

Strategic Environmental Assessment of the INTERREG VA France (Channel) - England 2014-2020 Programme



Environmental report

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ACRONYMS

AQMA :	Air Quality Management Area
EA :	Environmental Authority
EC :	European Commission
EU :	European Union
FCE :	France (Channel) – England
GHG :	Greenhouse gas
IP :	Investment Priority
IUCN :	International Union for the Conservation of Nature
JTS :	Joint Technical Secretary
Ktoe :	Thousand tonnes oil equivalent
LEP:	Local Enterprise Partnership
MA :	Managing Authority
MS :	Member State(s)
NVZ :	Nitrate Vulnerable Zone
OP :	Operational Programme
PPG :	Programme Preparation Group
SAC:	Special Areas of Conservation
SEA :	Strategic Environmental Assessment
SIC :	Standardised Investment Components
SO :	Specific Objective
SOER :	State and Outlook of the Environment Report
SPA :	Special Protection Areas
SRADDT :	<i>Schéma régional d'aménagement et de développement durable du territoire</i>
SRCAE :	French Regional Scheme on Climate, Air and Energy
Tg :	One million Metric Tonnes
TO :	Thematic Objective
WFD :	Water Framework Directive

INTRODUCTION

General background

This draft Environmental Report provides a Strategic Environmental Assessment (SEA) of the France (Channel) - England Programme 2014-2020, in compliance with Directive 42/2001/EC¹ (the 'SEA Directive').

As stated in Article 1 of the SEA 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 France (Channel) - England (FCE) Programme is a cross-border cooperation programme that promotes cooperation between regional and local players from different territories along the Channel in two Member States: the United Kingdom and France.

'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' (European territorial cooperation goal²)

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

The programme

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).

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).

The Programme will invest in the activities listed in Article 5 of the new Regulation (EU) No 1301/2013³, focusing on technological and social innovation, low carbon technologies including the promotion of renewable energy and energy efficiency, natural and cultural heritage, biodiversity and social inclusion. The programme is structured around three operational priority axes.

Axis 1: *Support innovation in order to address the economic and societal issues facing the FCE area, with two Specific Objectives (SO) to ‘To increase the delivery and uptake of innovative products, processes, systems and services in shared smart specialisation sectors’ (SO 1.1) and to ‘Increase the quality and the effectiveness of service delivery to the most socially and economically disadvantaged group through social innovation’ (SO 1.2).*

Axis 2: *Support the transition to a low carbon economy in the FCE area, with one SO to ‘increase the development and uptake of existing or new low-carbon technologies in the sectors that have the highest potential for a reduction in greenhouse gas emissions’ (SO 2.1).*

Axis 3: *Enhance the attractiveness of territories within the FCE area., with a first SO to ‘Realise the potential of the common natural and cultural assets to deliver innovative and sustainable growth’ (SO 3.1) and a second to ‘Enhance and protect the coastal and transitional water ecosystems’ (SO 3.2).*

This draft report is based on the topics mentioned in Annex 1 of Directive 2001/42/ (the ‘SEA Directive’).

- Programme strategy, through five SOs in the four axes, their associated actions and beneficiaries (Section 1);
- Environmental context and situation (Section 2); with a brief description of the main environmental issues in the cross-border area, and proposed macro-indicators to highlight environmental trends over 2014-2020;
- Environmental objectives (Section 3) and coherence with other strategies, plans and programmes (Section 4) relevant to the cooperation area;

³ Regulation (EU) No 1301/2013 of the European Parliament and of the Council of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006 (OJ L 347, 20.12.2013, p. 281).

- Environmental effects of the Operational Programme (OP) based on the different scenarios and hypotheses discussed during the Programming process (Section 5), including the Programme's foreseen impacts on Natura 2000 sites (Appendix 2);
- Mitigation measures (Section 6) and the proposal for reinforcement of the positive effects derived from the implementation of the Programme;
- Environmental monitoring system (Section 7), with specific provisions for environmental monitoring during implementation of the Programme;
- Information on potential alternatives and the decision-making process (Conclusion).

After submission to Environmental Authorities and public consultations (see below), this report has been reviewed by the SEA experts and the Managing Authority to integrate feedback and recommendations. In addition, recommendations on the CBC CP from the Commission have also been analysed. This SEA version from section 1 to 7 is **related to CP of September 2014**. Changes introduced by the last CP version of July 2015 are analysed in the table below. It is worth noticing that no new negative environmental effect derived from the new CP version. Therefore, conclusions from the SEA analysis, especially related to environmental effects, mitigation and indicators are confirmed.

Priority axis	Thematic objective	Investment priority	SO Version 15/09/2014	SO updated version (July 2015)	Comments	
					Main changes	Conclusion on the environmental effects
1	1	1b	To increase the delivery and uptake of innovative products, processes, systems and services, to address common economic and societal challenges within the FCE area	To increase the delivery and uptake of innovative products, processes, systems and services in shared smart specialisation sectors	No significant change	No new effect on the environment
2	4	4f	Increase the development and uptake of existing or new low-carbon technologies and services	Increase the development and uptake of existing or new low-carbon technologies in the sectors that have the highest potential for a reduction in greenhouse gas emissions	No significant change	No new effect on the environment
3	6	6c	To improve the attractiveness of the FCE area by jointly developing and exploiting its cultural and natural heritage.	To realise the potential of natural and cultural assets in delivering sustainable economic activities across the programme area	No significant change	No new effect on the environment
3	6	6d	Improve the coordinated management of green and blue infrastructures and ecosystems services.	Enhance and protect the Channel shared ecosystems, the coastal regions and associated waterways	No significant change	No new effect on the environment

4	9	9b	Improve the collective ability of stakeholders to enhance social inclusion and increase economic revitalisation in urban and rural areas	Increase the quality and the effectiveness of service delivery to the most socially and economically disadvantaged groups through social innovation	Axis 4 has been removed, a new SO (1.2) focused on social innovation has been added under axis 1.	As demonstrated by the analysis of the type of expected actions and outputs, from the environmental perspective the new SO (1.2) has a similar impact than the previous SO (4.1). In this sense there is no negative environmental effect related to the adopted change
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Removal of SO 4.1 and inclusion of a new SO (1.2): type of actions

Removed SO 4.1	'New included' SO 1.2	Main change	Conclusion on the environmental effects
Proof of concept/validation	Proof of concept/validation	The type of actions foreseen are the same, only the examples of actions are changed	From the environmental perspective the type of actions foreseen have identical effects
Demonstration and testing	Demonstration and testing	The type of actions foreseen are the same, only the examples of actions are changed	From the environmental perspective the type of actions foreseen have identical effects

Implementation	Implementation	The type of actions foreseen are the same, only the examples of actions are changed	From the environmental perspective the type of actions foreseen have identical effects
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Removal of SO 4.1 and inclusion of a new SO (1.2): type of outputs

Removed SO 4.1	'New included' SO 1.2	Main change	Conclusion on the environmental effects
EC indicator n°45(ECT) Number of participants in projects promoting gender equality, equal opportunities and social inclusion across borders	EC indicator n°45(ECT) Number of participants in projects promoting gender equality, equal opportunities and social inclusion across borders	none	
Number of skill development and professional training schemes for disadvantaged people	Number of innovative skill development and professional training schemes for disadvantaged people	none	
Number of institutions, public or private, engaged in joint development of future policy to regenerate economy in deprived urban or rural areas	Number of institutions, public or private, engaged in delivering social innovation solutions to increase the quality and effectiveness of service delivery to the most socially and economically disadvantaged groups	The indicator is changed	From the environmental perspective the type of expected outputs have identical effects
\	Number of socially innovative services designed	A new indicator is introduced	From the environmental perspective the type of expected outputs does not introduce new environmental effects

Information on the Public consultation process and results

As laid down in art.3 of Directive 42/2001/EC, the scope of public consultation is to collect opinion on the draft Programme and the accompanying Environmental report before its submission to the legislative procedure. Pursuant to the SEA Directive (42/2001/EC) and national regulations, a two-month consultation was launched on both sides of the border on the 3rd of July 2014 and closed on the 3rd of September 2014;

The consultation saw: the transmission of the draft PC and its environmental report to authorities identified during the scoping consultation, a dedicated webpage on the INTERREG IVA France (Channel) - England Programme, and the publication of the consultation documentation (draft CP version of 03/07/2014, draft environmental report, non-technical summary and consultation questionnaires). All the documents have been published on the Programme website both in English and French languages.

This consultation allowed gathering Environmental Authorities opinions, in particular from Upper-Normandy, Lower-Normandy, Brittany, Nord-Pas de Calais and Picardy prefecture. From English side, no notification was received from public or Environmental Authorities. After consultation of the French relevant authorities (coordinated by the Prefect of the Haute Normandie Region, as from administrative note of 3 Jun 2014) organising a public consultation in France other than the one organized through the Programme website was deemed unnecessary. Furthermore, EAs were asked for their opinions. No notification was received from the public, in French side.

Appendix 3 gathers the various comments from the consultation process (all from French Environmental Authorities) in matrixes stating the authorities issuing the comment, the Cooperation Programme section concerned and the resulting integration or amendments proposed by the SEA evaluators to the PPG.

1. FRAMEWORK AND PROGRAMME BACKGROUND

1.1 JUSTIFICATION AND OBJECTIVE OF THE STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

The likely environmental effects of the France (Channel) - England 2014-2020 Programme (the Programme) will be assessed in compliance with the SEA legislative dispositions, the explanatory package⁴.

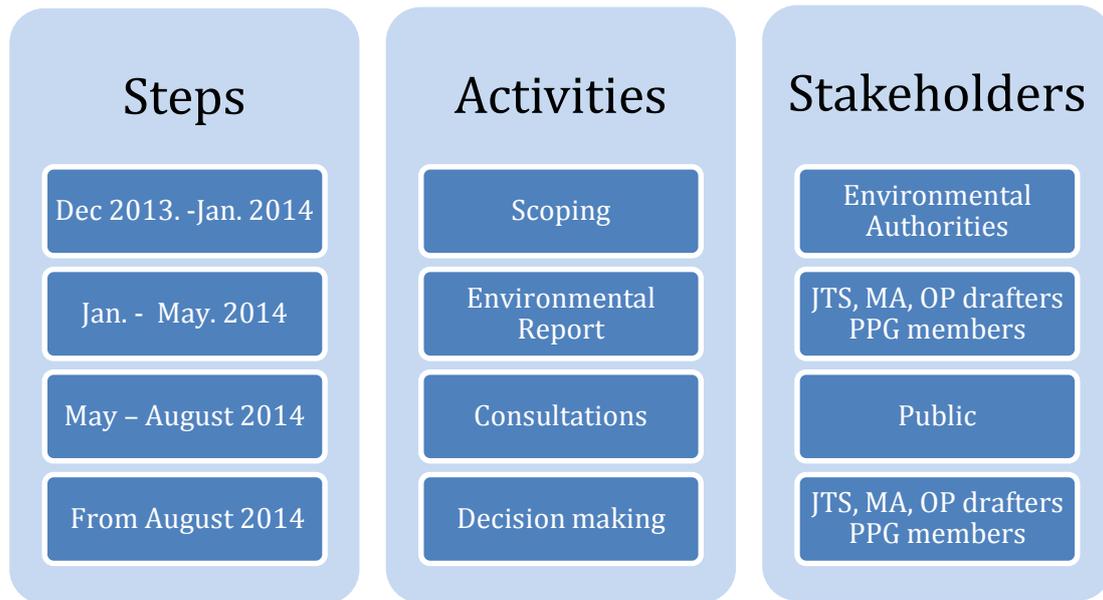
Enforcement of this procedure, regulated by the SEA Directive, is justified by:

- the (joint) Strategic Environmental Assessment undertaken in the previous period for the FCE and 2 Seas 2007-2013 Programmes;
- the SEA Directive's application to 2014-2020 Cohesion policy programmes, and in particular to the France (Channel) – England Programme as it is likely to have significant environmental effects⁵;
- the Managing Authority's requirement to be provided with an SEA.

The SEA, in coordination with the ex-ante evaluation, will be implemented in four main steps.

⁴ 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).

⁵ COM(2011) 615 final. Indeed, already six out of 11 proposed Thematic Objectives have direct consequences on the environment.



Step 1: Preliminary activity of ‘scoping’

This details the scope and level of detail needed for the evaluation, and defines its limits. In particular:

- (a) geographical areas to be covered;
- (b) environmental issues, including relevant environmental objectives, to be examined within the SEA
- (c) duration
- (d) depth of assessment
- (e) data and information needed (and available)
- (f) methods to be considered
- (g) alternatives and options
- (h) entities and experts to review the SEA report

These questions were answered in the Scoping Report. This report included a brief presentation of the Programme, a proposal of environmental issues, indicators and objectives, a description of

the methodology, a presentation of the public consultation process and details of the documents and information sources used.

This preliminary scoping activity ended after consultation with the authorities responsible for environmental issues in December 2013 and January 2014. This consultation improved the environmental context indicators, the environmental objectives for the cooperation area and the level of detail to be included in the Environmental Report. Comments of the SEA experts and the way these have been taken into account were detailed in a final Scoping Report.

Step 2: Planning of the Environmental Report

The Environmental Report is integral to the Programme and its entire planning and approval process.

According to Article 5(1) of the SEA Directive, the Environmental Report shall identify, describe and assess the 'likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme'. The information to be included in the Environmental Report is specified in Annex I of the SEA Directive. Eventually, the final report provides a non-technical summary and the main results of the activities.

The Environmental Report also details the results of the pre-consultation phase with Environmental Authorities and highlights how their contributions have been taken into account.

Step 3: Public and EAs consultation

Public consultation is an important step in the SEA procedure. Its aim is twofold: to inform the public about the likely environmental effects of the Programme and to collect any additional methodological elements and suggestions for changes to the Programme from a wider audience, to achieve high sustainability.

Public consultation took place at the end of the drafting process and under detailed arrangements determined by each Member State.

Step 4: Decision-making and information on decisions

Article 8 of the SEA Directive states that ‘the opinions expressed [...] shall be taken into account during the preparation of the [...] programme and before its adoption or submission to the legislative procedure’.

At the end of the consultation, SEA experts collected views and recommendations and added some improvements and modifications to the Environmental Report and the Programme’s final draft. Two weeks after the end of the consultation, taking national and regional arrangements into account, the SEA experts offered their recommendations to the Managing Authority (MA)/Joint Technical Secretary (JTS) to be included and discuss them during a meeting with the Programme Preparation Group (PPG).

A section details the extent to which SEA experts’ recommendations have been taken into account in the final draft of the Programme, pursuant to Article 9 of the SEA Directive. In the final document SEA experts also summed up the monitoring measures.

1.2 QUALITY CONTROL

The SEA Directive states in Article 12(2): ‘Member States shall ensure that environmental reports are of a sufficient quality to meet the requirements of this Directive and shall communicate to the Commission any measures they take concerning the quality of these reports’.

Quality control is integral to all activities of the SEA team in preparing the Programme. The objectives are to ensure the transparency of the whole evaluation process, to provide stakeholders with information about the activities and to give them the opportunity of amending or augmenting the contents and information provided in the environmental reports and documents published by the evaluators.

Quality control includes:

- involving the EAs in defining the assessment scope with a consultation in December 2013 based on a Scoping Report prepared by the team of experts. The results of the consultation, including suggestions and comments from EAs, were taken into consideration in this report;

- a permanent exchange of information between the SEA team, the JTS, the ex-ante evaluators and the Programme drafters;
- the participation of evaluators in most Programme Preparation Group (PPG) meetings, where they made proposals and took part in the discussions on environmental objectives and results expected from the Programme.

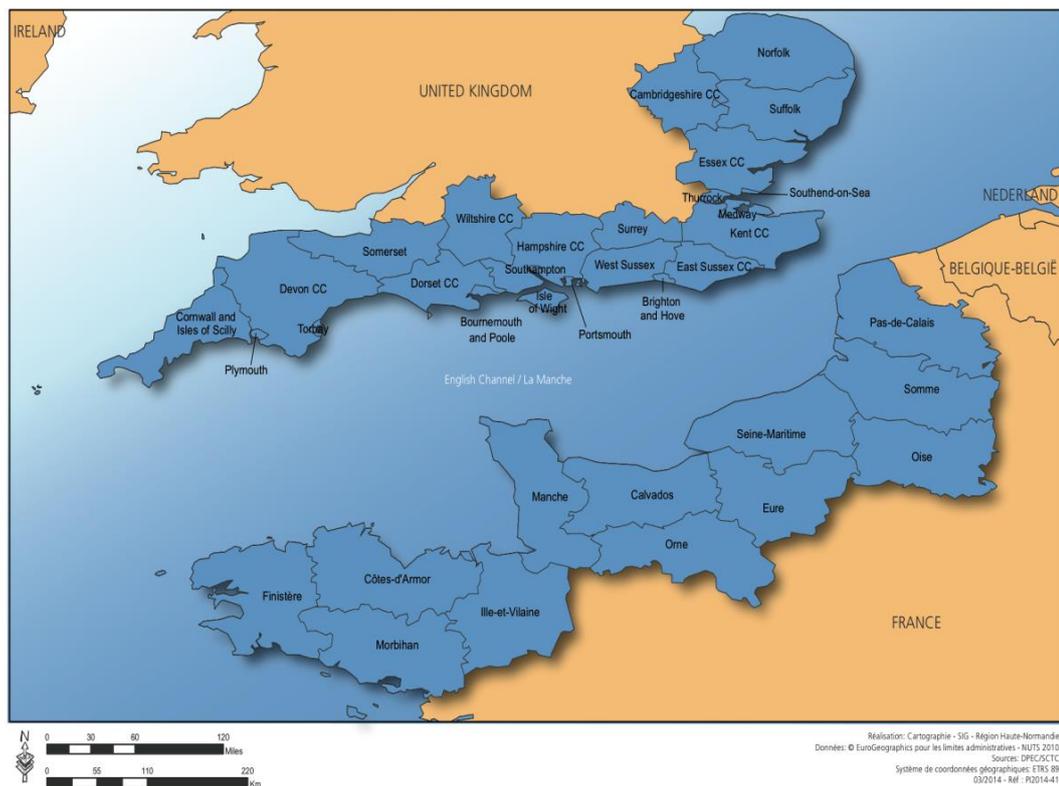
1.3 THE FRANCE (CHANNEL) – ENGLAND PROGRAMME

The territory of the cooperation

The crossborder cooperation Programme extends to both sides of the Channel and includes the following NUTS3 regions of England and France:

- Finistère, Côtes d’Armor, Ile-et-Vilaine, Morbihan, Manche, Calvados, Orne, Eure, Oise, Seine-Maritime, Somme and Pas de Calais;
- Cornwall and Scilly islands, Devon, Dorset, Hampshire, Western Sussex, Eastern Sussex, Kent, Essex, Suffolk, Norfolk, Wiltshire, Swindon, Somerset, Surrey, Cambridgeshire, Peterborough , Plymouth, Torbay, Bournemouth and Poole, Isle of Wight, Portsmouth, Southampton, Brighton and Hove, Medway, Thurrock, Southend-On Sea.

Figure 1 - INTERREG VA FCE Programme area



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’⁶.

Four Priority Axes are proposed in the Cooperation Programme.

Priority Axis 1 - Support innovation in order to address the economic and societal issues facing the FCE area

Investment Priority 1b - Promoting business investment in innovation and research, and developing links and synergies between enterprises, R&D centres and higher education, in particular product and service development, technology transfer, social innovation and public service applications, demand stimulation, networking, clusters and open innovation through smart specialisation supporting technological and applied research, pilot lines, early product validation action, advanced manufacturing capabilities and first production in Key Enabling Technologies and diffusion of general purpose technologies

Specific Objective 1.1

To increase the delivery and uptake of innovative products, processes, systems and services, to address common economic and societal challenges within the FCE area

Priority Axis 2- Support the transition to a low carbon economy in the FCE area

Investment Priority 4f - Promoting research, innovation and adoption of low-carbon technologies

Specific Objective 2.1

Increase the development and uptake of existing or new low-carbon technologies and services

Priority Axis 3 - Enhance the attractiveness of territories within the FCE area

Investment Priority 6c - Protecting, promoting and developing natural and cultural heritage

Investment Priority 6d Protecting and restoring biodiversity and soil protection by promoting ecosystem services including NATURA 2000 and green infrastructures

Specific Objective 3.1

To improve the attractiveness of the FCE area by jointly developing and exploiting its cultural and natural heritage

Specific Objective 3.2

Improve the coordinated management of green and blue infrastructures and ecosystems services.

⁶ See Annex I(a) of the SEA Directive.

Priority Axis 4 - Ensure a balanced and inclusive development in the FCE area

Investment Priority 9b - Support for physical, economic and social regeneration of deprived urban and rural communities and areas

Specific Objective 4.1

Improve the collective ability of stakeholders to enhance social inclusion and increase economic revitalisation in urban and rural areas.

Environmental authorities and the public were consulted on the Cooperation Programme version for consultation (03rd of July 2014). However a new programme version has been validated during the PPG meeting the 12^{ve} of September 2014. SEA experts reviewed this new version based and concluded that modifications introduced in the new programme version don't modify the SEA conclusions and opinions expressed by Environmental Authorities.

The provisional overall allocation of the programme is **EUR 223 millions**. This is a minimum amount, 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 program objectives.

The provisional breakdown of ERDF allocation per priority axis (%) is set as follows (not enclosed Technical assistance):

Priority Axis	Link with regulatory framework	Number of SOs	Budget share in%
1. Innovation	Thematic objective 1 Investment priority 1.b)	1	28,2%
2. Transition to a low carbon economy	Thematic objective 4 Investment priority 4.f)	1	18,8%
3. Attractiveness of territories	Thematic objective 6 Investment priority 6.c) et 6.d)	2	28,2%
4. Balanced and inclusive development	Thematic objective 6 Investment priority 6.g)	1	18,8%

Effects on the environment of the 2007-2013 programme

The last available evaluation is the mid-term evaluation from the 27th of March 2012. Evaluators found out that the programme was having positive effects on the environment, stating that ‘the environmental theme (priority 4) functions particularly well [...] The environment poses genuinely common challenges on both sides of the Channel, which the different local government partners and other local bodies have fully taken on board. In addition, this is an area in which local authorities are not in competition and for which they possess considerable expertise. Cooperation is obviously both possible and necessary.’⁷ Indeed, the 2007-2013 programme’s priority 4 – which aimed at promoting renewable energy sources and energy efficiency, ensuring a balanced management of the environment and mitigating and managing risks of environmental damage and raise awareness about environmental issues – proved most successful with projects applicants. No negative impact resulting from other priorities was noticed by the experts in the mid-term evaluation of the 2007-2013 programme.

⁷ Mid-term evaluation of the INTERREG IVA France (Channel)-England Programme 2007-2013, Final Report, Volume 1, March 2012, p.22

2. ENVIRONMENTAL CONTEXT ANALYSIS

The context analysis was carried out considering the SEA Directive requirements, the key environmental issues identified during the FCE scoping process, the Programme objectives in line with the EU 2020 Strategy and the information and data available at European, national and regional levels. The analysis performed on a large scale and mostly considers issues which are common to the whole cooperation area.

The aim of the analysis is to draw a picture of the global and regional environmental context in order to provide a clear baseline for the environmental assessment.

Data and information used in this section were collected from different local and national sources. A coherence analysis used the information provided by the report 'Situation analysis and SWOT' from the Buiten consultancy covering FCE and the 2 Seas areas of cooperation. Further information was drawn from the Cross Channel Atlas developed by the CAMIS (Channel Arc Manche Integrated Strategy) project.

A final section deals with cross-border environmental issues, providing understanding on the main cross-border environmental issues. After a brief presentation of the environmental issues, their associate policy background and context in FCE regions and MS, an analysis based on key indicators provides a global view of the current situation and gives insight into future trends.

The following definitions were used for macro-indicators:

- macro-indicator: an aggregated indicator for the FCE cooperation area based on information available at national/regional levels. Macro-indicators capture a situation and a general trend at a cooperation level;
- state: current situation, based on available information provided by statistical agencies. Must be considered as a baseline for the 2014-2020 programming period;
- trend: hypothetical trend of the indicator in the near future, based on a scenario where no new significant environmental policies are implemented in the area and 'no changes' in context are monitored;

- coloured arrows associated to states and trends : red (bad situation, current or foreseen); orange (steady situation, current or foreseen); green (good situation, current or foreseen).

2.1 CLIMATE CHANGE AND ASSOCIATED RISKS

Human influence on climate change is mainly through GHG emissions⁸. 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, wildfires, 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. These could affect human health and agriculture. There may be some positive effects including more sunny days with benefits for sectors such as agriculture and tourism.

Policy background

Under the Kyoto Protocol, the EU-15 agreed to collectively reduce their emissions by 8% below 1990 levels by 2008-2012. With a total of 15% GHG emission decrease compared to base years (1990 in most cases), EU-15 is on course to exceed its Kyoto target. More recently, the EU adopted a climate and energy package. One of the key objectives is a 20% reduction in GHG emissions from the 1990 level. At a national level, the 'burden sharing' agreement set objectives in emission reduction. GHG emissions should be reduced by 12.5% in the UK and stabilised in France.

In 2013 the European Commission also adopted a climate change adaptation strategy, with key actions to reduce and manage the natural risks from climate change. Specific policies have been adopted by the MS⁹. In the cooperation area, strategies already exist in the MS: the UK adopted the *National Adaptation Programme* in 2013 while for France the overall adaptation strategy has been designed with the *Plan National d'adaptation aux changements climatiques* published in 2011.

For specific natural risks, Directive 2007/60/EC¹⁰ requires MS to assess all water courses and coast lines to see if they are at risk from flooding and to take adequate and coordinated measures

⁸ 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.

⁹ 'An EU Strategy on adaptation to climate change', COM (2013)216 final.

¹⁰ Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks (OJ L 288, 6.11.2007, p. 27).

to reduce this flood risk. Since the Flood and Water Management Act (2010), the Environment Agency coordinates with UK authorities to reduce this risk.

GHG emissions cut

According to the UN Framework Convention on Climate Change, the six main greenhouse gases are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydro fluorocarbons (HFCs), per fluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

A reduction of GHG emissions has been achieved by both FCE MS in the last 10 years.

Total UK GHGs were 19% lower in 2008 than in 1990. Average emissions per capita in the UK are between 6 tonnes/capita (London) and 12.5 tonnes (North East), with respectively 7.9 tonnes CO₂ per capita in the South West and 9.7 tonnes in Anglia regions. The British cooperation areas are around the UK average. Emissions from the industrial, commercial and domestic sectors and road transport declined, consistent with the national trend. However, emissions from land, land use change and forestry increased substantially in the South West.

In France, GHG emissions decreased by 7% between 1990 and 2010. The annual per capita emissions in the Picardy region in 2007 was 7.6 tonnes, which is below the national average. In Nord Pas-de-Calais, this figure was 11.2 tonnes. The region has only had a 3% decrease since 1990. In this old industrial region, industries still account for 50% of the GHG emissions, due to the importance of iron and steel manufacturing. Upper Normandy had 20 tonnes CO₂/capita in 2008, one of the highest emission levels both at national and cooperation levels, Lower Normandy with 13.2 is also above the national average and with 8.3 tonnes, Brittany is close to the national average.

Sea level rise

The global average sea level has risen by some 120 metres since the end of the last ice age. In the 20th century, the average global sea level rose annually by 1.7 mm. However, this phenomenon is now accelerating. Altogether, the Channel coast is expected to be affected by a sea level rise from 0.40 to 1 metre in 2100 compared to 2000.

Sea levels around the UK have risen by 1 mm/year in the 20th century, accelerating in the 1990-2000 period. The sea level in Newlyn (Cornwall), which has one of the longest sea level records in the UK, has risen by approximately 20 cm since 1920. In South East England, between 1834 and 2006 the sea level at Sheerness, Kent rose by 250 millimetres while actual sea level change (minus land level change) around the Thames Estuary is between +0.9 to 1.2 mm per year.

Sea levels have risen on the French coast, by 1,7mm/year in Dunkirk and 3,9mm/year in Boulogne sur Mer between 1940 and 2000.

Coastal erosion

Situated along the Channel coasts and Atlantic sea, the Programme area is therefore particularly affected by coastal erosion.

In France, the Opal Coast as well as the Normandy coastline cliffs are currently coping with major erosion. In particular, the cliffs of Boulogne and the massive, remarkable dunes and estuaries remain the most worrying sector in terms of coastal erosion. In Upper Normandy, 30% of seaside artificial surfaces are located in areas where the coast is receding most. A thousand inhabitants could ultimately be affected. In Brittany, landslide risks are also affecting the coast, with 300 km having significant erosion.

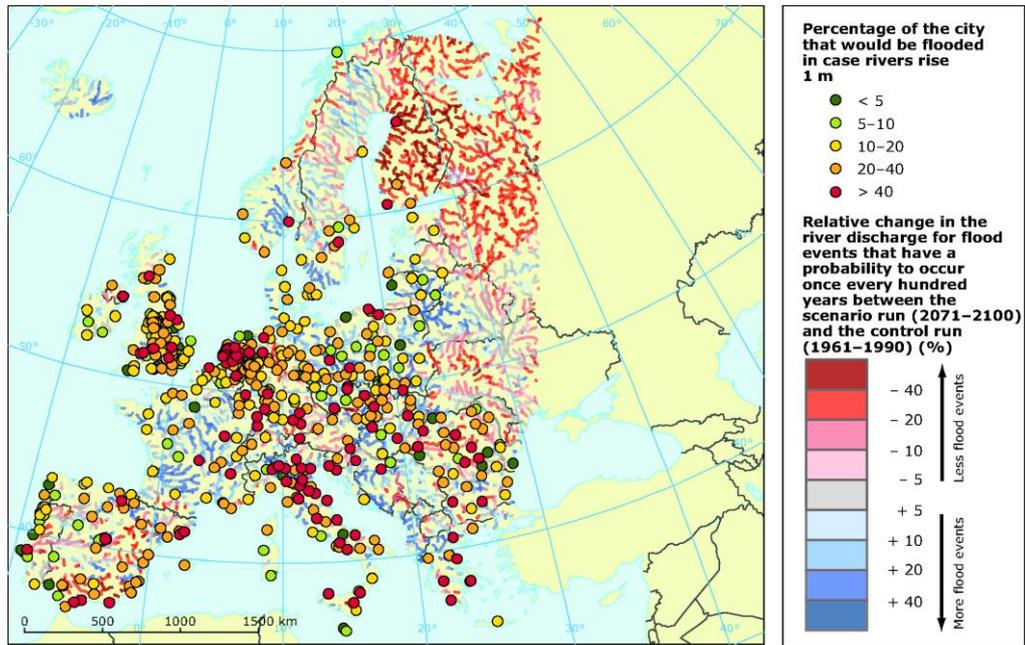
England is also threatened by coastal erosion. In fact, in South West England 6,000 homes in the region are deemed at-risk.

Territory or municipality at flood risk

In South East England, there are almost 900 000 properties at risk of one or more forms of flooding; while in South West England there are 218 000 properties. 20% of the Anglian region is within the flood plain, including 400 000 properties and 30% of the most productive agricultural land.

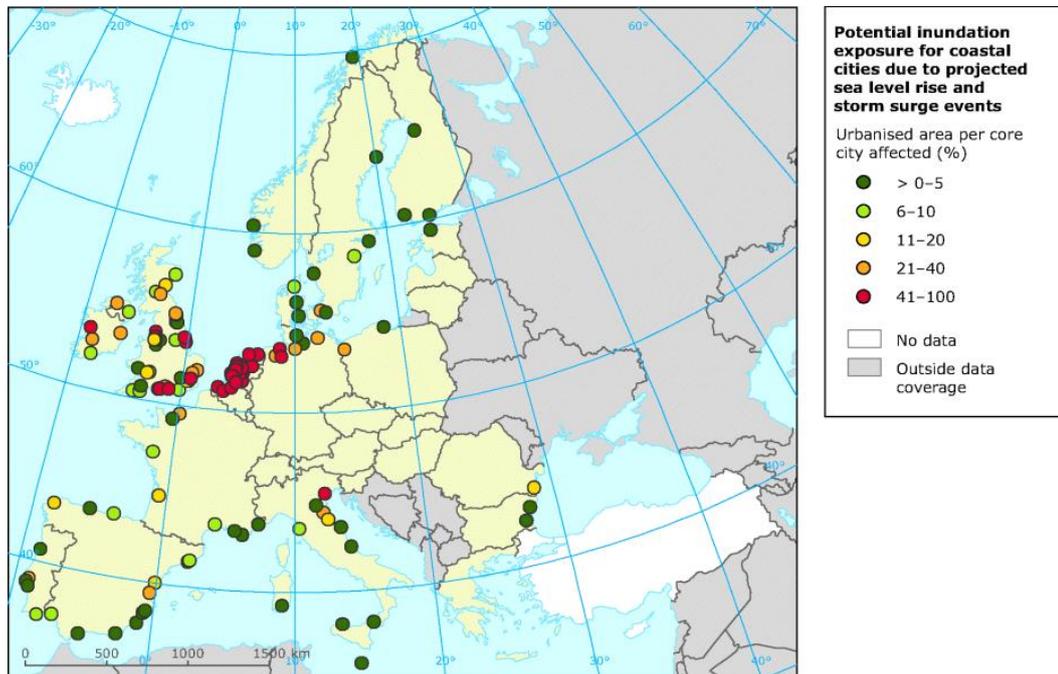
All FCE French regions are already particularly affected by flood risk. In Upper Normandy, flood and mudslide risks are expected to remain the same or increase in the medium term (2050) and persist beyond (2080) despite reduced rainfall. To date, floodplains in the Lower Normandy Region are 900 km² wide, and affect, to varying degrees, 1 200 municipalities. In Brittany, demographic growth increases the stakes. Forty percent of Bretons live on the coast and habitation is very dispersed. High urbanisation, intensive land use and the low relief result in 73% of the Nord-Pas de Calais municipalities being affected by flood risk. This rate is amongst the highest in France. In Picardy, 39% of the municipalities are affected.

Figure 2 - EU's cities' vulnerability to floods in case of a 1 meter river rise



Source: EEA

Figure 3 - Projected inundation exposure due to sea level rise



Source: EEA

For climate change indicators, the FCE situation is reasonably homogeneous. All regions succeeded in cutting their GHG emissions, from 3% in Nord-Pas de Calais to 19% in the UK. Since FCE regions are by essence coastal and some of them additionally have major rivers, the area is particularly exposed both to flood risks and coastal erosion, partly due to a sea level rise.

Macro-indicators for the theme Climate change

Indicator	State	Trends
GHG emissions		
Sea level rise		
Coastal erosion		
Territory or municipality at flood risk		

Situation and trends for the FCE area

2.2 ENERGY

The energy issue is a key element addressed in Europe 2020. 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.

Policy background

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 EU¹¹. The 2020 European strategy set ambitious objectives for EU territories: an increase of 20% in renewable energy production, an increase of 20% in energy efficiency and a reduction in CO₂ emissions of 20%. Targets have been broken down by MS, to account for national characteristics, costs and different potential for improvements in energy efficiency.

Fossil fuel dependency

According to the International Energy Agency (World Energy Outlook, 2009), the primary sources of energy worldwide are petrol (34%), coal (27%) and natural gas (21%).

This also applies to the cooperation area and in particular to French regions. Upper Normandy predominantly uses petroleum products (29%), while in Brittany half the energy comes from petroleum products. In Nord-Pas de Calais renewable energy consumption reaches only 2% of total energy consumption, solid mineral fuels 3%, petroleum products 28% and gas 29%. Electricity, mainly produced from nuclear power plants, counts for a little more than 19%. In Picardy percentages are very similar with 35% for petroleum consumption, 34% for gas and 21% for electricity consumption.

UK regions are dependent on traditional fossil fuels for most of their electricity generation.

French regions' energy intensity is decreasing, with economic performance continuing to be less dependent on energy consumption.

Renewable energy production and consumption

In 2009 the UK Low Carbon Transition Plan was launched together with the publication of the UK Renewable Energy Strategy and UK Low Carbon Industry Strategy. In South East England, electricity from renewable sources was equivalent to 9.4% of domestic sales and 6.5% of commercial and industrial sales in 2008. There has been an overall increase in electricity generated from renewable sources since 2003, despite a slight decline in 2007 and 2008. The main source of renewable energy in the South East is landfill gas. South West England renewable energy production increased with 470 grids connected (2008/2009) and a total installed capacity

¹¹ 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.

of 155 MW. This is enough to power more than 155 000 homes, eliminating 415 870 tonnes of CO₂. Nevertheless, renewable energy is less than 1% of the region's total energy demand.

In France, electricity production from renewable sources is modest although it has increased in the last few years. Upper Normandy has 3.6% of its energy produced from renewable sources, in particular from wood-energy. In Lower Normandy 2.8% comes from renewable sources; this reaches 10% in Brittany. In this region, photovoltaic production has doubled in one year and increased eightfold in two years. Wind generation is growing rapidly in the Pas-de-Calais department and in the Picardie Region, which is the leader in installed capacity, with about 14% of the national total. The net electricity generation in Picardy was 235 thousand tons of oil equivalent (ktoe) in 2009 of which 58% was renewable (wind, hydro and photovoltaic). Wind power was nearly half of electricity production. In Nord Pas de Calais, between 2000 and 2006, new facilities contributed to a fivefold increase in electricity production from renewable energy sources (wind, solar, wood, biogas).

However, the development of marine renewable energy (MRE) and offshore wind is a great opportunity for energy diversification in FCE regions.

Situation and trends for the FCE area

Although renewable energy production and consumption increased in recent decades, FCE Member States’ economies are still very dependent on fossil fuel and derivatives. Energy intensity has increased for years. That trend confirms the major interest particularly in the energy sector, to reduce energy consumption and costs.

In a business as usual scenario, while renewable energy production and consumption should increase their shares in the near future, fossil fuel dependency should remain high and fossil energy costs will weigh on private and public bodies’ budgets.

Macro-indicators for the theme Energy

Indicator	State	Trends
Fossil fuel dependency	☹️	➡️
Renewable energy production and consumption	☹️	↗️
Energy intensity by sector	☹️	↗️

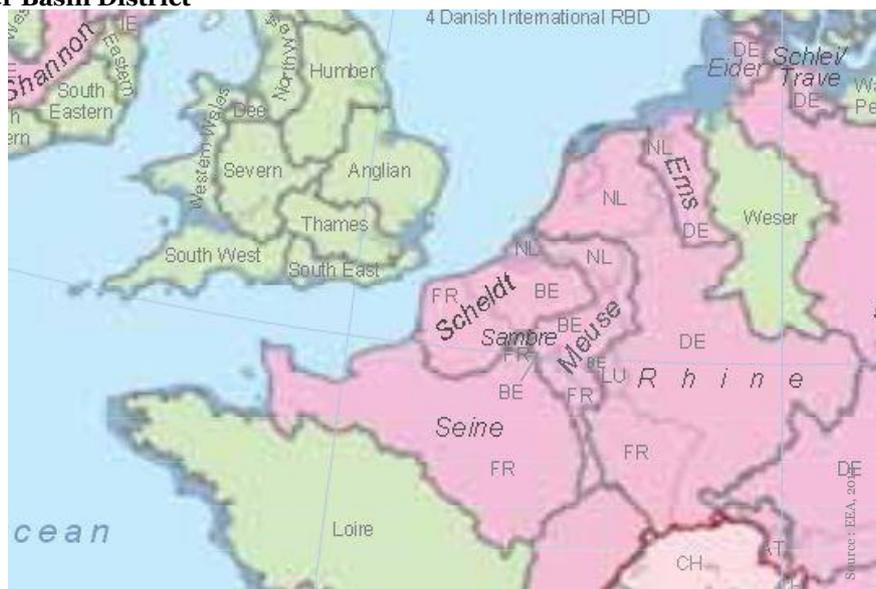
2.3 WATER QUALITY AND SUPPLY

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 the first sections in its different dimensions of quality and supply. As one distinct feature of the FCE area is its coastal location; the section also deals with the sea, estuaries and coastal water and marine ecosystems.

Policy background

All Programme regions fall under the Water Framework Directive¹² (WFD). This Directive identifies 111 River Basin Districts across the EU, eight are in the FCE cooperation area (Figure 4).

Figure 4 - River Basin District



Source: Abstract from a map by WRc, UK on behalf of DG Environment, March 2007.

Some of the River Basin Districts are cross-border basins and are jointly managed by Member States. Basin Districts which fall under the scope of the cooperation area are the National River

¹² . 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.).

Basin District of South West, South East, Thames and Anglian in England (UK) and Loire (FR), and the International River Basin Districts of the Seine, the Scheldt and the Sambre.

The WFD's main objective is to achieve 'good ecological and chemical status' by 2015 for all Union waters i.e. inland, surface, ground, transitional and coastal waters. For several years management plans have addressed issues such as the deterioration of surface and ground water bodies, their pollution from discharge and emissions of hazardous substances, and the over abstraction of groundwater.

Indeed, the main issues for the cooperation area concern water quality improvement, the decrease of pressure on both inland and marine ecosystems as well as its availability for the human needs.

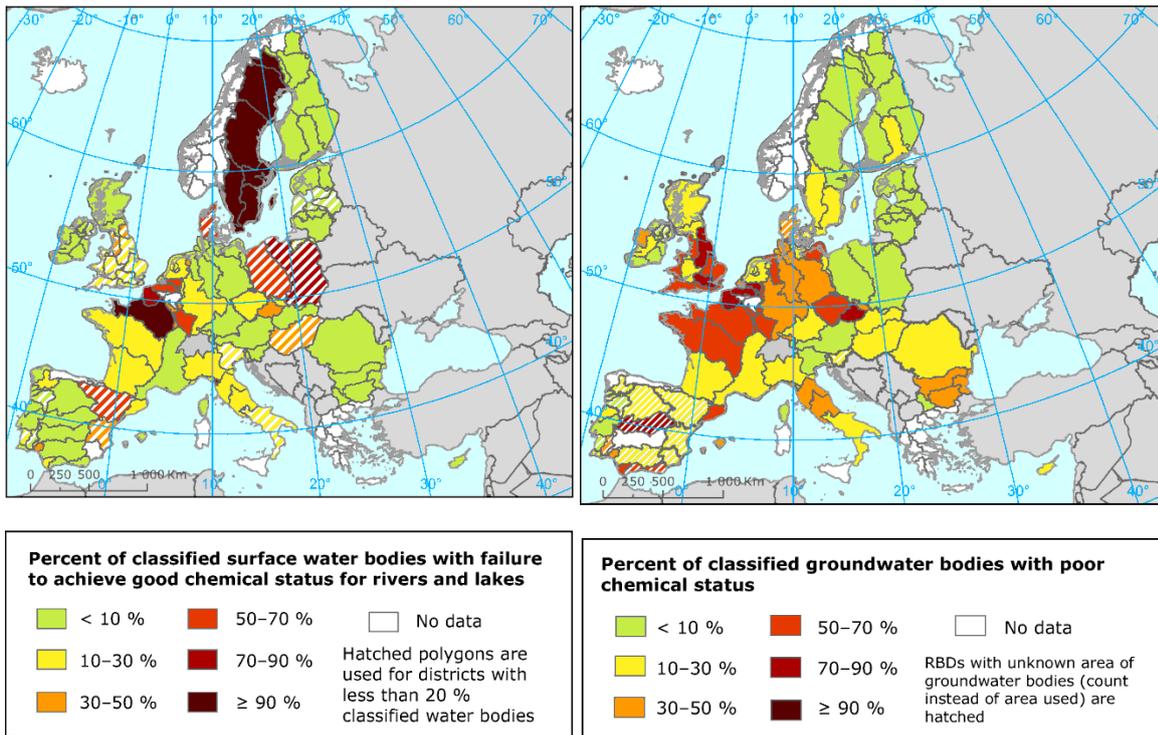
Surface, ground- and marine water quality

Regions belonging to the FCE have not yet achieved 'good ecological and chemical status' for most of their waters.

The biological quality of the water is considered unsatisfactory for most Programme regions in France and the UK. The whole of Upper Normandy has been classified as a nitrate 'vulnerable zone' since 2004. In general, in the Seine River Basin Districts less than 25% of the surface water was in good ecological¹³ status in 2006-2007 (Figure 5).

Figure 5 - The chemical status of surface and groundwater bodies

¹³ The ecological status is defined as the worst level of the physico-chemical and biological status.



Source: EEA, 2012

The objective for this area is to ensure that 70% of the surface water is in good ecological status in 2015. All water bodies, except one, were deemed at risk of not achieving good quality status by 2015 in the Nord-Pas-de-Calais. In Brittany too, surface water is still generally unsatisfactory. In this region the main problem is pollution by nitrates. In 2012, 98% of the nitrate monitoring stations showed ‘average’ to ‘poor’ quality for Brittany’s rivers. Analysis from 2011 found out that about 70% of the surface water in Brittany does not have good ecological status yet. The objective of 61% in good ecological status by 2015 is thus very challenging, even though progress has been made in recent years.

In South Eastern England, 21% of the surface water bodies are currently classified as ‘good ecological status’ as are 26% of the groundwater bodies, while in Eastern England only 18% of surface waters meet the 2015 ‘good ecological status’ target. In particular, large ground waters in Norfolk, Suffolk, Lincolnshire and Essex are classified as ‘poor’. In South Western England ‘inland and coastal water quality has substantially improved over the last 20 years’ so the region has the lowest percentage of surface water bodies classified as less than good ecological status.

Physical modification associated with flood protection, land drainage and urbanisation are all reasons for surface waters not meeting 'good' status, while pollution from agricultural sources affects ground waters.

Marine water is also affected by pollution. Most coastal waters on the UK side of the FCE fail to reach 'good status'. Most water bodies are 'medium', while estuaries are doing particularly badly e.g. the Great Ouse, the Thames and the Swale. Particularly in Anglia, this is due to 'pollution from agricultural sources and from water industry sewage works'. The French side of the Channel's situation is more scattered: more than 50% of Brittany and the west part of Lower Normandy coasts enjoy good ecological and chemical status. However, estuaries of all regions are the most affected: the Seine Bay, the Somme Bay and the areas surrounding the ports of Boulogne, Dunkirk, and Calais have medium to poor status.

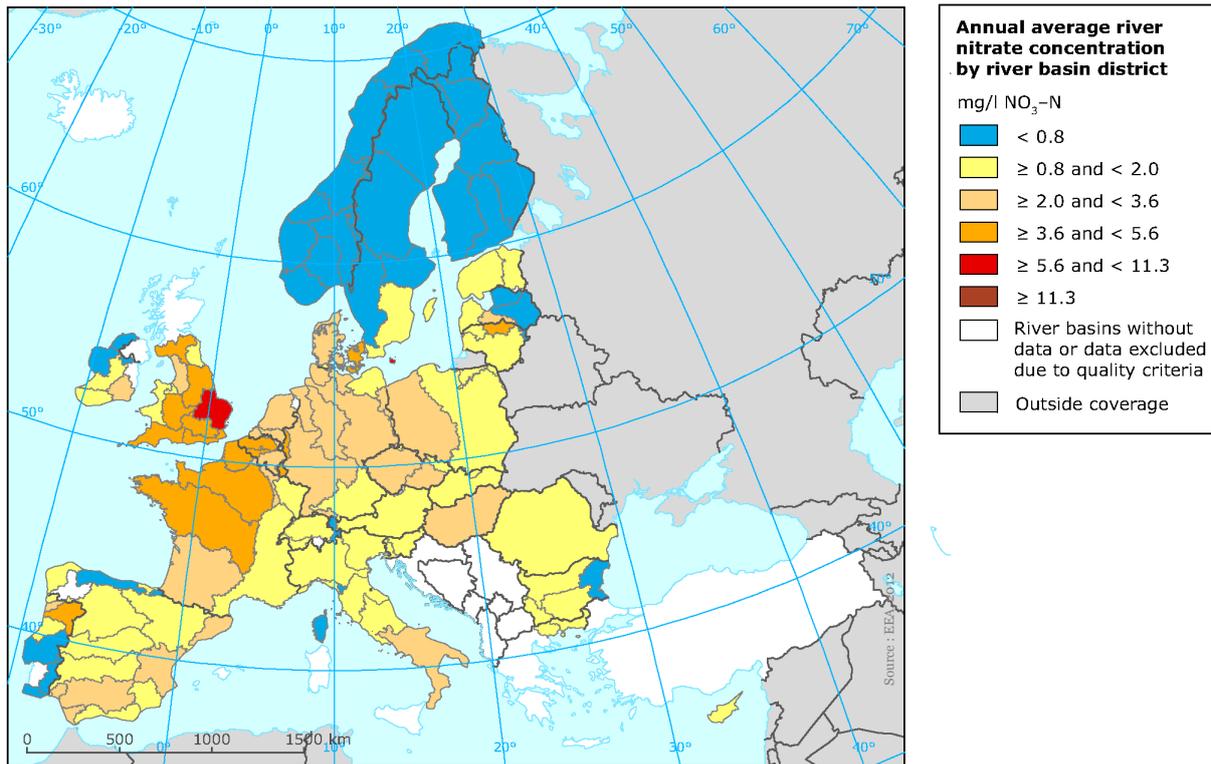
Pressures on the resource

Discharges of pollutants have generally decreased in the recent years. For example, there are 607 sewage works in South East England, discharging approximately 13 billion litres per day of treated effluent into rivers and seas. However, numerous pollutants remain. Phosphates, nitrates, metaldehyde clopyralid, and ammonia are commonly found, which often threaten safe drinking water.

Water pollution by nitrates is a widespread European issue. The FCE area and Eastern England are particularly affected (Figure 6). The Nitrates Directive¹⁴ aims to reduce water pollution caused by agricultural inputs. The directive designated Nitrate Vulnerable Zones (NVZs). In the UK, 90% of the Anglian region (Eastern England) is designated as a NVZ, while in France the whole Brittany and most of Nord-Pas-de-Calais, Picardy, Lower and Upper Normandy regions were still considered as such in 2012.

Figure 6 - Water pollution by nitrates

¹⁴ Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (OJ L 375, 31.12.1991, p. 1).



Source: EEA

Coastal and maritime ecosystems

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 Directive¹⁵, with the objective of preserving the natural resources upon which human activities depend. The Commission also underlined the opportunity offered by the Blue economy strategy¹⁶ and the potential for to develop marine activities in a sustainable way.

FCE regions enjoy hundreds of kilometres of beaches, cliffs, estuaries and human infrastructure along the Channel and Atlantic coasts.

¹⁵ 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).

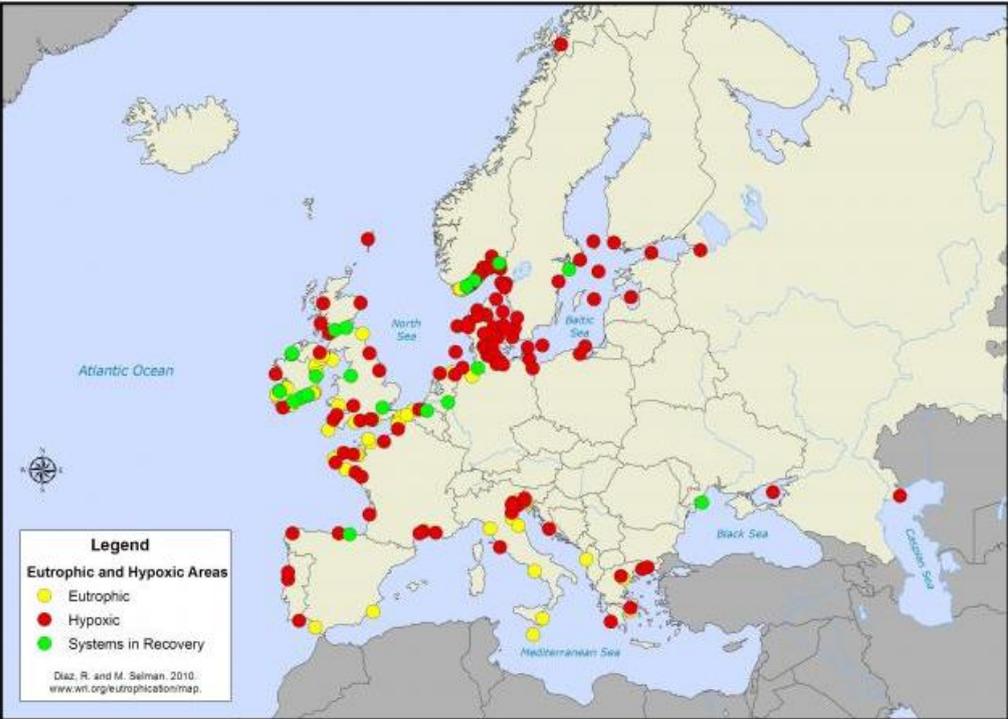
¹⁶ *Blue growth* COM (2012) 494 final.

Pressures and environmental impact from human activities and settlements have increased along the Channel and Atlantic in the last century; many are now well-known and reported in statistical compendia and environmental reports provided by national agencies. The main issues are related to water pollution and eutrophication (Figure 7), pressures on biodiversity from overfishing, increasingly artificial coastlines (harbours and protective infrastructure), urbanisation and the reduction of the size and the number of natural areas and ecosystems in estuaries and coastal areas.

Source: WRI, 2010

Figure 7 - Eutrophication of coastal waters in European seas

For example, Eurostat reports¹⁷ that total catches in France declined by more than 35% and in the UK by about 20% in the last decade. This reduction is to be imputed from catch limits set by the

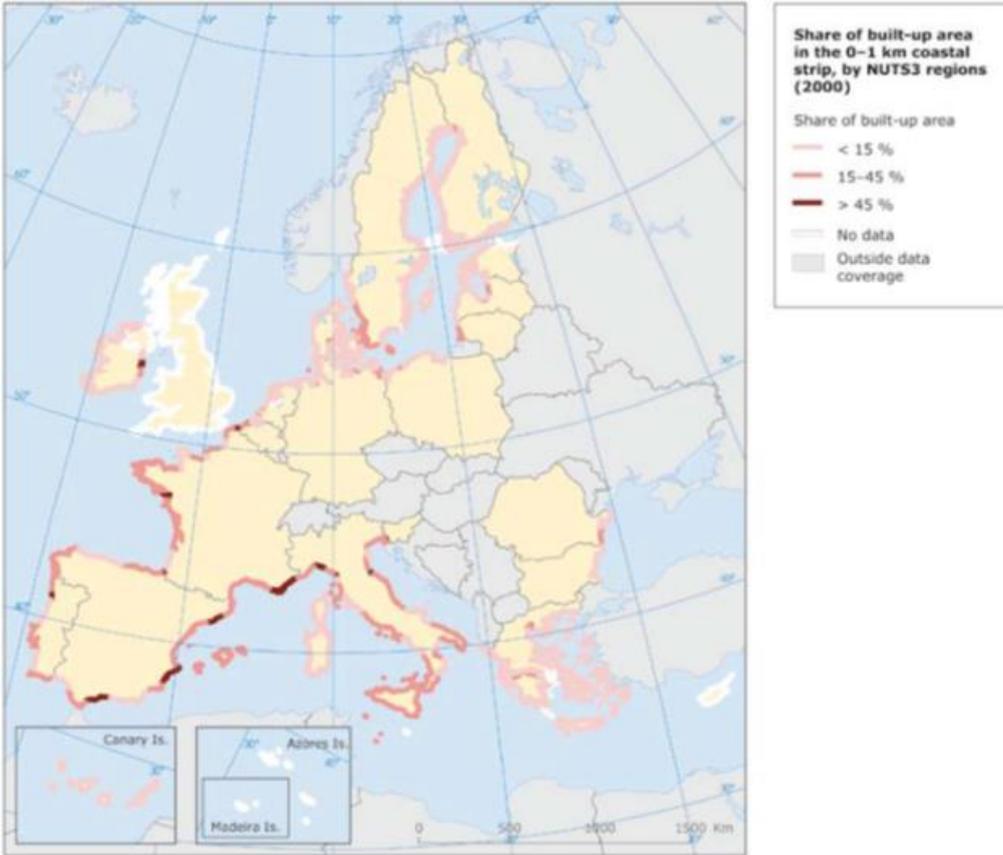


EU to cope with the general collapse in FCE marine resources. The fish population is also changing in its composition with warmer seas resulting from climate change. Cold-loving species (including plankton) are now migrating north in search of colder waters and there are more warm-loving species.

¹⁷ Eurostat, Catches by fishing area (fish_ca)

Increasingly artificial coasts are becoming especially prevalent on the continent. In France, built-up areas generally account for more than 15% of the total coastal line, and sometimes for more than 45% (Figure 8). Artificial coasts increase the risk of floods and coastal erosion by reducing the buffer of ecosystems and natural areas.

Figure 8 - Share of built-up area in the 0-1 km coastal strip



Source: EEA, 2006

Water demand and supply

Water scarcity is an increasing threat, in particular under the shadow of climate change. Article 9 of the WFD states that by 2010 Member States shall ensure that ‘*water-pricing policies provide adequate incentives for users to use water resources efficiently*’. All regions have already seen a decrease in household water consumption. British and French regions consume around 120-150l/day/inhabitant. In England, demand is expected to reduce with metered households, which reduce consumption by 23 l/day/inhabitant on average.

Water over-abstraction is an issue for most regions in the FCE area; this is expected to increase with climate change. For now, 25% of the South West surface waters are either over-abstracted or over-licensed; this share reaches 60% for Anglian surface freshwater, while a South East document highlights that ‘water is a scarce and often over-committed resource’. Groundwater abstractions have been reduced by 75% in the Artois-Picardy Basin. Still, some groundwater suffer from chronic overexploitation. The careful management of water abstraction appears to be a major objective.

Situation and trends for the FCE area

There are hot spots in water quality and water supply in all regions covered by the Programme. The area is characterised by high human pressure on water resources through intensive farming, demographic trends, infrastructure and urban settlements, and industrial investment. There are already risks due to climate change in many areas, such as water shortages, floods and drought. However, it is worth noting the current effort of authorities to implement water policy and control at various governance levels (national, regional and district basins) in all Member States.

Risks from climate change, e.g. floods and drought, together with water shortages, are expected to increase pressure on water supply (especially in the summer) and the degradation of water quality in many areas. There are also risks of uncontrolled marine pollution affecting coasts and harbours including from accidents. On the other hand, a better understanding of water dynamics and cycles, an improvement in governance tools for water management and risk control regarding water quality is also expected.

Macro-indicators for the theme Water

Indicator	State	Trends
Surface, ground and marine water quality		
Water pollution by nitrates		
Water supply		
Marine water eutrophication		
Coastal artificialisation		
Overall fisheries tonnage		

2.4 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.

Policy background

Three main documents guiding waste management have been adopted at EU level. The Waste Framework Directive¹⁸ sets basic concepts and definitions related to waste management and lays down some basic waste management principles. The Commission Decision 94/3/EC¹⁹ establishes a list of waste, while Council Directive 1999/31/EC²⁰ frames the landfill of waste.

In both Member States, the legislative framework has been completed e.g. in England and Wales by the Waste Regulations that came into force on 1 October 2012, in France the legislative framework is built around the *décret du 11 juillet 2011* a transposition of Directive 2008/98/EC.

Household waste production

In England, statistics mainly refer to ‘municipal waste’ which is mainly domestic waste collected by local authorities. Since 2007 England enjoyed a year on year fall of 23 million tonnes to 431 kg/inhabitant of household waste per year per person in 2011.

France also refers to ‘municipal waste’. Production in France went up from 2001 to 2005. Annual per capita municipal waste production in French FCE regions ranges from 613 kg in Lower Normandy to 663 kg in Brittany. In most regions, household waste considerably increased in the last ten years. In 2005, 2.6 million tons of municipal waste was collected in the Nord-Pas de Calais region, or 647 kg per capita, which represents an increase of 8% compared to 2001. This confirms the upward trend in the amount of waste produced, already observed in the previous period. In

¹⁸ 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).

¹⁹ 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).

²⁰ Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste (OJ L 182, 16.7.1999, p. 1).

Picardy, from 1999 to 2009 the tonnage of household waste has increased by more than 36% (647 kg against 470 kg).

Industrial waste production

In England in 2009, 48 million tonnes of waste were generated by businesses. The industrial sector accounted for 24 million tonnes and very slightly less for the commercial sector. Out of this, 12.3 million tonnes were mixed waste and 11.6 million tonnes were non-metallic waste.

In Upper Normandy, industrial waste accounts for 672 000 t/year, out of which 68% are recycled and 2% are eliminated without recovery. Industrial waste production in Nord-Pas de Calais and Picardy is hard to measure since there is no systemic monitoring. However, the Nord-Pas de Calais has a significant production of specific waste from industrial activities, representing 20% of the national total. Industrial waste production, in particular dangerous waste, has tended to decrease. In 2007 Brittany produced 680 000 tonnes of industrial waste. For the region, waste transport is a relevant issue since a large percentage of industrial waste is either eliminated or recovered outside the region, causing additional cost and pollution.

Recycling by category of waste

Recycling has enjoyed a major step forward in the whole FCE area for both households and industrial waste.

In England in 2011, 43% of household waste was recycled. This is the highest recycling rate and has increased continuously in recent years. Recycled, composted or reused waste outweighed landfill waste for the first time in 2011. In 2008 39% of household waste in South East England was recycled or reused. Fifty-two percent of industrial and commercial waste was recycled or reused in 2009 and 24% was sent to landfill.

In 2011 in Upper Normandy municipal waste recovery reached 15%, 4% were composted and a majority (52%) was incinerated with energy recovery; while industrial waste recovery reached 68%. In the Nord-Pas de Calais region waste recovery was 59% in 2005, in the Picardy region in 2009 it was 43%.

Landfill deposit

In 2008, 46% of household waste was sent to landfill in South East England and 56% in South West England. Landfill capacity in the South West is reaching its limit. In 2001, 38 % of waste collected in Brittany was sent to landfill. In 2005 this reached 31% in Nord Pas de Calais. Municipal waste still sent to landfill reached 45% in Picardy in 2009, and 23% in Upper Normandy. French and English regions are still resorting to landfill deposit a lot. However, landfill constitutes an alternative to fly-tipping, which is still an issue in several regions.

Situation and trends for the FCE area

In recent years waste collection and processing has 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 room for improvement for British and French regions regarding the amount of waste produced and the share of recovered or recycled waste. On this issue the FCE cooperation area is not homogeneous.

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

Macro-indicators for the theme Waste

Indicator	State	Trends
Household waste production	☹️	➡️
Industrial waste production	☹️	➡️
Recycling by category of waste	☹️	↗️
Landfill deposit	☹️	↘️

2.5 BIODIVERSITY

Biodiversity is the richness of life and the diversity of its forms. Article 2 of the Convention on Biological Diversity defines biological diversity as *‘the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems’*.

Biodiversity also provides ecosystem services which include the production of food and water, the control of climate and disease as well as spiritual and recreational benefits.

Despite its importance, it is threatened everywhere and biodiversity 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 current status, trends and key drivers.

Policy background

European strategies and policies addressing the problem have been implemented during recent decades. The most recent is the EU Biodiversity Strategy to 2020²¹ 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 the control of alien species. Definitions of a protected area and threatened species vary a lot between countries and regions; inventories are irregular and information is limited to specific areas and periods of time.

An important tool for biodiversity protection is the Natura 2000 network, based on the Habitats Directive²² and Birds Directive²³ 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.

Nationally designated protected areas

²¹ EC, COM(2011) 244 final,

²² 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).

²³ Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (OJ L 103, 25.04.1979)

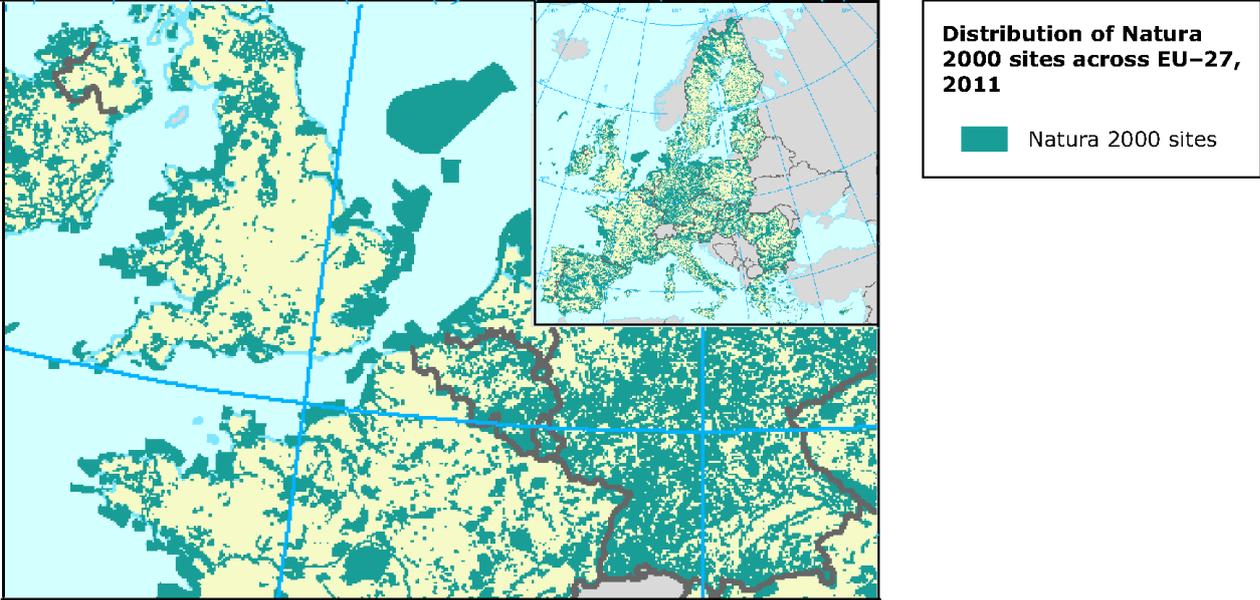
According to the International Union for the Conservation of Nature (IUCN) definition, a protected area is a *'defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature'*. Since the beginning of the 20th century protected areas have been used as instruments of nature conservation the major intensification in policies designating areas occurred at the end of the century and now the number of protected sites is increasing.

In the FCE regions, nationally designated protected areas cover about 3.4 million ha.

Natura 2000 network

The Natura 2000 network includes Special Areas of Conservation (SAC) designated by MS under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which are designated under the 1979 Birds Directive. Natura 2000 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 (Figure 9). In this regard, it can be considered the core of green infrastructure.

Figure 9 - Natura 2000 network: distribution



Source: Adapted from European Environment Agency (EEA), 2011

According to French national statistics in 2012, Natura 2000 designated areas cover about 9.5% of Lower Normandy. It was 4.7% in Picardy, 3.6% in Brittany, 3.4% in Upper Normandy and 2.7%

in Nord-Pas-de-Calais. On the French side of the FCE cooperation area, all regions are lagging behind since the national average is about 13%. Data are less precise on the British side. According to the Joint Nature Conservation Committee, Natura 2000 designated areas cover about 8.1% of England.

However, both France and the UK are far from the EU average surface of 18% of the territory.

Species conservation

In France, the past century was characterised by a rapid loss of biodiversity due to the intensification of agriculture practices, land cover and urbanisation. As a result, the territory registered drastic reductions in the number of species and the collapse of some habitats typically associated with the pre-industrial era such as wetlands

Protected areas in Upper Normandy represent 3.4% of the regional territory. In particular, the regional park of Norman Seine Loops is 81 000 hectares and now includes 72 municipalities. The Conservatory currently manages 63 regional sensitive natural areas; nearly 1 200 hectares are restored, preserved, and developed. In Lower Normandy, regional flora is particularly rich: 37 taxa of flora are protected at the national level; 186 others are protected at the regional level. The situation is due to the great diversity of environments: the large coastline, contact between the Armorican Massif and the edge of the Paris Basin and its varied topography. Regional wildlife includes 19 species of marine mammals, including several dolphins and seals and 175 breeding species of birds. Brittany's territory includes 26% natural areas, 1 600 species of flowering plants of which 37 are subject to a protection plan. Brittany's rich fauna is remarkable. 263 species of birds (out of 415 in Western Europe) can be observed and 72 species of wild mammals were counted in the regional territory (including 20 species of bat).

Picardy also has a rich natural heritage, with numerous sites of ecological interest, classified at national and European levels. However a lot of ecosystems and native species are at risk. This is of particular concern for plants, but also for the 34 species of animals in the region. The flora has regressed a lot over the past two centuries. More than 200 species of vascular plants disappeared from the region and 44% of the remainder are considered threatened or vulnerable. Habitats are also under pressure, for example 90% of the calcareous grasslands and heaths of Picardy have disappeared in less than 100 years. Nord-Pas de Calais shows similar trends to Picardy. Biodiversity has dramatically reduced, reaching a low point at the end of the 20th century. Nowadays, about 59% of the regional native flora is threatened in the long term, and 26% is at

risk in the short or medium term. Of 84 species of mammals in the region, 35 are included in the regional Red List.

In South East England, salmon populations on the Rivers Test, Itchen and Thames are still well below their healthy conservation limit but they are showing signs of stabilising. South West England has emphasised the marine environment with the establishment of Marine Conservation Zones. The South West also entails a quarter of England's Sites of Special Scientific Interest. As of 2010, nearly half of the sites met the conservation target and 25% were recovering.

A 40% decline in the farmland bird index has been seen since the 1970s. Sites of Special Scientific Interest cover 7% of the Anglian region, of which 96 % already meet the conservation target. For the United Kingdom as a whole, an assessment based on 371 listed priority species shows that the state of conservation is declining for about 37% and increasing only for 13%. Nevertheless, the comparison between assessments in 1999 and 2008 shows an improvement in the general situation.

Situation and trends for the FCE area

The FCE area is characterised by a high diversity of landscapes and ecosystems including marine and costal ecosystems, wetlands, traditional agricultures lands, large areas dedicated to intensive agriculture and urban areas. However, ecosystem fragmentation and endangered species represent a critical aspect for the area. Pressures remain high, in particularly due to intensive agriculture, especially in France, as well as industry and urban extension. The loss of species and the decline in the conservation of priority species is critical in all FCE regions.

Nevertheless, the increased number of protected areas, the realisation of the Natura 2000 network, progress in policy making (in EU Directives and national legislation) as well as monitoring (indicators) and integrated strategies at local levels have reduced this decline.

Macro-indicators for the theme Biodiversity

Indicator	State	Trends
Nationally designated protected areas		
Natura 2000 network		
Species conservation		

2.6 SOIL QUALITY AND LANDSCAPE

Soils provide physical support to economic activities, especially for buildings, human settlements and urban infrastructure. Soil also provides numerous ecological services including fertility for farming, regulation of the water cycle, nitrogen and carbon, a carbon sink and life support systems for many species of animals and plants. For years soil has been under human pressure in the FCE cooperation area.

Policy background

Soil is defined as the top layer of the earth's crust. Soil is a non-renewable resource with many vital functions. The Soil Thematic Strategy²⁴ sets the basis for a framework Directive and an Impact Assessment on this issue at EU level.

Artificial soils and surfaces

Artificial soils differ from agricultural or natural soil. 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 10).

In the UK, measures protect greenfield sites from development and following their introduction, 75% of homes were built on brownfield land. France faces the same problem. Artificial spaces have increased and were 9% of the metropolitan area in 2010, up from it was 5% in 2006 according to Corinne Land Cover. This was particularly prevalent in Brittany.

In July 2006, the Upper Normandy region had 70 active quarries, 125 quarries were being used in 2005 in Nord Pas de Calais, while Picardy had 180 at the end of 2009.

Contaminated sites

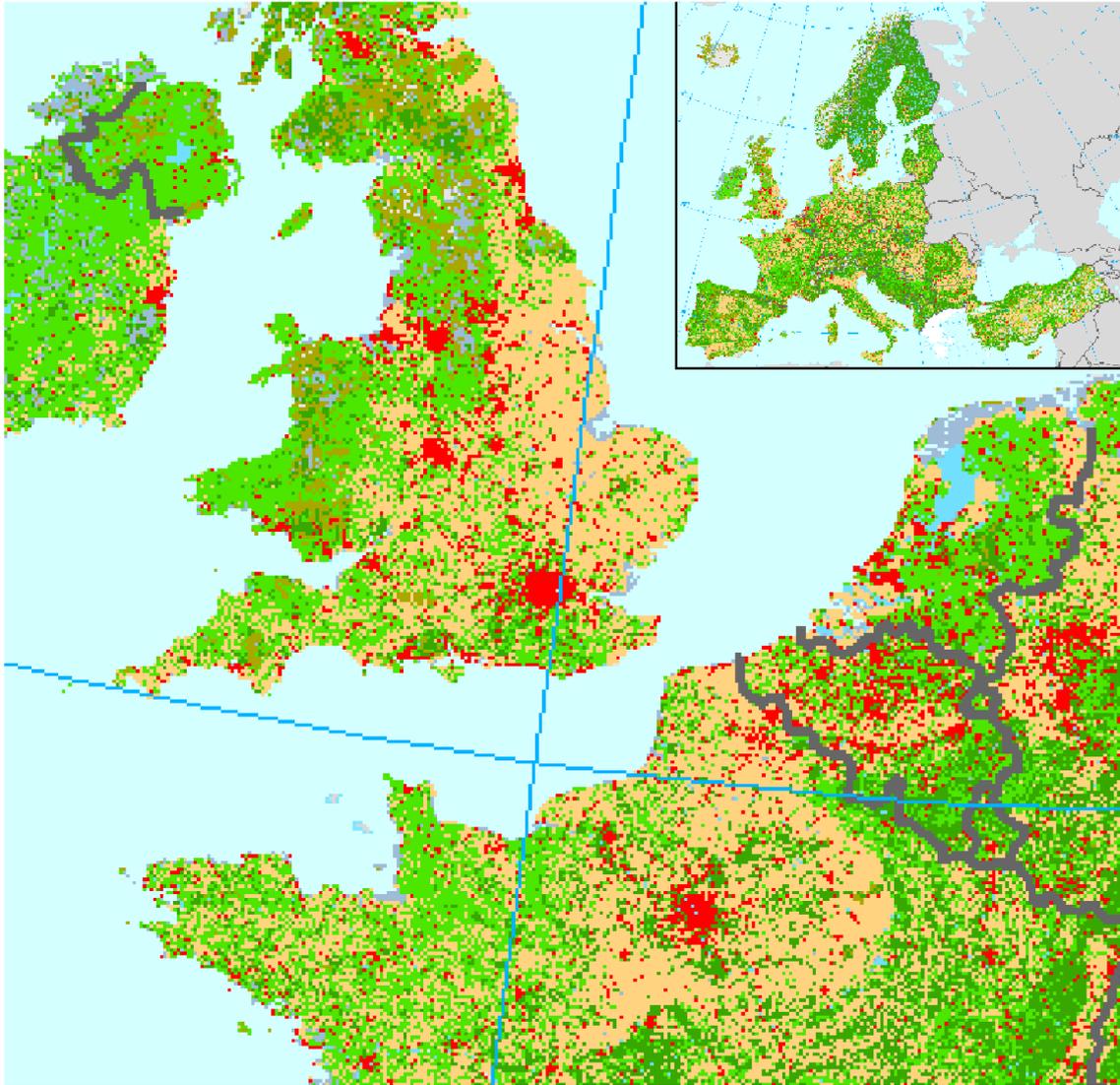
Various human influences contaminate soils with environmentally hazardous substances, such as heavy metals, organic materials and pesticides.

In South East England, the number of serious land pollution incidents has declined since 2002. In France and in particular FCE regions, contaminated sites abound. In 1993, Nord-Pas de Calais

²⁴ EC COM (2006) 231, see also the Proposal for a Soil Framework Directive – COM (2006) 232

had half of French industrial wasteland. In 2006, more than 5 000 hectares of brownfield land have been upgraded. With 549 sites identified in 2007, three quarters of which are located in the Nord department, Nord-Pas de Calais is the second most affected region in France after the Rhône-Alpes region, with 14% of known sites. Upper Normandy counts 194 polluted sites. Brittany had 59 sites with soil polluted by industrial activities and included in the public database BASOL in 2006. This number is constantly rising.

Figure 10 - Soils types in FCE cooperation area and European level



Corine Land Cover types – 2006

- | | | | |
|---|---------------------------------|---|------------------------|
|  | Artificial areas |  | Open spaces/bare soils |
|  | Arable land and permanent crops |  | Wetlands |
|  | Pastures and mosaics |  | Water bodies |
|  | Forested land |  | No data |
|  | Semi-natural vegetation |  | Outside data coverage |

Source: EEA

Situation and trends for the FCE area

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

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. FCE regions also favour 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		

2.7 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 FCE territories include the shipping of harmful products by sea, industrial chemical sites and energy production, including nuclear energy. Of utmost relevance is the presence of populated areas and public infrastructure close to at-risk industrial sites.

Policy background

All Programme regions fall under the Seveso Directive concerning the prevention of major industrial accidents. Adopted after the accident at a chemical plant in Seveso, Italy, in 1976, the Directive applies to industrial establishments handling or storing dangerous substances in large

quantities, mainly in the chemicals, petrochemicals, storage, and metal refining sectors. Three successive Seveso Directives have been adopted, broadening the Directive's scope each time.²⁵

Seveso Sites

Upper Normandy and Brittany have many Seveso plants. Upper Normandy entails 8% of French high tier plants and 5% of low tier, while Brittany has about 194 potentially dangerous sites of which about 20 are high tier and 15 low tier. On the other hand Lower Normandy has few hazardous plants (less than 10 high tier).

The Nord-Pas de Calais region had 81 Seveso plants in 2005, 32 low and 45 high tier. The Picardy Region estimated a total of 34 low and 30 high tier plants in 2009.

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 4 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, in the last ten years i.e. 2004-2013 there have been no accidents reported in England.

Figures for France are missing and only available for Nord - Pas de Calais. Between 1996 and 2006, 464 accidents occurred in plants in the region. Their intensity varied between level 0 to level 5 on a scale developed by the European Union and the OECD, with six being the most severe. The majority of listed events are of low severity, but accidents can be serious. An average of 88 accidents occur every year in this region.

²⁵ OJ No L 230 of 5 August 1982 Council Directive 82/501/EEC on the major-accident hazards of certain industrial activities (Seveso); Council Directive 96/82/EC on the control of major-accident hazards (Seveso II); OJ L 197, 24.7.2012 Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances

Situation and trends for the FCE area

Even if the cooperation area has many Seveso plants, in particular big seaports and hinterland industrial area, few major accidents were listed in the past ten years.

Seveso plant density on the coast of the cooperation area is high e.g. Dunkirk, Rouen. If progress is made towards better technological risk management when a third Seveso Directive is transposed into national legislation by June 2015, changing climatic conditions could further threaten these installations.

Macro-indicators for the theme Technological risks

Indicator	State	Trends
Seveso Sites	☺	n.c
Accidents	☺	n.c
Associated damages	☺	n.c

n.c : unpredictable events and/or trends unknown

2.8 HEALTH, SANITARY RISKS AND NUISANCES

Health, sanitary risks and nuisance are difficult to monitor; the situation very much depends on local conditions and people, who are differently impacted according to age, origin and behaviour. The particular issue of air quality is significant with important consequences for people's health, especially in urban and populated areas where car traffic is important and there are many industrial zones. In the FCE cooperation area, a majority of people live in urban centres and therefore are subject to air pollution, such as ozone and fine particulate matter (PM10).

The issues will be dealt with in this report only at an aggregated level and mainly based on a qualitative analysis.

Policy background

All Programme regions fall under the NEC Directive on national emission ceilings.²⁶ Regarding the particular issue of air quality, the Directive 2008/50/EC²⁷ 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 since the 1990s, e.g. in the UK with the Environment Act 1995 and in France with the law on air and the rational use of energy (LAURE) of 30 December 1996.

Exposure to pollutants

Environmental pollutants significantly affect health in all Programme regions. Noise and atmospheric tobacco smoke are the second and third most important environmental factors in the calculation of the burden of disease. Particulate matter is mainly produced by traffic pollution, particularly from diesel engines. Emissions tend to be concentrated in urban areas and along major roads.

Upper Normandy's air quality is worsening. EU standards are regularly exceeded in particular regarding NO₂. A similar observation applies to Brittany, where in Brest air pollution in the long term could be responsible for an average loss of life expectancy of 48 days/capita.

Ozone concentration in urban centres

Ozone precursors, mainly nitrogen oxides NO_x (NO and NO₂), non-methane volatile organic compounds (NMVOCs) and to a lesser degree CO and CH₄, play a role in photochemical air pollution.

The region is responsible for 5% of national NO_x emissions. Major conurbations are over-exposed to NO₂ emissions, in particular Rouen-centre where the annual average in 2011 of 46 µg/m³ exceeded the threshold of 40 µg/m³. The situation did not particularly improve regarding ozone

²⁶ 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)

²⁷ 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)

precursors. The ozone concentration threshold was not exceeded in Lower Normandy in 2008, 2009 and 2010. Annual average ozone concentrations are stable in Brittany too. However, ozone sensitive zones have been identified, which cover 35% of the regional population.

In South East England, ozone concentration continues to be a problem and appears to be worsening. In Anglian regions, nitrogen dioxide in particular is an issue in several areas. On the other hand, South West England enjoys low ozone concentrations in comparison to the rest of England, with the exception of localised traffic dense areas.

Air quality index

In order to protect public health the European Air Quality Directive²⁸ sets targets for ozone concentrations and air pollutant emissions. The maximum eight-hour average ozone concentration in ambient air must not exceed 120 µg/m³ on any one day. National emission ceilings (NEC) from the European Commission have applied since 2010. French and British authorities have set their own air quality index.

In France, an index ranking air quality from 1 (very good) to 6 (very bad/poor) has been established for the biggest cities. In 2011 Lower Normandy had more days rated 5 and 6, while the number of days with good air quality decreased. In Brittany, the index calculated for three cities resulted in very good to medium air quality. In the Nord-Pas de Calais region, air quality is relatively good for most of the year. Between 2004 and 2006, industrial releases, which predominate in the region, have decreased and NO_x has stabilised.

In the UK, Air Quality Management Areas (AQMAS) have been set up where pollution levels exceed standards. In South East England, five of the 44 AQMAS were declared in 2009. An increase in ozone precursors has also been observed. In the Anglian region 29 of the 52 local authorities have been declared AQMAS, with the majority targeting nitrogen dioxide. Particulate matter is also an issue in several areas. On the contrary, South West England shows relatively good air quality. However, 33 local AQMAS have been designated in 17 local authorities in 2010, 88% were established due to high levels of nitrogen dioxide as a result of traffic.

²⁸Directive 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, p. 1).

Exposure to noise

Besides the emission of particulates, traffic also exposes people to noise. In the Picardy region, 40% of the population consider noise pollution a daily nuisance. One in six people are constantly or often disturbed by noise when at home. This reached 30% of people living in apartment buildings. In Brittany, traffic noise is responsible for very few complaints (2%). In this region, odours – in particular from agriculture – are a real problem.

Situation and trends for the FCE area

The area is not homogeneous regarding health, sanitary risks and nuisances. However, risks related to particulate matter emission and exposure to noise are clearly affecting the whole territory, all the more since 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. Finally, no improvements are foreseen regarding noise pollution.

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

Indicator	State	Trends
Exposure to pollutants	☹️	↘️
Ozone concentration in urban centres	☹️	➡️
Air quality index	☹️	➡️
Exposure to noise	☹️	➡️

2.9 NATURAL AND CULTURAL HERITAGE

Natural and cultural heritage are part of the landscape, as well as being sources of recreational, aesthetic or historic values for inhabitants and people visiting them. Such heritage includes 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 heritage sites.

Policy background

The European Landscape Convention is also known as the Florence Convention. It was adopted on 20 October 2000 in Florence (Italy) and came into force on 1 March 2004. The convention promotes European landscape protection, management and planning and organises European co-operation on these issues.

Outstanding sites and hotspots

South East England has outstanding sites of historic, archaeological and architectural interest. There are 76 000 listed buildings, 368 registered parks and gardens, two UNESCO World Heritage Sites and two national parks. South West England has some of the country's most important historic towns and cities. Almost 40% of the region is protected as National Parkland or as an Area of Outstanding Natural Beauty and 6% of England's Heritage Coast is in the South West. Among others, the region also has 88 616 listed buildings (over a quarter of the English total), 293 registered historic parks and gardens and four World Heritage Sites; Stonehenge and Avebury, the City of Bath, the Jurassic Coast and the Cornwall and West Devon Mining Landscape.

In Brittany, site protection began in 1907 (the first site classified in France was Brittany's Brehat Islands). One of the most well-known protected sites is the Mont Saint-Michel Bay. Moreover, Brittany has considerable military architecture: fortresses, city walls, coastal structures and coastal defences, in particular Vauban's works. Altogether, 319 sites have been classified. Lower Normandy has numerous natural outstanding sites: the 266 registered and classified sites cover 3% of the region. However, protected natural heritage only account for 0.3% of the regional territory.

Picardy also has important historical monuments and archaeological heritage: cathedrals, estates, castles, abbeys, towers, Roman roads, archaeological ruins and WWII remains. Picardy has 73 listed sites, covering 906 km² in late 2010. There were 1 587 monuments or listed in late 2010.

Nord-Pas de Calais’ building heritage is rich and varied. Coalfields from the Pas-de-Calais department have recently been included on the UNESCO World Heritage list. Two thirds of the coast is considered a natural area of high ecological value while the coastal region is the most protected in France with more than 30 km² acquired by the *Conservatoire du Littoral*.

Situation and trends for the FCE area

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 tasks to protect the landscape are made all the more difficult since the cooperation area’s coastal character makes this already fragile environment even more vulnerable to various development pressures (ports, real estate, etc.).

Quality of life is of growing importance in the FCE cooperation areas. Measures to protect natural and cultural landscape are being implemented and are taken into account in development strategies more often.

Macro-indicators for the theme Natural and Cultural heritage

Indicator	State	Trends
Outstanding site and hotspot		

2.10 CROSS BORDER ISSUES

A high number of environmental issues are cross-border and are particularly relevant for the Programme. Specific cross-border environmental issues should be identified under:

- common ecosystems, such as marine areas, seen as 'receptacles' for pressure from all the regions belonging to the cooperation area;

- common issues, such as risk management (flood control), when shared by all MS this is more 'cross-border relevant';
- economic sectors (high growth potential sectors) or economic activities with a cross-border dimension and with potentially strong environmental impact, such as shipping or tourism. Actions that develop or support these sectors also have wide environmental effects (negative or positive) spread over the whole cooperation area and must be considered, even if indirectly, as having a cross-border dimension.

Strong cross-border dimension issues that meet all three criteria are: water quality, including marine ecosystems, climate change natural risks, and the issue of health, sanitary risks and nuisances, all which are relevant under the EU 2020 Strategy. Biodiversity, energy, soil quality and landscape, as well as natural and cultural heritage are significant at a cross-border scale and meet at least two of these criteria. From a cross-border perspective, waste management and health or sanitary risks and nuisance are relevant because they are joint environmental issues shared by regions belonging to the cooperation area. See the table below with the status of each cross-border dimension (Table 1).

Table 1 - Matrix analysis of the cross-border dimensions

Environmental issues	Common ecosystem/function	Common environmental issues	Common pressures from cross-border activities
Climate change and associated risks	X	X	X
Energy		X	X
Water quality and supply	X	X	X
Waste management		X	
Biodiversity		X	X
Soil quality and landscape		X	X
Technological risks		X	X
Health, sanitary risks and nuisances	X	X	X
Natural and cultural		X	X

3. ENVIRONMENTAL OBJECTIVES OF THE COOPERATION AREA

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’²⁹.

The main environmental and sustainable objectives of the area are underlined and listed by environmental theme. Objectives at national and European levels should consider:

- European policies and the Europe 2020 strategy, including the EU climate and energy package and roadmap for moving to a low-carbon economy in 2050;
- The resource-efficient Europe flagship initiative, including the roadmap for a resource-efficient Europe;
- biodiversity conservation and management policy objectives, including those related to Natura 2000 networks and to the EU Biodiversity Strategy to 2020;
- Targets on inland and sea water quality, fixed under the WFD and the Marine Strategy Framework Directive;
- Industrial risk management rules fixed under the IPPC directive³⁰, the REACH directive³¹ and the SEVESO directive;

Part of the information on environmental objectives should be collected directly from SEA experts together with EAs, e.g. during the consultation process, taking into account directives, decisions and rules adopted by the Commission and other relevant national and regional institutions in the field of sustainability and environmental protection over the last 10 years.

²⁹ Directive 2001/42/EC Annex I(e).

³⁰ Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control (OJ L 24, 29.1.2008, p. 8).

³¹ Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1).

General objectives are also disaggregated into specific objectives, to better integrate local characteristics of the areas under analysis (Table 2).

Table 2 - Environmental objectives

Environmental issues	General environmental objectives	Specific environmental objectives
Climate change and associated risks	Reduce GHG emissions	Reduce CO2 emissions in all sectors
	Reduce flooding risks	Improve soil management to reduce surface water run-off and erosion
		Prevent and manage risks due to floods
		Limit property development in areas exposed to flooding risks
	Reduce risks linked to coastal erosion	Prevent and manage risks due to rising sea levels, also protecting the littoral from marine submersion
		Limit property development in areas exposed to submersion risks
Decrease vulnerability to climate change through the delocalization of activity in danger of submersion		
Energy	Promote renewable energies	Promote wind, sun, water and geothermal energy
		Promote local renewable energy sources development
	Improve energy efficiency	Control energy consumption
		Promote homes and buildings insulation to achieve energy neutrality
		Promotion of green technologies and eco-innovation

Water quality and supply	Improve or maintain underground, surface and bathing water quality	Reach 'good status' for a high % of water bodies by 2015
		Promote high standard for safe drinking and bathing water
	Reduce pressure on fresh water, marine ecosystems and coastal areas	Reduce the impact of agriculture pollution (especially nitrates and biocides)
		Reduce water consumption
		Reduce growth of artificial surfaces
	Improve or maintain coastal water quality	Promote sustainable fishing
		Improve marine water quality
		Reduce marine water eutrophication
	Waste management	Reduce the production of waste
Improve goods and services environmental performance by encouraging the use of sustainable products		
Reduce the use of primary materials		
Promote the application of the Waste Hierarchy		
Promote recycling and reuse		Improve efficiency in hazardous waste management
		Promote dry recycling, and recovery of organic waste including composting
	Promote the creation of raw materials from waste	
Biodiversity		Reduce ecosystem fragmentation

(flora and fauna)	Restore degraded ecosystems and their associated services	Protect dunes, limestone hills, cliffs, wetlands, rivers and maritime zones
	Protect and preserve the diversity of species	Maintain and extend ecological corridors
	Reduce pressure on soil, land and ecosystems	Protect migratory fishes and birds
		Promote a better use of land, e.g. organic farming
Soil quality and Landscape	Remediate contaminated soils and lands	Decrease nutrient releases and eutrophication
		Expand surfaces of non-contaminated soils
	Improve efficiency in soil and land management	Promote control and evaluation of cleared land
		Protect agricultural areas from urban sprawl, wooded pasturelands separated by hedges (<i>bocage</i>)
		Reduce growth of artificial surfaces, peri-urbanisation and urban sprawl
Technological risks	Prevent technological risks	Prevent risks induced by hazardous substances transport (accidents)
Health and Sanitary risks and nuisances	Reduce chemical pollution and its effect on health	Reduce chemical pollution at source
		Limit the adverse effects of chemicals on health
	Decrease noise pollution	
	Improve air quality	Reduce air pollution from industry and transport
		Promote regulation of wood used for heating
Reduce electromagnetic pollution	Address electromagnetic pollution by promoting optical fibre	

Natural and cultural heritage	Preserve landscape and cultural heritage	Protect and restore natural and cultural heritage sites
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4. EXTERNAL COHERENCE

According to Annex I(e) of the SEA Directive³² an external coherence analysis should compare the FCE 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 FCE Programme 'Specific Objectives' and related 'Investment Priorities' using a specific assessment matrix (see below). External coherence analysis built on the list of relevant national and regional 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;
- **COHERENT (S/O):** where the Programme strategy and the key plans and strategies share similar strategic goals, actions and target groups.

³² '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.'

4.1 COMMUNITY-LEVEL POLICIES ARE TAKEN INTO ACCOUNT BY THE PROGRAMME

Analysis of the draft Programme revealed that TOs, SOs and associated actions address a high number of environmental issues including water quality, risk management, climate change adaptation, renewable energy and energy efficiency and waste. These are related to European legislation and strategies adopted over the last 10 years in the European Union (see tables below). Furthermore:

- most proposed actions have more than one environmental thematic reference, e.g. pollution, transport congestion, renewable energy and green technology, natural resources and natural heritage, water and waste management, etc.;
- 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, energy resource management, agro-food industry and SMEs.

Actions with clear added value in terms of cross border cooperation are proposed, especially:

- eco-innovation for SMEs, including applied collaborative research and innovation on low-carbon technologies working together to help technology businesses gain access to international and local low-carbon energy technology markets;
- maritime risk prevention and management with joint testing of water management systems to encourage better management of droughts and flooding;
- natural and cultural heritage with development of cross-border tourism products and services, delivery of joint training initiatives for natural and cultural heritage stakeholders and practitioners.

At the EU level, the FCE Programme version for Environmental Consultation should integrate well with EU environmental-related policies and programmes.

Table 3 - Priority Axis 1 external coherence analysis matrix

Investment priority	Specific Objectives	Actions	Links with environmental European strategies, policies and legislation
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<p>Priority Axis 1 - – Support innovation in order to address the economic and societal issues facing the FCE area</p> <p><i>IP 1b - Promoting business investment in innovation and research, and developing links and synergies between enterprises, R&D centres and higher education [...]</i></p>	<p>SO 1 - To increase the delivery and uptake of innovative products, processes, systems and services, to address common economic and societal challenges within the FCE area</p>	<p>Proof of concept/validation</p> <ul style="list-style-type: none"> Supporting collaborative research designed to develop and adapt products, improve the delivery of services, improve processes or systems and commercialise existing research <p>Demonstration and testing</p> <ul style="list-style-type: none"> Joint pilot innovation projects Joint testing of new products, services, processes or systems which could also include testing market demand and how to roll out / embed solutions Joint demonstration projects involving the wide-scale testing of new products, processes and services Joint design of innovative solutions that could include feasibility studies, scoping or finding ways to overcome technical or structural barriers <p>Operations</p> <ul style="list-style-type: none"> Joint development of cross border tools to provide business with business opportunities Developing cross-border education & training pathways to entrepreneurship and business development Joint business development, for example relating to entrepreneurship, innovation management, cluster development and creation of business and commercial networks, and supporting the internationalisation of SMEs Bringing together organisations that would not normally work together (for example cross- and multi-sectoral working, bringing together research institutions with public, private and third sector partners) to stimulate fresh concepts and working practices Joint actions to roll out, embed and bring to market new and innovative solutions Development of new supply chains across the FCE area, or enhancement of existing supply chains 	<ul style="list-style-type: none"> Eco-innovation Action Plan (2011) 'Roadmap for moving to a low carbon economy' (associated with the previous flagship initiative). White paper on sustainable transport (COM(2011) 144 Final)
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Table 4 - Priority Axis 2 external coherence analysis matrix

Investment priority	Specific Objectives	Actions	Links with environmental European strategies, policies and legislation
<p>Priority Axis 2 - Support the transition to a low-carbon economy in the FCE area</p> <p><i>IP 4f - Promoting research in, innovation in and adoption of low-carbon technologies</i></p>	<p>SO 2 - Increase the development and uptake of existing or new low-carbon technologies</p>	<p>The programme will prioritise initiatives aiming develop new technologies and at the same time stimulate their adoption.</p> <p>Proof of concept/validation</p> <ul style="list-style-type: none"> • Applied collaborative research and innovation on low-carbon goods and services, including new concepts, approaches, products, processes, and services; • Adapting and spreading the use of low carbon good and services. <p>Demonstration and testing</p> <ul style="list-style-type: none"> • Joint pilot demonstration projects to test and showcase the benefits of low carbon goods and services and their applications; • Joint feasibility and technical studies on low-carbon goods and services to explore their market potential; • Environmental and societal impact studies on how to increase and / or improve the use of low-carbon good and services • Joint feasibility testing of low-carbon goods and services • Joint testing of more efficient and effective ways to use energy • Joint demonstration and large-scale testing of new products, services, processes and systems. <p>Operations</p> <ul style="list-style-type: none"> • Joint measures to encourage the use of low-carbon technologies, including renewable energies • Working together to deliver to help businesses gain access to local and international low-carbon energy technology markets; 	<ul style="list-style-type: none"> • Flagship initiatives: ‘Resource efficient Europe’ and ‘An industrial policy for the globalisation era’ • ‘Roadmap for moving to a low carbon economy’ and ‘Roadmap resource efficient Europe’ (associated to the previous flagship initiatives). • European Energy Efficiency Plan 2011 (COM (2011) 280 Final) • White paper on sustainable transport (COM(2011) 144 Final) • Offshore Wind Energy (COM(2008) 768 final) • EU Climate and energy packages (Regulation (EC) No 443/2009, Directive 2009/28/EC, Directive 2009/29/EC, Directive, 2009/30/EC Directive 2009/31/EC, Decision No 406/2009/EC)

		<ul style="list-style-type: none">• Identify and develop the skills needed to promote, develop and use low carbon technologies.	
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Table 5 - Priority Axis 3 external coherence analysis matrix

Investment priority	Specific Objectives	Actions	Links with environmental European strategies, policies and legislation
<p>Priority Axis 3 - Enhance the attractiveness of territories within the FCE area</p> <p><i>IP 6C - Protecting, promoting and developing natural and cultural heritage.</i></p>	<p>SO 3.1 To improve the attractiveness of the FCE area by jointly developing and exploiting its cultural and natural heritage.</p>	<p>Proof of concept/validation</p> <ul style="list-style-type: none"> • Develop and implement a joint actions to enhance and exploit the area’s natural and cultural heritage assets • Delivery of joint marketing approaches that strengthen the image and enhance the attractiveness of the programme area as a destination of choice in worldwide marketplaces (for example, focusing on visitor economy or to attract inward investment) • Joint design of approaches to boost employment in FCE cultural and natural heritage sectors (for example new approaches to training, raising awareness of different opportunities, designing pathways / routes to employment) <p>Demonstration and testing</p> <ul style="list-style-type: none"> • Trialling and testing whether new place marketing approaches, new cross-border events, or new cross-border tourism products can be successful • Testing and demonstrating different approaches to reviving or enhancing creative and cultural industries across the FCE area. <p>Operations</p> <ul style="list-style-type: none"> • Development of cross-border tourism products and services, with a particular emphasis on supporting sustainable or eco-tourism. • Implementation of actions that develop or enhance cross-border routes linked to, for example, common history, geological or natural heritage, existing assets • Implementation of joint events or communication measures to increase interest and therefore use of the FCE area’s natural and cultural assets 	<ul style="list-style-type: none"> • Flagship initiatives: ‘Resource efficient Europe’ • ‘Roadmap resource efficient Europe’ (associated to the previous flagship initiative) • Marine Strategy Framework Directive 2008/56/EC • Water Framework Directive 2000/60/EC • Directive on ambient air quality and cleaner air for Europe (2008/50/EC); • Thematic Strategy on Air Pollution Com(2005) 446 final • European Landscape Convention • (Future) European Charter for a Sustainable and Responsible Tourism

		<ul style="list-style-type: none"> • Delivery of joint training initiatives for natural and cultural heritage stakeholders and practitioners • Interventions to boost capacity and opportunities in the FCE areas' cultural and creative industries 	
<p>Priority Axis 3 - Enhance the attractiveness of</p>	<p>SO 3.2 - Support the development, and improve the management of green and blue infrastructure</p>	<p>Proof of concept</p> <ul style="list-style-type: none"> • Joint research and scoping studies to manage environmental and natural risks, biodiversity and ecosystems, and natural assets across the FCE area, with the aim to raise awareness of natural heritage, biodiversity, and local ecosystems and their services 	<ul style="list-style-type: none"> • Our life insurance, our natural capital: an EU biodiversity strategy to 2020 (COM2011/0244 final) • An EU Strategy on adaptation to climate change (COM(213) 216 final) and related Guidelines • Regulation (EU) No 1255/2011

<p>territories within the FCE area</p> <p><i>IP 6D Protecting and restoring biodiversity, soil protection and restoration promoting ecosystem services including NATURA 2000 and green infrastructure.</i></p>	<p>and ecosystem services</p>	<ul style="list-style-type: none"> • Joint analysis, comparison and evaluation of the environment leading to concrete proposals that will improve how ecosystems are managed • Pilot projects on the definition and implementation of new management systems for ecosystem services, including joint experimentation. <p>Demonstration</p> <ul style="list-style-type: none"> • Joint testing and piloting of actions that demonstrate better management of the FCE area and how to balance competing priorities for human activities and environmental preservation • Joint testing of water management systems to encourage better management of droughts and flooding. <p>Operation</p> <ul style="list-style-type: none"> • Development and implementation of common information, education and communication tools designed to improve organisations and citizens respect for and treatment of the environment • Implementation of joint actions to develop green and blue corridors • Development and implementation of measures to influence local planning policy especially focused on maritime and coastal planning • Implementation of joint measures to reduce pollution and improve the management of environmental risk especially in relation to the maritime risk and pollution • Joint awareness and training events on the theme of sustaining, improving and managing ecosystem services – aimed at public decision makers, environmental stakeholders, and practitioners concerned by these challenges, where these joint events will lead to a measurable improvement in how the environment is used and managed. • Joint initiatives combining sustainable management of natural resources (promotion of renewable energy in tourist infrastructure, water and waste management) and protection and promotion of preserved natural areas 	<p>establishing a Further Programme to support the development of an Integrated Maritime Policy</p> <ul style="list-style-type: none"> • Directive 2002/84/EC amending the Directives on marine safety and prevention of pollutions • Directive 2007/60/EC on the assessment and management of flood risks • Decision 2007/779/EC establishing a Community Civil Protection System • Marine Strategy Framework Directive 2008/56/EC • ‘Birds Directive’ (2009/147/EC) and the ‘Habitats Directive’ (92/43/EEC)
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Table 6 - Priority Axis 4 external coherence analysis matrix

Investment priority	Specific Objectives	Actions	Links with environmental European strategies, policies and legislation
<p>Priority Axis 4 – Ensure a balanced and inclusive development of the FCE area</p> <p><i>IP 9B - Providing support for physical, economic and social regeneration of deprived communities in urban and rural areas</i></p>	<p>SO 4.1. Improve the collective ability of stakeholders to enhance social inclusion and increase economic revitalisation in urban and rural areas</p>	<p>Proof of concept/Validation</p> <ul style="list-style-type: none"> • Jointly design methods for identifying the emergence of new economic activities or niches and adapting education/training schemes accordingly • Develop joint guidelines and working practices that are then embedded across the FCE area to accelerate and improve social inclusion and economic diversification and regeneration; • Joint design of new or alternative service delivery models, based on existing practices and experiences across the FCE area, designed to deliver more efficiently and effectively to vulnerable, excluded and at-risk elements of society. <p>Demonstration</p> <ul style="list-style-type: none"> • Testing new intervention models prior to future roll-out (regeneration and social inclusion) • Piloting and demonstrating different solutions in different parts of the FCE programme to compare and contrast different methods and find out what works best <p>Operations</p> <ul style="list-style-type: none"> • Design and implement joint training courses and exchange of good practice tackling social inclusion aimed at organisations and professionals in the programme area; • Exchange of good practice and experience between public sector and economic development stakeholders to improve future policy and service provision as well as promote reuse of derelict buildings and industrial sites • Utilise shared best practice to directly (and measurably) improve future policy and service provision across the programme area • Implement jointly designed training programmes to overcome barriers to employability for disadvantaged groups, or to enable entrepreneurship for disadvantaged groups 	<ul style="list-style-type: none"> • Flagship initiatives: ‘Resource efficient Europe’ • ‘Roadmap resource efficient Europe’ (associated to the previous flagship initiative) • Council Directive 99/31/EC on the landfill of waste <ul style="list-style-type: none"> • EU Waste Framework Directive (2006/12/EC)

		<ul style="list-style-type: none">• Jointly design and implement initiatives to increase mutual understanding and cooperation between generations• Jointly design and implement initiatives that improve access to health services, housing and recreational services for disadvantaged groups;	
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4.2 PROGRAMME CONTRIBUTION TO NATIONAL AND REGIONAL STRATEGIES

The FCE Programme was also checked for coherence with other strategies implemented at national and/or regional levels in the UK and in France.

For Priority Axis 1 and its Specific Objective 1.1 ‘Increase the development and uptake of innovative products, processes, systems and services that address common economic and societal challenges of the FCE area’ national and regional strategies have set very similar objectives e.g. the British Marine Policy Statement (2011) points out that ‘Plans will need to be forward looking and, in particular, [...] accommodate, a range of future demands and scenarios, including new evidence, innovation and evolving technologies and techniques’. All French documents recognise innovation as a major vector of long-term development and a key issue for addressing economic and also societal challenges, which are often linked or influenced by environmental issues e.g. climate change, energy efficiency, health, population ageing, etc. Both British and French documents agreed that innovation can create social benefits, e.g. for health with better air quality and lower congestion through improvement in transport information systems. It is therefore acknowledged that innovation should also benefit the whole society, beyond just the economic and technological spheres.

Priority Axis 2 and its Specific Objective 2.1 ‘Increase the development and uptake of existing or new low-carbon technologies’ is a strong concern shared by both MS. British national and French regional documents reflect this trend. The topic is directly approached by the British Carbon Plan (2011) and the French Regional Scheme on Climate, Air and Energy (SRCAE). The Carbon Plan focuses on technological possibilities and economic opportunities, while the SRCAEs emphasise the need to use the best available technology for eco-efficiency in regional productive systems. The FCE Strategy is coherent with strategies in its MS.

Priority Axis 3 concentrates on making the region a more attractive place to live in, to work in and to visit. Specific Objective 3.1 ‘Improve the attractiveness of the FCE area, by jointly developing and exploiting its common cultural (creative and cultural industries) and natural capital’ echoes British and French documents, which to a large extent seek to enhance their territories’ attractiveness through the protection of their natural and cultural heritage. Thus, the Marine Policy Statement (2011) ‘the marine environment provides national economic and social benefits

including for heritage assets, seascape and cultural services of coastal and marine activities, as well as directly contributing to the quality of life and well-being of coastal communities’ or the Upper Normandy SRADDT (2012) ‘the quality of high-Norman natural heritage boost attractiveness of the area’. Indeed French documents often entail at least one axis in their regional strategies seeking either ‘Preserved and enhanced natural resources and cultural heritage’³³ (SRCAE Picardy, 2012) or ‘Being and well-being’, improving the quality of life and solidarity between territories by [...] protecting and enhancing the heritage and the environment’ (Lower Normandy SRADT, 2007). The same can be concluded when scrutinising Specific Objective 3.2 ‘Increase joint promotion of common green and blue infrastructures and ecosystem services’. There are no obvious incoherencies. In fact, green and blue infrastructure, as well as Natura 2000 sites, are quoted as a way to foster ecological networks (SRCAE Lower Normandy, 2013), to initiate ecological transition in the region (SRADDT Nord-Pas de Calais, 2012) or to maintain the ecological functions of the environments (SRCAE Picardy, 2012).

Priority Axis 4 and its Specific Objective 4.1 ‘Improve the collective capacities of socio-economic, social policy and social action stakeholders to conceive and implement social inclusion and economic regeneration solutions’ is also neutral to coherent with regard to all British and French documents. Indeed, the Marine Policy Statement (2011) is said to ‘contribute to the societal benefits of the marine area, including the sustainable use of marine resources to address local social and economic issues’. Most French documents emphasise the need for combating energy insecurity while addressing social inclusion, which is both a social goal and an environmental objective. Economic regeneration is also a shared aim, in particular in regions most concerned with the decline of their traditional industries, e.g. the Nord-Pas de Calais recently launched its strategy for in a third industrial revolution, based on renewable energies and that could open the door to a post-fossil fuel era.

External coherence analysis demonstrated that the FCE Programme is very coherent with other strategies implemented at national and regional levels in both MS.

COUNTRY	DOCUMENT	AXIS 1	AXIS 2	AXIS 3 SO 3.1	AXIS 3 SO 3.2	AXIS 4
UK	Climate Change Act 2008 - Parliament of the United Kingdom – 2008	(N)	(S/O)	(N)	(N)	(N)

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UK	Marine Policy Statement – 2011	(S/O)	(S/O)	(S/O)	(S/O)	(S/O)
UK	The Carbon Plan: Delivering our low carbon future – 2011	(S/O)	(S/O)	(S/O)	(N)	(N)
FR	SRADDT Upper Normandy – 2006 (updated n°5 version, 2012)	(S/O)	(N)	(S/O)	(N)	(S/O)
FR	SRCAE Upper Normandy – 2013	(S/O)	(S/O)	(S/O)	(S/O)	(S/O)
FR	SRADT Lower Normandy – 2007	(S/O)	(S/O)	(S/O)	(S/O)	(S/O)
FR	SRCAE Lower Normandy – 2012	(S/O)	(S/O)	(S/O)	(S/O)	(S/O)
FR	SRCAE Brittany - 2012	(S/O)	(S/O)	(S/O)	(S/O)	(S/O)
FR	SRADDT Picardy, 2011	(S/O)	(N)	(S/O)	(S/O)	(S/O)
FR	SRCAE Picardy - 2012 (<i>Rapport et document d'orientation</i>)	(S/O)	(S/O)	(S/O)	(S/O)	(S/O)
FR	SRADDT Nord-Pas de Calais, 2012	(S/O)	(S/O)	(S/O)	(S/O)	(S/O)
FR	SRCAE Nord-Pas de Calais 2050 (<i>Rapport et document d'orientation</i>), 2012	(S/O)	(S/O)	(S/O)	(S/O)	(S/O)

Legend:

S/O: Coherent

N: Neutral

5. ENVIRONMENTAL EFFECTS ANALYSIS

5.1 APPROACH USED FOR EFFECTS ANALYSIS

The Directive requires the evaluation of the likely significant effects on the environment from the Programme. According to Annex II (2) of the SEA Directive, the evaluation must consider in particular the direct and indirect impacts, their probability, scale, frequency, duration, reversibility, the cumulative nature of their effects and their cross-border dimension.

Past evidence and experience from other cooperation programmes show that actions planned for territorial cooperation are much more related to networking, capacity building and information sharing than infrastructure investment with significant short term and direct effects on the environment. Therefore, many expected environmental effects of the Programme should be intangible and indirect. .

This situation makes it difficult to quantify environmental performance indicators to be taken into account in the environmental monitoring system (see also the following section 7).

Table 7 shows environmental effects of actions under ERDF funding, following Article 3 in the ERDF Regulation.

This situation makes it difficult to quantify environmental performance indicators to be taken into account in the environmental monitoring system (see also the following section 7).

Table 7 – Typology of measures in ERDF and expected environmental effects

Type of actions	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	Short, medium
Networking, cooperation and exchange of experience	Indirect, intangible, non-localised	Short, medium

Analysis of the effects has three steps. Firstly, the environmental objectives identified in Table 2 were matched with the proposed actions and eligible activities planned by the Programme. Actions with a potential effect on a specific environmental objective are shown with an ‘X’ while unknown effects are ‘?’ and actions with no environmental effect ‘n.e.’³⁴

Secondly, the SEA experts estimated the effects’ intensity on a scale illustrated in Table 8. The characteristics listed in Annex II of the SEA directive (probability, duration, reversibility, geographic extent) were weighted and used to attribute significance to the effects. If the environmental effect is critical, this is included in the evaluation.

Table 8 – Scale for measuring positive and negative effect

Positive effects	Scale to measure the intensity of the effects	Negative effects
++	Very significant effects	--
+	Significant effects	-
?	Unknown effect	?
n.s.	Not significant effects	n.s.

This gives a map of the effects with their associated colours. Such a representation helps the reader to quickly identify effects in relation to the Programme. To ensure that the assessment is open and transparent, additional comments provide a clear explanation or justification of the likely effects, including their type and significance for each action against each objective.

Thirdly, the information is organised to assess the cumulative and cross-border effects of each action planned by the Programme. The cumulative impacts are ordered by environmental theme.

It is worth noting that the methodology used to evaluate the effects will be based on both literature, especially for environmental impact assessment, and the personal experiences of the SEA experts.

³⁴ ‘?’-some actions planned by the Programme could have an indirect impact that is difficult to estimate. For example, innovation or R&D could have environmental effects depending on many different factors, such as technology, market conditions or their implementation, that are unknown at this stage of the programme. ‘n.e.’ is indicated when actions are deemed to have no environmental effects, e.g. communication plans are not related to the environment.

In the following subsections the effects for each Priority Axis are further analysed.

Table 9 - Evaluation matrix

<i>Environmental issue</i>	<i>Environmental objectives</i>	<i>SO 1.1</i>	<i>SO 2.1</i>	<i>SO 3.1</i>	<i>SO 3.2</i>	<i>SO 4.1</i>
Climate change and associated risks	Reduce GHG emissions	X	X	n.e.	n.e.	n.e.
	Reduce flood risks	n.e.	n.e.	?	X	n.e.
	Reduce risks linked to coastal erosion	n.e.	n.e.	n.e.	X	n.e.
Energy	Promote renewable energy	n.e.	X	X	n.e.	?
	Improve energy efficiency	n.e.	X	X	n.e.	?
Water quality and supply	Improve or maintain underground, surface and bathing water quality	n.e.	n.e.	X	?	n.e.
	Reduce pressure on fresh water, marine ecosystems and coastal areas	n.e.	n.e.	n.e.	?	n.e.
	Improve or maintain coastal water quality	n.e.	n.e.	X	X	n.e.
Waste management	Reduce the production of waste	?	X	X	n.e.	n.e.
	Promote recycling and reuse	?	n.e.	X	n.e.	n.e.
Biodiversity (flora and fauna)	Restore degraded ecosystems and their associated services	n.e.	n.e.	?	X	n.e.
	Protect and preserve the diversity of species	n.e.	X	?	X	n.e.

	Reduce the pressure on soil, land and ecosystems	n.e.	n.e.	X	X	n.e.
Soil quality and Landscape	Remediate contaminated soils and lands	n.e.	n.e.	n.e.	?	?
	Improve efficiency in soil and land management	n.e.	n.e.	?	X	?
Technological risks	Prevent technological risks	n.e.	n.e.	n.e.	X	n.e.
Health and Sanitary risks and nuisances	Reduce chemical pollution and its effect on health	X	n.e.	n.e.	n.e.	n.e.
	Decrease noise pollution	?	?	n.e.	n.e.	?
	Improve air quality	X	X	n.e.	?	n.e.
	Reduce electromagnetic pollution	?	n.e.	n.e.	n.e.	n.e.
Natural and cultural heritage	Preserve landscape and cultural heritage	n.e.	n.e.	X	X	n.e.

From the above table, it can be concluded that:

- less than 30% of the effects are significant, which means that more than 70% of the potential effects of the Programme on the cooperation area are either unknown (15%) or not significant (55%);
- significant effects are mainly registered in SO 2.1, SO 3.2 and SO 3.1;
- SO 4.1 does not demonstrate any relevant environmental effects.

A brief description of the environmental effects of each priority axis is given in the following sections.

5.2 LIKELY SIGNIFICANT EFFECTS ON THE ENVIRONMENT

5.2.a *Effects on the environment from Priority Axis 1*

Priority Axis 1 – ‘Support innovation in order to address the economic and societal issues facing the FCE area’ is devoted to promoting business investment in innovation and research and to developing links and synergies between enterprises, R&D centres and higher education. Targets are mainly related to ‘blue growth’ and the maritime/coastal economy, but also to innovation addressing societal challenges faced by the area and to social innovation. Research and innovation in environmental topics are not targeted by this Axis. Furthermore, the main instrument for Axis 1 is networking, even if several kinds of actions within the three specific objectives are implemented. This tool cannot directly affect the environment as direct investment does. Nevertheless, some types of action can have localised environmental effects, such as support for applied research or wide-scale testing of new products.

Table 10 lists the possible effects and their significance for Priority Axis 1. Some of the effects are ‘unknown’, because there are too many variables. These include the object of the actions, the type and magnitude of interaction between activity sector, human activities and environmental components. Because SO 1.1 targets innovations, pointing out the health challenges in the area, less noise and electromagnetic pollution leading to positive effects on health can be considered, e.g. there can be positive effects on exposure to electro-magnetic waves as secondary consequences of innovation related to optical fibre. However any significance of this interaction cannot be determined.

The other effects are not significant. They all depend on the consequences of innovation promotion activities. They are widespread because they result from cooperation and they concern the whole FCE area.

Table 10 – Priority Axis 1: significance of environmental effects

<i>Environmental issue</i>	<i>Environmental objectives</i>	<i>SO 1.1</i>
Climate change and associated risks	Reduce GHG emissions	+
Waste management	Reduce the production of waste	?
	Promote recycling and reuse	?
Health and Sanitary risks and nuisances	Reduce chemical pollution and its effect on health	n.s.
	Decrease noise pollution	?
	Improve air quality	n.s.
	Reduce electromagnetic pollution	?

5.2.b *Effects on the environment from Priority Axis 2*

Priority Axis 2 supports ‘the transition to a low-carbon economy in the FCE area’. Positive effects on climate change and energy issues are taken for granted. Indirect interactions with other environmental issues are also expected. SO 2.1 explicitly seeks to ‘increase the development and uptake of existing or new low carbon good and services’. Therefore, there are significant positive effects on GHG emission reduction and on renewable energy and energy efficiency promotion. These are direct effects because they result from actions imputed to the environmental objective. They are certain and widespread. SO 2.1 actions focus in particular on energy-intensive sectors, e.g. construction, housing and transport. In this sense, a positive direct effect on air quality is likely. Furthermore, energy generated through biomass sources could also help reduce the amount of waste produced.

A possible consequence of targeting the transport and housing sectors is, on the one hand a reduction in traffic noise, and on the other hand less noise sensitivity though better isolated housing. However, these effects are too indeterminate to be assessed.

The only feasible negative but not significant effect from SO 2.1 is on biodiversity, from the realisation of pilot actions on off-shore wind plants. This effect is unlikely because it is linked to the hypothetical realisation of specific projects in sensitive areas. Nevertheless, it is important to point out uncertain negative effects in the SEA procedure in order to provide guidance for the Programme throughout implementation. Table 11 sums up the environmental effect of SO 2.1.

Table 11 – Priority Axis 2: significance of environmental effects

<i>Environmental issue</i>	<i>Environmental objectives</i>	<i>SO 2.1</i>
Climate change and associated risks	Reduce GHG emissions	++
Energy	Promote renewable energies	+
	Improve energy efficiency	+
Waste management	Reduce the production of waste	+
Biodiversity (flora and fauna)	Protect and preserve the diversity of species	n.s.
Health and Sanitary risks and nuisances	Decrease noise pollution	?
	Improve air quality	+

5.2.c *Effects on the environment from Priority Axis 3*

Priority Axis 3 aims to ‘enhance the attractiveness of territories within the FCE area’. This seeks to protect, promote and develop the cross-border area natural and cultural heritage. Significant direct positive effects on landscape and cultural heritage are therefore likely.

SO3.2. foresees possible effects on climate change adaptation since green infrastructure contributes to flood prevention by reducing water run-off and erosion. Positive but not significant effects, since they are not certain, could come from measures favouring sustainable tourism development in particular regarding energy, water quality and waste management. In fact, actions mainly concern territorial marketing and services development, where natural assets are the support rather than the target of such operations.

In addition, the improvement in attractiveness and consequently the increase of tourists in the area could as a result run increase pressure on soil and natural resources. SO 3.1 is thus considered to have negative, not significant effects in this regard.

The focus of SO 3.2 is on ecosystems, so its impact on biodiversity is positive. Significance of these effects is linked to their certainty and spatial horizon. Indeed, the Programme is planning actions related to stakeholders training and pilot actions, covering the whole cooperation area and intended to FCE players. There should be similar positive improvements following the prevention and management of pollution and both technological and natural risks.

The other effects are not significant. They are all indirect effects, i.e. consequences of green and blue infrastructure and ecosystem enhanced management, which are not certain and reversible. They are widespread because they result from cooperation and concern the FCE area.

Table 12 - Priority Axis 3: significance of environmental effects

<i>Environmental issue</i>	<i>Environmental objectives</i>	<i>SO 3.1</i>	<i>SO 3.2</i>
Climate change and associated risks	Reduce flood risks	?	+
	Reduce risks linked to coastal erosion		n.s.
Energy	Promote renewable energy	n.s.	
	Improve energy efficiency	n.s.	
Water quality and supply	Improve or maintain underground, surface and bathing water quality	n.s.	?
	Reduce pressure on fresh water, marine ecosystems and coastal areas		?
	Improve or maintain coastal water quality	n.s.	n.s.
Waste management	Reduce the production of waste	n.s.	
	Promote recycling and reuse	n.s.	
Biodiversity (flora and fauna)	Restore degraded ecosystems and their associated services	?	+
	Protect and preserve the diversity of species	?	n.s.
	Reduce the pressure on soil, land and ecosystems	n.s.	+
Soil quality and Landscape	Remediate contaminated soils and lands		?
	Improve efficiency in soil and land management	?	n.s.
Technological risks	Prevent technological risks		+
Health and Sanitary risks and nuisances	Reduce chemical pollution and its effect on health		
	Decrease noise pollution		
	Improve air quality		?
Natural and cultural heritage	Preserve landscape and cultural heritage	+	++

5.2.d *Effects on the environment from Priority Axis 4*

Priority 4 – ‘Ensure balanced and inclusive development in the FCE area’, is devoted to support for economic and social regeneration of deprived urban and rural communities and areas.

SO 4.1 should have limited impact on the environment. Interaction between economic development stakeholders and practitioners together with the application of sustainable urban design principles such as the reuse of derelict buildings and industrial sites should lead to better land use and to noise pollution decrease. However, the effects are indirect, uncertain and very localised, so their outcomes should be considered as unknown.

Table 13 - Priority Axis 4: significance of environmental effects

<i>Environmental issue</i>	<i>Environmental objectives</i>	<i>SO 4.1</i>
Soil quality and Landscape	Remediate contaminated soils and lands	?
	Improve efficiency in soil and land management	?
Health and Sanitary risks and nuisances	Decrease noise pollution	?

5.3 ASSESSMENT OF CUMULATIVE AND CROSS-BORDER EFFECTS

5.3.a *General approach*

The cumulative effects on each environmental theme have been analysed combining information from Section 3 (‘Environmental objectives’) and considering all possible causal relationships leading to an impact on that theme.

First, possible interactions between environmental components have been pointed out using a logical tree approach. 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 (indirectly influencing the environmental issues);

- the third order effects act on the second order ones (indirectly influencing the first order effects).

All effects on the environmental components are then combined for all SOs, to get an assessment of the overall significance. The single effects were weighted in relation to their level, i.e. their contribution to the final environmental theme.

The cross-border nature of the effects has also been emphasised in the tables below for each environmental issue (see Section 2.10).

5.3.b Cumulative and cross-border effects by environmental issue

CLIMATE CHANGE AND RELATED RISKS	<i>Cumulative effect</i>
	+
<i>Relevance to the cooperation area</i>	
Climate change is of importance for the cooperation area, especially regarding sea levels. Most coastal areas are subject to erosion and large parts of the territories are vulnerable to floods.	
<i>Cumulative effects</i>	
<p>Climate change is considered in a ‘crosscutting’ manner, even though no SO is dedicated to this issue. First order effects on environmental objectives for climate are adaptation and GHG reduction. Energy consumption is a major cause of GHG emission. Effects on energy efficiency and renewable energy (second order) are also considered. Biodiversity and natural resources, through ecological services, is an important instrument of climate change adaptation (second order). Since water quality, soil and waste management can contribute to biodiversity defence and ecosystem conservation, they are included in the cumulative effect (third order). The effects on natural risks, while not necessarily directly coming from climate change, have also been included (as a second order).</p> <p>Cumulatively there is a significant positive effect. The main contribution comes from the direct positive effect on climate change objectives (SO 1.1 and 2.1). Effects on renewable energy and energy efficiency (SO 2.1 and 3.1) also play an important role.</p>	
<i>Cross-border effects</i>	
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, as the Programme does.

ENERGY	<i>Cumulative effect</i>
	+
<i>Relevance to the cooperation area</i>	
The cooperation area still has a strong dependency on fossil fuel, even if the share of renewable energy production and consumption has increased in recent decades. Economic sectors are interested in reduced energy consumption.	
<i>Cumulative effects</i>	
First order effects on environmental objectives concerning energy are the promotion of renewable energies and energy efficiency. They are influenced by second order effects concerning waste management. In fact, increased waste reduction and the promotion of recycling can contribute to energy savings. Cumulatively, the effect is positive and significant.	
<i>Cross-border effects</i>	
Effects from the energy sector, primarily GHG emissions, are cross-border. Cooperation in renewable energy, with a potential focus on bio-marine energy, within a strategy for energy efficiency and reduced energy consumption represents an opportunity for the cooperation area.	

WATER QUALITY AND SUPPLY	<i>Cumulative effect</i>
	+
<i>Relevance to the cooperation area</i>	
<p>The resource shows hot spots in term of quality and supply in all regions covered by the Programme. The area is characterised by significant human pressure on water. The positive effects of the Programme act concomitantly with the current effort of local authorities to implement water policy and control at various governance levels (national, regional and district basins) in the two Member States.</p>	
<i>Cumulative effects</i>	
<p>Cumulative effects on water primarily come from actions to improve fresh and coastal water quality and to reduce pressures on fresh water, marine ecosystem and coastal areas. Ecological services supplied by ecosystems contribute to water quality, so that effects on biodiversity and natural ecosystems (second order) have been considered. Effects on soil quality and management and on waste production and management have been included (second order) because of their influence on water quality. Climate change effects (second order) and related energy issues (third order) also influence water management.</p> <p>The cumulative effect is significant, mainly due to the second order effect on climate change of Priority Axis 2.</p>	
<i>Cross-border effects</i>	
<p>The marine ecosystem is a central shared environmental resource, at the heart of the Programme. The focus on cooperation that characterises the Programme means this environmental issue can be tackled with integrated solutions planned on a cross-border scale.</p>	

WASTE	<i>Cumulative effect</i>
<i>Relevance to the cooperation area</i>	
<p>On this issue the FCE cooperation area is not homogeneous. Even though waste collection and processing have generally improved recently, a lot still needs to be done both in France and the UK, in particular reducing fly-tipping, landfills and the quantity of household waste while increasing recycling and reuse.</p>	
<i>Cumulative effects</i>	
<p>Waste management is not properly an environmental component but it has strong environmental implications. Hence environmental components such as water, air and biodiversity do not affect this issue but are, rather, affected by it. For cumulative effects we considered only interactions between the Programme and objectives concerning waste.</p> <p>However, the cumulative effect is positive but not significant.</p>	
<i>Cross-border effects</i>	
<p>Even if waste is not narrowly defined as a cross-border issue, an integrated approach to the problem in the cooperation area is an opportunity.</p>	

BIODIVERSITY	<i>Cumulative effect</i>
	+
<i>Relevance to the cooperation area</i>	
<p>The FCE area has diverse landscapes and ecosystems. However ecosystem fragmentation, in particular because of infrastructure, is a critical issue for endangered species.</p>	
<i>Cumulative effects</i>	
<p>Numerous Programme actions should directly contribute to biodiversity conservation and ecosystem protection. Effects on adaptation to climate change and on natural risks (second order) have been considered in their cumulative effect, in addition to those regarding landscape, soil, water and air protection. The reduction of waste production and impact has been included (second order) as it is likely to contribute to reduced pressure on (marine) ecosystems.</p> <p>The cumulative effect is significant and mainly due to the second order effects on landscape and natural & cultural heritage preservation of Priority Axis 3.</p>	
<i>Cross-border effects</i>	
<p>The cross-border nature of this environmental component is not strictly related to the resource itself, but rather to the ecological services it provides. In addition, several activity sectors, such as fishing and tourism, which could affect biodiversity and natural resources, are cross-border. In fact, the Programme promotes coordination in activities and sectors such as tourism, innovation and coastal management, which</p>	

strongly influence biodiversity. Particularly important is the marine ecosystem, a characteristic element of this cooperation area. Since the maritime dimension has been identified as a cross-cutting theme, appropriate cross-actions have been integrated in many SOs.

SOIL QUALITY AND LANDSCAPE	<i>Cumulative effect</i>
	n.s.
<i>Relevance to the cooperation area</i>	
Soil and landscape quality in the FCE cooperation area are clearly threatened, by soil sealing and contamination, from both agriculture practices and industry.	
<i>Cumulative effects</i>	
Not many SOs in the Programme have direct positive effects on soil, SO 3.1 could even have small negative effects as the higher attractiveness of the territory will bring additional human pressure on the area. However, this is largely compensated for by the many second order positive effects that other environmental components have on soil quality. Reduced flood risks through the development of green infrastructure also reduce water run-off and erosion, reducing pressures on soil (second order effects).	
<i>Cross-border effects</i>	

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 and industry. Cross-border cooperation represents an opportunity to address soil quality, e.g. soil management as an instrument for climate change adaptation. This is partly considered through SO 4.1 rural and urban regeneration.

TECHNOLOGICAL RISKS	<i>Cumulative effect</i>
	+
<i>Relevance to the cooperation area</i>	
<p>Even though the cooperation area has many Seveso plants, often close to seaports and hinterland industrial areas, few major accidents were recorded in the past ten years.</p>	
<i>Cumulative effects</i>	
<p>The Programme tackles natural and technological risks under SO 3.2 (first order effect), focused on risks related to climate change (floods and coastal erosion). In addition, positive effects on energy, ecosystem conservation, GHG emissions and natural heritage (SO 2.1, 3.1, 3.2) also contribute to the final cumulative effect (third order).</p>	

Cross-border effects

Technological risks are mainly due to human activities that risk accidents, such as the transport of hazardous substances. The Programme should underpin innovation in Axis 1 to promote safe technologies in sectors at risk and in Axis 3 to provide control systems to prevent accidents or monitor damage in large areas.

HEALTH AND SANITARY RISKS	<i>Cumulative effect</i>
	+
<i>Relevance to the cooperation area</i>	
<p>The cooperation area includes or is surrounded by the EU's largest cities. Moreover, major cities are particularly affected by particulate matter emission and exposure to noise. The whole FCE territory is therefore affected by these issues.</p>	
<i>Cumulative effects</i>	
<p>Environmental factors strongly influence human health. The cumulative effect on this issue is significant since it is linked to air, water quality and pollution, which are addressed by all Priority Axes. The cumulative effect is significant, mainly due to second and third order effects. Measures to enhance air quality, under Priority Axis 2, largely contribute to this result.</p>	
<i>Cross-border effects</i>	
<p>Health could be considered a cross-border issue because it is strongly influenced by environmental quality. Cooperation represents an opportunity to tackle this problem in an integrated and more efficient manner, in particular in relation to air quality.</p>	

NATURAL AND CULTURAL HERITAGE	<i>Cumulative effect</i>
	+
<i>Relevance to the cooperation area</i>	
<p>Cultural and natural heritage and landscapes in the cooperation area have to face several threats including urbanisation and infrastructure development. The cooperation area's coastal character makes this already fragile environment even more vulnerable to human pressure.</p>	
<i>Cumulative effects</i>	
<p>Cultural heritage protection needs to minimise any adverse impact on heritage assets and setting. An important role is then played by adaptation measures and by actions to tackle natural risks (second order effect). Air quality is important for monument conservation and is therefore taken into account (second order). Soil management could contribute to the cultural element in natural heritage (landscape) and ecosystems are intimately related to landscape (both of second order).</p> <p>The cumulative positive significant effect is primarily linked to ecosystem protection and natural risk prevention (including SO 3.2 in an integrated manner). Priority Axes 3 is the main contributor, in particular when targeting natural and cultural heritage under the whole Programme area.</p>	
<i>Cross-border effects</i>	

Natural 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 Programme particularly emphasises cultural heritage. The theme is recognised as a driver for economic development and cross-border actions drawn up to promote it.

6. MITIGATION MEASURES

The Programme is devoted to cooperation in pursuing sustainable objectives and has no significant negative effects on the environment.

The SEA shows that some opportunities in the Programme can be strengthened. In addition to measures mitigating negative effects, we propose measures to enhance the environmental performance of the Programme and to reinforce the inclusion of environmental issues. The measures 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. However only a limited number of likely negative effects have been identified so far; implementation should be limited to these two cases;
- eco-conditionality criteria for project selection, with the objective of improving the sustainability of projects co-financed by the Programme;
- provisions for the implementation phases, including guidelines for applicants during the preparation and management phases of the projects or when defining specific environmental monitoring measures (see section 7.1 below).

In the following section we provide a brief description of recommendations and suggestions to improve integration of environmental topics in the Programme.

6.1 PRIORITY AXIS 1

Priority Axis 1 is devoted to innovation, which usually leads to better environmental performance. Yet, in the current version for consultation, the SO 1.1 title has been reworded and the explicit mention of ‘innovative products [...] to address environmental challenges [...]’ has been deleted. A paragraph mentioning that ‘Research and innovation projects on low carbon technologies, cultural and natural heritage, ecosystem services, and green and blue infrastructures, will be supported under Priorities 2 and 3 of the programme.’ If Priority Axis 2 does mention ‘innovation’ on ‘low-carbon

goods and services', Priority Axis 3 barely mentions innovation addressing cultural and natural heritage, ecosystem services, and green and blue infrastructures.

Optimising the integration of environmental issues in innovation activities under Priority Axis 1 (or any other PA, if so deemed relevant) would be needed. There should be a set of project selection criteria focusing on eco-innovation and resource efficiency.

6.2 PRIORITY AXIS 2

Priority Axis 2 addresses the energy issue targeting the development and uptake of low carbon goods and services. In the SO assessment, only one insignificant indirect negative effect has been pointed out, linked to the Programme identified potential to develop projects related to the its maritime dimension, such as fixed offshore wind. The eventual realisation (or planning) of off-shore energy plants could affect migrant birds. This effect will take place only if a series of conditions happen simultaneously. The first is obviously the realisation of an off-shore wind plant and the plant is located in a sensitive ecological area. Conservatively, it is better to consider this possibility in advance by introducing the requirement of a pre-analysis on the location of the plants into the cross-border action plan for SO 2.1. Furthermore, cumulative effects on sensitive ecological areas shall also be assessed.

On the other hand, positive effects could be enhanced. Some additional criteria could be identified in order to select environmental best practices in the field of low carbon technologies.

Sustainable mobility and consequently air quality and noise pollution, are not directly addressed within Axis 2 of this Programme. Thus, introducing an appropriate reference especially within SO 2.1, could strongly improve the efficiency of the Programme, by including air quality as a target wherever possible.

6.3 PRIORITY AXIS 3

In the entire assessment, SO 3.1 is the second of the two SOs that may have negative effects, although they are deemed non-significant in an ex ante assessment. Indeed, increased tourism and additional residential demand, especially in already sensitive areas, e.g. coastal areas, bays, and estuaries could come with additional pressure on ecosystems, including more artificial surfaces near the coast.

Mitigation measures should protect soil, land and ecosystems from these additional pressures. All projects should have selection criteria, promoting only eco-tourism and activities with lower impact on land and biodiversity. These could be anticipated by introducing into SO 3.1, the delivery of ‘smart conservation’ e.g. by promoting properly designed parks, walking paths, green roofs and walls which protect soil and ecosystems. Some actions could also be reformulated, drawing more attention to their environmentally-friendly character, in particular ‘Development of cross-border products and services for eco-tourism and the cultural sectors’ and ‘Implementation of joint events or communication measures to increase interest and therefore the sustainable use of the FCE area’s natural and cultural assets’.

Furthermore, the focus on climate change and associated risks could be better taken into account since the cooperation area is expected to be very affected by coastal erosion and a rise in sea level. A pre-analysis on the location of the natural and cultural assets being promoted could be also added as a selection criterion to avoid promoting development in coastal areas at risk of rising sea levels, coastal erosion and flooding.

Soil management has a role in tackling climate change that could be better emphasised. Indeed, European Territorial Cooperation is an opportunity to develop a sustainable approach to soil and landscape management (through the development of instruments of governance). This issue could be promoted in SO.3.2 as an instrument for climate change adaptation, e.g. by modifying an action in this way ‘Joint testing and piloting of actions that demonstrate a better and sustainable management of the FCE area and how to balance competing priorities for human activities and environmental preservation’.

6.4 PRIORITY AXIS 4

Eco-conditionality criteria could be defined for projects’ selection under Axis 4 to improve the sustainability of the projects financed by the programme, e.g. selecting the best environmental practices when reusing derelict buildings and industrial sites.

7. FOLLOW-UP FOR THE IMPLEMENTATION PHASE

The proposal for a monitoring system is an integral part of the SEA procedure³⁵. A description of monitoring measures has to be included in the environmental report³⁶ and monitoring measures also have to be available when the decision is publicised³⁷.

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 and analysed, and success can be measured, giving the opportunity to deal with uncertainties, take corrective measures and also update the Programme. Monitoring allows a comparison between assessed and actual environmental effects and a re-adjustment of programme instruments.

A monitoring system can be split into the following main activities:

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

Proposed indicators related to the Programme effects and 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 much as possible into the Programme governance procedures.

³⁵ See Annex 1 of the SEA Directive.

³⁶ See Article 10 of the SEA Directive.

³⁷ See Article 9 of the SEA Directive

7.1 ENVIRONMENTAL INDICATORS

Three categories of indicator are used in an environmental monitoring system.

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.

Performance indicators measure the contribution of the Programme to environmental objectives in the area. They contribute to understanding how the Programme addresses the environmental issues and objectives of the cooperation area.

Result and output environmental indicators complete the set of indicators included in the structure of the Programme. They highlight implementation, in its environmental dimensions, e.g. number of eco-innovations, number of projects addressing risks linked to climate changes, etc.

A set of environmental indicators proposed for the Programme is listed in Table 14. Environmental result indicators are mainly derived from Programme result, common and specific output indicators and can be directly or indirectly addressed by the Programme monitoring system, while performance indicators will be defined and quantified under the *ongoing* evaluation of the CP.

Table 14 – Proposed environmental indicators (for axis 1, 2 and 3).

S.O.	Environmental result or output indicators*	Environmental performance indicators**
S.O.1.1	Number of solutions, products and services aimed at eco-efficiency	Contribution of SO to reduce the use of primary resources and production of wastes
S.O.2.1	Number of solutions (products and services) developed for a more resource-efficient economy Number of businesses in low carbon technologies and sectors Public institutions and households using low carbon technologies to reduce their carbon dependency	Improvement in Energy efficiency and development of renewable energies Contribution to GHG reduction Reduction in waste production and in resource consumption Improvement in air quality
S.O.3.1	Number of projects preserving and developing cultural heritage Number of projects preserving and developing natural heritage Number of sustainable tourism products and services developed preserving cultural and natural assets	Contribution to better preservation of cultural and natural assets Development of sustainable tourism in the cooperation area
S.O.3.2	Number of governance tools adopted or developed for biodiversity preservation Number of green and blue structures developed Number of governance tools and monitoring systems developed for adaptation to climate change	Preservation of biodiversity and increase in ecosystem services delivery Contribution to the improvement of water quality Contribution to better prevention of technological risks Adaptation to climate change Reduction of pressure on soil, land and marine ecosystems

* Indicators to revise and develop under the Evaluation Plan.

**In connection with environmental objectives and issues (and associated macro-indicators) identified in the cooperation area

7.2 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 task in defining the monitoring system at Programme level is to first attribute responsibility to the different phases.

The following table proposes responsibility for each task. If a monitoring team is created (inside the Management Authority/JTS), it could be supported by Environmental Authorities (for some tasks), the JTS and the programme Authority with input from a future evaluation team.

Table 15 - Monitoring tasks and responsibilities

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

Even though the SEA Directive 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 as foreseen in section 5.3.6 of the CP. 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 Table 16 below) 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 16 - Template for the evaluation of environmental impact at project level

Environmental issues	Description of environmental effects	Intensity of potential environmental effects at project level		
		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, drafted by the monitoring team and forwarded to the JTS and MAs. Such a report should be discussed in monitoring committees, especially during the Programme mid-term review and the Strategy re-programmed or adjusted to improve sustainable development of the FCE 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.

8. CONCLUSION

8.1 ALTERNATIVES AND JUSTIFICATION OF THE PROGRAMME CHOICES

Article 5(1) and Article 9(1b) of the SEA Directive requires an analysis of the alternatives and a justification of choices.

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

Alternatives have been considered setting up a baseline scenario ‘zero-option’ which considers an absence of the Programme over the 2014-2020 period. In section 2, environmental trends are simulated without Programme implementation and a picture drawn of the environmental situation at the 2020 horizon. Compared to the baseline scenario, the effects of the Programme are very positive (see Section 5). The proposed Strategy clearly contributes to the improvement of environmental conditions in the cooperation area.

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

8.2 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) was often lacking at Nuts3 levels. 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.

Where available information at Nuts3 level has been collected for the whole cooperation area. Information at Nuts2 level has been used when data provided by different national systems and different levels within the same statistical system was missing.

Information in a cross-border format was considered first. Other national statistics were used, to illustrate specific aspects or to give a clearer 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 – NATURA 2000 EFFECTS ASSESSMENT

Effects 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 79/409/EEC 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.

According to national legislation of the Member States involved in the Programme, 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 Directive³⁸ and the Habitats Directive³⁹, e.g. as stated under Art. R414-21 and R414-23 of the *Code de l’Environnement*.

Description of the programme and of the cooperation area

The France (Channel) - England Programme (‘FCE Programme’) is a cross border cooperation programme between France and the United Kingdom, co-financed by the European Regional Development Fund (ERDF). The Programme contributes to EU cohesion policy, which pursues harmonious development across the Union by strengthening economic, social and territorial cohesion, to promote smart, sustainable and inclusive growth.

This Programme enables regional and local authorities, as well as other organisations from each partner country, to exchange knowledge and experiences, to develop and implement pilot schemes, to test the feasibility of new policies or products and to support investment. To address these objectives, the Programme has been structured into four Priority Axes, four Thematic Objectives (TOs) and five Specific Objectives (SOs).

Axis 1 is dedicated to technological and social innovation, **Axis 2** to the transition to a low carbon economy, **Axis 3** to territorial attractiveness, while **Axis 4** promotes more balanced and inclusive development.

³⁸ Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (OJ L103, 25.4.1979, p. 1).

³⁹ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (OJ L206, 22.7.1992, p. 7).

The cross border area has diverse marine, coastal and inland ecosystems. These provide a number of ecological services to local communities including fish resources, water quality and quantity, diverse plants and animals, and air quality. They also constitute a large source of environmental amenities for tourism. However, human impact on the environment is high and ecosystems remain under pressure. Cross-border environmental issues include water pollution and marine ecosystem health, energy dependency, air pollution, climate change and natural risks management, i.e. coastal erosion, floods and extreme events, biodiversity loss, soil erosion and a variety of threats to the landscape and to natural and cultural heritage.

The France (Channel) - England Programme cooperation area extends on both sides of the Channel to NUTS3 regions of England and France, these are:

- Finistère, Côtes d'Armor, Ile-et-Vilaine, Morbihan, Manche, Calvados, Orne, Eure, Oise, Seine-Maritime, Somme and Pas de Calais;
- Cornwall and Scilly islands, Devon, Dorset, Hampshire, Western Sussex, Eastern Sussex, Kent, Essex, Suffolk, Norfolk, Wiltshire, Swindon, Somerset, Surrey, Cambridgeshire, Peterborough , Plymouth, Torbay, Bournemouth and Poole, Isle of Wight, Portsmouth, Southampton, Brighton and Hove, Medway, Thurrock, Southend-On Sea.

The FCE Programme areas have highly diverse landscapes and ecosystems including marine and coastal ecosystems, wetlands, traditional agricultural lands and large areas dedicated to intensive agriculture and urban areas. The loss of species and the lower conservation status of priority species are critical aspects shared by all FCE regions.

Nevertheless, the increased number of protected areas, the Natura 2000 network and progress in policy making through EU Directives, national legislation, monitoring (indicators) and the definition of integrated strategies at local levels, are helping to reduce this decline.

Motivations for the absence of any significant effects

The FCE Programme will promote cooperation for sustainable development so significant negative effects on environmental resources are not expected.

A more in-depth assessment of effects is not possible at this stage as the Programme covers a broad area and does not detail the locality of its actions. However, the FCE Programme still presents some interactions with Natura 2000 areas, and in particular, protected habitats.

Table - 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, erosion and built-up areas on the coast	SO3.1, SO3.2
COASTAL SAND DUNES AND INLAND DUNES	Tourism, beach replenishment	SO3.1, SO3.2
FRESHWATER HABITATS	Water harvesting, nitrate pollution, intervention in riverbeds, dams	SO3.2
TEMPERATE HEATH AND SCRUB	Only edaphic- climatic factors	SO3.2
SCLEROPHYLLOUS SCRUB (MATORRAL)	Lack of appropriate management	No interaction
NATURAL AND SEMI-NATURAL GRASSLAND FORMATIONS	Lack of traditional use, alien species	No interaction
RAISED BOGS AND MIRES AND FENS	Water harvesting, nitrate pollution, climate change	SO3.2
ROCKY HABITATS AND CAVES	Low vulnerability	No interaction
FORESTS	Different threats for the different forest habitat, mainly tourism, water harvesting, new roads construction	No interaction

Tourism pressure and water harvesting are the two main threats to habitats, all the more since FCE regions directly aim to ‘become more attractive places for people to live in, work in and visit’. However, the Programme emphasises ‘sustainable or eco-tourism’ by supporting actions favouring the ‘reinforcement of ecosystem services’. Therefore, there should be positive interactions between SO3.1. and SO3.2 and Natura 2000 habitats.

In particular, SO3.2 directly targets ecosystem services and green and blue infrastructures. Therefore, positive effects on biodiversity, soils and Natura 2000 sites are expected.

The comparison of the FCE Programme objectives with threats and vulnerability potentially affecting the protected habitats' aggregation shows there will be no significant effects on Natura 2000 sites. On the contrary, positive interactions between SOs and habitats are expected.

According to the general Commission guidance document on the management of Natura 2000 sites⁴⁰, Programme effects 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 - Analysis of Programme effects on Natura 2000 sites

Topics	Factors	Assessment result
Deterioration of habitats	Natural range and area covered by the habitat	No reduction of habitats is expected
	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 typical species	No 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 interference with the natural range of species is expected
	Availability of habitat for the species	No reduction of habitats is expected

Conclusion

Natura 2000 is integrated into the Programme in a comprehensive approach through the SO3.2 actions targeting ecosystem services and green and blue infrastructure.

However, without details of actions and project locations, it is difficult to accurately estimate FCE effects on the Natura 2000 network.

⁴⁰ European Commission (2000) *Managing Natura 2000 sites: The provisions of Article 6 of the "Habitats" Directive 92/43/EEC*, p.69.

Therefore, to secure biodiversity preservation in 2000 Natura sites, eco-conditionality criteria should be included in project selection. To go through the selection process, projects should demonstrate they have no significant effects on any Natura 2000 site, e.g. through filling out a form on this issue.

Under these conditions, the France (Channel) - England 2014-2020 Programme will not damage habitats and species for which Community conservation objectives have been set up and Natura 2000 sites created.

APPENDIX 2 – NON TECHNICAL SUMMARY

Document put as a side piece

APPENDIX 3 – CONSIDERATION OF COMMENTS FROM THE CONSULTATION PROCESS

Consideration of EAs' opinions concerning the Environmental Report

	Comments / recommendation	CP section	Proposed integration / Amendments
Upper-Normandy	Name the study authors to allow verification of their professional and academic backgrounds	Cover page	Information added
Upper-Normandy, Brittany	Take stock of the implementation of the previous 2007-2013 programme in terms of effects on the environment	Introduction	Information added
Lower-Normandy	Use more and less globalizing maps, e.g. for Natura 2000 areas, and more accurate and readable tables. [...] when using macro-indicators, target the most sensitive sectors or sub-sectors. [...] Use the data available in the existing regional environmental profiles	Chapter 2	Available data are not homogeneous across the cross-border programme. Mapping may be further used in activities planned under the programme evaluation.
Lower-Normandy	Offset the difficulties encountered to compile and use data at the given level (NUTS 3) by resorting to regional environmental diagnostics available, at least in France, under the form of regional environmental profiles	Chapter 2	Available data are not homogeneous across the cross-border programme
Lower-Normandy	Investigate the "sea coast" component in more detail	Chapter 2	The component is transversal in the strategy; it may be subject to specific evaluation during implementation of the programme.

Brittany	Strengthen the environmental report showing how the France (Channel) - England programme articulates with other EU funding sources in the eligibility area (ERDF and EARDF)	Chapter 4	ERDF and EARDF programmes have not been approved; they cannot be subjected to any coherence analysis. Such analysis may be carried out during the ongoing evaluation of the programme.
Brittany	Provide an impact assessment refined as programming progresses	Chapter 5	Refer to the programme Evaluation Plan
Nord-Pas de Calais, Picardy	Better target for each axis, the eligible type of action and, secondly, assess its potential impacts	Chapter 5	Refer to the programme Evaluation Plan
Picardy	Better detail and analyse the sustainable mobility theme, taking into account future structural projects in Picardy	Chapter 5	Partially covered by the programme; will be deepened by the ongoing evaluation.
Brittany	Add also for Axis 4 selection criteria to promote projects having economic social and environmental ambitions	Chapter 6	Information added
Lower-Normandy	Indicate that, in addition to these pre-feasibility studies on the location of offshore wind, one shall also take stock of the cumulative impacts in sensitive areas	Chapter 6	Information added
Brittany	Complete the first proposed draft indicators and integrate them to the programme to allow for an effective tool in the control and monitoring of the programme implementation	Chapter 7	Information partly added; will be deepened in the Programme Evaluation Plan.
Lower-Normandy	Add all annexes, and in particular Annexe 4, for allowing a check of the origin and validity of the data used, especially in the context analysis [...] One may regret that footnotes have not been inserted to cite sources. [...] The managing authority must bring these facts to the attention of the public at the earliest	Annexe 4	Bibliography completed and added

Consideration of EAs' opinions concerning the Cooperation Programme

		Comments / recommendation	CP section	Proposed integration / Amendments
1	Upper-Normandy, Lower-Normandy, Brittany, Nord-Pas de Calais, Picardy	The programme should more precisely and more concretely define these eco-conditionality criteria for selecting projects under each Priority axis [...] Eco-conditionality principles should be generalized for projects' selection.	Section 8.1	Information added
2	Brittany, Nord-Pas de Calais	Detail the expected results of the different programme OSs and/or set targeted and measurable objectives at actions' level.		No information to be added. The output and result indicators' system (including those relating to environmental targets) is directly supported by the PC. Environmental monitoring indicators will be considered in the evaluation phases of the programme, in accordance with the information latter included in the Evaluation Plan.
3	Lower-Normandy, Brittany	Define and adopt a monitoring system (indicators per axes, data sources, evaluators, reporting modalities and timeline) as quickly as possible, and, in any case, before launching the programme.	Section 5.3.5	Information added
4	Brittany, Picardy	Detail the impacts monitoring system [...] Establish a governance model to enable monitoring of program impacts by clarifying EAs role and making it compatible with the texts that govern their actions.		Information addressed in the Evaluation Plan – see previous modification 3
5	Lower-Normandy, Brittany, Nord-Pas de Calais, Picardy	Complete the programme with the recommendations made by the SEA experts for a better consideration of the environment (in particular with regard to the ex-ante and ex-post evaluation of projects)		See table below “Consideration of ex-ante evaluators' mitigation actions concerning the Cooperation Programme”

Consideration of ex-ante evaluators' mitigation actions concerning the Cooperation Programme

Axis concerned	Comments / recommendation	Proposed integration / Amendments
Axis 1	Adopt eco-conditionality criteria for the project selection focusing on eco-innovation and resource efficiency	See previous modification 1
Axis 2	Add a pre-analysis on the location of fixed offshore wind plants in order to prevent any potential impacts on ecologically sensitive areas	No information to be added. Will be detailed together with the activities described in section 5.3.2 "Selection and Evaluation" and especially in reference to the "detailed guide for beneficiaries"
Axis 2	Adopt eco-conditionality criteria for the project selection in order to encourage better environmental practices for low carbon technologies	See previous modification 1
Axis 2	Refer in SO 2.1 to sustainable mobility, incl. air quality and noise pollution, by setting, where possible, air quality objectives	Information added
Axis 3	Adopt eco-conditionality criteria for the project selection in order to promote eco-tourism and activities with low impact on land and biodiversity	See previous modification 1
Axis 3	Add a preanalysis on the location of natural and cultural resources promoted to the selection criteria in order to avoid promoting developments located in coastal areas at risk from rising sea levels, coastal erosion and flooding	No information to be added. Sera l'objet d'une précision dans le cadre des activités prévues à la section 5.3.2 "Selection and Evaluation" and especially in reference to the "detailed guide for beneficiaries."
Axis 3	Reformulate the following actions : <i>“Development of cross-border eco-tourism products and services”</i> <i>“Implementation of joint events or communication measures to increase interest and therefore the sustainable use of the FCE area’s natural and cultural assets”</i> .	No information to be added. In the current programme version, actions already support ecotourism aspects. Furthermore sustainable development is quoted as one of SO 3.1 objectives.
Axis 4	Adopt eco-conditionality criteria for the project selection in order to select relevant projects for Axis 4 in order to enhance the sustainable character of the co-funded projects, in particular by selecting the best environmental practices when reusing derelict buildings and industrial sites	See previous modification 1

APPENDIX 4 – REFERENCES

EU level policy documents

Directives, Programs and Action plans are quoted in footnotes and in Table 2 section 4

EU methodologies and guidelines on SEA

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