use of sustainable and innovative technologies and approaches	This SO act in the direction delineated by EUSAIR – Pillar 3.	S/O
Priority Axis 4: Maritime Transport	SO4.1: Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the Programme area	This SO act in the direction delineated by EUSAIR – Pillar 2.	S/O

4.2.b *Croatia principal strategies on environmental issues*

The Strategy and Action Plan for the Protection of Biological and Landscape Diversity (SAPPBLD)

Adopted on 28 November 2008, the Strategy and Action Plan for the Protection of Biological and Landscape Diversity is Croatia's main document for nature protection. It lays down general strategic objectives and guidelines for preserving biological and landscape diversity. This text was prepared pursuant to Article 151 of the Nature Protection Act.⁴⁸ The Strategic Objectives of the Strategy are:

1. Conserve overall biological, landscape and geological diversity as an underlying value and potential for further development of the Republic of Croatia;
2. Meet all obligations arising from the process of integration into the European Union and alignment of the national legislation with the relevant EU directives and regulations (Habitats Directive, Birds Directive, CITES Regulations);
3. Fulfil the obligations arising from international treaties in the field of nature protection, biosafety, access to information, etc.;
4. Ensure integral nature protection through co-operation with other sectors;
5. Establish and evaluate the state of the biological, landscape and geological diversity, set up a nature protection information system with a database connected to the state's information system;
6. Encourage promotion of institutional and non-institutional ways to educate the public about biodiversity, and improve public participation in decision-making processes;
7. Develop legislation implementation mechanisms by strengthening legislative and institutional capacities, education, development of scientific resources, information, and the development of funding mechanisms.

Emphasising the lack of sufficient information on biodiversity, the Strategy name the most urgent issues face by Croatia i.e. the excessive exploitation of natural resources, the introduction of alien species into ecological systems, the construction of infrastructures leading to habitat loss and fragmentation, agricultural activities, environmental pollution, urbanisation and global climate change.

⁴⁸ Nature Protection Act, (OG 70/05)

Strategy for Sustainable Development (SSD)

Adopted on 20 February 2009, the Strategy for Sustainable Development is Croatia's main document for long term economic and social development as well as environmental protection. It lays down guidelines for long term actions, sets basic objectives and measures and identifies key challenges. Strategy's aims include:

1. Reducing the loss of marine and coastal biodiversity and expanding protected areas;
2. Increasing protection of sensitive aquatic and water-dependent ecosystems as well as marine and coastal ecosystems;
3. Regulating transboundary water system pollution that leads to the pollution of marine ecosystems;
4. Ensuring 12% of the average energy consumption and 21% of the electrical energy consumption from renewable sources;
5. Redirecting transport from roads to more environmentally acceptable systems - sea, inland waterways, railway and short sea shipping;
6. Increasing investments in the modernisation and development of the port infrastructure and standards for maritime safety and protection against pollution.

Achievement of the Strategy' objectives are linked to some preconditions, to which research and development as well as mitigation to climate change.

National Energy Strategy (NES)

The Energy Strategy is Croatia's main document on energy and climate change related issues. Adopted in 2002 pursuant to Article 80 of the Constitution of the Republic of Croatia and Article 5(3) of the Energy Act,⁴⁹ the Strategy has been updated in 2009 to define the development of the Croatian Energy sector until 2020. This document set the path for a security of energy supply, for a competitive energy system and for a sustainable energy sector development in Croatia.

National Strategy of Maritime Development and Integrated Maritime Policy 2014-2020 (SMDIMP)

The Strategy was approved by the Croatian government on July 2014, and defines the development goals through 2020, including positioning Croatia as one of the most important

⁴⁹ Constitution of the Republic of Croatia and Energy Act (OG 68/01, 177/04, 76/07, 152/08)

nautical destinations in Europe and the Mediterranean. The strategy's objectives are to increase Croatia's sustainable development and competitiveness in maritime affairs, in the areas of shipping and boating services, port infrastructure and services, and maritime and merchant marine education, and to achieve a secure and ecologically sustainable maritime area. The strategy is divided into five distinct areas: Shipping/Nautical Services, Security and Ecological Maritime Transport, Improving Administrative and Public Services Capacity, Improve Maritime Knowledge, Education and Culture, Implementation & Financing

Priority Axis	Specific Objectives	Interaction with the policy	Coherence results
Priority Axis 1: Blue Innovation	SO1.1: Enhance the framework conditions for innovation through cooperation of the system players mainly in the sectors of the blue economy	No interaction found	N
Priority Axis 2: Safety and resilience	SO2.1: Enhance the implementation of climate change monitoring or planning of adaptation measure	The SO act in the direction delineated by the NES	S/O
	SO2.2: Safeguard the Programme area from natural and man-made disaster	No interaction found	N
Priority Axis 3: Environment and cultural heritage	SO3.1: Make natural and cultural heritage a leverage for economic and territorial development	No interaction found	N
	SO3.2: Contribute to protect and restore biodiversity in the Adriatic Basin	This SO contributes to SAPPBLD and SSD objectives	S/O
	SO3.3: Improve the environmental quality conditions of the Adriatic Basin by use of sustainable and innovative technologies and approaches	The SO act in the direction delineated by the SSD	S/O
Priority Axis 4: Maritime Transport	SO4.1: Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the Programme area	The SO act in the direction delineated by the SSD, by the NES and by SMDIMP	S/O

4.2.c *Italy principal strategies on environmental issues*

National Strategy for Biodiversity (NSB)

The development of a National Strategy for Biodiversity is part of the commitment undertaken by Italy after the ratification of the Convention for Biological Diversity (CBD, Rio de Janeiro 1992) by means of law No. 124 of February 1994. The Strategy will be implemented from 2011 to 2020. The Strategic Objectives of the Strategy are:

- 1- By 2020 ensure the conservation of biodiversity or the variety of living organisms, their genetic diversity and the ecological complexes of which they are part, and ensure the protection and restoration of ecosystem services in order to guarantee their key role for life on Earth and human well-being
- 2- By 2020 substantially reduce the nationwide impact of climate change on biodiversity by defining the appropriate measures to adapt to climate change and mitigate their effects and increasing the resilience of natural and semi-natural ecosystems and habitats
- 3- By 2020 integrate biodiversity conservation into economic and sectorial policies, also as potential for new employment opportunities and social development while improving the understanding of the benefits from ecosystem services derived from biodiversity and the awareness of the costs of losing them.

The working areas of the Strategy are: species habitats and landscape, protected areas, genetic resources, agriculture, forests, inland waters, marine environment, infrastructures and transportation, urban areas, health, energy, tourism, research and innovation, education information communication and participation, Italy and global biodiversity.

A National strategy of adaptation to climate change (NSACC)

It is being drafted recently in Italy. On December 12, 2013 a document for public consultation was published.

The objective of this document is to provide a framework for adaptation to the impacts of climate change and lay the foundations for a collective process in order to:

- Improve knowledge on climate change and its impacts,
- Describe the opportunities that may be associated, the vulnerability of the area, the adaptation options for all natural systems and the socio-economic risks;
- Promote participation and increase awareness of stakeholders in defining strategies and adaptation plans through an extensive process of communication and dialogue, in order to integrate adaptation within the sectorial policies more effectively;

- Support awareness and education on adaptation through extensive communication activities on the possible risks and opportunities posed by climate change;
- Identify the best options for adaptation actions, coordinate and define the responsibilities for implementation, develop and implement the measures.⁵⁰

Regarding the water resources, the measures based on an ecosystem approach are as follows:

- Redevelopment of the waterways in view of the preservation of life and outflows of ecological quality even in situations of changes in future regimes of thermo- precipitation;
- Creation of buffer zones between cultivated areas and waterways;
- Protection and conservation of forests and ranges of the coastal vegetation;
- Artificial Recharge of aquifers;
- Improvement of the water holding capacity of soils;

The Marine Strategy (MaS)

The Framework Directive 2008/56 / EC on the strategy for the marine environment was transposed in Italy through legislative decree n. 190 of 13 October 2010. The Directive aims to Member States to achieve by 2020 the GES (GES "Good Environmental Status") for its marine waters. The Good Environmental Status implies:

- Conservation of the ecosystems and healthy, clean and productive marine waters
- Sustainable use of the Marine Resources
- Integrated approach and cooperation between States

⁵⁰ Elementi per una Strategia Nazionale di Adattamento ai Cambiamenti Climatici- Documento per la Consultazione Pubblica, p. 3 , 12 September 2013

Priority Axis	Specific Objectives	Interaction with the policy	Coherence results
Priority Axis 1: Blue Innovation	SO1.1: Enhance the framework conditions for innovation through cooperation of the system players mainly in the sectors of the blue economy	The SO act in the direction delineated by the NSB (Strategic Objectives 3)	S/O
Priority Axis 2: Safety and resilience	SO2.1: Enhance the implementation of climate change monitoring or planning of adaptation measure	The SO act in the direction delineated by the NSB (Strategic Objectives 2) and by NSACC	S/O
	SO2.2: Safeguard the Programme area from natural and man-made disaster	The SO act in the direction delineated by NSACC	S/O
Priority Axis 3: Environment and cultural heritage	SO3.1: Make natural and cultural heritage a leverage for economic and territorial development	No interaction found	N
	SO3.2: Contribute to protect and restore biodiversity in the Adriatic Basin	The SO act in the direction delineated by the NSB (Strategic Objectives 1)	S/O
	SO3.3: Improve the environmental quality conditions of the Adriatic Basin by use of sustainable and innovative technologies and approaches	The SO act in the direction delineated by the MaS	S/O
Priority Axis 4: Maritime Transport	SO4.1: Improve the quality, safety and environmental sustainability of marine and coastal transport services and nodes by promoting multimodality in the Programme area	No interaction found	N

4.2.d *Result of the coherence analysis at cooperation level*

The following table presents a synthesis of the previous individual analysis at a CBC and MS level. It describes the relation between the specific strategies or plans addressing the main environmental issues at different levels and the Priority Axes of the CBC Programme. Therefore

these Strategies/Plans might be in synergy with the priority axes or there might be a neutral relation since they do not address explicitly any objectives of the Priority Axes of the Programme.

The external coherence analysis demonstrated that the Italy-Croatia Programme is very coherent with other strategies implemented at national and cross-border levels in both MS.

Legend:

S/O: Coherent

N: Neutral

Environmental topic	LEVEL	DOCUMENT	PA 1 – Innovation and internationalisation	PA 2 – Climate change adaptation	PA 3 – Environment and Cultural heritage	PA 4 – Maritime transport	Strategic environmental priorities for CBC area
Inland Ecosystem	CBC	Strategic Framework on Mediterranean Forest	N	S/O	S/O	N	<ul style="list-style-type: none"> - Restore degraded ecosystems and their associated services - Protect and preserve the diversity of species - Integrate biodiversity conservation into economic and other sectorial policies - Halt the loss of Biodiversity by 2020
		EUSAIR	N	S/O	S/O	S/O	
	HR	The Strategy and Action Plan for the Protection of Biological and Landscape Diversity	N	S/O	S/O	N	
	IT	National Strategy for Biodiversity	S/O	S/O	S/O	S/O	
Climate change	CBC	EUSAIR		S/O			<ul style="list-style-type: none"> - Mitigation and adaptation to expected climate changes - Coordinate and define the responsibilities for implementation of adaptation actions Promote nature-based solution for climate change challenges Promote adaptation in key vulnerable sectors - Reduce GHG emissions
	HR	National Energy Strategy	S/O	N	N	S/O	
	IT	A National Strategy to Climate Change	N	S/O	S/O	S/O	
Air quality	CBC	EUSAIR	S/O	N	N	S/O	- Reduce emissions into the atmosphere

	HR	Strategy for Sustainable Development	S/O	N	N	N	<ul style="list-style-type: none"> - Ensure ongoing improvements in air quality to avoid damage to heritage, natural ecosystems and agricultural crops - Obtain levels of air quality that do not give rise to significant negative impacts on, and risks to human health and to environment
	IT	National Strategy for Sustainable Development	S/O	N	N	N	
Water quality and supply	CBC	EUSAIR	N	N	S/O	N	<ul style="list-style-type: none"> - Monitoring of water resources - Reduce nitrate and organic matter pollution from agricultural land - Awareness raising - Minimize the pollution and hazards in the water - Reduce the rate of water related diseases
	HR	Strategy for Sustainable Development	N	N	N	N	
	IT	Water Management Plans	N	S/O	N	N	
Marine Ecosystems	CBC	EUSAIR	N	N	S/O	N	<ul style="list-style-type: none"> Prevent further deterioration, protect and improve the state of the coasts and terrestrial and wetland ecosystems that depend directly on aquatic ecosystems. - Promote a sustainable use of Marine Resources - obtain a good environmental and ecological status of the marine and coastal environment by 2020
	HR	Strategy for Sustainable Development	N	N	S/O	N	
	IT	Strategy for Marine Environment	N	N	S/O	N	
Landscape and natural and cultural heritage	CBC	Pan-European Biological and Landscape Diversity Strategy (PEBLDS)			S/O		<ul style="list-style-type: none"> - Raise awareness on the protection of the natural and cultural environment - Preservation and restoration of cultural and aesthetic values of the natural landscape - protection, management and planning of European landscapes
		The European Landscape Convention	N	N	S/O	N	

	HR	National Strategy and Action Plan for the Protection of Biological and Landscape Diversity	N	S/O	S/O	N	- Protection and promotion of the cultural heritage - Enhancement of cultural heritage
	IT	Code of Cultural Heritage and Landscape	N	N	S/O	N	

5. ENVIRONMENTAL PROTECTION OBJECTIVES AND INTERNAL COHERENCE OF THE PROGRAMME

According to the SEA directive, the Environment Report takes account of *‘the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation’*.

The selection of the environmental objectives relevant for the CBC Programme has been based on the Coherence Analysis performed in Chapter 4. This analysis has allowed pointing out the environmental priorities for the cooperation area, in accordance to the main international, European, and national level.

A preliminary list of environmental objectives was presented in the scoping report for the consultation with the Environmental Authorities. Suggestions received during the scoping consultation, where appropriate, have been integrated in the final lists.

The environmental objectives selected have been aggregated by environmental theme. The list of objectives is presented in Table 5. General objectives will be also disaggregated in specific objectives, with the aim to better integrate local characteristics of the areas under analysis.

The Environmental objectives will constitute the basis for the assessment of possible effect (see Chapter 6). According to the Context Analysis (Chapter 3) and to the Coherence Analysis (Chapter 4), some of the Environmental Objectives represent a priority for the cooperation area. This will be considered in attributing the significance to the possible environmental effects in the further assessment phase. In Table 5 are evidenced the Environmental Objectives considered as priority.

Table 5: Environmental objectives

Environmental issues	Priority	Topic	General environmental objectives
Climate change and associate risks	X	GHG emission	Reduce GHG emissions
	X	Adaptation	Reduce flooding risks
	X		Reduce risks linked to coastal erosion
	X		Reduce risks of desertification
Air quality		Air pollution	Improve air quality
Water quality and supply		Water quality	Improve or maintain underground, surface and bathing water quality
		Water use	Reduce pressures on fresh water
Inland ecosystem		Inland Biodiversity	Protect and preserve the diversity of species
		Inland Natural resources	Restore degraded ecosystems and their associated services
Marine ecosystem	X	Marine Biodiversity	Protect and preserve the diversity of species
	X	Marine Natural resources	Improve or maintain costal water quality
	X		Reduce the pressures on natural resources
Soil quality and use		Soil quality	Remediate contaminated soils and lands
		Soil management	Improve efficiency in soil and land management
Technological risks		Risks prevention	Prevent technological risks
Health and Sanitary risks and nuisances		Human health protection	Reduce chemical pollution and its effect on health
			Decrease noise pollution
			Reduce electromagnetic pollution

Environmental issues	Priority	Topic	General environmental objectives
Natural and cultural heritage and Landscape		Landscape and cultural heritage	Preserve landscape and cultural heritage
Energy		Renewable	Promote renewable energies
		Efficiency	Improve energy efficiency
Waste management		Production	Reduce the production of waste
		Recycling	Promote recycling and reuse

On the basis of coherence analysis, of the environmental context for the CBC area and of The general the indication obtained during scoping consultation, general environmental objectives have been split in to specific objectives. These have been taken in to consideration during the assessment of environmental effects.

Environmental issues	Topic	General environmental objectives	Specific environmental objectives
Climate change and associate risks	GHG emission	Reduce GHG emissions	Reduce GHG emissions from industry
			Reduce GHG emissions from Agriculture
			Reduce GHG emissions from other sectors
	Adaptation	Reduce flooding risks	Reduce population exposed to risks of flooding
			Improve the management of area at risks of flooding
			Prevent or minimize damage caused by flooding
		Reduce risks linked to coastal erosion	Reduce population exposed to risks of coastal erosion
			Improve the management of area at risks of coastal erosion
			Prevent or minimize damage caused by coastal erosion
			Promote adaptation in key vulnerable sectors such as tourism
Reduce risks of desertification	Promote nature-based solution for climate change challenges		
	Promote adaptation in key vulnerable sectors such as agriculture		
Air quality	Air pollution	Improve air quality	Obtain levels of air quality that do not give rise to significant negative impacts on, and risks to human health
			obtain levels of air quality that do not give rise to significant negative impacts on, and risks to environment
			Promote sustainable mobility

Environmental issues	Topic	General environmental objectives	Specific environmental objectives
Water quality and supply	Water quality	Improve or maintain underground, surface and bathing water quality	Reduce nitrate and organic matter pollution from agricultural land
			Control and prevent the pollution of water by industry
	Water use	Reduce pressures on fresh water	Reduce pollution from sewage treatment
			Monitoring of water resources
			Promote a sustainable use of water
	Inland Ecosystem	Inland biodiversity	Protect and preserve the diversity of species
Halt the loss of biodiversity			
Integrate biodiversity conservation into economic and other sectorial policies			
Inland Natural resources		Restore degraded ecosystems and their associated services	Halt the degradation of ecosystem
	Reduce light pollution		
Marine Ecosystem	Marine Biodiversity	Protect and preserve the diversity of species	Promote a sustainable use of Marine Resources
	Marine Natural resources	Improve or maintain coastal water quality	Ensure a good environmental and ecological status of the marine and coastal environment
			Good environmental and ecological status of the marine and coastal environment by 2020
		Reduce the pressures on natural resources	Prevent further deterioration, protect and improve the state of the coasts and terrestrial and wetland ecosystems that depend directly on aquatic ecosystems.
Soil quality and management	Soil quality	Remediate contaminated soils and lands	Preserve the soil function
			Protect the soil while using it sustainably, through the prevention of further degradation
			Restore degraded soils

Environmental issues	Topic	General environmental objectives	Specific environmental objectives
	Soil management	Improve efficiency in soil and land management	Promote a sustainable management of land
Technological risks	Risks prevention	Prevent technological risks	
Health and Sanitary risks and nuisances	Human health protection	Reduce chemical pollution and its effect on health	Reduce the rate of water related diseases
		Decrease noise pollution	
		Reduce electromagnetic pollution	
Natural and cultural heritage and Landscape	Landscape and cultural heritage	Preserve landscape and cultural heritage	Applied a joined approach to conservation of biodiversity and landscapes into an integrated framework
			Promote the protection, management and planning of landscape
			Promotes the conservation of several tangible and intangible significant sites
			Promote the protection of Archaeological sites
			Promote a sustainable tourism, based on protection and conservation of cultural heritage
Energy	Renewable	Promote renewable energies	Promote use of solar energy
			Promote use of wind energy
			Promote the use of hydro-energy
	Efficiency	Improve energy efficiency	Improve energy efficiency in public sector
Improve energy efficiency in private sector			
Waste management	Production	Reduce the production of waste	Improvement of waste management by reducing waste flows to the sea
	Recycling	Promote recycling and reuse	

PART III – ENVIRONMENTAL EFFECTS ANALYSIS

6. LIKELY SIGNIFICANT EFFECTS ON THE ENVIRONMENT

6.1 METHODOLOGY FOR ASSESSMENT

The Directive requires the evaluation of the likely significant effects on environment of the actions implemented by the Operational Programme. The evaluation must consider in particular the direct and indirect impacts, their probability and their scale, their frequency, duration and reversibility, the cumulative nature of their effects and their cross-border dimension.⁵¹

Evidence from the past and experiences from other Programmes belonging to the cooperation objective show that many expected effects of the Programme should be intangible and indirect. According to the Regulation, actions planned for territorial cooperation are much more related to networking and information sharing than infrastructural investments with significant short terms and direct effects on environment (see Table 6 for a first characterization of environmental effects of actions under ETC funding⁵²).

⁵¹ Directive 2001/42/EC Annex II (2)

⁵² Article 3 proposal ERDF Regulation and Article 6 of the ETC Regulation.

Table 6: Typology of actions

Type of action	Environmental effects	Time horizon
Investment in infrastructure	Direct, localised and certain, non-reversible	Short, long term
State aid and support for innovation projects	Indirect, localised, non-reversible	Medium, long term
Information and communication	Indirect, intangible, non-localised, reversible	Short, medium
Networking, cooperation and exchange of experience	Indirect, intangible, non-localised, reversible	Short, medium

The analysis of the effects comprises three main steps. In a first step, the environmental objectives identified in Table 5 are matched with the proposed actions and eligible activities planned by the Operational Programme (Section 6.2).

In a second step, the SEA experts will combine the previous table with an estimation of the effects intensity according to a system of weight associated to the characteristic of each effect, as illustrated in Figure 19. This gives a scale of intensity for positive and negative effect as illustrated in Table 7.

Figure 19: Maximum weight for each characteristic of the assessed effect

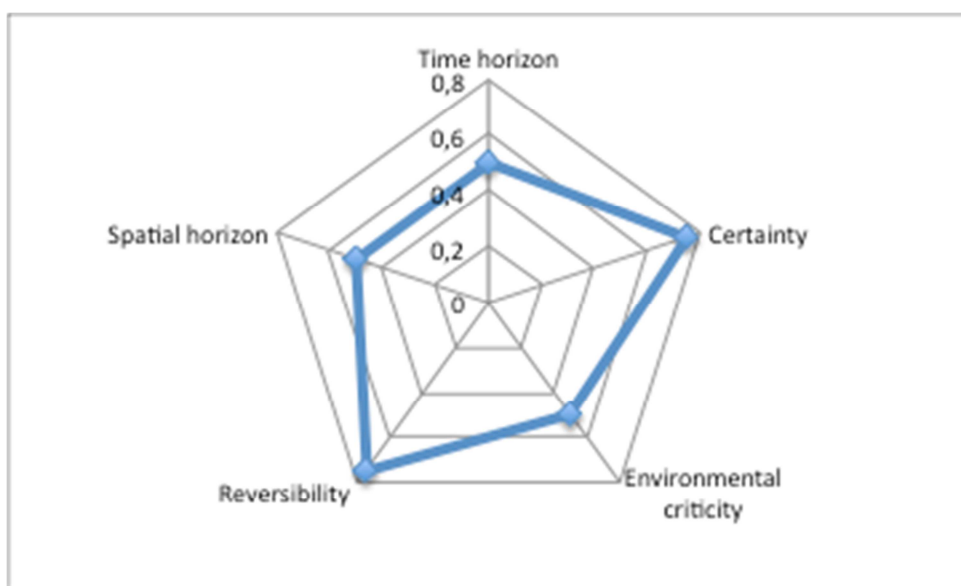


Table 7: Scale for measuring positive and negative effect

Positive effects	<i>Scale to measure the intensity of the effects</i>	Negative effects
++	Very significant effects	--
+	Significant effects	-
?	Unknown effect ⁵³	?
n.s.	No significant effects	n.s.

Legend:

++ = very significant positive effects; -- = very significant negative effects

+ = significant positive effects; - = significant negative effects

ne = no effects; n.s. = no significant effects; ? = unknown effect

Thirdly, the information will be organized to assess the cumulative and cross-border effects of each action planned by the Cooperation Programme. The cumulative impacts will be ordered by environmental theme and will be evaluated considering all possible causal relationships leading to an impact on that theme.

Three levels contributing to the cumulative effect are considered:

- The first includes effects from different actions directly influencing the environmental issues (and related objectives).
- The second adds the contribution of other environmental components to the objective.
- The third order effects act on the second order ones.

The single effects will be weighted in relation to their level, i.e. their contribution to the final environmental theme, to obtain an overall significance of the cumulative effect.

⁵³ "?": some actions planned by the Programme could have indirect impacts difficult to estimate under the current methodologies of assessment. E.g. projects in the field of innovation or R&D could have environmental effects depending on many different factors, such as technology, market conditions or implementations factors, unknown at the beginning of the Programme.

6.2 INTERACTIONS BETWEEN THE PROGRAMME AND ENVIRONMENTAL OBJECTIVES

Based on information from Table 6, actions with a potential effect will be recognized by an “X” while actions with no environmental significant effect by “n.e.’ This last sign is not to be confound with ‘n.s.’ used for indicating the absence of likely significant environmental effects (as, for example, communication plans to public is not related to environment topics).

Results are shown in Table 8. From the table is apparent that some of the environmental issues considered here are not interested by the realization of the Programme.

6.3 ENVIRONMENTAL EFFECT OF PRIORITY AXES

PRIORITY AXIS 1 - *Blue Innovation*

The SO1.1 is devoted to enhance framework conditions for innovation by cooperation of research and business players in the sectors of the blue economy. The inclusion of blue-economy strategies produces positive effects on use of resources and on climate change. The magnitude of this effect has been estimated considering its not certain and reversible characteristic.

Action on eco-innovative tools and processes in the shipyard systems could have positive effect on marine water quality: this effect is localized and reversible, but probable and with a long time horizon. Action on aquaculture and fisheries, although based on innovation, produce “unknown” effects on marine biodiversity because it is not make explicit the respect of sustainability of techniques or processes

The development of marine and coastal tourism, by mean of innovative services in the area, would have effects of unknown sign: if the development corresponds to an increase of tourism fluxes, this could have negative effects on use of resource and on ecosystem; otherwise, if the actions are finalized to an improvement of tourism quality (as out of peak tourism) this could reduce the existing impact. These unknown effects are possibly balanced by the positive effects on marine resources associated to the sustaining to the blue economy.

PRIORITY AXIS 2 – *Safety and resilience*

The SO2.1 is based on the investment Priority 5b, and supports investment for adaptation to

climate change, including ecosystem-based approaches.

Possible actions concerning instruments for climate change adaptation on coastal areas are expected to have positive effects on risks associate to climate changes (foods and coastal erosion): these effects are very significant because direct and certain (they represent the aim of the SO) and with a wide spatial horizon.

A possible positive effect are expected on Cultural Heritage in reason of the possible reduction of risks of damage consequent to the efforts on risks management: this latter effect would be not significant because is indirect and not certain.

Actions on innovative energy service in public sector and on energy efficiency solution in public buildings, have positive significant effect on energy efficiency and, consequently, on reduction of GHG emissions.

Interactions with natural resources are expected; even if the investment priority includes ecosystem-based approach, the description of the possible action does not include elements for this. Restoration and preservation of natural resources is at the basis for an efficient adaptation; nevertheless, risks management actions can produce in some case damage to ecosystem. For this reason, an unknown effect has been assessed at this stage of evaluation.

The SO2.2 is focused on the risk management, through the development of disaster management systems. Possible actions aim to improve coordination, to raise awareness and to promote the reduction of environmental risks and the common management of the emergencies. Positive effects are expected on climate change risks. They are significant because probable and with a wide spatial horizon. All the action here included have an immaterial nature, so that effects on other environmental issues cannot be identified at this stage.

PRIORITY AXIS 3 – *Environment and Cultural heritage*

The SO 3.1 aims to make natural and cultural heritage a leverage for economic and territorial development. Actions include the support to knowledge and development common strategies to promote the sustainable use of resources in economic sector, in particular tourism.

Cooperation strategies for preservation of cultural heritage would have positive significant (direct and spatially extended) effects on related objectives. Action in support of tourism (development / enhancement of tourism itineraries, development of cluster of products typical of the area to enhance tourism, and others) could have controversial effect. Even if the focus of the SO is on

natural and cultural heritage, an increment of tourism could have negative effects on environmental resources. Conservatively, negative not significant effects have been assessed on water use, CO₂ emission and on waste production. Considering the scope of the SO, no negative effects from tourism has been considered on biodiversity and ecosystems.

The SO 3.2 is devoted to maintain and restore biodiversity in Adriatic Basin. It includes immaterial action and pilots on monitoring and enhancement of knowledge, on coordination of planning and management and on sustainable fisheries. Positive very significant effects are expected on marine ecosystem. Action on Integrated Coastal Management could have positive effect on climate change adaptation. From integrated management of the sea, coastal and rural environment and of cross-border natural resources are expected positive significant effects on inland eco system and positive not significant effect (because not certain) on Natural and Cultural heritage and Landscape.

The SO3.3 aims to improve the environmental conditions of sea water by use of innovative technologies to reduce pollution. Positive effect on marine water are the scope itself of the SO: this will be very significant, being direct, probable and with a wide spatial and time horizon. Actions concerning information system on ecosystem and those aimed to reduce risk from alien species improve the positive effect on marine ecosystem.

PRIORITY AXIS 4 – *Maritime transport*

SO4.1 wants improve the quality, safety and environmental sustainability of marine and maritime transport services in the area. Actions are focused on improvement of multimodality, through promotion of connectivity between port, regional airports and tourist area. Effort on optimization of mobility would improve the sustainability of the sector, with positive effects on quality of marine water and marine ecosystems. In accordance with the investment priority (7c), action will promote a sustainable mobility, which implies a better use of energy, with positive not significant effect (indirect, not probable) on energy efficiency and on GHG emissions.

Table 8: Synthesis of possible environmental effects from CBC IT-HR OP

Environmental issues	Environmental objectives	SO1.1	SO2.1	SO2.2	SO3.1	SO3.2	SO3.3	SO4.1
Climate change and associate risks	Reduce GHG emissions	+	+		-			n.s
	Reduce flooding risks		++	+				
	Reduce risks linked to coastal erosion		++	+		+		
	Reduce risks of desertification			+				
Air quality	Improve air quality	n.s						
Water quality and supply	Improve or maintain underground, surface and bathing water quality							
	Reduce pressures on fresh water	n.s.			n.s			
Inland ecosystem	Restore degraded ecosystems and their associated services		?			+		
	Protect and preserve the diversity of species		?					
Marine ecosystems	Improve or maintain costal water quality	+				++	++	+
	Protect and preserve the diversity of species					++	++	+

Environmental issues	Environmental objectives	SO1.1	SO2.1	SO2.2	SO3.1	SO3.2	SO3.3	SO4.1
	Reduce the pressures on natural resources	+				++	++	+
Soil quality and use	Remediate contaminated soils and lands							
	Improve efficiency in soil and land management							
Technological risks	Prevent technological risks							
Health and Sanitary risks and nuisances	Reduce chemical pollution and its effect on health							
	Decrease noise pollution							
	Reduce electromagnetic pollution							
Natural and cultural heritage - Landscape	Preserve landscape and cultural heritage		n.s.		+	n.s.		
Energy	Promote renewable energies							
	Reduce Energy consumption and Improve energy efficiency	n.s.	+					n.s.
Waste management	Reduce the production of waste	n.s.			n.s.			

Environmental issues	Environmental objectives	SO1.1	SO2.1	SO2.2	SO3.1	SO3.2	SO3.3	SO4.1
	Promote recycling and reuse	n.s.						

6.4 ENVIRONMENTAL CUMULATIVE AND CROSS BORDER EFFECTS

According to the methodological approach presented in Section **Errore. L'origine riferimento non è stata trovata.**, cumulative effects have been assessed. In order to avoid overestimation of the cumulative effects and in reason of the complex relationship existing in the natural system, inland and marine ecosystems have been considered together.

The overall contribution of the Programme to the environmental objectives is positive and significant. The actions aimed to achieve the sustainability in the cooperation area manifest their effects also on environmental issues not directly addressed by their scope. The few, mainly not significant, negative effects coming from single actions on specific environmental issues, are largely compensate by the positive effects in the cumulative assessment.

<i>Climate change and related risks</i>	<i>Cumulative effect</i>
	++
<i>Relevance to the cooperation area</i>	
Climate change is of primary importance for the cooperation area, especially regarding adaptation issues, as floods, desertification and sea level rise. All the territories involved in the Programme are affected by the consequence of climate change and are adapting their policies to minimize the consequences.	
<i>Cumulative effects</i>	
The overall effects of the OP on climate change consider the first order effects on environmental objectives for climate adaptation and GHG reduction. Effects on energy efficiency and renewable energy (second order) are also considered, being energy consumption a major cause of GHG emission. Biodiversity and natural resources (both inland and marine), through ecological services, are important tools for climate change adaptation (second order). Since water quality and management, soil use and waste management can contribute to biodiversity defence and ecosystem conservation they are included in the cumulative effect (third order).	
The resulting cumulative effect is positive very significant. In addition to the effects directly related to the climate change objectives (mainly from SO2.1 and SO2.2), a relevant contribution to the significance came from positive effects on marine ecosystems from SOs 3.2 and 3.3 but also from SOs 1.1 and 4.1.	

Cross-border effects

Climate change is a classic example of a cross-border issue. Wherever the issue originates its consequences are widely distributed. GHG reduction efforts will have global effects. Climate change impacts common environmental components or areas, with no consideration for man-made boundaries; it is inherently cross-border. So, it is crucial to contemplate adaptation objectives using cooperation instruments.

<i>Inland and Marine ecosystems</i>	<i>Cumulative effect</i>
	++
<i>Relevance to the cooperation area</i>	
<p>The CBC area is characterized by the presence of a shared marine ecosystem, the Adriatic Sea, on which are concentrate environmental policies both at international and national level. In spite of the peculiarity of its natural resources, the Adriatic Sea the scenario of several environmental criticality that endanger the entire ecosystem. For the inland biodiversity, the cooperation area hosts very diverse landscapes and ecosystems, with an high percentage of European biodiversity in terms of habitat and species. Nevertheless, tools for a cross-border management of natural resources need to be enforced.</p>	
<i>Cumulative effects</i>	
<p>The very significant positive effect on natural resources results mainly from the positive effect on marine ecosystems (SO3.2 and SO 3.3) and only marginally from effects on inland biodiversity (SO 3.2) on which the CP seems to no act decisively. Second order effects are those on climate change adaptation (SO2.1), on soil and landscape (SO3.1) that contribute to the maintenance or recovery of natural (both inland and marine) ecosystems.</p>	
<i>Cross-border effects</i>	

The marine ecosystem is, in this case, implicitly cross-border, being the Adriatic Sea physically shared by the two Country involved in the CP and a characteristic element of this cooperation area. On the other hand, the cross-border nature of inland ecosystem is related to the ecological services it provides. In addition, several activity sectors, such as tourism, which could affect biodiversity and natural resources, are cross-border. The CP promotes coordination in activities and sectors such as innovation and tourism, which strongly influence biodiversity.

Water	Cumulative effect
	+
Relevance to the cooperation area	
Water represents a strategic resource also in the cooperation area. Quality and availability of water have a different status in the different region of the CBC area.	
Cumulative effects	
Cumulative effects on water are positive and significant and mainly derive from effects of second and third order on other related environmental issues. As underlined in previous section, the OP does not produce direct significant effect on water: the possible reduction of pressure on fresh water produced by SO 1.1 is counterbalanced by a possible negative effect coming from tourism increment by SO3.1. Positive effects on coastal water quality from SOs 3.2, 3.3 and 4.1 strongly contribute to the significance of the cumulative effect. Positive effects on soil quality and climate change adaptation (second order effects, mainly from PAs 2 and 3) have been also considered.	
Cross-border effects	
Considering the geographical distribution of Regions and Counties involved in the Programme, the physical sharing of inland water resources (as a joint management of river Basin) is limited. Nevertheless, effects on water resources could have also large scale consequences, confirming the transboundary nature of this issues.	

<i>Air</i>	<i>Cumulative effect</i>
	n.s.
<i>Relevance to the cooperation area</i>	
<p>The area is not homogeneous regarding air quality, even if all the CBC area presents high level of emission, especially related to particulate. The main critical situations are where the cooperation area is densely populated and has major international communication axes.</p>	
<i>Cumulative effects</i>	
<p>The cumulative effect on air quality is mainly generated by SO 1.1 which contributes to a reduction of atmospheric pollutants (first order effect) and promotes GHG reduction, energy efficiency, renewable energy (second order effects). The environmental sustainability of marine and coastal transport pursued by SO 4.1 contributes to the significance with a positive direct effect. Also the reduction of waste production has been taken into account (second order). Inland and marine ecosystem have been considered for their mitigation of pollution (second order). The cumulative positive effect account also for negative effects produced by SO_{3.1} in terms of pressure on resources, but these are fully counterbalanced by the positive effects listed above.</p>	
<i>Description of cross-border effects</i>	
<p>The scattered nature of environmental component implies cross-border effects. Obviously actions focused on a limited administrative scale will have localised effects, whereas cooperation and networking on, for example, the environmental sustainability of marine and coastal transport, will have real cross-border effects.</p>	

<i>Landscape and Cultural Heritage</i>	<i>Cumulative effect</i>
	+
<i>Relevance to the cooperation area</i>	

<p>The cooperation area hosts natural and cultural hotspots which value has been recognized by UNESCO. The area presents landscape fragmentation, due in many built-up coastal areas along the Adriatic coast, and the problem has increased in the last years. Nevertheless, landscape and cultural heritage represent a key element for the development of the area.</p>
<p><i>Cumulative effects</i></p>
<p>To preserve Landscape and Cultural heritage an important role is played by adaptation measures and by actions to tackle natural risks (second order effects, mainly from SO2.1 and 2.2), for they tend to minimise any adverse impact on heritage assets and setting. Direct effects of CP on preserving landscape and cultural heritage are also considered. Being landscape the exterior form of natural and human systems, actions finalized to the conservation of natural ecosystems (SO3.2 and 3.3) will contribute to the quality of the landscape. The cumulative effect is positive and significant</p>
<p><i>Cross-border effects</i></p>
<p>Landscape and cultural heritage are by definition in particular areas or locations. Nevertheless they can be affected, also positively, by cross-border activities, primarily tourism. The CP is not focused on cultural heritage, but some recommendations can improve the performance of the Programme for this during its implementation.</p>

<p><i>Soil</i></p>	<p><i>Cumulative effect</i></p>
	<p>+</p>
<p><i>Relevance to the cooperation area</i></p>	
<p>The cooperation area presents criticality concerning soil, especially for soil sealing for urban development, and contamination from industry and agriculture.</p>	
<p><i>Cumulative effects</i></p>	

<p>The major contributions to the significant positive effect on soil come from SO2.1 and SO2.2 and theirs contrast to climate change risks (second order). Positive contributions come also from action on landscape protection (mainly SO3.1, second order effect). It is important to note that not direct effect on soil quality are expected from the CP.</p>
<p><i>Cross-border effects</i></p>
<p>Some aspects of soil quality, such as the release of nutrients, are cross-border. In addition, soil is strongly influenced by human cross-border activities, such as agriculture. The CP does not put any particular emphasis on soil among the objectives: this could represent an opportunity, for example using soil management as an instrument for climate change adaptation.</p>

<p><i>Health</i></p>	<p><i>Cumulative effect</i></p>
	<p>++</p>
<p><i>Relevance to the cooperation area</i></p>	
<p>Health and sanitary risks represent a threat in the CP, especially in hot spots of atmospheric pollution. In addition, here health has been considered in an extensive way, including the issues concerning the “safety” of the population.</p>	
<p><i>Cumulative effects</i></p>	
<p>The overall contribution of the CP to the healt issues is positive and very significant. All the SOs play a role in the cumulative effect with positive contributions to a general improvement of environmental condition. The main contribution comes from SOs with strongest positive effects , as SO 2.1 and 2.2 on climate change adaptation (second order) and SO 3.2 and 3.3 on marine ecosystem quality (third order) . A positive contribution on air quality (second order) is expected from SO 1.1 and SO 4.1. No direct (first order) effects on health have been assessed for the CP.</p>	
<p><i>Cross-border effects</i></p>	

Health could be considered a cross-border issue because it is strongly influenced by environmental quality. In spite of the significant cumulative effect, the CP does not emphasise this aspect. Cooperation represents an opportunity to tackle this problem in an integrated and more efficient manner, in particular in relation to air quality.

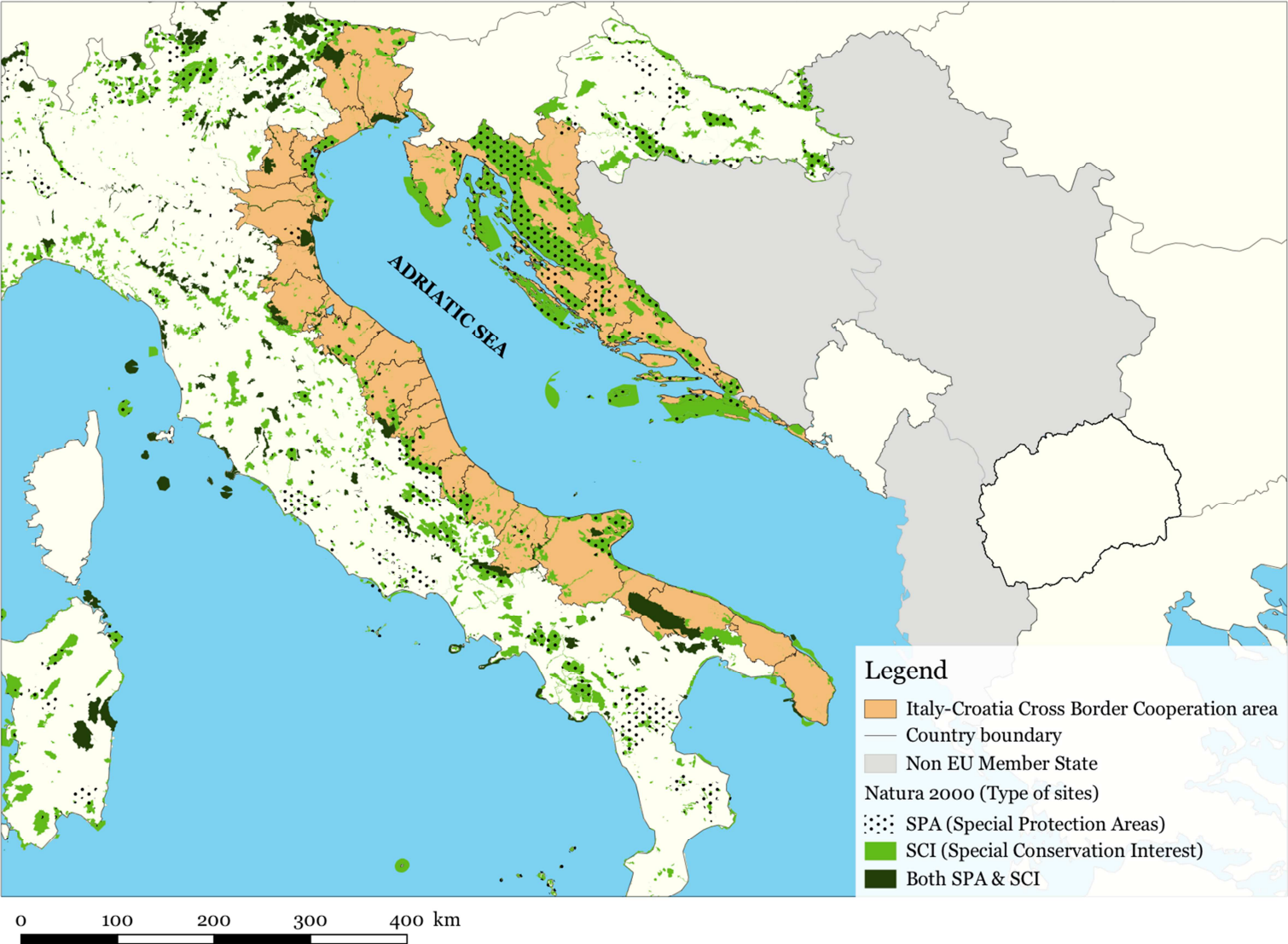
6.5 ELEMENTS FOR THE INCIDENCE ANALYSIS

According to Annex I(d) of the SEA Directive, the assessment should consider ‘any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 147/2009/CE and 92/43/EEC’.

In the environmental report, there is a full description of the cooperation area’s environmental resources, highlighting interactions between the environment and the Programme. Section 3.3 describes also the natural resources protected by the Natura 2000 network.

An overview of the Natura 2000 Network is presented in Figure 1.

Figure 20: Overview of the Natura 2000 Network in the CBC area (Data Source: EEA. Elaboration: t33.)



According to national legislation of the Member States involved in the Programme (as the Italian D.lgs 152/2006), this section underlines the absence of significant effects the Programme could have on Natura 2000 sites and on habitats and species protected under the Birds Directive and the Habitats Directive.

At this stage of programming, an in depth assessment of the incidence is not possible, for the OP covers a broad area and does not determine the localization of its actions. However, the Programme still presents some interactions with Natura 2000 areas, and in particular, protected habitats.

As a consequence, the incidence analysis has been carried out through the following steps:

1. relevance check of the “elements of influence” for the Continental and Mediterranean Regions;
2. analysis of the interaction between habitat aggregations and Programme SOs;
3. analysis of the possible incidence in term of habitat deterioration and disturbance of species.

As first step, from literature⁵⁴ the element of main influences on biodiversity for both Continental and Mediterranean Regions have been extracted. Results are presented in Table 9, where the existence and relevance of the element for the CBC area is also signalled, according to the following scale:

- Priority for the whole area: the context analysis or the coherence analysis have signalled the issues as relevant or critical for the whole CBC area;
- Priority for hot spots: even if previous analysis have not identified a broad criticality for the issues, in the CBC area exist hot spot where the element of influence is relevant;
- Not critical: the element of influence does not represent a priority for the CBC area.

⁵⁴ Condé, Sophie, et al. (2002). The Continental biogeographical region. European Environment Agency, Copenhagen

Table 9: Element of influence for Continental and Mediterranean Regions

Element of influences	Continent al Region	Mediterran ean Region	Existence for the CBC area
Main influences			
Climate change	X	X	Priority for the whole area
Urbanization and tourism		X	Priority for hot spots
Economic use of species	X	X	Not critical
Agriculture, including vineyards	X		Priority for hot spots
Agriculture, with irrigation, grazing and abandonment		X	Priority for hot spots
Forestry	X		Priority for hot spots
Freshwater fishing	X		Not critical
Hunting	X	X	Priority for hot spots
Other important influences			
Infrastructure	X		Priority for hot spots
Intensive use of river	X		Not critical
Contaminants	X	X	Priority for hot spots
Alien Species	X	X	Priority for hot spots
Deforestation, afforestation, forest fire		X	Priority for hot spots
Exploitation of wetlands		X	Not critical

Climate change, as previously underlined (see Section 5), is a key element for the cooperation area, especially in terms of adaptation to its effects. The CP invests resources to contrast climate change effects.

Land uses (urbanization, infrastructure, agriculture, forestry) present a different distribution in the different CBC regions, so that they represent a relevant element only for hot spots.

Tourism is an element currently not relevant in the same way for the entire CBC area: nevertheless, CP includes action of tourism promotion.

The same can be said for the intensive use of rivers (relevant, for example in the Po basin), for the contaminants (see Section 3.4 relative to the marine environment) and for other elements.

The economic use of species, the exploitation of wetlands and the freshwater fishing don't appear as relevant for the CBC area from the analysis.

As second step, considering also the element assessed as relevant, an analysis of the interaction between habitat aggregations and Programme SOs is carried out. Results are presented in Table 10.

Table 10: Programme interactions with habitats possibly involved in Natura 2000 networks

Habitat aggregation	Vulnerability/Threats	Programme interactions
COASTAL AND HALOPHYTIC HABITATS	Tourism, yachting, water pollution, water harvesting	SO1.1, SO3.1, SO3.2, SO3.3, SO4.1
COASTAL SAND DUNES AND INLAND DUNES	Tourism, beach replenishment	SO3.1, SO3.2, SO4.1
FRESHWATER HABITATS	Water harvesting, nitrate pollution, intervention on riverbeds, dams	SO1.1, SO3.2, SO3.3
TEMPERATE HEATH AND SCRUB	Only edaphic- climatic factors.	SO2.1
SCLEROPHYLLOUS SCRUB (MATORRAL)	Lacking of appropriate management	SO2.1
NATURAL AND SEMI-NATURAL GRASSLAND FORMATIONS	Lacking of traditional use, alien species	SO2.1, SO3.2
RAISED BOGS AND MIRES AND FENS	Water harvesting, nitrate pollution, climate change	SO1.1, SO2.1
ROCKY HABITATS AND CAVES	Low vulnerability. Possible threats from tourism in caves	SO3.1
FORESTS	Different threats for the different forest habitat, mainly tourism, water harvesting, new roads construction	SO1.1, SO3.1

The SO1.1 promote the blue economy, reducing the possible impact on water pollution and

consumption and it would contribute to reduce the pressure on coastal and halophytic habitats. In addition, through the blue economy, the reduction of the total amount of water needed could reduce the water harvesting with in turn a reduction in pressure on freshwater habitats, raised bogs, mires and fens and, possibly, on some typology of forest.

The SO2.1 is finalized to the adaptation to climate change through the improvement of resilience. Even if the actions included are not directly addressed to biodiversity management, they could contribute to the reduction of climate change impact on natural resources, included habitat and species of European interest.

SO3.1 aims to implement sustainable development. Actions do not point to an increment of tourist flows so that incidence on habitat or species are not expected. Nevertheless, in order to avoid the possibility of incidences, appropriate measure would be taken in the actuation of this SO.

SO3.2 is devoted to biodiversity protection. Even it does not contain actions for the physical management of habitat or species, through intervention on monitoring, knowledge and prevention, it is expected to have positive consequences on habitat and species conservation. In particular, a contribution to habitat conservation is expected for coastal and halophytic habitat, coastal sand dunes and inland dunes and fresh water habitat in consequences of the development of tools for integrated management of the sea, coastal and river environment and on natural and semi natural grassland formations in reason of the actions against alien species introduction.

SO3.3 is on the improvement of quality condition and in an extensive way it can contribute to the general improvement of ecosystem condition. It could especially contribute to the reduction of the vulnerability “water pollution” coastal and halophytic habitat.

SO4.1 is on multi modal transport. It is not expected to have direct negative incidences on habitat or species. Nevertheless, some actions could have as consequence an increment of tourist flows in remote areas. During the implementation of this SO, it is necessary to grant the absence of interference with habitat and species.

According to the general Commission guidance document on the management of Natura 2000 sites⁵⁵, Programme incidences are analysed in terms of two main topics: deterioration of habitat and disturbance of species. For each of them, appropriate factors have been taken in to account.

Table 11: Analysis of the Programme possible incidences

Topics	Factors	Assessment result
Deterioration of habitats	Natural range and area covered by the habitat	No reduction of habitats is expected. CP does not include actions on land use change or on infrastructure realization
	Specific structure and functions of the area necessary for its long-term maintenance	No interference with habitats structure or function is expected
	Conservation status of its typical species	No direct interference with the conservation status of species is expected.
Disturbance of species	Population dynamics	No event which could contribute to the long-term decline of species populations is expected
	Natural range of the species	No direct interference with the natural range of species is expected. Indirect x interference from tourism cannot be excluded <i>a priori</i> .
	Availability of habitat for the species	No reduction of habitats is expected

⁵⁵ European Commission (2000) “Managing Natura 2000 sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC”, 69 pp

The CP has mainly immaterial actions that do not interact directly with habitat or species. Actions on monitoring and knowledge of natural resource could contribute to habitat and species conservation.

The only possible interference can derive from tourism: the CP, with its SO 3.1, aims to “*make natural and cultural heritage a leverage for economic and territorial development*”. An increment of tourism in natural areas protected under Natura 2000 network could represent a disturbance for species. Nevertheless, the actions listed in the SO, are finalized to sustainable tourism, so that real incidences are not probable. Adequate measure in the actuation phase could prevent any risk.

Conclusion

An accurate estimate of the Programme incidence on the Natura 2000 network is not straightforward, in absence of precise information on action implementation and on project locations.

Negative significant incidences are not expected from the CP Programme to Natura 2000 network. Nature and scope of the SOs and relative actions allow to exclude, at this stage negative interferences with Natura 2000 habitat and species. Therefore, in order to secure the objective of biodiversity preservation in 2000 Natura sites, it is suggested to introduce eco-conditionality criteria in the project selection. To go through the selection process, projects should demonstrate they have no significant effects on any Natura 2000 site. This is of peculiar importance in actions on tourism implementation (SO3.1).

In addition, the introduction of the following criteria could help to avoid disturbance to protected species:

- SO2.1: in climate change adaptation measure, promote the increment of resilience also through actions finalized to habitat protection;
- SO3.1: do not promote tourism in protected habitat, with peculiar attention to caves;
- SO4.1: in the “promotion of short sea shipping and maritime transport services through piloting CB routes”, avoid location with Natura 2000 sites or, in alternative, perform an appropriate preventive incidence analysis.

Under these conditions, the CBC Programme will not bring damage to habitats and species of

Community interest for which conservation objectives have been set up and Natura 2000 sites created.

PART IV -RECOMMENDATION FOR A BETTER ENVIRONMENTAL INTEGRATION

7. MITIGATION AND ORIENTATION MEASURES

The CP is devoted to cooperation in pursuing sustainable objectives and it has mainly positive effects on environment. The few negative effect pointed out in the assessment can be easily avoided if adequate measure will be taken in the CP implementation.

The SEA assessment phases has shown that CP has the tools to strength some opportunities in the CBC area. In the following, in addition to measures aimed at mitigating negative effects, we propose measures to enhance the environmental performance of the CP and to reinforce the inclusion of several environmental issues.

The measures submitted to the CP drafters can be divided into:

- Mitigation of negative effects, including the implementation of additional specific activities or actions to avoid, remove, or off-set the adverse effects;
- Orientation of Specific Objectives (SOs) or actions; through the proposal of alternative instruments or tools to be promoted by the Programme;
- Green selection criteria, with the objective of improving the sustainability of projects co-financed by the CP;
- Provisions for the implementation phases, including guidelines to be used by applicants during the preparation and management phases of the projects or the definition of specific environmental monitoring measures (see section 8 below).

In this section we propose a brief description of measures selected to reduce possible negative effect sand of recommendations and suggestions to improve integration of environmental topics in the CP.

7.1 MEASURES TO PREVENT REDUCE AND OFFSET ADVERSE EFFECTS

The *mitigation measures* are directly linked to environmental negative effects assessed in previous sections.

As anticipate, the CP has mainly positive effects. The negative effects assessed, are often based on a not clear definition of the action included in the SO. Consequently, the mitigation measure proposed aim to clarify the mechanisms of realization of the SO.

Axis	SO	Assessed effect	Mitigation Measure
PA 3	SO3.1	Possible negative effect on use of resources (GHG emission, water and waste production) from tourist flows	<p>Make explicit in the OP the instruments able to grant the sustainability of tourism increase.</p> <p>In project selection, specify criteria for the sustainability of tourism, especially for tourism in natural areas (management and monitoring plan for sustainability, , waste management system, more efficiency in energy used, promotion of renewable energy)</p>
		Possible interference with protected habitat of induced tourism flows	do not promote tourism in protected habitat, with peculiar attention to caves
PA4	SO4.1	Possible interference with protected habitat from transport	In the “promotion of short sea shipping and maritime transport services through piloting CB routes”, avoid location with Natura 2000 sites or, in alternative, perform an appropriate preventive incidence analysis.

The SO 3.1 increment tourist flow and could have negative effects on use of natural resources. In addition, the Incidence Analysis (Section 6.5) are emerged possible negative interference between tourist flows and protected habitat. This make necessary to propose mitigation measure able to avoid (as in the case of interferences with protected habitat) or reduce (as for the use of resources)

negative effects.

The SO4.1 aims to make more efficient transport in the CBC area, so that negative effects in term of increment in atmospheric emission are not expected. Nevertheless, in the Incidence Analysis, possible interference between “piloting” new routes and Natura 2000 sites have been pointed out: appropriate measure to avoid these interference (including, if the case, opportune incidence analysis at project level) have been proposed.

7.2 MEASURES TO PROMOTE, DIFFUSE ENVIRONMENTAL BEST PRACTICES

In addition to the mitigation measures, in the following table are proposed indications finalized to improve the environmental performance of the Programme.

Axis	SO	Orientation Measure	Expected contribution to environmental sustainability
PA 1	SO 1.1	In the project selection, promote the more eco-efficient ones.	Enforcement of the not significant positive effects assessed on use of resources
PA 2	SO 2.1	In climate change adaptation measure, promote the increment of resilience also through actions finalized to habitat protection	Positive effects on inland ecosystem (instead of effects of unknown sign)
PA3	SO 3.1	In selection of projects, favourite sites/ areas where cultural/ natural heritage is very affected by climate change, adverse extreme natural events, presence of mass tourism, environmental degradation .	Positive effect on natural resources
PA4	SO 4.1	In selection of projects give priority to interventions with a low carbon impact	Positive effects in terms of CO2 emission reductions

The SO 1.1 is devoted to the promotion of innovation, mainly in the field of blue economy. Nevertheless, further criteria for the selection of the project could help to enhance the positive effects assessed, especially in term of promotion of eco-efficiency.

The SO 2.1 is on climate change adaptation. Even if in the related Investment Priority (5b) is explicit the preference to the ecosystem-based approaches, nor in the description of the SO nor in the list of actions this possibility is enhanced.

In the definition of the Territory interested by the SO 3.1, we read: “*All CBC area is concerned. A special attention shall be given to sites/ areas where cultural/ natural heritage is very affected by climate change, adverse extreme natural events, presence of mass tourism, environmental degradation.*” Indication on criteria for selection of project on the basis of this principle could be useful.

PART V – FOLLOW-UP FOR THE IMPLEMENTATION PHASE

8. PROVISIONS FOR AN ENVIRONMENTAL MONITORING SYSTEM

The proposal for a monitoring system is an integral part of the SEA procedure (Annex 1 of the SEA directive). A description of monitoring measures has to be included in the environmental report (Art. 10) and monitoring measures also have to be available when the decision is publicised (Art.9).

Monitoring will track the significant environmental effects of implementation and identify adverse effects at an early stage.

This represents an opportunity. The implementation phase can be examined, analysed, and success measured, giving the opportunity to deal with uncertainties, take corrective measures and also update the Programme. Monitoring permits a comparison between assessed and actual environmental effects and allows a re-adjustment of the Programme instruments.

Art. 10 of the SEA Directive says that monitoring can be split into the following main steps:

- Selection of an adequate set of indicators;
- Procedures and responsibilities (governance).

Proposed indicators related to the CP effects and the governance aspects (“who”, “how” and “when”) could be used to construct the monitoring system. To avoid overlaps or duplication of monitoring activities, indicators and monitoring arrangements will be integrated as far as possible into the Programme procedures of governance.

8.1 ENVIRONMENTAL INDICATORS

A useful and diffused conceptual model to classify the indicators is the DPSIR model, that for a given situation (defined by the *State* indicators), identifies the *Driving forces* and the *Pressures* and measures the *Impact* (as the change in respect to the State). Feedback mechanisms are then activated to reduce or remove the impact (*Response*). The Driving force are usually considered in the SWOT analysis to define the CP strategy. The Response correspond to the mitigation measure delineated in Section 7.

In the Cooperation Programmes monitoring systems, usually the following three categories of indicator are used:

- Descriptive indicators;
- Performance indicators;
- Result indicators.

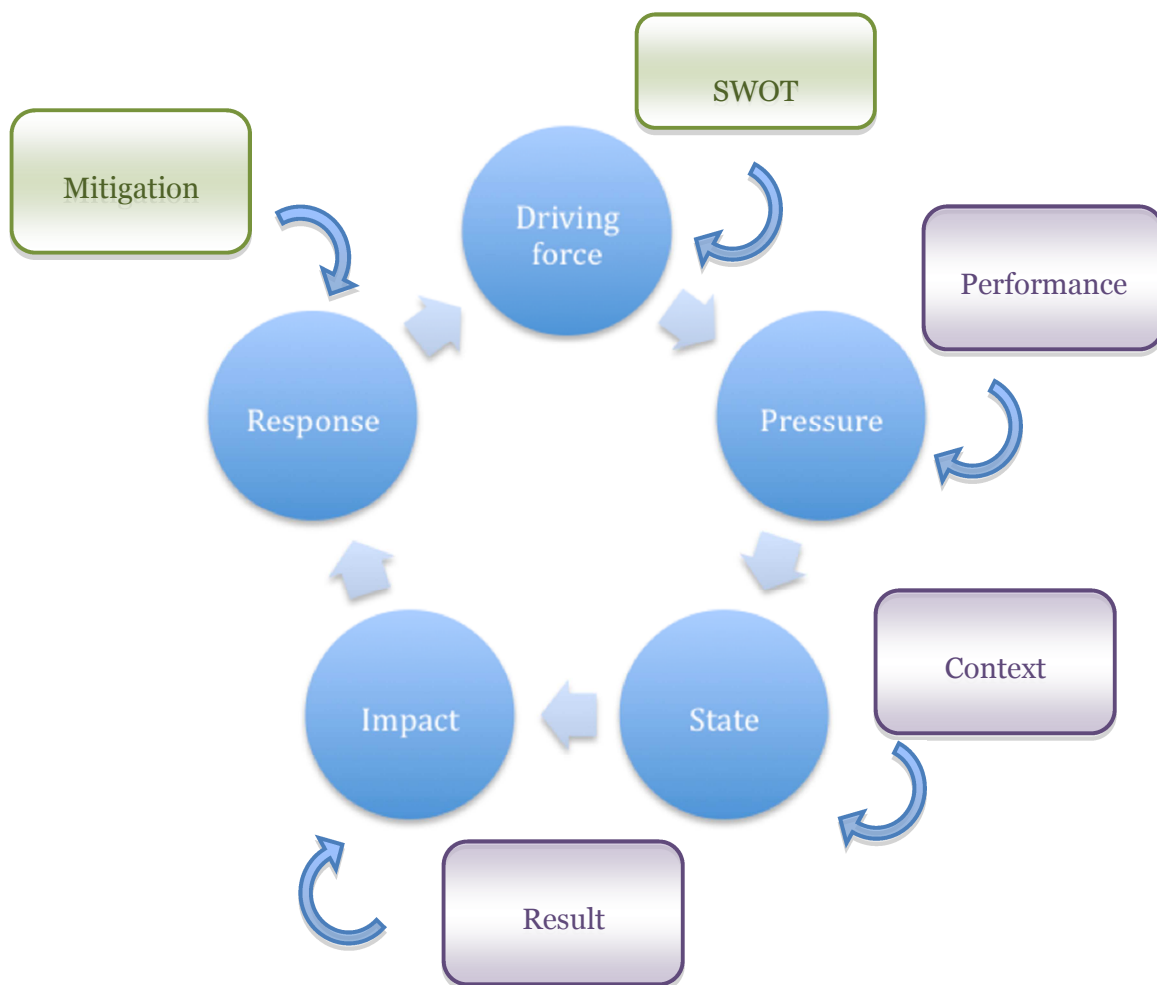
It is possible to associate these three categories with the PSI (*Pressure, State, Impact*) defined by the DPSIR model.

Descriptive indicators are collected in the context analysis section. They are used to describe the initial state and, through monitoring, they could show variations in the environment over 2014-2020. Information to quantify descriptive indicators can be obtained directly from national environmental agencies, or public and private organizations engaged in producing and communicating environmental information to the public. They correspond to the *State* indicators in the DPSIR model.

Performance indicators measure the contribution of the CP to environmental objectives and correspond to *Pressure* indicators. They show how much the change in environmental component can be attributed to the CP.

Result and output environmental indicators complete the set of indicators included in the structure of the CP. They measure the change in the environmental state for the CBC area (*Impact* indicators in the DPSIR model) *and* highlight implementation of the CP itself in its environmental dimension. They can contribute to understanding the CP’s environmental performance.

Figure 21: Relationship between CP indicators and DPSIR model



The indicators proposed for the environmental monitoring system are listed in Table 12. The context indicators are those used in the context analysis but they could be substitute in accordance

with the availability of data.

Environmental result and output indicators are mainly derived from Programme result, common and specific output indicators and can be directly or indirectly addressed by the CP monitoring system, while performance indicators will be defined and quantify under the *ongoing* evaluation of the CP. In addition to indicators pertaining the Programme monitoring system, further environmental indicators have been proposed to account for environmental effects (negative, but also of unknown sign) assessed in Section 6. These latter are marked by grey cell in Table 12.

Table 12: Example of results and performance indicators

S.O.	Expected environmental effect	Context indicator	Environmental output indicator	Environmental result indicator	Environmental performance indicator
S.O. 1.1	Eco-efficiency (as reduction in use of primary resource)	Use of primary resources (water, energy, waste)	Number of enterprises and of institutions participating in cross-border research/innovation projects aimed at eco-efficiency Number of innovative services, products and tools on eco-efficiency transferred to enterprises	Change in the use of primary resources	Contribution of SO to reduce the use of primary resources
SO 2.1	Improvement of knowledge on climate change	Cooperation area disposing of regular monitoring of climate change or planning of adaptation measures	Public institutions participating in monitoring projects on climate change Inhabitants benefiting of adaptation capacity management coordinated measures	Increment Cooperation area disposing of regular monitoring of climate change or planning of adaptation measures	Contribution of SO to the increment Cooperation area disposing of regular monitoring of climate change or planning of adaptation measures
	Conservation of natural ecosystem (resilience)	Cooperation area disposing of planning of adaptation measures with an ecosystemic approach	Surface of natural ecosystem interested by planning or measure	Increment of the Cooperation area disposing of planning of adaptation measures with an ecosystemic approach	Contribution of the SO to the increment of the Cooperation area disposing of planning of adaptation measures with an ecosystemic approach

S.O.2.2	Reduction of risks associated to climate changes	Inhabitants exposed to high level of risks	Inhabitants benefiting of risk management coordinated measures public institutions participating in risk monitoring projects	Increase in disaster response capability	Contribution of SO to the increase in disaster response capability
SO 3.1	Pressure of tourism on natural resources	Use of primary resources (water, energy, waste) by tourism sector	Number of project on sustainable tourism	Increase in number of tourists related to sustainable projects	
		Natura 2000 network	Target sites belonging to Natura 2000 network	Number of tourist visiting protected area or Natura 2000 sites	
SO 3.2	Conservation and restore of inland and marine ecosystem	Conservation status of habitat types and species of Natura 2000 sites in Programme area	Surface area of habitats supported in order to attain a better conservation status (in hectares)	Improvement of conservation status of biodiversity in the Adriatic Basin	Contribution of the CP to protect and restore biodiversity in the Adriatic Basin
SO 3.3	Improvement of quality of coastal water	Quality of bathing water	innovative technical solutions implemented Targeted sources of nutrients, hazardous substances and toxins	Preserve the high quality coastal bathing coastal water s (according to the dir. 2006/7/CE)	Contribution of the CP to preserve the high quality coastal bathing coastal water
SO 4.1	Reduction in GHG emission	CO2 emission by transport	Strategies and action plans developed and/or implemented for multimodal environmentally-friendly freight transport	CO2 emission for passenger in CBC area (from selected locations)	Contribution of the CP to a reduction in CO2 emission for passenger

8.2 PROVISIONS FOR AN ENVIRONMENTAL MONITORING SYSTEM

The procedural aspects involve the collection and processing of data, its evaluation and interpretation and consideration of the consequences. It takes place at Programme and project levels.

The main tasks in defining the monitoring system at Programme level are, first, to attribute responsibility to the different phases and, second, to design the framework for collection and reporting of indicators.

The following table proposes responsibility for each task. It is suggested to identify inside the monitoring team (located within the Management Authority/JTS) a responsible for environmental monitoring. National and Regional Environmental Authorities, the JTS and the Programme Managing Authority will support the responsible for environmental monitoring. Environmental monitoring activities will be also carried out by the evaluation team (for some tasks), in coordination with the Responsible for environmental monitoring.

Table 13: Monitoring tasks' responsibilities

TASKS	RESPONSIBLE
Data collection	Monitoring team; JTS/MA/EA; Evaluators
Data processing	Monitoring team; JTS/MA/EA; Evaluators
Interpretation and Evaluation	Monitoring team; JTS/MA/EA; Evaluator
Conclusion (decision making)	Decision maker (MA, Monitoring Committee)

Even though Directive 2001/42/EC does not contain any specific stipulation on how to report on the monitoring process and its results, reporting is important at the following stages:

- When defining objectives
- When evaluating the first results;
- After programming.

The first two allow re-adjustment of the Programme while the third gives information about the overall performance and environmental impact of the Programme.

Environmental impact information lacking at the Programme level, including some performance indicators, will be collected at a project level during the *on going* evaluation of the Programme. This should only occur at a defined stage of implementation, with particular regard to the early phase of project preparation and to conclusion of the project. Monitoring environmental effects at project level should consider:

- Embedding information collection in the routine monitoring activities of the Programme to address only crucial information not available at any other level;
- Collecting information using predefined forms (see below Table 14) and guidelines provided to project partners for homogenous information collection and to enable indicator aggregation at Programme level;
- The project must obviously comply with environmental legislation and obligations derived from European and national normative frameworks; thus project team leaders should be required to draft their final report to illustrate how they took normative aspects and other sustainable goals into consideration.

Table 14: Template for the evaluation of environmental impact at project level

Environmental issues	Description of environmental effects	Intensity of potential environmental effects		
		Strong	Medium	Low or not significant
Water				
Soil				
Biodiversity				
Air-quality				
....				

All information collected at different levels will be included and analysed in an environmental report, periodically drafted by the monitoring team and made available for decision making to the JTS and Managing Authorities. Such a report should be discussed in monitoring committees, especially during the Programme mid-term review and decisions made regarding re-programming or adjustment of the Strategy in order to reach a more satisfactory sustainable development of the area under the cooperation objective.

The environmental monitoring and evaluation system will be fine-tuned in the evaluation plan of the Operational Programme, in which details will be provided regarding: evaluation questions and environmental issues to be addressed, methodology to be used, target groups and

stakeholders involved in the evaluation activities, products delivered and activities for dissemination of results.

PART VI – CONCLUSION

9. INFORMATION OF POTENTIAL ALTERNATIVES AND JUSTIFICATION OF THE PROGRAMME CHOICES

Directive 42/2001/CE in article 5(1) and article 9(1b) requires an analysis of the alternatives and a justification of choices made.

The risk of significant negative effects means alternatives must be considered within the Programme to give decision makers the opportunity to select options which eliminate or reduce environmental impacts and which improve the global environmental footprint of the Programme.

Alternatives have been considered in two ways:

- Three different repartitions of resources have been used to weigh the sum of the possible environmental effects;
- Two CO₂ emission scenarios use the Compare model – a simulating tool - taking into consideration different actions to be implemented by the Programme.

In addition, the "zero-option", *i.e.* absence of the Programme over the 2014-2020 period was also considered. In Section 3, environmental trends are simulated without implementation and a picture of the environmental situation at the 2020 horizon drawn

In the following subsections the analysis of alternative is presented

9.1 ENVIRONMENTAL EFFECTS OF POSSIBLE ALTERNATIVE SCENARIOS

Three different scenarios have been built changing the allocation of resources, as described in

Table 15. The Scenario A considers the allocation of resources for Priority Axis established in section 3 of the current version of the CP. In the Scenario B, a uniform repartition of financial resources between the PAs has been considered. Finally, the Scenario C presents a repartition favourable for the PAs with better environmental performances (PA 2 and PA 3).

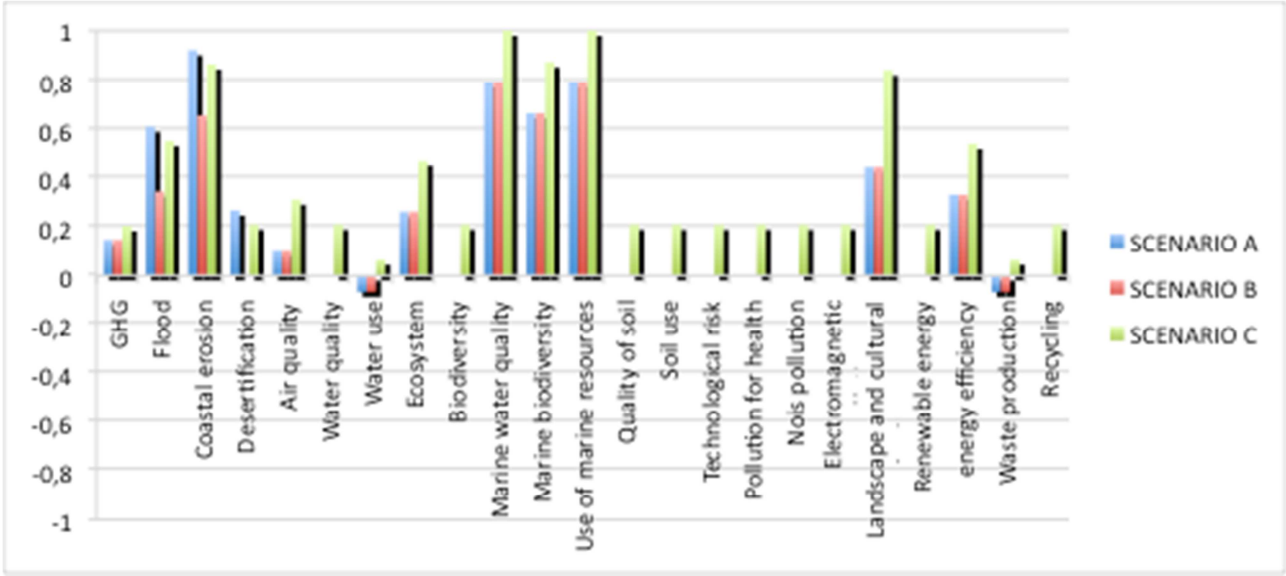
The three scenarios has been used to weight the sum of the effects assed in section 6.3 for each environmental issues.

The percentage allocation of resources has been used to weight the effects assessed for each PAs. Results are presented in Figure 22.

Table 15: Scenarios for the assessment of the alternatives.

	PA 1	PA 2	PA 3	PA 4
SCENARIO A	13%	27%	37%	23%
SCENARIO B	25%	25%	25%	25%
SCENARIO C	20%	30%	30%	20%

Figure 22: Environmental effects of the CP considering different resources scenarios (normalized for the maximum value).



The comparative assessment shows that the cumulative effects change significantly only if the financial repartition is drastically changed. This suggests that an improvement of environmental performance of the Programme could be obtained modifying the actions rather than changing the financial framework.

The scenario chosen by the OP (Scenario A) represents a good compromise between positive effects and needs of the CBC area. Even if Scenario C presents better environmental performance (it has been chosen to enhance positive effects and to minimize the negative ones), the A realistically try to answer to the needs of the cooperation area, producing good environmental performances.

9.2 THE CARBON IMPACT OF THE PROGRAMME FOR ALTERNATIVE COMPARISON: THE CO2MPARE MODEL

The cumulative CO2 emissions impact of the Programme has been assessed using the CO2MPARE model. The CO2MPARE model is provided by DG Regio and uses financial inputs to estimate the carbon outcomes of a Programme.

The SO objective and the action of the Programme have been used to construct the Programme structure used as input for the different levels of aggregation required by the model. The highest

aggregation level consists of the main Programme themes for budgets and it corresponds to the Priority Axis. Each theme is then specified in more detail (second level of aggregation), corresponding to SOs. Investments in a given SO are then disaggregated into a predefined set of standardised activities, or Standardised Investment Components (SICs), which represent the actual physical activities. The parameters of the SIC have been set according to the activities planned by the CP.

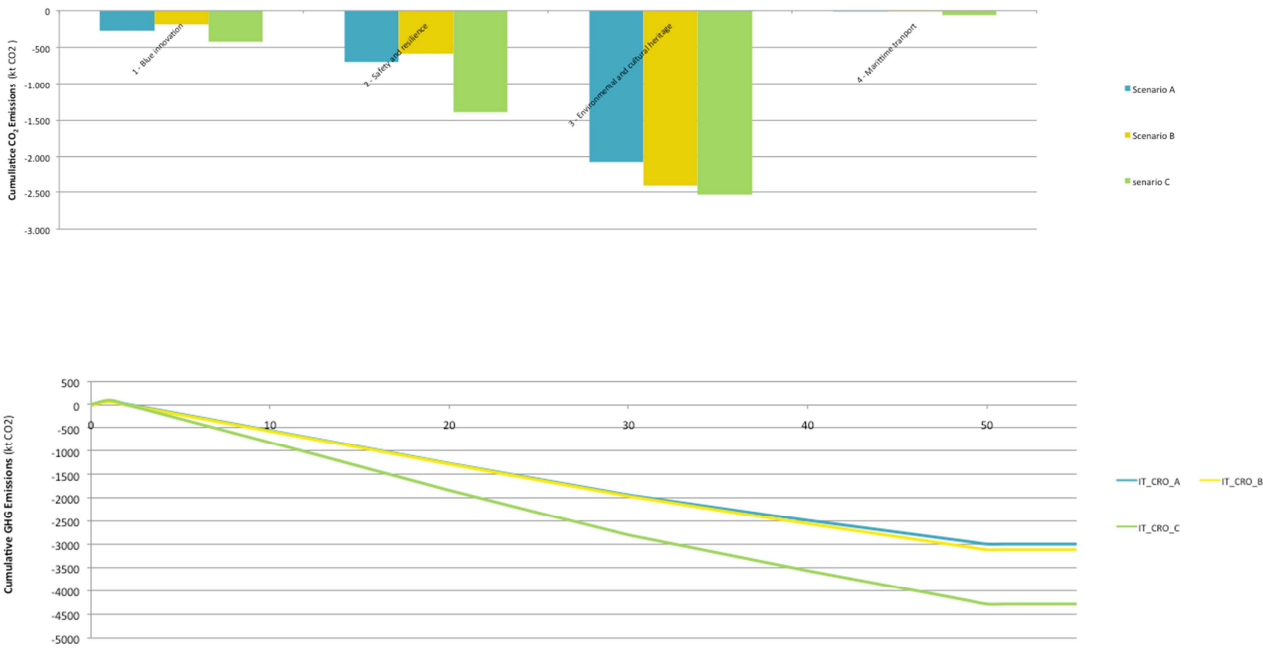
When the structure of the CP is defined according with the requirement of the model and all the parameters are set, the CO₂MPARE allows to estimate the CO₂ emission related to each investment planned. The model output distinguishes between direct and indirect emissions. Direct emissions are defined as immediately occurring on the site of the project. Indirect emissions may include the energy used for producing materials, electricity generation, or an increase in traffic caused by the project.

The use of the CO₂MPARE model constitutes only a first approximation. However, it can help in understanding the Programme's level of sustainability. Furthermore, even though these first results are probably affected by bias, they represent a baseline for future evaluations.

Here, the CO₂MPARE model was used to compare three different scenarios. They differ in the allocation of resources between SOs or in the definition of each Standard Investment Component. "Scenario A" reflects the allocation proposed by the CP drafters. In "Scenario B", resources from SO with positive CO₂ emissions (SO 1.1 and SO 4.1) has been partially moved in to SO with CO₂ reduction (SO 2.2 and SO 3.2). Finally, in "Scenario C" the original allocation of resources has been maintained but the share of material and immaterial action has been changed (with the attribution of SIC for each SO), incrementing the material actions.

Results for the three scenarios are shown in Figure 23. The "carbon content indicator", or CO₂ equivalent emission assessed for the whole Programme during the entire period, is negative for all scenarios (ranging between -89 and -90), pointing to a reduction in CO₂ emissions. It is interesting to note that Scenarios B and C, artificially constructed to have better performance in term of CO₂ emission, differ from the "realistic" Scenario A only minimally. The total cumulative emission for the CP (considering the next 50 years) correspond to -3.053 kt CO₂ for the Scenario A, and rises to -4.387 kt CO₂ for the Scenario C.

Figure 23: CO2MPARE Model for the CP Italy-Croatia, according with three different scenarios.



It is worst to note that the CO2MPARE model has a limited number of SIC and defines only little possibility in the choice of actions. This means that some of the activity included in the CP (as for example the immaterial action on nature conservation) have been not adequately assessed by the model. Nevertheless, results reinforce the idea

9.3 JUSTIFICATION OF THE PROGRAMME CHOICES

Compared to the base scenario, the effects of the Programme are broadly positive (see Section 6). The proposed Strategy clearly contributes to the improvement of environmental conditions in the cooperation area. Furthermore, all alternatives simulated under the Compare model demonstrate reduced CO2 emissions over the entire programming period.

In conclusion, the current strategy proposed must be considered as a good alternative from an environmental point of view, compared to other Programme options discussed during the preparation phase.

10. QUALITY OF INFORMATION AND RATIONALE FOR ANALYSIS

The underlying information in this report comes from official statistics and documents identified during the scoping consultation with the EAs. Data from European statistics institutions (European Environmental Agency and Eurostat) and available at Nuts 3 levels were often lacking. The analysis was also limited in many cases by the difference in quality, time period covered and scale of information provided by the four different national statistical systems.

Nevertheless information at Nuts 3 level has been collected for the whole cooperation area when available. Information at Nuts 2 level has been used when data provided by different national systems and different levels within the same statistical system was missing.

An element of difficulty was represented by the different level of implementation of the European directive in the two Country involved, corresponding to a not uniform availability (for some environmental issues) of data.

Information with a cross-border format was considered first. Other national statistics were used, illustrating specific aspects or giving a clear picture on some issues. Because data from different statistical sources were aggregated, the indicators describing the cross-border environmental context must be considered as an approximation.

APPENDIX 1 – NON TECHNICAL SUMMARY

APPENDIX 2 – SCOPING CONSULTATION RESULTS

During the scoping consultation the Environmental Authorities involved have express comments or observation on the proposed structure and content of the Environmental Report. The following table summarize the comments and their way of integration

Administration	Contribution/observation	Inclusion in the ER
Abruzzo	nothing	
Molise	nothing	
Emilia Romagna	Table 1. Change IPCC in IPPC	Done
	Suggest a list of regional plans potentially useful	Plan, Programme and Strategies included in the analysis are those relevant at transboundary level and concerning issues related with the OP. Nevertheless, a list of Plans, and Programme suggested in the scoping phase has been added as annex to the ER, for further analysis at project level.
	Suggest a list of source of environmental data at regional level for the context analysis	The context analysis has been drafted used, as much as possible homogeneous data for all the CBC area.

	Include in the ER the assessment of alternatives, possibly using conceptual models as “RAMEA”	Alternative scenarios have been taken in to account in the ER
	Use the CO2MPARE model	The CO2MPARE model has been used
	Include in the ER an Incidence Analysis	This has been included
	In the monitoring system, use indicators able to evaluate actions efficiency in respect to the environmental effect assessed	This has been done
Friuli Venezia Giulia: Environmental and Energy Management	Include in the Context Analysis the description of environmental issues, and of main pressures, following the DPSIR model; describe environmental criticality and trends. Suggestion of some documents for environmental information for Friuli	The Context Analysis includes the description of environmental issues interested by the Program, the pressure and trends.
	The environmental objectives considered have to be pertinent to the macro-area level; nevertheless it is important to verify some pertinent document at regional scale	The environmental objectives used for the assessment have been chosen through the coherence analysis and are pertinent for the macro-area. Further specific environmental objectives are mentioned in the ER

	Include in the assessment part: the coherence analysis, the contribution of the OP to environmental objective and an appropriate assessment of environmental effects; for this latter, describe adequately the methodology used	This has been done
	Include the incidence analysis	This has been done
	Include an analysis of alternatives, making explicit the reasons of the final choice	Alternative scenarios have been analysed through the cumulative effect analysis and through the CO2MPARE model
	Present an adequate monitoring system, selecting indicators according to the DPSIR model	This has been done
	Add a section on the procedure of OP preparation and of its integration with SEA procedure.	This has be done
Friuli Venezia Giulia: regional Agency for environmental protection	In the ER, insert the conclusion of the scoping phase	This has been done
	In the ER describe Programme actions plausible to have environmental effects and describe the effects assessed	The level of detail at which the actions will be described in the ER will depend on the level of deepness reached by the Programme.
	Suggest a list of source of environmental data at regional level for the context analysis	The context analysis has been drafted used, as much as possible homogeneous data for all the CBC area.

	In the monitoring system, clarify the different typology of indicators used	This has been done
	Find shared indicators for the Programme monitoring	This has been done
	Insert a referent to the feedback mechanism in the SEA procedure	Feedback mechanisms have been proposed in section 8.2: environmental on going report will be discussed within the monitoring committee and decisions on reprogramming should take into accounts evaluation and monitoring recommendations
Friuli Venezia Giulia: Autorità di Bacino del Fiume Adige and Autorità di Bacino dei Fiumi Isonzo, Tagliamento, Livenza, Piave, Brenta-Bacchiglione	Suggestion of a list of plans potentially (at river-bacin scale) to consider in the external coherence	The plans suggested are listed in Appendix 3, with other plans and Programme potentially useful for the definition of actions at local scale
Friuli Venezia Giulia: Azienda per	Include an internal coherence analysis	This is inserted in the ex-ante evaluation

i servizi sanitari n 4 Medio Friuli	Suggestion of a list of environmental objectives to be included for the assessment.	Some of the objectives proposed have been included in the analysis. Others, are not relevant for the OP (as, for example, of “Support sustainable agriculture”) or are not pertinent for the environmental assessment (as “Contrast unemployment”). The selection of environmental objectives has been based on a compared analysis between the strategies relevant for the area and the actions included in the OP.
	Consider the additional theme: “Traffic and urban area”, “Green economy and adverse effect on health”	The OP doesn’t reach the detail necessary to make possible the kind of analysis proposed.
Marche: SEA Authority	Include the draft of National Strategy on Climate Change Adaptation in the coherence analysis	Unfortunately, the CCA Strategy has not yet been officially approved
	Consider in the ER the document suggested in the “Guidelines for integration of Climate Change and Biodiversity in SEA”	This has been done
Veneto: Environmental	Explicit in the ER the role of SEA in Programme construction	This has been done

Authority	Consider the recommendation from EA involved	Recommendation formalized during the scoping phase have been integrated in the ER. Suggestion that will come during public consultation and final recommendations by SEA authorities will be taken in to account in the final version of the ER
	Describe the action for the achievement of objectives	Actions has been described and approved by the TF
	Consider the alternatives	Alternative scenarios have been analyzed through the cumulative effect analysis and through the CO2MPARE model
	The ER will be compliant with D.lgs 152/2006, art. 13	The ER is in compliance with the D.lgs 152/2006 and with the Dir 42/2001/EC requirements
	Include an appropriate SEA monitoring system	A monitoring system, adequate to the level of the Programme, has been included, as required by the SEA directive
Croatia	Consider the compliance with the objectives of water management contained in the fundamental strategic and planning documents of water management	Done (in the external coherence)

	Include cultural heritage issues in coherence and context analysis and in the assessment of the effect	Done (in the context analysis and in the assessment of effects)
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APPENDIX 3 – LIST OF LOCAL PLANS AND PROGRAMME (SUGGESTED DURING THE SCOPING PHASE)

During the scoping consultation the some of the Environmental Authorities involved has suggested plan or programmes with a regional or local coverage. Considering the nature and the scope of the CBC Programme, it is not possible to include these documents in the coherence analysis. Nevertheless, regional and local plans and programmes could become relevant during the implementation phases. In the following table, plans and programmes suggested by the EA during the scoping phase are listed.

List of local Plan and Programs suggested during the scoping phase

- Piano Regionale Integrato per la qualità dell'aria (PAIR) della Regione Emilia Romagna (DCR n. 1180 del 21/7/2014);
- Piano per la Gestione integrata delle aree costiere (GIZC) della Regione Emilia Romagna (D.C.R. n. 654 del 20/01/2005);
- Piano di Tutela delle Acque (PTA) della Regione Emilia Romagna;
- Piano Territoriale di Coordinamento Provinciale (PTCP) delle Province di Ferrara, Ravenna, Forlì-Cesena, Rimini;
- Mappatura acustica e Piani di azione delle Province di Ferrara, Ravenna, Forlì-Cesena, Rimini;
- Piano Regionale Integrato dei Trasporti (PRIT) della Regione Emilia Romagna;
- Piano Territoriale Paesistico Regionale della Regione Emilia Romagna;
- Piano di gestione dei bacini idrografici delle Alpi Orientali (DPCM 23/04/2014);
- Piano stralcio per l'assetto idrogeologico dei fiumi Isonzo, Tagliamento, Piave Brenta-Bacchiglione (DPCM 21/11/2013);
- Progetto di Piano stralcio per l'assetto idrogeologico del sottobacino del fiume Fella (Delibera Comitato Istituzionale n. 2 del 9/11/2012);
- Piano stralcio per l'assetto idrogeologico del bacino idrografico del fiume Livenza (Delibera Comitato Istituzionale n. 4 del 9/11/2012);
- Piano stralcio per la sicurezza idraulica del medio e basso corso del bacino del Fiume Piave (DPCM 2/10/2009);
- Piano stralcio per la gestione delle risorse idriche del bacino del Piave (DPCM

21/09/2007);

- Piano stralcio per la sicurezza idraulica del bacino del Livenza – sottobacino del Cellina-Meduna (DPCM 27/04/2006);
- Piano stralcio per la sicurezza idraulica del medio e basso corso del fiume Tagliamento (DPCM 22/10/2000);
- Piano stralcio per la tutela dal rischio idrogeologico del bacino del fiume Adige (DPCM 27/04/2006);
- Prima variante del Piano stralcio per la tutela del rischio idrogeologico del bacino del fiume Adige, Regione veneto, per le aree in dissesto da versante (DPCM 13/12/2011)