STUDY

Requested by the PETI committee

European Parliament

Study on the Harmonisation of EU Environmental Law

Policy Department for Citizens' Rights and Constitutional Affairs
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STUDY ON THE HARMONISATION OF EU ENVIRONMENTAL LAW

Abstract

This study analyses the clarity and adaptability of EU environmental law and how these could be improved by means of regulatory options, by looking at four core EU environmental directives, in the field of water, air, nature and waste. Recommendations are made to improve the effectiveness of environmental law in European Union

The research has been prepared at the request of the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs as asked by the Committee on Petitions (PETI).

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AUTHOR
Prof. Dr. Lorenzo SQUINTANI, University of Groningen, the Netherlands

ADMINISTRATOR RESPONSIBLE
Giorgio MUSSA

EDITORIAL ASSISTANT
Christina KATSAR

LINGUISTIC VERSIONS
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To contact the Policy Department or to subscribe for updates, please write to:
Policy Department for Citizens' Rights and Constitutional Affairs
European Parliament
B-1047 Brussels
Email: Poldep-Citizens @ep.europa.eu

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CONTENTS

LIST OF ABBREVIATIONS

AFD	Air Framework Directive
AQD	Air Quality Directive
EEA	European Environment Agency
EU	European Union
HCH	Hexachlorocyclohexane
IED	Industrial Emissions Directive
ITI	Integrated Territorial Investment
PETI	European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the Committee on Petitions
SAC	Special Area of Conservation
SCI	Sites of Community Importance
SPAs	Special Protection Areas
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
WFD	Water Framework Directive
WHO	World Health Organisation
BAS	Brake-assist systems
CAP	Common Agricultural Policy
CFP	Common Fisheries Policy
CMO	Common market organisation
CoR	Committee of the Regions
CULT	Culture and Education Committee
ECOSOC	Economic and Social Committee

ECR	European Conservatives and Reformists
ECTS	European Credit Transfer System
EFDD	Europe of Freedom and Direct Democracy Group
ENF	Europe of Nations and Freedom
EPP	Group of the European People's Party (Christian Democrats)
FAO	Food and Agriculture Organisation of the United Nations
FPS	Frontal protection systems
GDP	Gross Domestic Product
GM	Genetically-modified
Greens/EFA	The Greens/European Free Alliance
GUE/NGL	European United Left - Nordic Green Left
IFI	International Fund for Ireland
S&D	Group of the Progressive Alliance of Socialists and Democrats in the European Parliament

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The overview of the scientific Reports available at the European Environment Agency about water and ambient air quality as well as the status of nature in Europe show that there is still room for improvement in each of these theme´s.

In the field of ambient air quality, we see improvements of air quality but a discrepancy between the health thresholds advised by the World Health Organization and those used in the European Union.

These findings make doubts rise about the effectiveness of EU environmental legislation in the core environmental fields, water, air and nature.

Two main problems emerge about the effectiveness of EU harmonising measures in the field of environmental protection, from the analysis of the selected petitions sent by citizens to the European Parliament. First, there seems to be a lack of correct application of the provisions of Article 6 of the Habitats Directive. This provision was indeed the focal centre in the majority of the petitions. Furthermore, there seems to be recurring problems of linkage between nature conservation and water management law. Indeed, as regards both Natura 2000 sites mostly discussed in the petitions here analysed, the deterioration of the sites was partially caused by the incorrect implementation of Directives in the field of water management.

Accordingly this study focused on the effectiveness of EU environmental law by looking at the level of legal certainty and adaptability offered by core EU environmental Directives in the field of water (the Water Framework Directive), air (the Air Quality Directive) and nature (the Habitats Directive). It also looked at waste management (the Waste Directive) as the commissioning institution considers this field a policy area closely related to water, air and nature and potentially inspirational for new approaches to environmental protection.

By means of desk research and doctrinal constructivism, this report looks at whether the analyzed Directives enable the addressees of rights and obligations to regulate their conducts based on rights and obligations shaped by the Directives (legal certainty). It also looks at whether the analyzed Directives cope with socio-economic and environmental developments, on the one hand, and developments in the state of knowledge, on the other (adaptability).

The comparison of the findings for the various Directives here analysed provides the basis for the reflection presented in this study and the related recommendations.

First, the analysis of the four core EU environmental Directives here analysed marked similarities and differences about the manner in which the Directives cope with adaptability and legal certainty. The most marked similarities concern the Habitats Directive, the Water Framework Directive and the Air Quality Directive, as these Directive all use quality standards as tool to formulate the Directives' goals. The Waste Directive does not use this technique simply because this Directive does not focus on one environmental medium or ecosystem. It focuses on a product of human activities, waste.

Still all these Directives make use of plans and programmes to steer the implementation at national level and simplify the oversights of the implementation efforts from the European Union. In none of these Directives, the EU legislator clearly indicates how the effectiveness of the proposed measures should be established.

The most marked similarity among the Habitats Directive, the Water Framework Directive and the Air Quality Directive when looked at from the perspective of legal certainty and adaptability is that they base quality standards on scientific insights. Yet, only the first two Directives have highly adaptive systems. In the context of the Air Quality Directive, the quality standards can be adapted

only through a legislative process at EU level. This could explain why in this field of environmental protection there is a marked discrepancy between the evolution of scientific insights as represented in the WHO guidelines and the thresholds indicated in the Air Quality Directive.

A similarity that all four the analysed Directives have shown is the lack of regulatory standards on how to predict the effectiveness of the measures envisaged to achieve the goals set out by the Directives. Only the Waste Directive has recently made a first attempt to regulate the subject matter, but the level of flexibility allowed by the adopted regime does not really clarify how to predict the effectiveness of envisaged measures. This lacuna could explain the findings from the EEA studies on the status of the environment. Without knowing in advance whether the proposed measure will be effective, the chance increases that the adopted measures result ineffective.

Second, the analysis of the manner in which the EU legislator indicates the room that Member States have to go beyond minimum harmonisation has revealed the existence of different levels of legal certainty offered by the three main techniques used in (core) EU environmental legislation. In many cases, the regulatory approach does not offer the highest level of legal certainty possible. No clear patterns concerning the choice among the various techniques was detected to justify this finding.

Third, subsidiarity and proportionality considerations have had a clear impact on the manner in which nature conservation is designed in the European Union. They influenced the manner in which the protection of buffer zones to Natura 2000 sites has been shaped under the Habitats Directive. They contributed to the lack of a specific regulatory regime provided by the European legislator about these zones. Further research is needed in order to verify the linkage between the lack of this specific regulatory regime and the status of nature in the European Union.

Fourth, the implementation of EU waste management law in the Netherlands shows that Member States can foster environmental protection beyond the EU goals while improving economic growth. Long term thinking seems to have been a central element in the success story presented in the case study analysed in this Study. This finding highlights the important to discuss whether EU law can stimulate an approach to the implementation of national law that is based on costs/benefits analyses that take into consideration the long-term effects of going beyond EU standards, thus helping reconciling environmental protection with economic growth.

A conjunctive reading of these findings suggests the existence of room for improving the effectiveness of the regulatory regime applicable to the core area's here analyzed.

First, the use of science as basis for setting quality standards is common practice in the field of nature, air and water, but in the field of air quality law the chosen legislative technique for formulating the quality standards maximises legal certainty at costs of adaptability. Accordingly, over time the quality standards pursued by the Air Quality Directive have departed from the new scientific insights in the field. Air quality law would thus benefit from further harmonisation aiming at aligning quality standards with scientific insights. This process is already ongoing at EU level.

Second, nature conservation law, on its part, could learn from water and air quality law in which the quality standards are linked to specific deadlines. The lack of such deadlines are particularly problematic as regards the amelioration goals of the Directive, as it makes difficult to assess and review proposed implementation actions at national level. EU nature conservation law could thus benefit from further harmonisation in the sense of the addition of a series of specific deadlines by which a good status of conservation shall be achieved.

Nature conservation law seems to have also specifically being influenced by the subsidiarity and proportionality principle during the incipit of the Habitats Directive, as discussed in above. These

principles led to the regulatory choice of protecting features of the landscape other than core natural area's by means of an unclear regulatory regime, potentially affecting the protection of Natura 2000 areas. New scientific insights about the importance of buffer zones for Natura 2000 areas could be taken into account during a re-harmonisation of EU nature conservation law.

Third, all the Directives here analyzed would benefit from the introduction of standards about the effectiveness of the measures envisaged to achieve the quality standards.

These considerations led to the formulation of the following four recommendations. These recommendations build thus on the analysed regulatory practice. They aim at generalising and improving the best practices noticed during the analysis presented in this Study.

Recommendation 1: Reach an interinstitutional agreement spelling out a series of drafting principles for environmental legislation; these principle should include at least those enumerated here.

a. Principle 1: Address adaptability and legal certainty explicitly when drafting environmental legislation;

b. Principle 2: Link quality standards to scientific insights and considerations, while reserving other considerations for the provisions operationalising the achievement of the quality standards;

c. Principle 3: For quality standards, give preference to clauses in legislation allowing for an automatic adaptability of the regulatory framework, rather than techniques that require further regulatory intervention;

d. Principle 4: Link the achievement of quality standards to clear deadlines;

e. Principle 5: Link the quality standards to plans and programmes setting out the strategy on how the quality standards will be achieved;

f. Principle 6: Harmonise the manner in which the effectiveness of measures indicated in plans and programmes has to be estimated/calculated and reviewed;

g. Principle 7: Clearly regulate individual rights to rely on the quality standards to challenge plans, programmes and individual decisions allegedly constraining the achievement of the quality standards;

h. Principle 8: When expressing standards in environmental legislation in terms of minimum standards, give preference to those legislative techniques that maximise legal certainty.

Recommendation 2: Re-harmonise nature conservation law, air quality law and water management law so as to implement the above mentioned principles, for the parts that do not already follow these principles.

Recommendation 3: Add a specific regulatory regime for the protection of buffer zones into EU nature conservation law.

Recommendation 4: Develop research and analysis on the combined effects of the Water Framework Directive and the Habitats Directive.

1. GENERAL INFORMATION

KEY FINDINGS:

First, the use of science as basis for setting quality standards is common practice in the field of nature, air and water, but in the field of air quality law the chosen legislative technique for formulating the quality standards maximises legal certainty at costs of its adaptability.

Second, nature conservation law could learn from water and air quality law in which the quality standards are linked to specific deadlines. The lack of such deadlines are particularly problematic as regards the amelioration goals of the Directive, as it makes difficult to assess and review the proposed implementation actions at national level.

Third, all the Directives here analyzed would benefit from the introduction of standards about the effectiveness of the measures envisaged to achieve the quality standards.

2. INTRODUCTION

2.1. Background of the Study

This study was commissioned by the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs at the request of the Committee on Petitions (PETI). The research is based on the work of the Committee on some related petitions on the application of relevant European environmental legislation.

According to Article 3 of the Treaty on European Union (TEU), the Union is tasked to work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a *high level of protection and improvement of the quality of the environment*. This task is undertaken by the Union by means of, inter alia, legislative acts – mostly Directives – establishing a high level of environmental protection. This process of environmental standards setting at EU level is known as 'harmonisation'.

Over the years the body of EU legislation dealing with environmental matters has grown and today it contains hundreds of legal acts. Many of such acts aim at harmonizing national standards on environmental protection as regards key environmental themes, such as water, waste, air, and nature. There is for example a large amount of sectoral legislation on water (Water Framework Directive 2000/60/EC, Groundwater Protection Directive 2006/118/EC; Directive 2006/44/EC of 6 September 2006 on the quality of fresh water; Directive 2006/11/EC of 23 October 2006 on dangerous substances discharged into the aquatic environment, etc). There is also extensive horizontal legislation, i.e. relevant for multiple environmental themes (e.g. Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage).

These legislative acts were adopted under different Treaty frameworks, with some of them adopted under the European Economic Community Treaty. New legislative and scientific insights, as well as changing societal concerns, influenced the manner in which these acts were drafted. It is therefore contested that the joint and concrete application of all this legislation is not done in a correct way, and that these acts are not able to stop the deterioration of many European natural areas, including some of its most extensive and important wetlands (such as Doñana, Delta del Ebro, Mar Menor).

2.2. Scope and objectives of the research

Based on a significant number of petitions received by the EP, this study will analyze the need to harmonize European legislation on environmental matters in order to improve its application and guaranteeing effective protection of the environment at European level and to achieve a better market integration

Study results will provide possible elements and ideas for reforming the relevant European legislation
.

The study should, among other related issues, first (Section 3) aiming at mapping the following issues:

1 Assessment of selected petitions on the topic. Key petitions will be analysed to cover different aspects of problems and complaints;

2 Whether core European Environmental Directives in the fields of: water, air, waste and nature protection make a coherent use of regulatory objectives, plans and programs, general binding rules, authorization requirements, and monitoring duties;

3 Whether core European Environmental Directives make a coherent use of legislative techniques, such as minimum clauses and optional clauses, to harmonize the respective subject matters;

4 The impact of the subsidiarity and proportionality principles on core European Environmental Directives;

5 Highlight possible best practice examples of how problems linked to the implementation and application of European environmental legislation have been solved in Member States;

Based on this analysis, in Section 4 of this Study it will be possible to answer the following research questions:

1 Whether the conjunctive reading of core European Environmental Directives facilitate rather than constrain the achievement of the environmental objectives aimed at by the European legislator for water, waste, air and nature;

2 Whether a further harmonization of European environmental legislation can improve the level of environmental protection, legal certainty and adaptability of environmental protection;

3 Whether a further harmonisation of European environmental law can improve the protection nature in the Member States;

4 Whether elements existing in the current European environmental legislation, which can hinder its correct and consistent application by Member States without discrepancies;

Having examined all the previous issues, Section 5 of this study will formulate policy recommendations to the attention of the European legislature.

2.3. Limitations

The content of this Study is based on desk research. In the Study it is indicated whether more in depth research is needed to understand the linkage between regulatory practices and the effectiveness of environmental law better.

3. ANALYSIS

3.1. The Status of the Environment in the European Union

3.1.1. Nature Conservation

The European Environment Agency (EEA) published the latest Report on the status of nature in the European Union in November 2020, containing the data for the period 2013 – 2018.[1] In this Report we can read:

About trends in birds population:

> *"Around half of the species have a good EU status, which is slightly less (5 %) than during the last Reporting period (2008-2012). The proportion of species with poor and bad status, however, has increased by 7 % in the last 6 years to reach a total of 39 %. This is partly because of a mixture of changes in survey and analysis methodology and in data quality but also because of genuine deterioration. For breeding birds, increasing trends in populations are Reported in the short and long term for around one quarter and one third of assessed taxa, respectively; one third of taxa have decreasing trends in population in the short and/or long term. The proportion of wintering birds with increasing short- and/or long-term population trends has dropped by 9 % compared with the previous Reporting period. A quarter of Annex I taxa of the Birds Directive show a deterioration in their status, despite the implementation of dedicated conservation measures. At the Member State level, around 50 % of improving population trends concern Annex I and Special Protection Area trigger species, most of which are wetland and marine birds. Breeding birds have the highest share of Reports (about 80 %) showing improving population trends. Such improvements are due to the implementation of habitat protection or restoration measures and to improvements in knowledge due to research and better monitoring and awareness-raising activities. Farmland and forest birds, however, show few improving trends. Overall, the high percentage of unknown data across bird taxa highlights the need to establish or re-enforce appropriate, coordinated, state-supported monitoring schemes in all Member States."*[2]

About trends in birds population:

> *"Only 15 % of habitat assessments have a good conservation status, with 81 % having poor or bad conservation status at EU level and 4 % Reported as unknown. Over 50 % of dune habitats and bog, mire and fen habitats have a bad conservation status. Compared with the previous Reporting period, the share of habitats with bad conservation status has increased by 6 %. These differences largely relate to changes in the methods used or variations in data quality.*
>
> […]
>
> *Around a quarter of species have a good conservation status at EU level, which is an increase of 4 % compared with the previous Reporting period (presumably due to changes in the methods used or variations in data quality). Reptiles and vascular plants have the highest proportion of good conservation status (35 %). In contrast to habitats, the majority of terrestrial species assessments show higher shares of good than bad conservation statuses. Nevertheless, the two terrestrial regions*

[1] European Environment Agency, 2020, State of nature in the EU - Results from Reporting under the nature Directives 2013-2018, EEA Report No 10/2020.

[2] Ibid., Executive Report.

with the lowest share of good conservation status assessments are the same as for habitats (i.e. Atlantic and Continental). Over half of the assessments Report a poor or bad status." [3]

The EEA studies show thus the presence of room for improving the quality of nature in the European Union.

3.1.2. Water management

In the field of water management, the latest Report form the EEA is about the drivers of and pressures arising from selected e water management challenges, from September 2021.[4] In this Report we read about the status of waters in the EU the following.

About the *surface* waters:

On a European scale, around 44 % of the surface water bodies are of good or high ecological status or potential, with lakes and coastal waters having better status than rivers and transitional waters.[5]

[…]

The second RBMPs found that 31 % of surface water bodies are of good chemical status, while 35 % have not achieved good chemical status; the status of 34 % of surface water bodies is unknown[6]

About the *ground*water:

In the EU, 75 % and 90 % of the area of groundwater bodies are of good chemical and quantitative status, respectively (9). This is a small improvement in status from the first RBMPs. [7]

The EEA Report also discussed how the policy and regulatory packages adopted by the European Union in the period 2019-2021 will affect water management in the future. The following extract from the EEA Report are elucidative about expected effects of these policy and regulatory packages on water management: [8]

The European Green Deal includes a number of key EU strategies with targets relevant to water, such as the policy initiatives of the Farm to Fork strategy (EC, 2020c), the new biodiversity strategy for 2030 (EC, 2020b), the new EU strategy on adaptation to climate change (EC, 2021a) and the zero pollution action plan (EC, 2021b). The targets of these strategies are expected to have far-reaching impacts on several of the key European water management challenges presented in this Report. Further EU strategies with high-level targets for water include the proposal for the Eighth Environmental Action Programme (EC, 2020f) and the implementation of the Sustainable Development Goals (EC, 2016a)

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[3] European Environment Agency, 2020, State of nature in the EU - Results from Reporting under the nature Directives 2013-2018, EEA Report No 10/2020, Executive Report.

[4] European Environment Agency, Drivers of and pressures arising from selected key water management challenges A European overview, Report No 9/2021.

[5] European Environment Agency Report No 9/2021, p. 17 where it is also mentioned that Compared with the results in EEA (2018b), there is an increase in the proportion of surface water bodies with high or good ecological status (from 40 % to 44 %) because of better-than-average ecological status in the extra countries included (Greece, Ireland, Lithuania and Norway).

[6] European Environment Agency Report No 9/2021, 18.

[7] Ibid.

[8] Extracts from European Environment Agency Report No 9/2021, 12-15.

(see Table 1.1). In addition, in 2019 the European Commission published the evaluation of water legislation, the Fitness Check, and this provides the main directions for revisions and future water policies (EC, 2019b).

[…]

EU strategy	***Key targets related to water***
European Green Deal (EC, 2019d)	*Roadmap with actions up to 2050 to boost the efficient use of resources by moving to a more circular economy and stop climate change, reverse biodiversity loss and cut pollution*
Farm to Fork strategy (EC, 2020e)	*50 % reduction in use of and risk from pesticides* *50 % reduction in nutrient losses* *20 % reduction in the use of fertilisers* *50 % reduction in the use of antimicrobials* *25 % increase in the amount of organic farming*
Biodiversity strategy for 2030 (EC, 2020b)	*30 % of EU land and sea protected, one third of which is under 'strict protection'* *No deterioration in any protected habitats and species by 2030; trend to be positive for at least 30 % of them* *> 10 % increase in biodiverse landscape features* *Increased efforts to restore freshwater ecosystems and the natural functions of rivers* *Restore at least 25 000 km of free-flowing rivers by removing primarily obsolete barriers and restoring floodplains and wetlands* *Member States to review water abstraction and impoundment permits to restore and preserve ecological flows* *Focus on implementation and enforcement of EU environmental legislation including the objectives of the WFD, which are to be met by 2027* *Reduce the use of and risk from pesticides by 50 %* *Reduce pollution from fertilisers by 50 % and their use by 20 %* *Enable actions to achieve transformative change such as promotion of nature-based solutions*
Chemicals strategy for sustainability towards a toxic-free environment (EC, 2020a)	*Ban the most harmful chemicals* *Account for the cocktail effect of chemicals* *Phase out per- and polyfluoroalkyl substances (PFAS)* *Boost the production and use of chemicals that are safe and sustainable by design throughout their life cycle* *Promote the EU's resilience of supply and the sustainability of critical chemicals*
Zero pollution action plan (EC, 2021b)	*Pollution is reduced to levels no longer considered harmful to health and natural ecosystems with the following targets related to water: Reduce by 50 % nutrient losses, the use and risk of chemical pesticides, the use of the more hazardous ones, and the sale of antimicrobials for farmed animals and in aquaculture; Reduce by 50 % plastic litter at sea and by 30 % microplastics released into the environment.*
A new circular economy action plan (EC, 2020g)	*Focus on the sectors that use most resources, such as plastics, water and nutrients* *Implement the new Water Reuse Regulation*

	Facilitate water reuse and efficiency, including in industrial processes
EU strategy on adaptation to climate change (EC, 2021)	*Ensure climate-resilient, sustainable use and management of water by improving coordination of thematic plans and other mechanisms, such as water resource allocation and water permits* *Reduce water use by introducing water-saving requirements for products, encourage water efficiency and savings, and promote wider use of drought management plans and sustainable soil management and land use* *Guarantee a stable and secure supply of drinking water by incorporating the risks of climate change in risk analyses of water management* *Highlight the role of nature-based solutions for land use management and infrastructure planning to reduce costs, provide climate-resilient services and improve compliance with the WFD and Floods Directive*
Eighth Environment Action Programme (EC, 2020f)	*Pursue a zero-pollution ambition, including for air, water and soil* *Protect, preserve and restore biodiversity and enhance natural capital, notably air, water and soil as well as forest, freshwater, wetland and marine ecosystems* *Integrate assessments on the Floods Directive, Urban Waste Water Treatment Directive and Nitrates Directive, and integrate a freshwater and marine ecosystem-based approach as part of the economic transition* *Make full use of nature-based solutions*

The targets and actions in the EU strategies listed in Table 1.1 are in general implemented through specific environmental Directives and policies such as the WFD, the Floods Directive, the Habitats Directive and the Birds Directive. They are also implemented through Directives related to specific issues, such as the Urban Waste Water Treatment Directive (UWWTD), the Nitrates Directive and the Sustainable Use of Pesticides Directive.

The above studies show thus room for improvement in the level of quality of waters in the European Union.

3.1.3. Air quality

While the last full Report on air pollution from the EEA is from August 2020, and it is strongly influenced by the lockdowns related to COVID that had been adopted in the spring of that year,[9] the EEA also recently published briefings on its website showing the status of air quality in the EU based on data from 2019.[10] When we look at the data about the concentrations in the various EU Member States in light of EU limit values and WHO Air Quality Guidelines, the following picture emerges:[11]

[9] European Environment Agency, Air quality in Europe — 2020 Report, No 09/2020 Publications Office of the European Union,2020.

[10] Most notably the EEA Briefing - Health impacts of air pollution in Europe, 2021, November 2021, Briefing no. 19/2021, doi: 10.2800/08097 ; and the European Environment Agency Europe's air quality status 2021, Briefing no. 08/2021, doi: 10.2800/30241.

[11] Based on the European Environment Agency Europe's air quality status 2021, Briefing no. 08/2021, doi: 10.2800/30241.

Table 1 Status of concentrations based on EU law and WHO guidelines

Pollutant	***Status of concentrations based on EU law and WHO guidelines***
For PM10 in 2019	• *21 Reporting countries, of which 16 were EU Member States, registered concentrations above the EU daily limit value* • *11 Reporting countries, of which 7 were EU Member States, registered concentrations above the EU annual limit value of 40 µg/m3* • *31 Reporting countries registered concentrations above the stricter WHO guideline, the exceptions being Estonia, Finland, Iceland, Ireland, Luxembourg and Switzerland*
For PM2,5 in 2019	• *7 Reporting countries, of which 4 were EU Member States, registered concentrations above the EU annual limit value* • *28 Reporting countries registered concentrations above the long-term WHO AQG*
For Ozone in 2019	• *24 Reporting countries, of which 19 were EU Member States, registered levels above the EU target value for the protection of human health*
NO2 in 2019	• *22 Reporting countries, of which 18 were EU Member States, registered concentrations above the EU annual limit value, which for NO2 is the same as the WHO AGQ*
Benzo[a]pyrene (BaP) in 2019	• *4 Reporting countries, all of which were EU Member States, registered values above 1.0 ng/m3*

Under the European Green Deal, the European Commission has adopted the Zero Pollution Action Plan.[12] Under this plan a 55% reduction target for reducing premature deaths caused by PM2,5 compared with 2005 level has been set. To achieve this goal, the revision of the Air Quality Directive has been started.[13] This reform also focuses on strengthening monitoring and modelling, air quality plans and stricter requirement for source pollution from agriculture, industry, transport, building and energy sectors.

The EEA Reports on air quality show room for improving air quality in the European Union and also a divergence between the WHO guidelines on air quality and the EU standards on this matter.

3.1.4. Main findings from analysis of Status of the Environment Reports

The overview of the scientific Reports available at the EEA about water and ambient air quality as well as the status of nature in Europe show that there is still room for improvement in each of these theme´s.

In the field of ambient air quality, we see improvements of air quality but a discrepancy between the health thresholds advised by the WHO and those used in the European Union.

[12] European Commission,Pathway to a Healthy Planet for All EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil', COM/2021/400 final.

[13] Information from Eureopan Commission sire (Accessed January 2022)

https://ec.europa.eu/environment/air/quality/revision_of_the_aaq_Directives.htm

As further analyzed in Section 3.3 below, these findings can be linked to the regulatory choices made in the core Directives regulating these environmental fields

3.2. Petitions on Nature Conservation

3.2.1. Analysis of the Petitions

The European Parliament received 16 petitions over a period starting with one from 2009,[14] continuing with four in 2013,[15] one in 2014,[16] two in 2016,[17] one from 2017,[18] three from 2018,[19] two from 2019,[20] and two in 2020.[21] These petitions provide a starting point and useful indications for a more general analysis regarding the effective and practical application of environmental legislation in Europe.

Content wise, these 16 petitions concern mainly two Natura 2000 sites. Specifically, five petitions concern the Doñana National Park,[22] and six petitions concern the Mar Menor lagoon, in Murcia.[23] The last five petitions are all related to contamination from lindane,[24] which has been subject to a study for the European Parliament in 2016.[25] As written in that Study, lindane is the gamma isomer of 1,2,3,4,5,6-hexachlorocyclohexane (HCH) which was produced in several European countries from the 1950s to the 1970s or 1990s and used as a broad spectrum insecticide until 2008, when it has been banned by the European Union. Lindane and other HCH-isomers are persistent in the environment, they bioaccumulate in living organisms and are toxic to human health and the environment. Furthermore, there is evidence of their long-range transport.

As no new developments have occurred under EU law about lindane, the findings from the 2016 Lindane Study can still be seen as actual and relevant. Accordingly, in this Section focuses on the petitions related to lindane from the perspective of the protection of natural reserves, rather than from the perspective of the pollutant itself.

When we focus on the petitions concerning the Doñana National Park, we notice that they mostly concern the wrongful application of the Habitats Directive as regards projects or activities potentially significantly affecting the integrity of this Natura 2000 site, thus in breach of Article 6(3) of the Directive.

Petitions 0907/2009: The petition laments the deteriorating state of the Dofiana National Park. It alleges that the public authorities ostensibly responsible for its preservation have not done enough to prevent, or have actively contributed to, this situation.

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[14] Petition 0907/2009.

[15] Petitions 0971/2013; 0051/2013; 0085/2013 and 0257/2013.

[16] Petition 2184/2014.

[17] Petitions 0886/2016; 1168/2016.

[18] Petition 0694/2017.

[19] Petitions 0222/2018 and 0260/2018.

[20] Petitions 1059/2019 and 1331/2019.

[21] Petitions 0756/2020 and 0582/2020.

[22] Petitions 0907/2009; 0051/2013; 0085/2013; 0257/2013; and 0260/2018.

[23] Petitions 0886/2016; 1168/2016; 1095/2018; 1131/2019; 1059/2019; and 0756/2020.

[24] Petitions 0971/2013; 2184/2014; 0694/2017 ; 0222/2018 ; and 0582/2020.

[25] DIRECTORATE GENERAL FOR INTERNAL POLICIES, Lindane (persistent organic pollutant) in the EU, European Union, 2016. This document is available on the internet at: http://www.europarl.europa.eu/supporting-analyses (hereafter: 2016 Lindane Study)

Following a parliamentary question referring to several of the issues raised by the petitioner, the Commission made multiple requests of information from the Spanish authorities in order to assess whether or not the provisions of the Habitat Directive were being respected.

The Commission kept following this petition over the years and in 2019 it bought an infringement procedure before the Court of Justice of the European Union. In Case C-559/19 European Commission v Kingdom of Spain. The Court of Justice concluded that Spain had failed to comply with its obligations under the Habitats Directive by non-subjecting these activities to a scrutiny under the Habitats Directive.

Petition 0051/2013 and Petition 0085/2013: The petitioners point to numerous infringements of EU environmental legislation in the protected area known as 'Dofiana' (Huelva). Petitioners denounce that public authorities have authorized projects involving the extraction, storage and transport of natural gas in the area, which would be incompatible with EU legislation and other international conventions in force, such as the Ramsar Convention.

In light of this petition, the Commission asked for additional information to the national authorities. The competent Spanish authorities have confirmed that the development consent for these projects would have not been granted until an additional overall assessment of the effects of these projects is developed.

Accordingly in 2014 the Commission replied to this petition that as the authorisation procedure was ongoing and in the absence of any evidence pointing to a breach of the applicable EU environmental law, the Commission was not in position to follow up this petition.

In view of the development consent granted on 15 March 2016 for the gas storage project named "Marismas Occidental", the Commission asked the Spanish authorities to provide updated information on the state of play of the different gas storage projects in the Dofiana area.

The Spanish authorities have confirmed that the project had been administratively authorized, but that this decision has been challenged before national Courts, and the proceedings was still pending. Accordingly the Commission decided that it was not in a position to follow up this petition.

From the follow up in 2018, it emerges that the concept procedures included an environmental impact assessment and that the discussion about the quality and scope of these assessment was ongoing before the national judicial bodies.

Accordingly, the Commission indicated that in view of the information available and of the redress mechanisms available at national level, the Commission would have not followed up this petition any further.

Petition 0257/2013: Petitioners denounce that public authorities have authorised projects involving the extraction, storage and transport of natural gas in the protected area known as 'Dofiana' (Huelva). As a result, petitioners point to numerous infringements of EU Environmental legislation, particularly the EIA Directive and the Habitats and Birds Directives.

The Commission replied to this petition by asking extra information to the national authorities. According to the information received from the Spanish authorities, the necessary administrative authorisations for the construction of these projects have not been granted at this stage. Moreover, the regional authorities (Junta de Andalucia) have stated in their reply that the environmental authorizations required for these projects will not be provided until some further specific assessments are carried out.

In light of these information, the Commission decided that it was not appropriate to take any further measures on this matter, as it appears that the Spanish authorities had not yet taken a final decision on whether or not to authorize these projects.

From the follow up in 2018, it emerges that the concept procedures included an environmental impact assessment and that the discussion about the quality and scope of these assessment was ongoing before the national judicial bodies.

Accordingly, the Commission indicated that in view of the information available and of the redress mechanisms available at national level, the Commission would have not followed up this petition any further.

Petition 0260/2018: The petitioner explains that Dofiana National Park is under threat from the 2 500 water extraction wells (of which 850 are illegal), which are lowering underground water levels at an · alarming rate.

The Commission replied that it was fully committed to the conservation of Dofiana and its exceptional natural values on a global scale. It added that there was scientific evidence that the volume of groundwater diverted each year (in many cases illegally) by the irrigation of farmland and other human activities, such as tourist developments, had overstressed the aquifers that were essential to the survival of the Dofiana wetland ecosystems and habitats, in particular through the recurrent periods of drought in southern Spain.

in 2019 it bought an infringement procedure before the Court of Justice of the European Union (same as for petition 0907/2009). In Case C-559/19 *European Commission v Kingdom of Spain* . The Court of Justice concluded that Spain had failed to comply with its obligations under the Habitats Directive by non-subjecting these activities to a scrutiny under the Habitats Directive.

As we can see from the petitions, in all cases, the Commission took action to acquire extra information from the national authorities and in the case of the petitions concerning the effects of water extraction wells, is bought an infringement procedure before the Court of Justice of the European UnionIn the case of the petitions on the authorisation for extraction, storage and transport of natural gas,[26] the focus is again, mainly on a potential breach of Article 6(3) of the Habitats Directive. Most of the requested authorisations were refuted by the national authorities or challenged before the national courts. In this light the European Commission awaited the outcome of the national procedures. Concerning the part of the petitions focusing on the infringement of the EIA Directive, the Commission did not have information allowing her to conclude that there was indeed a breach of this Directive.

Also from the Petitions concerning the Mar Menor lagoon, in Murcia,[27] most concerns focus on the non-compliance with Article 6 of the Habitats Directive, although here the problems seems also related to the setting of proper conservation objectives.

Petition 0886/2016: The petitioner complains that the Mar Menor saltwater lagoon in Murcia, Spain has become increasingly polluted as a result of run-off from streams such as the one in El Albujón, through which effluent from intensive farming and the waste-water treatment plant at Los Alcazares work their way into the lagoon.

Petition 1168/2016: The petitioner complains about the current environmental emergency in the Mar Menor in the Murcia region of Spain. According to the petition, The area of the Mar Menor is

[26] Petitions 0051/2013; 0085/2013; and 0257/2013.

[27] Petitions 0886/2016; 1168/2016; 1095/2018; 1131/2019; 1059/2019; and 0756/2020.

characterised by the increased socio-economic use of the area with a convergent increase of activities that include agriculture, tourism, fishing, old mining operations. Additionally, the marked increase of recreational activities such as water sports and the construction of new golf courses have adversely changed the lagoon's ecosystem where the effects are expected to last for decades. These environmental failures have been worsened in recent years by the uncontrolled growth of tourism, recreational sports, agriculture and, above all else, the lack of compliance with environmental conservation protocols in relation to planning and land management uses which has caused serious deterioration to the lagoon's environment, ecosystems and protected animal species.

Petition 1059/2019: The petitioner denounces the continuous deterioration of the Mar Menor lagoon, caused by the effect of the intensive agricultural development of the surroundings of the Mar Menor and Campo de Cartagena. In his views, this has intensified the levels of nitrates in the water of the lagoon exponentially.

Petition 0756/2020: The petitioner draws attention to the serious environmental situation of the Mar Menor in Murcia and condemns the worrying increase in environmental crimes. The petitioner calls on the EU institutions to react and prevent the Mar Menor from becoming a dead sea.

The Commissions reply to these Petitions can be best looked at together as they are mostly merged in the file available for this report.

The Commission replied that it continued to follow up and further pursue, if necessary, the ongoing investigations addressing the implementation of both the Nitrates Directive and the Water Framework Directive in Spain, as well as the ongoing infringement procedure concerning the failure to designate Special Conservation Areas and to establish the necessary conservation measures for the Natura 2000 sites in Spain. The Commission also trusted that the implementation of the ITI Mar Menor will contribute to properly address the existing environmental problems in this area, using EU funds more efficiently.

This conclusion was confirmed in 2018, 2020 and 2021. From the 2021 update we evince that Regarding nature conservation, on 2 July 2020 the Commission sent a complementary letter of formal notice concerning Spain's failure to fulfil its obligations under Articles 4(4) and 6 of the Habitats Directive. The Commission urged Spain to complete the designation as Special Area of Conservation (SAC) of all Sites of Community Importance (SCI), and to complete the adoption of site-specific detailed conservation objectives and measures for all SACs.

In addition, the Commission was of the view that there had been a general and persistent practice of failing to set sufficiently detailed and quantified conservation objectives as well as the necessary conservation measures. The region of Murcia was included in this infringement procedure.

Moreover, the Commission opened an infringement procedure against Spain in November 2018 for insufficient protection of waters against pollution by nitrates from agricultural sources. In the context of this procedure, which concerns, among other regions, Murcia, the Commission addressed in July 2020 a Reasoned Opinion to Spain.

Besides, the EU has made available financial resources for the conservation and restoration of the Mar Menor, in particular, through the Integrated Territorial Investment (ITI) Mar Menor.

The Commission thus considered that the effective implementation of the obligations pursuant to the EU Directives applicable in this case will contribute to solve the complex situation that the Mar Menor is facing provided that the necessary resources, including EU funding, will continue to be allocated to support science based measures.

The Commission indicated that it will take any appropriate steps in the context of the infringement procedures opened against Spain under the Habitats and the Nitrates Directives, and will continue following up on the recommendations provided in the context of the Water Framework Directive.

he As it emerged from the above, the Commission scrutinises the situation and started an infringement procedure against the Spanish government..

3.2.2. Main findings from analysis of the petitions

Two main problems emerge about the effectiveness of EU harmonising measures in the field of environmental protection, from the analysis of the petitions made available to the author of this Report, First, there seems to be a lack of correct application of the provisions of Article 6 of the Habitats Directive. This provision was indeed the focal centre in the majority of the petitions here analysed. Furthermore, there seems to be problems of linkage between nature conservation and water management law. Indeed, as regards both Natura 2000 sites mostly discussed in the petitions here analysed, the deterioration of the sites was partially caused by the incorrect implementation of Directives in the field of water management.

3.3. Whether core European Environmental Directives in the fields of water, air, waste and nature protection make a coherent use of regulatory objectives, plans and programs, general binding rules, authorization requirements, and monitoring duties[28]

If we consider environmental protection in Europe today,[29] we see a complex system of rules adopted by the Member States of the European Union and the European Union itself. Lawyers would say that environmental protection is a shared competence between the Union and its Member States.[30] In practice, this means that in addition to environmental measures of an exclusive national nature, there are many national environmental measures that are taken to implement Union environmental law. According to Article 3 of the Treaty on European Union (TEU), the Union is tasked to work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a *high level of* protection *and improvement of the quality of the environment*. This task is undertaken by the Union by means of, *inter alia*, legislative acts – mostly Directives – establishing a high level of environmental protection. This process of environmental standards setting at EU level is known as 'harmonisation'.

Traditionally, harmonisation measures based on this provision pursue minimum harmonisation.[31] Minimum harmonisation essentially means that Member States have to implement the minimum level of protection established by Union environmental measures, and additionally, they may maintain or introduce measures providing a higher level of environmental protection than that pursued by the Union legislator. To be clear, it does not mean that the level of protection of the environment must be the lowest possible one.[32] Both Article 114 and 192 TFEU aim at a high level of environmental protection. Article 37 of the Charter of Fundamental Rights confirms this approach. Minimum harmonisation can hence be better associated to 'optimal' harmonisation

[28] This section builds upon am makes use of knowledge mainly from, Squintani (2019) and Squintani (2013).

[29] In this study, references to Europe should be seen as references to the European territories of the Member States of the European Union.

[30] Article 4 TFEU.

[31] Over a 'practice of minimum harmonization as a means of attaining environmental goals' see Jans & Vedder (2012), 108-122.

[32] Hofhuis (2006), 10 and 11.

than to 'minimal' harmonisation.[33] It is the optimal level of environmental protection given the specific circumstances of the case and the interests at stake during the negotiation process. This level neither need not to be the highest,[34] nor the lowest possible.

A system based on minimum harmonisation such as the one in place in the field of European Environmental Law inherently balances the need of ensuring legal certainty with the need of offering enough flexibility to adapt the regulated field to the different realities and needs existing in the European Union. Flexibility in regulatory frameworks can be used to foster innovative, sustainable development, facilitate the adoption of preventive measures, and a fair allocation of room for economic development and related environmental costs, including in those cases in which quality standards are not yet met.[35] Moreover, flexibility can be used to cope with socio-economic and environmental development, on the one hand, and development in the state of knowledge, on the other. This latter aspect is referred to as adaptability or adaptiveness.[36]

These positive features have a backside. Indeed, flexibility can affect legal certainty and, consequently, enforceability and judicial protection.[37] Besides, flexibility can also affect adaptability if it fails to guarantee that all relevant data which are necessary to predict developments are available during the making and/or implementation of a programme.[38] It is indeed easier to adapt a programme if it is known in advance what the possible developments are. Predictability also provides that a minimum level of legal certainty is guaranteed in those cases in which adaptability affects legal certainty.[39]

Flexibility and *legal certainty* will thus be used as the two criteria to assess the level of coherence in the fields of EU Environmental law analysed in this Section.

3.3.1. Water Management[40]

In 2000, the Water Framework Directive (WFD) entered into force41 with the aim of making European water policy more transparent and effective by offering a coherent legal framework for water management that also respects the principle of subsidiarity.[42] The WFD aims at an adaptive and integrated approach, by means of coordination with other water Directives and with Directives and policies in other fields. Integration is achieved in particular by the use of an integrated plan – a river basin management plan – and programmes of measures.[43] These programmes combine measures which were already required under a number of different water Directives and environmental Directives.[44]

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[33] Ibid., 11.

[34] Case C-233/94, *Federal Republic of Germany v European Parliament and Council of the European Union*, [1997] ECR I-2405.

[35] Cf. Backes and van Rijswick, (2013) 19-50.

[36] Folke and others, (2005), 441-473.

[37] Green and others (2013), 10 and Groothuijse and Uylenburg (2014) 116-145, in particular, Section 5.

[38] eg Folke and others (2005) and Raadgever and others, (2008)., 14.

[39] Adaptability increases legal certainty when developments help to clarify rights and obligations for all parties.

[40] This section builds upon and makes uses of knowledge from Squintani and van Rijswick (2016), 443-470; and Plambeck, Squintani, & Van Rijswick, (2017), 243-270.

[41] For a general analysis of this Directive, Josefsson and Baaner, (2011), 463-486; Grimeaud (2004), 27-39 and Blöch (2004), 170-178.

[42] Which led to different ways of implementation throughout the European Union: see Keessen and others (2010), 197-222.

[43] Baaner (2011), 82-100.

[44] *In addition, the WFD uses a combination of source-based measures and effects-based quality* standards; an important role is also allocated to financial instruments. For a more general description and analysis of this Directive, Josefsson and Baaner (2011) 463-486.

Being a framework Directive, the WFD has an impact on other Directives, such as the Nitrates Directive. Indeed, action programmes under the Nitrates Directive are part of the programme of measures under the WFD and can be combined with the programme of measures if all the mandatory elements of the nitrate action programmes can be recognized in the WFD programme of measures. If Member States have designated the whole territory as a vulnerable zone under the Nitrates Directive, the WFD requires the member state to endeavour to achieve the objectives of the WFD for waters in these protected areas, and also with regard to the standards contained in the Directives under which protected areas have been established. The WFD itself, however, does not set more stringent standards for water pollution in protected areas under the Nitrates Directive, which is not strange as the amount of nitrates that may affect the ecological status of waters –the requirement under the WFD– is much more stringent than under the Nitrates Directive.[45] It is unclear which programmatic approach applies in case of an contradictory overlap. This situation also occurred with contradictory requirements under the Birds and Habitat Directives and the WFD and they are difficult to solve until the Court of Justice sheds his light on this issue.[46]

a. Regulatory objectives

The general goal of the Directive is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater (Article 1). This general goal is further refined to more specific goals, often placed in a mutual and diffuse relationship.[47] This makes the Directive a complex piece of legislation that is, at times, difficult to grasp - to paraphrase the words of AG Jääskinen.[48] As regards the environmental goals for surface water, Article 4(1)(a) of the Directive establishes that:

> *(i) Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8;*
>
> *(ii) Member States shall protect, enhance and restore all bodies of surface water, subject to the application of subparagraph (iii) for artificial and heavily modified bodies of water, with the aim of achieving good surface water status at the latest 15 years after the date of entry into force of this Directive, in accordance with the provisions laid down in Annex V, subject to the application of extensions determined in accordance with paragraph 4 and to the application of paragraphs 5, 6 and 7 without prejudice to paragraph 8;*
>
> *(iii) Member States shall protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status at the latest 15 years from the date of entry into force of this Directive, in accordance with the provisions laid down in Annex V, subject to the application of extensions determined in accordance with paragraph 4 and to the application of paragraphs 5, 6 and 7 without prejudice to paragraph 8;*

[45] The recognized standard under the WFD regime is 2,3 mg/liter and under the Nitrates Directives has been approved at 11 mg/liter.

[46] Dieperink and others, (2012), 160-173

[47] Vvan Kempen (2012), 119-122.

[48] Opinion of AG N. Jääskinen of 23 October 2014 in Case C-461/13, *Bund für Umwelt und Naturschutz Deutschland eV v Bundesrepublik Deutschland*, ECLI:EU:C:2014:2324, point 4.

(iv) Member States shall implement the necessary measures in accordance with Article 16(1) and (8), with the aim of progressively reducing pollution from priority substances and ceasing or phasing out emissions, discharges and losses of priority hazardous substances

For groundwater, Article 4(1) of the Directive states:

(i) Member States shall implement the measures necessary to prevent or limit the input of pollutants into groundwater and to prevent the deterioration of the status of all bodies of groundwater, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8 of this Article and subject to the application of Article 11(3)(j);

(ii) Member States shall protect, enhance and restore all bodies of groundwater, ensure a balance between abstraction and recharge of groundwater, with the aim of achieving good groundwater status at the latest 15 years after the date of entry into force of this Directive, in accordance with the provisions laid down in Annex V, subject to the application of extensions determined in accordance with paragraph 4 and to the application of paragraphs 5, 6 and 7 without prejudice to paragraph 8 of this Article and subject to the application of Article 11(3)(j);

(iii) Member States shall implement the measures necessary to reverse any significant and sustained upward trend in the concentration of any pollutant resulting from the impact of human activity in order progressively to reduce pollution of groundwater.

Measures to achieve trend reversal shall be implemented in accordance with paragraphs 2, 4 and 5 of Article 17, taking into account the applicable standards set out in relevant Community legislation, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8;

Finally, for protected areas, Article 4(1) of the Directive states:

Member States shall achieve compliance with any standards and objectives at the latest 15 years after the date of entry into force of this Directive, unless otherwise specified in the Community legislation under which the individual protected areas have been established.

As we can see from these provisions, the quality of water that should be aimed at and protected under this Directive is further defined by means of the criteria set out in Annex V to the Directive. Annex V uses ecological and chemical criteria which are spelled out in qualitative terms. For example, point 2.3.2 of Annex V states:

Elements	***Good status***
General	*The chemical composition of the groundwater body is such that the concentrations of pollutants:* *— as specified below, do not exhibit the effects of saline or other intrusions* *— do not exceed the quality standards applicable under other relevant Community legislation in accordance with Article 17* *— are not such as would result in failure to achieve the environmental objectives specified under Article 4 for associated surface waters nor any significant diminution of the ecological or chemical quality of such bodies nor in any significant damage to terrestrial ecosystems which depend directly on the groundwater body*
Conductivity	*Changes in conductivity are not indicative of saline or other intrusion into the groundwater body*

As we can see from this example, the quality standards set out under the Directive do not use thresholds expressed in quantitative terms, such as it is the case for the Air Quality Directive analyzed below (Section 3.3.2). On this matter, the WFD is more comparable with the Habitats Directive, discussed in Section 3.3.3, below, then with the Air Quality Directive.

From the perspective of legal certainty and adaptability, this regulatory choice allows to link the quality standards to the status and characteristic of each protected water body, individually taken. Moreover, it allows to link the legal requirement to new insights about the status of the protected water body and of the effects of pollution on each water body. This linkage is automatic under the Directive, which means that the quality standards applicable for each protected water body evolve without the need of regulatory intervention.

Of course, such an evolutive nature of the quality standards has a drawback on legal certainty as this approach requires a case-by-case analysis which needs to be repeated when new circumstances so require.

b. Plans and programs

The WFD prescribes the adoption of both a plan and a programme of measures. Article 13 states:

> *River basin management plans*
>
> *1. Member States shall ensure that a river basin management plan is produced for each river basin district lying entirely within their territory.*
>
> *2. In the case of an international river basin district falling entirely within the Community, Member States shall ensure coordination with the aim of producing a single international river basin management plan. Where such an international river basin management plan is not produced, Member States shall produce river basin management plans covering at least those parts of the international river basin district falling within their territory to achieve the objectives of this Directive.*
>
> *3. In the case of an international river basin district extending beyond the boundaries of the Community, Member States shall endeavour to produce a single river basin management plan, and, where this is not possible, the plan shall at least cover the portion of the international river basin district lying within the territory of the Member State concerned.*

4. The river basin management plan shall include the information detailed in Annex VII.

5. River basin management plans may be supplemented by the production of more detailed programmes and management plans for sub-basin, sector, issue, or water type, to deal with particular aspects of water management. Implementation of these measures shall not exempt Member States from any of their obligations under the rest of this Directive.

6. River basin management plans shall be published at the latest nine years after the date of entry into force of this Directive. […]

Article 11 states:

Programme of measures

1. Each Member State shall ensure the establishment for each river basin district, or for the part of an international river basin district within its territory, of a programme of measures, taking account of the results of the analyses required under Article 5, in order to achieve the objectives established under Article 4. Such programmes of measures may make reference to measures following from legislation adopted at national level and covering the whole of the territory of a Member State. Where appropriate, a Member State may adopt measures applicable to all river basin districts and/or the portions of international river basin districts falling within its territory.

2. Each programme of measures shall include the 'basic' measures specified in paragraph 3 and, where necessary, 'supplementary' measures.

3. 'Basic measures' are the minimum requirements to be complied with and shall consist of:

(a) those measures required to implement Community legislation for the protection of water, including measures required under the legislation specified in Article 10 and in part A of Annex VI;

(b) measures deemed appropriate for the purposes of Article 9;

(c) measures to promote an efficient and sustainable water use in order to avoid compromising the achievement of the objectives specified in Article 4;

(d) measures to meet the requirements of Article 7, including measures to safeguard water quality in order to reduce the level of purification treatment required for the production of drinking water;

(e) controls over the abstraction of fresh surface water and groundwater, and impoundment of fresh surface water, including a register or registers of water abstractions and a requirement of prior authorisation for abstraction and impoundment. These controls shall be periodically reviewed and, where necessary, updated. Member States can exempt from these controls, abstractions or impoundments which have no significant impact on water status;

(f) controls, including a requirement for prior authorisation of artificial recharge or augmentation of groundwater bodies. The water used may be derived from any surface water or groundwater, provided that the use of the source does not compromise the achievement of the environmental objectives established for the source or the recharged or augmented body of groundwater. These controls shall be periodically reviewed and, where necessary, updated;

(g) for point source discharges liable to cause pollution, a requirement for prior regulation, such as a prohibition on the entry of pollutants into water, or for prior authorisation, or registration based on general binding rules, laying down emission controls for the pollutants concerned, including controls in accordance with Articles 10 and 16. These controls shall be periodically reviewed and, where necessary, updated;

(h) for diffuse sources liable to cause pollution, measures to prevent or control the input of pollutants. Controls may take the form of a requirement for prior regulation, such as a prohibition on the entry of pollutants into water, prior authorisation or registration based on general binding rules where such a requirement is not otherwise provided for under Community legislation. These controls shall be periodically reviewed and, where necessary, updated;

(i) for any other significant adverse impacts on the status of water identified under Article 5 and Annex II, in particular measures to ensure that the hydromorphological conditions of the bodies of water are consistent with the achievement of the required ecological status or good ecological potential for bodies of water designated as artificial or heavily modified. Controls for this purpose may take the form of a requirement for prior authorisation or registration based on general binding rules where such a requirement is not otherwise provided for under Community legislation. Such controls shall be periodically reviewed and, where necessary, updated;

(j) a prohibition of direct discharges of pollutants into groundwater subject to the following provisions:

Member States may authorise reinjection into the same aquifer of water used for geothermal purposes.

They may also authorise, specifying the conditions for:

— injection of water containing substances resulting from the operations for exploration and extraction of hydrocarbons or mining activities, and injection of water for technical reasons, into geological formations from which hydrocarbons or other substances have been extracted or into geological formations which for natural reasons are permanently unsuitable for other purposes. Such injections shall not contain substances other than those resulting from the above operations,

— reinjection of pumped groundwater from mines and quarries or associated with the construction or maintenance of civil engineering works,

— injection of natural gas or liquefied petroleum gas (LPG) for storage purposes into geological formations which for natural reasons are permanently unsuitable for other purposes,

— injection of carbon dioxide streams for storage purposes into geological formations which for natural reasons are permanently unsuitable for other purposes, provided that such injection is made in accordance with Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (22) or excluded from the scope of that Directive pursuant to its Article 2(2),

— injection of natural gas or liquefied petroleum gas (LPG) for storage purposes into other geological formations where there is an overriding need for security of gas supply, and where the injection is such as to prevent any present or future danger of deterioration in the quality of any receiving groundwater,

— construction, civil engineering and building works and similar activities on, or in the ground which come into contact with groundwater. For these purposes, Member States may determine that such activities are to be treated as having been authorised provided that they are conducted in accordance with general binding rules developed by the Member State in respect of such activities,

— discharges of small quantities of substances for scientific purposes for characterisation, protection or remediation of water bodies limited to the amount strictly necessary for the purposes concerned

provided such discharges do not compromise the achievement of the environmental objectives established for that body of groundwater;

(k) in accordance with action taken pursuant to Article 16, measures to eliminate pollution of surface waters by those substances specified in the list of priority substances agreed pursuant to Article 16(2) and to progressively reduce pollution by other substances which would otherwise prevent Member States from achieving the objectives for the bodies of surface waters as set out in Article 4;

(l) any measures required to prevent significant losses of pollutants from technical installations, and to prevent and/or to reduce the impact of accidental pollution incidents for example as a result of floods, including through systems to detect or give warning of such events including, in the case of accidents which could not reasonably have been foreseen, all appropriate measures to reduce the risk to aquatic ecosystems.

4. 'Supplementary' measures are those measures designed and implemented in addition to the basic measures, with the aim of achieving the objectives established pursuant to Article 4. Part B of Annex VI contains a non-exclusive list of such measures.

Member States may also adopt further supplementary measures in order to provide for additional protection or improvement of the waters covered by this Directive, including in implementation of the relevant international agreements referred to in Article 1.

5. Where monitoring or other data indicate that the objectives set under Article 4 for the body of water are unlikely to be achieved, the Member State shall ensure that:

— the causes of the possible failure are investigated,

— relevant permits and authorisations are examined and reviewed as appropriate,

— the monitoring programmes are reviewed and adjusted as appropriate, and

— additional measures as may be necessary in order to achieve those objectives are established, including, as appropriate, the establishment of stricter environmental quality standards following the procedures laid down in Annex V.

Where those causes are the result of circumstances of natural cause or force majeure which are exceptional and could not reasonably have been foreseen, in particular extreme floods and prolonged droughts, the Member State may determine that additional measures are not practicable, subject to Article 4(6).

6. In implementing measures pursuant to paragraph 3, Member States shall take all appropriate steps not to increase pollution of marine waters. Without prejudice to existing *legislation, the application of measures taken pursuant to paragraph 3 may on no account lead, either directly or*

indirectly to increased pollution of surface waters. This requirement shall not apply where it would result in increased pollution of the environment as a whole.

7. The programmes of measures shall be established at the latest nine years after the date of entry into force of this Directive and all the measures shall be made operational at the latest 12 years after that date.

[…]

8. The programmes of measures shall be reviewed, and if necessary updated at the latest 15 years after the date of entry into force of this Directive and every six years thereafter. Any new or revised measures established under an updated programme shall be made operational within three years of their establishment.

[…]

When we look at these provisions from the perspective of legal certainty and adaptability. The following can be noted.

The WFD addresses the obligation to adopt and implement a programme to the Member States, leaving it up to them to select the most appropriate administrative body. It can be expected that a programme will be mainly drafted by the central authorities if Member States decide to adopt general applicable measures for all river basins falling within their territory. In other cases, the geographical extension of vulnerable areas and of river basins will in practice influence the public authorities actually involved in the making of a programme of measures.[49]

The WFD has a well-developed legal framework to tackle water bodies with a transboundary nature. Under the WFD a joined river basin management plan, which includes a programme of measures, *must* be drafted for river basins falling within the EU territory (Articles 3 and 13).[50] This means, for example, that international river commissions will be established and that international river basin management plans will have to be drafted. Moreover, a typical approach that goes with the implementation of the WFD is the Common Implementation Strategy (CIS), established by the Water Directors of the Member States.[51] They prepared guidance documents with explanations, requirements and best practices. These documents could increase clarity as regards the implementation of the WFD. However, their legal status is still unclear and the ECJ retains the final authority on the interpretation of the WFD. In practice, the development of international cooperation does not seem to diminish the national organization of water management in the various Member States. Indeed, an international river basin management plan is based on the national river basin plans, which are combined by the international river basin authority to form a single plan.

When we look at the engagement of the public in the drafting of the plan and programmes under the Directive, Article 14 WFD contains specific provisions for the active participation of the public at an

[49] Van Rijswick and Havekes (2012), Chapter 8.3.

[50] For international river basins that extend outside the EU, Member States are only required to endeavour to produce a single river basin management plan. The EU cannot impose obligations on non-Member States, but most countries are signatories to the Helsinki Water Convention, and as such have also agreed to cooperate in transboundary water management.

[51] CIS, *Strategic Document*, 2 May 2001, retrievable at http://ec.europa.eu/environment/water/water-framework/objectives/pdf/strategy.pdf. Finally the Commission provided for multi-stakeholder Consultative Fora and Expert Advisory Fora to provide for input to the CIS.

early stage.[52] In particular, it requires public participation even before the publication of the draft river management plan.[53] If well implemented, this legal framework spurs adaptability, given that it diminishes the chances that data relevant to predict developments will be lost. It also increases legal certainty, given the positive effects that public participation can have on reducing legal challenges.[54]

As regards the content of programmes of measures, the WFD integrates many former and existing plans and programmes in 'river basin management plans' (Article 13) and 'programmes of measures' (Article 11).[55] A river basin management plan contains, in the first place, a summary of the programme of measures with which it is intended to fulfil the objectives of the Directive. It must also contain the objectives, standards, monitoring, and information measures, and priorities for each river basin. Annex VII to the Directive describes the information that must be given in the plan. Another important element is the results of the analyses that have to be made (under Article 5) of the characteristics of the river basin district and the factors that affect the status of the river basin.

Under the Directive, measures are subdivided into mandatory 'basic measures' and 'supplementary' measures. The basic measures are minimum requirements needed to comply with European Union legislation for the protection of water, including, for example, the Bathing Water Directive. The basic measures include mandatory prior authorization for point source discharges liable to cause pollution. General rules may be used instead of permits, provided that they, at the very least, lay down emission controls. If the environmental objectives of the Directive cannot be achieved with the basic measures, supplementary measures must be taken. Part B of Annex VI contains a non-exhaustive list of such measures, ranging from legislation to information campaigns, from codes of good practice to demand-management measures, and from educational projects to desalination plants. In our opinion, the specific nature of certain basic measures is beneficial to legal certainty. They clarify rights and obligations under a programme of measures.

Under the WFD, judicial protection is also protected by the fact that, as stated in the *Weser* case:

> *Article 4(1)(a) of Directive 2000/60 does not simply set out, in programmatic terms, mere management-planning objectives, but has binding effects, once the ecological status of the body of water concerned has been determined, at each stage of the procedure.*[56]

Accordingly, individuals can rely on the quality standards to challenge individual authorisations based on the programme of measures,[57] *de facto* leading to a review of the programme of measures. This review possibility is strengthened by the fact that the Court of Justice has severely restricted the

[52] Also standard setting for the ecological status has to be open to peer review and public consultation. Moreover, participation by stakeholders, NGOs and civil society is also possible and done within the CIS, see CIS, *Strategic Document*, 2 May 2001, 14-15, retrievable at http://ec.europa.eu/environment/water/water-framework/objectives/pdf/strategy.pdf.

[53] A timetable and work programme for the production of the plan, including a statement of the consultation measures to be taken, at least three years before the beginning of the period to which the plan refers. Moreover, an interim overview of the significant water management issues identified in the river basin, at least two years before the beginning of the period to which the plan refers.

[54] Adshead (2006), 18-192; Howarth (2009), 391-417.

[55] In addition, river basin management plans under the WFD must be coordinated with flood risk management plans under the Floods Directive. Finally, programmes of measures and river basin management plans form part of the plans of action required by the Marine Strategy Directive.

[56] Case C-461/13 *Bund für Umwelt und Naturschutz Deutschland* (ECLI:EU:C:2015:433), 43, confirming the case law on earlier water Directives, see Case C-32/05 European Commission v. Luxembourg [2006] ECR I-11323 (ECLI:EU:C:2006:749) (Commission v Luxemburg).

[57] Case C-461/13 *Bund für Umwelt und Naturschutz Deutschland* (ECLI:EU:C:2015:433), 51.

possibility to apply a net-loss approach.[58] Yet, as in the context of the Air Quality Directive, it should be noted that this possibility affects the rights created under a programme and, therefore, that legal certainty is not maximised by this situation.

The WFD establishes that environmental quality standards should be achieved by 2015. However, under Article 4(4) of the WFD Member States may, under certain conditions stated in the Directive, extend the time limit within which the objectives must be met by a maximum of twelve years (two times six years). For every extension of a deadline, reasons must be given in relation to each water body in the river basin management plan, in which a summary of the programme of measures is included. An extension of a deadline is possible, for instance, if completing improvements within the time scale would be disproportionately expensive.

The WFD has a system to increase the effectiveness of programmes of measures which is well suited to adaptability. The monitoring data shall be used to update the river basin management plans in a 6-year planning cycle. If the monitoring data reveal that the objectives for the current planning period will not be met in time, they are used for an intermediate revision of the programme of measures. These interim Reports, which are sent to the Commission (Articles 11 and 15(3) WFD), serve to describe progress in the implementation of the planned programme of measures. If necessary, Member States shall take the necessary measures to achieve the objectives and adjust their programmes of measures. Especially Article 11(5) should guarantee the effectiveness and the adaptability of the WFD, of course backed up by the interpretation of the ECJ that quality standards are defined in Article 2 as obligations of result[59] and that the environmental objectives require strict implementation measures by the Member States.[60]

c. General binding rules

The Directive does not uses general binding rules addressed to individuals, with the exception of the possibility to replace the basic measure about prior authorisation for performing activity potentially affecting water bodies with by general binding measures, as already indicated in the previous Section.

d. Authorization requirements

In *Weser*, the Court of Justice made clear that the environmental quality standards, under Article 4 of the Directive, must be respected regardless of the long-term effects of a water plan.[61] They are binding in all phases of the decision making.[62] Furthermore, they must be achieved as regards all water bodies falling under the WFD, regardless of whether they have been designated as a protected water body in a national or regional water plan.[63] These standards therefore can serve as basis for authorisation requirements.

e. Monitoring duties

Next to the Reporting duty mentioned above when discussing the programme of measures, Article 8 of the WFD requires programmes for the monitoring of water status to be established in order to obtain a coherent and comprehensive overview of the water status in each river basin district. Article 8 states:

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[58] Case C-461/13 *Bund für Umwelt und Naturschutz Deutschland* (ECLI:EU:C:2015:433), 50. Similarly, Van Rijswick and Backes (2015), 363-377.

[59] Case C-32/05 *European Commission v. Luxembourg* [2006] ECR I-11323 (ECLI:EU:C:2006:749).

[60] Case C-461/13 *Bund für Umwelt und Naturschutz Deutschland* (ECLI:EU:C:2015:433).

[61] Ibid., para 50.

[62] Ibid., para. 31

[63] Ibid., para 55. See also Smit and Others (2008).

1. Member States shall ensure the establishment of programmes for the monitoring of water status in order to establish a coherent and comprehensive overview of water status within each river basin district:

— for surface waters such programmes shall cover:

—

(i) the volume and level or rate of flow to the extent relevant for ecological and chemical status and ecological potential, and

(ii) the ecological and chemical status and ecological potential;

— for groundwaters such programmes shall cover monitoring of the chemical and quantitative status,

— for protected areas the above programmes shall be supplemented by those specifications contained in Community legislation under which the individual protected areas have been established.

2. These programmes shall be operational at the latest six years after the date of entry into force of this Directive unless otherwise specified in the legislation concerned. Such monitoring shall be in accordance with the requirements of Annex V.

Under Annex V to the WFD, the monitoring programme has to cover the volume and level or rate of flow to the extent relevant for the ecological and chemical status of surface water. Quite a refined legal framework for the assessment of water quality is established to this extent. For example, monitoring programmes for surface waters should provide information for the effective design of future monitoring programmes and for the assessment of long-term changes (1.3.1), for the establishment of the status of water bodies at risk of failing to meet their environmental objectives and for changes in their status resulting from the programmes of measures (1.3.2). Additional requirement stem out Article 5 of the WFD, which, among others, requires an analysis of the causes of physical, climatological, environmental and societal changes, given that their undeniable influence on the physical elements of a water system cannot be denied.[64] This information is necessary to take adequate, proportionate and fair measures to improve and protect the status of water bodies. In our opinion, the above legal framework spurs legal certainty. Moreover, most of all the combination of planning, programmes and monitoring and the requirement to revise them in case of new circumstances or insufficient results in achieving the goals serves the adaptability of the approach chosen in the WFD.

3.3.2. Ambient Air Quality[65]

The quality of ambient air under Union law is protected on the basis of three major areas of intervention: ambient air quality standards, reduction of emissions from certain sources, and protection of the ozone layer.[66] In this Section, I focus on the Air Quality Directive (AQD)

[64] Van Rijswick and Vogelezang-Stoute (2008), 78-89. On the requirement to perform an analysis of the (national portion of) each river basin district characteristics, the impacts of human activities on the status of surface water and groundwater, and an economic analysis of water use, Brouwer, Schenau and van der Veeren (2005), 111-131.

[65] This section builds upon and makes uses of knowledge mainly taken from, Squintani and van Rijswick, (2016), 443-470.

[66] Jans & Vedder (2008), 373.

In the 1980s, Union law established immissions limit values and emissions limit values.[67] However, immissions-oriented measures focused on individual pollutants and there was no harmonized assessment and management framework. In the 1990s the Air Framework Directive established such a framework. This Directive did not replace the existing immissions-oriented Directives. It established the basis on which assessment methods and immissions limit values had to be established. The immissions limit values were then established in four daughter Directives which replaced the 1980s Directives.[68]

In 2008, in order to increase clarity,[69] the Air Framework Directive and its first three daughter Directives have been replaced by the AQD. The AQD does not change the limit values for the various pollutants, but it adds target and limit values for $PM_{2,5}$ (Article 15 and 16). Moreover, it requires the Member States to adopt plans in all cases (Article 23). In addition, the Directive clarifies that compliance with the limit values for the protection of human health does not need to be assessed in areas where human beings do not have regular access or fixed habitation or on (*inter alia*) the carriageway of roads (Article 2(1) and Annex III).[70] Limit values for vegetation should focus on places away from built-up areas (Recital 10 and Annex III).[71] It is now clearer that *de jure* limit values apply to the whole territory of the Member States (Article 4 and 6(1)), but, *de facto*, that they are only implemented in certain areas. Furthermore, it allows extending the deadline for achieving the goals sets by the Directive for certain pollutants, if certain requirements are respected (Article 22).

The negotiations of both Directives did not highlight a clash between opposing philosophies. Discussions among the Member States and the European Parliament took place on an article-by-article basis and were characterized by a generalized concern to combine health and environmental protection with economic and social developments.[72] As Krämer notes, this leads to a legal framework which is difficult to enforce. Union ambient air quality law allows great discretion to the Member States with respect to the fixing of measurements stations, measurement methods, measurement frequency, average values, etc.[73] This implies space for gold-plating.

When we focus on the manner in which the EU legislator shaped the manner in which objectives, plans and programmes, general binding rules, authorisation requirements and monitoring duties are regulated under the central piece of legislation in this field, the AQD, the following picture emerges.

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[67] Immissions-oriented measures were Directive 80/779/EEC on sulphur dioxide, Directive 82/884/EEC on lead, and Directive 85/203/EEC on nitrogen oxide. Examples of emissions-oriented measures were Council Directive 84/360/EEC on air pollution from industrial installation, OJ 1984 L 188/20; Council Directive 88/609/EEC emissions of certain pollutants into air from large combustion plans, OJ 1988 L 336/1 and Council Directive 89/369/EEC on new installations for incineration of municipal waste, OJ 1989 L 163/32.

[68] Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air, OJ 1999 L 163/41 Directive 2000/69/EC of the European Parliament and of the Council relating to limit values for benzene and carbon monoxide in ambient air, OJ 2000 L 313/12; Directive 2002/3/EC of the European Parliament and of the Council relating to ozone in ambient air, OJ 2002 L 67/14 and Directive 2004/107/EC of the European Parliament and of the Council relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, OJ 2004 L 23/3.

[69] Jans & Vedder (2008), 376.

[70] Krämer (2011), p. 282 considers the Directive a remarkable regression in environmental protection, since its scope of application does not cover the whole territory of the Member States.

[71] Annex III, B.2 of the Directive refines this indication by requiring the Member States to place the sampling points '[…] more than 20 km away from agglomerations or more than 5 km away from other built-up areas, industrial installations or motorways or major roads with traffic counts of more than 50,000 vehicles per day, which means that a sampling point must be sited in such a way that the air sampled is representative of air quality in a surrounding area of at least 1,000 km^2.

[72] Krämer (2011), 281.

[73] Ibid., 281.

a. Regulatory objectives

The AQD has a framework character explain why it starts by setting out what is the subject matter of the Directive and several organisational and procedural matters before defining the substantive objectives concerning air quality.

Article 1, indeed states:

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

As we can see only point 5 attains to substantive standards. Such standards are set in Annexes to which provisions in Chapter III of the Directive refer. For example, Article 12 States:

> *In zones and agglomerations where the levels of sulphur dioxide, nitrogen dioxide, PM10, PM2,5, lead, benzene and carbon monoxide in ambient air are below the respective limit values specified in Annexes XI and XIV, Member States shall maintain the levels of those pollutants below the limit values and shall endeavour to preserve the best ambient air quality, compatible with sustainable development.*

Similarly, Article 13 states:

> *In zones and agglomerations where the levels of sulphur dioxide, nitrogen dioxide, PM10, PM2,5, lead, benzene and carbon monoxide in ambient air are below the respective limit values specified in Annexes XI and XIV, Member States shall maintain the levels of those pollutants below the limit values and shall endeavour to preserve the best ambient air quality, compatible with sustainable development.*

For PM2,5 the Directive sets target values next to limit values to allow more margin of manoeuvre to the Member States than it is the case of the other pollutants regulated under the Directive.

The limit values set out under the various annexes referred to in Articles 12-17 of the Directive resample the limit values that were established under the old Air Framework Directive and its so-called Daughter Directives. For example, ANNEX XI(B) states:

Averaging Period	***Limit value***	***Margin of tolerance***	***Date by which limit value is to be met***

Sulphur dioxide			
One hour	*350 µg/m3, not to be exceeded more than 24 times a calendar year*	*150 µg/m3 (43 %)*	*— (1)*
One day	*125 µg/m3, not to be exceeded more than 3 times a calendar year*	*None*	*— (1)*
Nitrogen dioxide			
One hour	*200 µg/m3, not to be exceeded more than 18 times a calendar year*	*50 % on 19 July 1999, decreasing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2010*	*1 January 2010*
Calendar year	*40 µg/m3*	*50 % on 19 July 1999, decreasing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2010*	*1 January 2010*
Benzene			
Calendar year	*5 µg/m3*	*5 µg/m3 (100 %) on 13 December 2000, decreasing on 1 January 2006 and every 12 months thereafter by 1 µg/m3 to reach 0 % by 1 January 2010*	*1 January 2010*
Carbon monoxide			
maximum daily eight hour mean (2)	*10 mg/m3*	*60 %*	*— (1)*
Lead			
Calendar year	*0,5 µg/m3 (3)*	*100 %*	*— (3)*
PM10			
One day	*50 µg/m3, not to be exceeded more than 35 times a calendar year*	*50 %*	*— (1)*
Calendar year	*40 µg/m3*	*20 %*	*— (1)*

As we can see, these parameters are exactly formulated and, where expressed in terms of hour or daily thresholds, take account of the number of exceedances of the indicated thresholds. A singe exceedance of the daily-thresholds for Sulphur Dioxide, for example, is within the limit value set out under the Directive. This approach resemble the fact that the Directive focuses on the exposure that human and the environment have to air pollution.

These limit values were established following the Guidelines of the World Health Organization in force at the time of the adoption of the Daughter Directives and have thus a scientific basis. In this regard, the AQD follow the same legislative technique followed under the WFD, discussed above, and the Habitats Directive, i.e. an ecological approach. However, while under water and nature conservation law, the exact goals vary per protected water basin or nature reserve, those under the AQD are the same for all agglomerations or areas.

From the perspective of legal certainty, the presence of clearly spelled out standards which apply regardless of the location, clearly improves the cognoscibility of these standards. However, such a level

of legal clarity seems to come at cost of the adaptability of the Directive. While the Guidelines have been amended by the World Health Organization, the limit values in the Directive remained the same. This shows the low level of adaptability that the limit values of the Directive have, especially when compared to those under the WFD and the Habitats Directive. As shown in Section 3.1.3, above, the effects on human health and the environment of air pollution varies significantly depending on whether the new World Health Organization Guidelines are followed or the today in force EU limit values, with clear benefits for human health and the environment when the formers are followed.

b. Plans and programs

In 1996 the Air Framework Directive (AFD) established the basis on which assessment methods and immission limit values had to be established.[74] Most importantly from the perspective of this Section, Article 8 established that Member States had to make a plan or programme in areas with poor air quality, before the entry into force of the immission limit values specified in the daughter Directives.[75] After the entry into force of a given limit value, Article 7(3) AFD required the Member States to draw up an action plan indicating the measures to be taken 'in a short time' where there is a risk of a quality standard being exceeded, in order to prevent exceedances or to limit their duration.[76]

In 2008, the AQD broadened the use of the programmatic approach in this environmental field. This Directive, which was adopted with the aim of replacing the AFD and its first three daughter Directives by 2010, requires a plan to be adopted in all cases where a limit value is exceeded (Article 23). Besides the requirement to adopt a plan prescribed under Article 23, Member States must ensure that in zones and agglomerations where pollution is lower than the limit values, the levels of the pollutants covered by the Directive shall remain below the limit values and shall endeavour to preserve the best ambient air quality, compatible with sustainable development (Article 12).

When we focus on the manner in which requirements concerning plans under the AQD are defined, we can notice that Article 23 regulates air quality plans for redressing exceedances of any limit value or target value, plus any relevant margin of tolerance set out under in Annexes XI and XIV. Articles 24 regulates short-term actin pans for redressing exceedances of one or more of the alert thresholds specified in Annex XII to the AQD.

[74] Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management [1996] *OJ L296/55*.

[75] Most notably, Council Directive 1999/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air [1999] *OJ L163/41*; and Directive 2000/69/EC of 16 November 2000 relating to limit values for benzene and carbon monoxide in ambient air [2000] *OJ L313/12*.

[76] The relationship between Article 7(1) and 7(3) was unclear. Consequently, some Member States did link limit values to specific decisions, Backes, van Nieuwerburgh and Koelemeijer (2005), 157-64.

Article 23 states:

1. Where, in given zones or agglomerations, the levels of pollutants in ambient air exceed any limit value or target value, plus any relevant margin of tolerance in each case, Member States shall ensure that air quality plans are established for those zones and agglomerations in order to achieve the related limit value or target value specified in Annexes XI and XIV.

In the event of exceedances of those limit values for which the attainment deadline is already expired, the air quality plans shall set out appropriate measures, so that the exceedance period can be kept as short as possible. The air quality plans may additionally include specific measures aiming at the protection of sensitive population groups, including children.

Those air quality plans shall incorporate at least the information listed in Section A of Annex XV and may include measures pursuant to Article 24. Those plans shall be communicated to the Commission without delay, but no later than two years after the end of the year the first exceedance was observed.

Where air quality plans must be prepared or implemented in respect of several pollutants, Member States shall, where appropriate, prepare and implement integrated air quality plans covering all pollutants concerned.

2. Member States shall, to the extent feasible, ensure consistency with other plans required under Directive 2001/80/EC, Directive 2001/81/EC or Directive 2002/49/EC in order to achieve the relevant environmental objectives.

Article 24 states:

1. Where, in a given zone or agglomeration, there is a risk that the levels of pollutants will exceed one or more of the alert thresholds specified in Annex XII, Member States shall draw up action plans indicating the measures to be taken in the short term in order to reduce the risk or duration of such an exceedance. Where this risk applies to one or more limit values or target values specified in Annexes VII, XI and XIV, Member States may, where appropriate, draw up such short-term action plans.

However, where there is a risk that the alert threshold for ozone specified in Section B of Annex XII will be exceeded, Member States shall only draw up such short-term action plans when in their opinion there is a significant potential, taking into account national geographical, meteorological and economic conditions, to reduce the risk, duration or severity of such an exceedance. When drawing up such a short-term action plan Member States shall take account of Decision 2004/279/EC.

2. The short-term action plans referred to in paragraph 1 may, depending on the individual case, provide for effective measures to control and, where necessary, suspend activities which contribute to the risk of the respective limit values or target values or alert threshold being exceeded. Those action plans may include measures in relation to motor-vehicle traffic, construction works, ships at berth, and the use of industrial plants or products and domestic heating. Specific actions aiming at the protection of sensitive population groups, including children, may also be considered in the framework of those plans.

3. When Member States have drawn up a short-term action plan, they shall make available to the public and to appropriate organisations such as environmental organisations, consumer organisations, organisations representing the interests of sensitive population groups, other relevant health-care bodies and the relevant industrial federations both the results of their investigations on

the feasibility and the content of specific short-term action plans as well as information on the implementation of these plans.

4. For the first time before 11 June 2010 and at regular intervals thereafter, the Commission shall publish examples of best practices for the drawing-up of short-term action plans, including examples of best practices for the protection of sensitive population groups, including children.

When we look at these two provisions from the perspective of legal certainty and adaptability we can notice the following.

Articles 23 and 24 of the AQD address the Member States' obligation to adopt a programme, without further specification.[77] Hence, the Directive allows the Member States to select the authorities that, in their opinion, are best placed to make the programme. Under the AQD, the material goals must be achieved in specific areas, within an *agglomeration* or *zone*.[78] In practice, the various *territorial* authorities at the national, regional and municipal level are usually responsible for the fulfilment of the limit and target values and therefore for drawing up air quality and short-term action plans in case of exceedances.[79]

Transboundary pollution is explicitly regulated under the AQD, given that the achievement of immission limit values is influenced by transboundary pollution. Under Article 25 of the AQD, the Member Atate in which the limit values are exceeded and the member state from which the pollution has its origin must jointly cooperate and, if appropriate, establish an air quality plan or a short-term action plan. Under this requirement, it is unclear which member state will be held accountable if there is a breach of this obligation. Moreover, the appropriateness criterion referred to in Article 25 of the Directive makes it difficult to establish whether the Directive has been breached or not. The above, as well as the fact that the Commission declared that: "*The Commission does not keep a list of MS that are concerned by article 25 of the Air Quality Directive*",[80] suggests room for improving legal certainty under Article 25 of the AQD.

As regards public participation, Article 26 of the AQD requires the Member States to provide the public with information on their programmes.[81] Access to information, however, does not mean effective public participation, as defined under Articles 6 and 7 of the Aarhus Convention. The Directives do not envisage public participation. Directive 2003/35/EC[82] on public participation in the drawing up of certain plans and programmes does not mention them either. It mentions only the AFD. Although, in light of the Aarhus Convention, Directive 2003/35/EC should be read as including the AQD,[83] a more

[77] The AQD regulates only the identity of the authorities responsible for air quality assessment, (Articles 3 and 25).

[78] This is implicitly confirmed by Point 3 of Section B of Annex XV to the AQD.

[79] This statement is based on a scan of the plans and Reports available on the EIONET (http://cdr.eionet.europa.eu/) and CIRCAB databases (partially available through Commission's website, http://ec.europa.eu/environment/air/quality/legislation/time_extensions.htm), accessed January 2015.

[80] Commission's email to the authors of this contribution dated 25 June 2015.

[81] Under Article 25 of the AQD, this obligation also covers the public living in neighbouring zones in other Member States.

[82] Directive 2003/35/EC of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC [2003] *OJ L156/17*.

[83] Cf. Andrew(2014), 21.

explicit linkage would improve legal certainty. More generally, Directive 2003/35/EC requires public participation only after the publication of a *proposal* for a plan.[84] Given the extensive preparatory works undertaken by civil servants to write such draft decisions, it can be doubted that all options are still open when the public is finally consulted.[85] Legal certainty as regards this issue can, therefore, be improved.

The main idea behind the insertion of a programmatic approach in the AQD is flexibility as regards the measures to deploy in order to achieve the material goals of the Directive. This notwithstanding, the AQD limit Member States' discretion by means of requirements to include specific measures in a programme, time limits to redress exceedances, and the relationship between programmes and limit values.

In the context of the pollutants covered by the AQD, Part B of Annex XV to the Directive enlists eight categories of measures which are usually adopted to improve air quality, such as the reduction of emissions from vehicles though retrofitting with emission control equipment, and the use of permit systems under the nowadays Industrial Emissions Directive (IED).[86] Moreover, Part A of Annex XV to the AQD indicates the information that air quality plans shall include. Finally, under Article 24(4) of the AQD, best practices concerning short-term action plans should be published by the Commission.[87] The measures described under the above-mentioned provisions can be used by Member States and the public to establish what constitutes an 'appropriate measure' within an air quality plan. Yet, due to their indicative nature, they can hardly be used to compel the insertion of a specific measure in a programme. The AQD regime allows adaptability to be maximised. Yet, it can be questioned whether losses in legal certainty have been minimised. This can be different in those cases in which EU law prescribes the adoption of specific measures under some of the categories mentioned in Part B of Annex XV to the Directive.[88] In these cases, Member States' discretion is limited.

Member States' discretion about the content of programmes is further limited by the time limit for redressing exceedances. The AQD does not prescribe a clear deadline for redressing exceedances. While Article 23 of the AQD uses the formula 'as short as possible', Article 24 states that short-term action plans shall 'reduce the duration' when they cannot be prevented. The case law of the Court of Justice provides little guidance as regards the meaning of both formulas in relation to Member States' discretion. In the *Janecek* case, concerning 'reducing the duration' formula,[89] and the *ClientEarth* case,[90] concerning the 'as short as possible' formula used under the AQD, the Court of Justice has explicitly or implicitly stated that values other than environmental values, such as economic development, can be

[84] Article 2 of Directive 2003/35/EC.

[85] Cf. Schueler (2014), 239.

[86] Directive 2010/75/EU of 24 November 2010 on industrial emissions [2010] *OJ L334/17*.

[87] Conlan, Abbot and Moosmann (2012), which provides an analysis of 39 short-term action plans adopted in 9 Member States over the period 2002-2011. This Report highlights 10 criteria, grouped in three categories, to assess whether a short-term action plan is a 'good' plan.

[88] eg Regulation (EC) 443/2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO2 emissions from light-duty vehicles [2009] *OJ L140/1*.

[89] Given the similarity between the wording and context in which this formula was used in the AFD and the AQD, we are of the opinion that this finding still applies under the AQD.

[90] Case C-404/13 *ClientEarth* (ECLI:EU:C:2014:2382).

taken into consideration when establishing a programme to reduce exceedances.[91] This conclusion could be considered to favour adaptability at the cost of, in particular, enforceability and judicial protection. Especially the lack of guidance as regards *which* other values can be taken into consideration and *to what extent* makes it extremely difficult to review Member States' choices. Such shortcomings can be redressed only partially by the motivation requirements under the Directive.[92] These requirements focus on feasibility and implementation. These requirements could thus be interpreted as meaning that Member States also have to explain why compliance should be achieved at a given date, rather than earlier or later. Judges can use this information to review whether Member States' choices jeopardise the possibility of achieving the goals of the AQD.

c. General binding rules

The Directive does not uses general binding rules addressed to individuals.

d. Authorization requirements

The Directive does not contain authorisation requirements, and it is unclear whether Article 12 and 13 of the Directive set out requirements that can be relied upon to review authorisation, potentially (further) worsening air quality.

The *ClientEarth* case clarified that the drafting of an appropriate air quality plan does not redress the breach of a limit value under the AQD.[93] Arguably, this means that Member States still need to implement the necessary measures to achieve the limit values. As explained in the *Weser* case, discussed in Section 3.3.1, above, such an implementation duty means that individual decisions can be directly reviewed in light of the material goal.[94] The *Weser* case concerns the WFD. Yet, the role of air quality plans in achieving a material goal under the AQD is similar to that of programme of measures under the WFD. In both cases, a programme of measures only has a supplementary nature. Indeed, both Directives prescribe the use of programmes of measures separately from the duty to meet the quality standards. There are thus two duties under the AQD. First, a duty to respect the limit values (in particular Articles 12 and 13 of the Directive) and, secondly, a duty to adopt a programme of measures to redress exceedances (Articles 23 and 24).[95] Accordingly, it is not unreasonable to argue that a conclusion similar to that reached in the *Weser* case applies under the AQD. This would mean that through legal actions against individual decisions which were granted on the basis of an air quality plan or a short-term action plan, national courts can assess whether or not the content of a programme is appropriate to meet the standards. The judgments in *Janecek* and *ClientHearth* do not stand in the way of such an argument, given that they concerned actions brought against (the lack of) a programme as such, *ie* direct actions.[96]

While, from the perspective of judicial protection of environmental values, the ability to challenge individual decisions based on Articles 12 and 13 of the Directive seems to be a good outcome, in the

[91] Case C-237/07 *Janecek* [2008] ECR I-06221 (ECLI:EU:C:2008:447), 47 and Joined cases C-165 to 167/09 *Stichting Natuur en Milieu and Others v College van Gedeputeerde Staten van Groningen (C-165/09) and College van Gedeputeerde Staten van Zuid-Holland (C-166/09 and C-167/09)* (ECLI:EU:C:2011):348 (RWE), 75, 88 and 101.

[92] Article 24(3) and Part A of Annex XV to the AQD.

[93] Case C-404/13 *ClientEarth* (ECLI:EU:C:2014:2382), 36-49.

[94] Case C-461/13 *Bund für Umwelt und Naturschutz Deutschland* (ECLI:EU:C:2015:433), especially 32.

[95] To a different extent see also Article 22 of the Directive.

[96] Case C-237/07 *Janecek* [2008] ECR I-06221 (ECLI:EU:C:2008:447), and Case C-404/13 *ClientEarth* (ECLI:EU:C:2014:2382), 16.

sense that Member States are now under greater pressure to comply with environmental standards, it should be noted that indirect actions take place only *after* a programme has been implemented by means of an individual decision. Rights guaranteed under the programme, and thus legal certainty, are jeopardised by such a possibility.

e. Monitoring duties

The framework character of the AQD is clearly recognisable when looking at the provisions of the AQD setting out assessment and monitoring standards. Chapter II sets out detailed standards on for the pollutants covered by the AQD (Articles 5-8), with a specific regime for ozone (Articles 9-11). These provisions are supplemented with further details set out in Annexes to the AQD. Besides, Article 27 establishes information and Reporting duties upon the Member States. It states:

> *1. Member States shall ensure that information on ambient air quality is made available to the Commission within the required timescale as determined by the implementing measures referred to in Article 28(2).*
>
> *2. In any event, for the specific purpose of assessing compliance with the limit values and critical levels and the attainment of target values, such information shall be made available to the Commission no later than nine months after the end of each year and shall include:*
>
> *(a) the changes made in that year to the list and delimitation of zones and agglomerations established under Article 4;*
>
> *(b) the list of zones and agglomerations in which the levels of one or more pollutants are higher than the limit values plus the margin of tolerance where applicable or higher than target values or critical levels; and for these zones and agglomerations:*
>
> *(i) levels assessed and, if relevant, the dates and periods when such levels were observed;*
>
> *(ii) if appropriate, an assessment on contributions from natural sources and from re-suspension of particulates following winter-sanding or -salting of roads to the levels assessed, as declared to the Commission under Articles 20 and 21.*
>
> *3. Paragraphs 1 and 2 shall apply to information collected as from the beginning of the second calendar year after the entry into force of the implementing measures referred to in Article 28(2).*

Despite the detailed assessment regime prescribed under the AQD, there is still an important aspect that affects legal certainty. The AQD does require an indication of the details concerning the estimate of the planned improvement of air quality and of the expected time required to attain these objectives.[97] Accordingly, even if the monitoring of air quality under the AQD is continuous, the lack of rules concerning the establishment of a benchmark to evaluate the effects of programmes makes it arbitrary to establish whether less or more measures are necessary, and therefore whether the plan should be adapted. It also makes it more difficult to check compliance with the AQD. In conclusion, legal certainty and adaptability are poorly served by this lack of clear requirements on the assessment of the effectiveness of programmes.

[97] Annex XV, point 8(c) to the Directive.

3.3.3. Nature Conservation[98]

Until 1973, the European Union was mostly a mere spectator with respect to nature conservation. Nature conservation under Union law starts with the First Environmental Action Programme 1973.[99] Today, we have many measures covering this field of environmental law. Moreover, the Union has entered many international agreements on the protection of nature.[100] In this Section, I will mostly focus on Directive 92/43/EEC on the conservation of habitats, wild fauna and wild flora (hereafter referred to as the Habitats Directive[101] and more incidentally on Directive 2009/147/EC on the protection of wild birds (hereafter referred to as the Birds Directive).[102]

When the original Birds Directive was adopted (Directive 79/409/EEC), the European Parliament did not have co-decision power. However, the Commission's proposal followed a request from the European Parliament, which had been lobbied by environmental organizations.[103] Except for the initial act, the negotiations remained strictly in the hands of the Member States and they were characterized by a clash between then northern States, incline to protect birds, and the southern States, where hunting is seen as a right.[104]

The Birds Directive aims at preserving the status of conservation of birds and at maintaining, protecting and re-establishing their natural habitats.[105] Therefore, in addition to provisions to protect birds from direct threats – such as from being killed and captured – the Birds Directive protects birds from indirect threats, such as the destruction of their breeding sites. To protect about 200 endangered species, the Member States are required to establish Special Protection Areas (SPAs) which have to be protected from damage or pollution (Article 4).[106] The measures protecting birds from direct threats restrict their deliberate killing, capture or disturbance, protect their eggs and nests (Article 5), restrict the commercial exploitation of birds and their derivates (Article 6), and prohibit the use of non-selective means of killing/capture (Article 8). The Birds Directive allows, under certain conditions, some derogation from these provisions in order to accommodate hunting interests (Article 7), to avoid serious damage to agriculture, fishing and silviculture, to pursue the interests of public health and safety, flora and fauna or science, or to

[98] This section builds upon and makes uses of knowledge mainly from, Squintani (2020), 129-137; and Squintani (2012), 180-200.

[99] COM(76) 676 final, O.J. 1973, C 112/1. Krämer (1993a), 29.

[100] Most important for the scope of this research: the Convention on Biological Diversity, *OJ 1993 L 309/3*, concluded by means of Council Decision 93/626/EEC, *OJ 1993 L 309/1* and the Cartagena Protocol on Biosafety *OJ 2002 L 201/50*, concluded by means of Council Decision 2002/628/EC, *OJ 2002 L 201/48*; the Bonn Convention on the Conservation of Migratory Species of Wild Animals, *OJ 1982 L 210/11*, concluded by means of Council Decision 82/461/EEC, *OJ 1982 L 210/10*; and the Bern Convention on the Conservation of European Wildlife and Natural Habitats, *OJ 1982 L 38/3*, concluded by means of Council Decision 82/72/EEC *OJ 1982 L 38/1*. In the case of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) opened for signatures in Washington on March 3, 1973, the European Union implemented it despite not being party to the international agreement.

[101] Council Regulation (EC) No 338/97 of 9 December 1996 on the protection of species of wild fauna and flora by regulating trade therein, *OJ 1997 L 61/1*, replacing Council Regulation (EEC) No 3626/82 of 3 December 1982 on the implementation in the Community of the Convention on international trade in endangered species of wild fauna and fauna, *OJ 1982 L 384/1*.

[102] Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds, *OJ 2010 L 20/7*. This Directive codified Council Directive 79/409/EEC on the conservation of wild birds, *OJ L 103/1*.

[103] Haigh (1984), 24.

[104] Krämer (2011), p. 197 with reference to case law. In particular Case C-157/89 *Commission v Italy* [1991] ECR 57; Case C-118/94 *WWF v Veneto* [1996] ECR I-1451; Case C-79/03 *Commission v Spain* [2004] ECR I-11619; Case C-60/06 *Commission v Lombardia* [2006] ECR I-5083; Case C-503/06 *Commission v Italy* [2008] ECR I-74 (summary publication). Northern states have also been condemned for infringing obligations on hunting restrictions, for example, Case C-339/87 *Commission v Netherlands* [1990] ECR 851 and Case C-288/88 *Commission v Germany* [1990] ECR 2721.

[105] Fois (2008), 77.

[106] Approximately 10% of the Union terrestrial territory is covered by this provision, see Krämer (2011), 188 with reference to Commission's documents.

allow the judicial use of birds in small quantities (Article 9).[107] The Directive concludes by stating that the national measures implementing the Directive cannot lead to deterioration in the present status of conservation of the species covered by the Directive (Article 13).

The same year the Birds Directive was adopted, the European Economic Community concluded the Bern Convention on the conservation of European wildlife and natural habitats.[108] This environmental mixed agreement became binding upon the European Union with Decision 82/72/EEC.[109] A few years later, the Commission adopted a proposal for a Directive implementing the convention.[110] The Habitats Directive establishes rules to protect conservation areas and measures to protect species in need of strict protection. The Directive pursues the creation of the so-called Natura 2000 network, which is a network of areas of special conservation within the Union territory.[111] The Habitats Directive protects species of wild flora and fauna naturally occurring on the European territory of the Member States from both direct and indirect threats (Article 1). However, the Habitats Directive prescribes a strict regime of protection only for about 600 endangered species (Articles 3-6 and 12-15).[112] For non-endangered species, there is only a duty of surveillance of their conservation status (Article 11). Another difference from the Birds Directive is that Member States were permitted to derogate, under certain conditions, from their duty to protect species on grounds of social and economic overriding public interests (Articles 6 and 16). In addition, and most importantly, the Habitats Directive differs from the Birds Directive in that the Habitats Directive protects certain habitats independently from the protection of species. It recognizes their intrinsic value and protects them by requiring the Member States to designate certain areas as special areas of conservation (SAC) and to avoid pollution and damage resulting from human activities which seriously affect their integrity (Articles 3-6).[113] Along with the area designated to protect endangered species and the SPAs designated under the Birds Directive, these areas form a coherent European network called 'Natura 2000' (Article 3). In order to reconcile nature protection with the pursuit of human activities, the Directive allows the Member States, under certain conditions, to authorize plans and projects as long as the overall coherence of Natura 2000 is protected (Article 6(3-4)).

When we focus on the manner in which the EU legislator shaped the manner in which objectives, plans and programmes, general binding rules, authorisation requirements and monitoring duties are regulated under the central piece of legislation in this field, the Habitats Directive, the following picture emerges.

[107] The exception for judicial use was intended to allow activities such as falconry and the keeping of caged birds.

[108] Bern, September 19, 1979.

[109] Council Decision concerning the conclusion of the Convention on the conservation of European wildlife and natural habits, OJ L 38/3.

[110] The Bern Convention was explicitly mentioned as one of the grounds for the proposal of the Habitats Directive, COM(88) 381 final, 2.

[111] Fois (2008), 78.

[112] These species are additional to those covered by the Birds Directive.

[113] Krämer (2011), 190 refers to the slow implantation rate of the Member States and of the far-reaching opposition of German *Länder* to the Directive. Today, approximately 12% of the terrestrial area of the Member States is covered by this provision, mostly overlapping with the areas under the Birds Directive.

Regulatory objectives

The Habitats Directive regulates its statutory objectives in Article 2 stating:

> *Article 2*
>
> *1. The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies.*
>
> *2. Measures taken pursuant to this Directive shall be designed to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest.*
>
> *3. Measures taken pursuant to this Directive shall take account of economic, social and cultural requirements and regional and local characteristics.*

This provision clearly indicates the core objective of the Directive in its second Section, i.e. the duty to maintain or restore at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest.

This provision contains two positive obligations, i.e. maintain or restore, linked to a specific result, i.e. a favourable conservation status, as regards two subject matters, i.e. natural habitats and species of wild fauna and flora of Community interest.

Similarly to the manner in which goals were set in the context of water law and air law, the EU legislator followed the technique of focusing the a *quality standard*, i.e. the favourable conservation status. As it emerges from Article 1 of the Directive, in defining this quality standard, the Directive pursues the same approach followed under the WFD, i.e. it focus on the conditions that a given environment must have in order to maintain its ecological status. It follows thus an ecosystem-based approach. Article 1 states, in so far relevant for this statement:

> *For the purpose of this Directive:*
>
> *(a) conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status as defined in (e) and (i);*
>
> *(b) natural habitats means terrestrial or aquatic areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural;*
>
> *(c) natural habitat types of Community interest means those which, within the territory referred to in Article 2:*
>
> *(i) are in danger of disappearance in their natural range;*
>
> *or*
>
> *(ii) have a small natural range following their regression or by reason of their intrinsically restricted area;*
>
> *or*

(iii) present outstanding examples of typical characteristics of one or more of the five following biogeographical regions: Alpine, Atlantic, Continental, Macaronesian and Mediterranean.

Such habitat types are listed or may be listed in Annex I;

(d) priority natural habitat types means natural habitat types in danger of disappearance, which are present on the territory referred to in Article 2 and for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory referred to in Article 2; these priority natural habitat types are indicated by an asterisk (*) in Annex I;

(e) conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2.

The conservative status of a natural habitat will be taken as "favourable" when:

- its natural range and areas it covers within that range are stable or increasing, and

- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and

- the conservation status of its typical species is favourable as defined in (i);

(f) habitat of a species means an environment defined by specific abiotic and biotic factors, in which the species lives at any stage of its biological cycle;

(g) species of Community interest means species which, within the territory referred to in Article 2, are:

(i) endangered, except those species whose natural range is marginal in that territory and which are not endangered or vulnerable in the western palearctic region; or

(ii) vulnerable, i.e. believed likely to move into the endangered category in the near future if the causal factors continue operating; or

(iii) rare, i.e. with small populations that are not at present endangered or vulnerable, but are at risk. The species are located within restricted geographical areas or are thinly scattered over a more extensive range; or

(iv) endemic and requiring particular attention by reason of the specific nature of their habitat and/or the potential impact of their exploitation on their habitat and/or the potential impact of their exploitation on their conservation status.

Such species are listed or may be listed in Annex II and/or Annex IV or V;

(h) priority species means species referred to in (g) (i) for the conservation of which the Community has particular responsibility in view of the proportion of their natural range which falls within the territory referred to in Article 2; these priority species are indicated by an asterisk (*) in Annex II;

> *(i) conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2;*
>
> *The conservation status will be taken as "favourable" when:*
>
> *- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
>
> *- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
>
> *- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis;*

Article 1 of the Habitats Directive provides ecological criteria to establish what the conservation objectives of each Natura 2000 site should be, which serve as benchmark to establish whether the duties to maintain or restore have been met.

When looked at from the perspective of legal certainty and adaptability, we can see that the ecological approach followed under the Habitats Directive resembles that used under the WFD, discussed in Section 3.3.1 above, thus differ from the one used under the AQD, discussed in Section 3.3.2 above. The meaning of the concept 'favourable status of conservation' is indeed not fixed under the Habitats Directive. There is not immission standard like under the AQD. Similar to the WFD, each ecological body has its own standard based on the criteria set out under the Directive.

This regulatory approach allows for an automatic adaptation of the legal standard to the development of scientific insight about the functioning of ecosystems. Conversely, this approach makes it more difficult for regulators and stakeholders to ascertain what the exact standard is to be complied with. This tension is partially redressed by Article 4(4) of the Directive which states:

> *4. Once a site of Community importance has been adopted in accordance with the procedure laid down in paragraph 2, the Member State concerned shall designate that site as a special area of conservation as soon as possible and within six years at most, establishing priorities in the light of the importance of the sites for the maintenance or restoration, at a favourable conservation status, of a natural habitat type in Annex I or a species in Annex II and for the coherence of Natura 2000, and in the light of the threats of degradation or destruction to which those sites are exposed.*

The procedure described under Article 4 of the Habitats Directive and culminating with the designating act referred to in this provision leads to the tailoring of the objectives set out under Article 2 of the Directive to the designated site. This designating procedure should thus make clear what the legal standard applying to a specific site is and thus what the obligations of maintaining or restoring the site to a favourable status of conservation entail. It is possible that such standards are spelled out in term of quantitative and/or qualitative criteria such as 'X' amount of a species present on the site.

It should be noted that the specification of the legal standard occurring thanks to the procedure set out in Article 4 of the Directive needs to comply with the duty of adapting the standard with new insights about the status of conservation of the site and the state of the art concerning ecological considerations.

A certain amount of tension between legal certainty and adaptability remains. The obligation to design conservation or restoration measures under Article 6(1) of the Habitats Directive helps in further reducing this tension, as discussed in the next Section.

A final consideration about the manner in which the Habitats Directive sets its objectives concerns the lack of a specific date by which such objective have to be achieve. In comparison with the manner in which the EU objectives have been formulated under the AQD and the WFD, the Habitats Directive does not establish a specific deadline by which a favourable status of conservation should be achieve. From the perspective of legal certainty, such as lacuna affects in particular the clarity of the duty to *restore* a good status of conservation, as it is not clear by when such a duty must be achieved. As regards the duty to *maintain* a good status of conservation, the lack of a specific deadline does not impact legal certainty as this duty can be considered to be in force at all times.

a. Plans and programs

Under the Habitats Directive, Article 6, Section 1 states:

> *1. For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites.*

As we can see, this provision requires to draw conservation measures and specifically refers to management plans. This provision provides thus the basis for a Site Management Plan. In practice, this means that the favourable status of conservation set as basis for the designation of a site based on the Article 4 procedure mentioned in the previous Section serves as basis for refining the meaning of the obligations to maintain or restore a site in a favourable status of conservation. A Site Management Plan does indeed normally contain the set of measures that should ensure that a favourable status of conservation is maintained or gained.

From a the perspective off legal certainty, such as list of measures helps public authorities and stakeholders to predict what they should do or not do. Yet, legal certainty is never absolute as the list of measures could be lacunose in the sense that it is not capable of achieving the goal of maintaining or restoring a site in a favourable status of conservation. Besides the list could become obsolete with the development of the state of the art of ecology or the knowledge about the status of conservation of the site and the effect of human activities on this status. The tension between legal certainty and adaptability, despite the regulatory attempt here described, persists.

b. General binding rules

When we look at the Habitats Directive from the perspective of harmonising generally binding rules focus mostly lays on the provisions on species protection, thus Articles 12-15 of the Directive.[114]

As an example of how the Directive harmonises general binding rules on species protection, we can take Article 12 focusing on plant species. Article 12 states:

[114] Article 6(2) of the Directive of habitats protection can also take the form of a general binding rule at national level, naturally.

1. Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (a) in their natural range, prohibiting:

(a) all forms of deliberate capture or killing of specimens of these species in the wild;

(b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;

(c) deliberate destruction or taking of eggs from the wild;

(d) deterioration or destruction of breeding sites or resting places.

2. For these species, Member States shall prohibit the keeping, transport and sale or exchange, and offering for sale or exchange, of specimens taken from the wild, except for those taken legally before this Directive is implemented.

3. The prohibition referred to in paragraph 1 (a) and (b) and paragraph 2 shall apply to all stages of life of the animals to which this Article applies.

4. Member States shall establish a system to monitor the incidential capture and killing of the animal species listed in Annex IV (a). In the light of the information gathered, Member States shall take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned.

As we can see, Section 1 of this provision requires the prohibition to do certain actions related to the protected animal species. At national level this can be translated in general binding rules reproducing the content of this provisions.

From the perspective of legal certainty, this approach offers clarity about the existence of such prohibitions, and, depending on the content of each prohibition, about their meaning. The fact that the list of prohibited action is anchored in general binding rules makes the provision cognisable and predicable. It makes it also stable as an official amendment procedure needs to be followed to change the standards.

Still, it is important to notice that legal certainty of general binding rules is influenced by the manner in which these provision are worded. In this regard, for example, Article 12(1) of the Directive focuses mostly on 'deliberate' action, with the exemption of actions leafing to the deterioration or destruction of breeding sites or resting places. Also 'non-deliberate' action are prohibited in this regard. This led to case law on when an action is deliberate or not showing that the use of general binding rules does not automatically means that legal certainty is maximised.

Article 12 also shows an attempt to reconcile the stability of general binding rules with the wish of ensuring a certain level of adaptability. Section 4 requires Member States to monitor incidental capturing and killing of protected species and, if required, adopt additional measures. The list of prohibitions required under Article 12 of the Directive can thus be expanded based on the development of the status of knowledge about incidental capturing and killing of protected species. Adaptability in this case is subjected to a positive action, e.g. an amendment produce, from the site of the Member State concerned. Adaptation is thus not automatic, which lowers adaptability, but increases legal certainty as individuals will be confronted with a prohibition only when officially established by a Member State.

c. Authorization requirements

The Habitats Directive also harmonises authorisation requirements. Two provisions are central in this regard: Article 6(3) on habitats protection and Article 16 on exceptions to the general binding rules required by Articles 12 to 15 of the Directive. The complexity of harmonising an authorisation procedure in the field of nature conservation can best be analysed based on Article 6(3) of the Habitats Directive. Article 6(3) states:

> *3. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

As we can read in the second sentence of this provision, Member States shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned. Usually, this requirement is implemented by means of a permitting procedure based on an appropriate assessment.

From an adaptability perspective, the fact that this provision links the granting of an agreement to the performance of an *ad hoc* appropriate assessment allows linking the regulatory framework of the Directive to concrete cases. It also allows to take into consideration development in the status of knowledge about assessment methods and ecological insights. The Directive allows thus for an automatic adaptation of the regulatory framework to the state of art of knowledge.

From a legal certainty perspective, this adaptable system led to several ruling from the Court of Justice aiming at clarifying several terms contained in this provisions, such as those on the likelihood and significance of effects, on the appropriateness of an assessment, and on the conservation objectives, and integrity of the site. [115] The clarity of the system is further affected by the fact that Article 6(4) of the Directive allows granting an authorisation even when a plan or project adversely affect the integrity of the site concerned in three additional criteria are met. Article 6(4) states:

> *4. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*
>
> *Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.*

Adequate implementation and enforcement of Article 6 of the Directive strengthens nature conservation.[116] Yet the complex relationship between Article 6(3) and 6(4) has led to uncertainty as to

[115] Wandesforde-Smith and Watts (2014); Kistenkas (2013), 72 and 83; Schoukens, (2017) 47; Schoukens and Cliquet (2014), 207; and Squntani (2020).

[116] Lopez-Bao et al (2015); Donald et al (2007) 810; Chapron et al (2014) 1517; Schoukens (201115).

what 'adequately implemented and enforced' means,[117] and where 'gold-plating' starts.[118] In particular, in certain Member States questions have arisen on the extent to which measures adopted to avoid damage can be taken into account in concluding that no significant adverse effect will occur.[119] It is here that the concept of *mitigation* measures enters into the legal discussion under Article 6 of the Directive, creating much uncertainty,[120] and potential abuses.[121]

Article 6 of the Directive does not refer to mitigation measures. This provision refers to three kinds of measures: conservation, preventive and compensatory measures. *Conservation* measures are covered by Article 6(1) of the Directive. These measures focus on positive and proactive interventions to maintain and improve the status of conservation of a Natura 2000 site.[122] Any measure leading to deterioration therefore falls outside the realm of this concept.[123] *Preventive* measures are envisaged under Article 6(2) of the Directive and aim at avoiding deterioration, similarly to conservation measures.[124] Yet these kind of measures do not need to take the form of positive action, as in the context of Article 6(1). Non-action is also a form of preventive measure, if it prevents damage from occurring. What matters under this provision is avoiding disturbance that is likely to affect the objectives of the Directive significantly, particularly its conservation objectives in relation to Natura 2000 sites.[125] *Compensation* measures are mentioned in Article 6(4) of the Directive, which establishes an exception to the obligation contained in Article 6(3). Together, Articles 6(3) and 6(4) describe a two-step – or, in case the derogation clause is used, a three-step – procedure for granting development consent to plans or projects likely to have a significant effect on a Natura 2000 site,[126] based on a 'first come, first serve' approach.[127] The concept of 'plan' (such as land-use plans, sectoral plans, etc.) and 'projects' (such as construction works or other interventions in the natural environment) have to be interpreted broadly,[128] and include also developments *outside* Natura 2000 sites, which are likely have a significant effect on it (the so-called 'external effect').[129] In light of the precautionary principle, the assessment of the effects of plans of projects inside or outside Natura 2000 sites – either individually or in combination with other plans or projects (so-called cumulative impacts) – is based on the likelihood

[117] See especially the negative reactions in literature about a strict reading of these provisions from an economic development perspective; Schoukens and Cliquet (2014); Zijlmans and Woldendorp (2014) 172; Verschuuren, (2010) 431, 433; and Schoukens and Woldendorp, (2015), 2-15, with further references to Dutch literature.

[118] On this concept, see Squintani (2019); L Squintani (2013); Anker et al (2015); Jans et al(2009) 417, 418; Squintani, Holwerda and De Graaf, (2012) 67. For a specific application of this concept to nature conservation in the Netherlands, see Squintani, (2012) 180; and Squintani and Zijlmans(2013) 158; for the United Kingdom, see Morris(2011) 361.

[119] This has particularly been the case in the Netherlands, Schoukens (2017).

[120] On the lack of full conceptual clarity, see also McGillivray (2016) 321. The concepts of mitigation and compensation measures are also relevant in the context of the discussions on 'biodiversity offsetting' and 'no net loss'; see Lapeyre, Froger and Hrabanski(2015) 125; Bonneuil, (2015) 485.

[121] On the use or misuse of offsetting, see Pilgrim et al, (2013) 376; Quétier et al (2014) 120; Moreno-Mateos et al(2015) 552; Frins and Schoukens (2014) 85; Maron et al, (2015) 401; Schoukens (201115).

[122] Commission (EU), 'Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' (2000) <http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf> 17–21.

[123] Joined Cases C-387/15 and 388/15, *Hilde Orleans and Others v Vlaams Gewest (Orleans)*, ECLI:EU:C:2016:583para 38.

[124] The terminology *conservation* and *preventive* measures are used by the CJEU in the *Orleans* case, Joined Cases C-387/15 and 388/15, *Hilde Orleans and Others v Vlaams Gewest (Orleans)*, ECLI:EU:C:2016:583. On the relationship between this provision and legal certainty, see (2014) 1, 1.

[125] Case C-399/14, *Grüne Liga Sachsen and Others*, ECLI:EU:C:2016:10 para 41; On the concept of 'significance', in particular, see Case C-355/90, *Commission v Spain* (*Santoña Marshes*), ECLI:EU:C:1993:331; and Case C-392/96, *Commission of the European Communities* v *Ireland*, ECLI:EU:C:1999:431.

[126] See in detail De Sadeleer (2016) 281-318.

[127] Lees (2016) 194.

[128] On the concepts of plans and projects, see De Sadeleer (2016) 286–294.

[129] Joined Cases C-293/17 and C-294/17, *Coöperatie Mobilisation for the Environment UA and Others v College van gedeputeerde staten van Limburg and Others*, ECLI:EU:C:2018:882; which aims at clarifying the linkage between the concept of 'project' under the Habitats Directive with that followed under the EIA Directive.

of effects, not on their certainty.[130] If the screening phase indicates the presence of a potentially significant negative effect, an appropriate assessment needs to be performed, in light of the site's ecological functions and conservation objectives.[131] A negative outcome should lead to the refusal of authorization.

Yet, Article 6(4) of the Directive specifies that if, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, a Member State must take all *compensatory* measures necessary to ensure that the overall coherence of Natura 2000 is guaranteed.[132] All the constitutive elements of this derogation clause have to be interpreted restrictively,[133] for balancing environmental protection and economic development.[134] In particular, the concept of compensation measures entails, typically, the designation of like-for-like replacement habitat.[135] In the view of the European Commission, what matters is that the function performed by the affected site is successfully recreated elsewhere.[136]

A mitigation measure is neither of the above. The concept of a 'mitigation measure' was introduced by governmental agencies in some countries exactly with the purpose of relaxing the stringency of EU nature conservation law.[137] This concept has explicitly or implicitly been used in several Member States in many cases, without the judiciary asking for a preliminary ruling by the Court of Justice of the EU, and leading to wrongful implementation of the Directive.[138] It took the Court of Justice several cases in order to improve the clarity and thus the effectiveness of Article 6(3) of the Directive. Thanks to the judgments in the *Waddenzee*, *Sweetman*, *Briels* and *Orleans* cases,[139] it can confidently be established that a measure can be considered to avoid the occurrence of damage to the integrity of a site (thus be considered a mitigation measure) when these four cumulative requirements are met:[140]

> (i) the measure aims at preventing the damage caused by a *specific* plan/project (functional linkage criterion);
> (ii) the measure must ensure that *this* damage (specificity criterion);
> (iii) will be *prevented* (prevention criterion); and
> (iv) that there is *no doubt* about this preventive effect (no-doubts criterion).

In *Sweetman*, the Court clarified that the specificity criterion refers to each *individual* conservation objective, justifying the designation of that site in the list of Sites of Community Importance (SCIs) in

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[130] De Sadeleer (2016) 286–294; see also Schoukens (201115); Case C-127/02, *Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij (Waddenzee)*, ECLI:EU:C:2004:482, para 36; Stokes (2005) 206; and Verschuuren (2005) 265.

[131] Case C-258/11, *Peter Sweetman and Others v An Bord Pleanála (Sweetman)*, ECLI:EU:C:2013:220, paras 31ff.

[132] Specifically on this provision, see Nollkaemper (1997) 271; Clutten and Tafur (2012) 167; Krämer (2009) 59; Rodgers (2013) 225–232; De Sadeleer (2016). Projects authorized on the basis of Article 6(4) of the Directive have been called 'unsustainable development' projects; see Schoukens (201115) 52.

[133] See most notably, Case C-399/14, *Grüne Liga Sachsen eV and Others v Freistaat Sachsen* (*Grüne Liga Sachsen*), ECLI:EU:C:2016:10 paras 72–73; See also Commission (EU), 'Guidance on Article 6(4) of the 'Habitats Directive' 92/42/EEC' (January 2007). On the Commission's approach see, McGillivray, (2012) 417.

[134] Schoukens (201115); Schoukens and Cliquet (2014) 207.

[135] Schoukens and Cliquet (2014) 207.

[136] Commission (EU), 'Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' (2000) 12–13.

[137] On this concept, Frins (2016).

[138] Squintani et al (2019) 2.

[139] See Case C-127/02, *Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij (Waddenzee)*, ECLI:EU:C:2004:482, Case C-258/11, *Peter Sweetman and Others v An Bord Pleanála (Sweetman)*, ECLI:EU:C:2013:220, Case C-521/12, *T.C. Briels and Others v Minister van Infrastructuur en Milieu (Briels)*, ECLI:EU:C:2014:330 and Joined Cases C-387/15 and 388/15, *Hilde Orleans and Others v Vlaams Gewest (Orleans)*, ECLI:EU:C:2016:583.

[140] Developed on the basis of Frins (2016) 52–72.

accordance with the Directive.[141] Similarly, from *Briels* it is clear that, under the prevention criterion, measures provided to replace a damaged area with another cannot be taken into account in the assessment of the implications of a project provided for in Article 6(3).[142] In the PAS-judgment,[143] the Court confirmed both criteria and provided further clarification of the functional linkage criterion (i) and of the no-doubts criterion (ii).

About the functional linkage criterion, after quoting the text of Article 6(3) of the Directive, which requires an individual assessment of plans and projects, the Court of Justice explained the *ratio legis* of such a provision. According to the Court, the appropriate assessment of the implications of the plan or project for the site concerned implies that all the aspects of the plan or project which can, either individually or in combination with other plans or projects, affect the conservation objectives of that site, must be identified.[144] What matters is that an *individual* assessment takes place, not when in the chain of policy instruments to protect the environment (i.e. policies, plans and specific decisions) such assessment takes place. Accordingly, such an individual assessment can also take place at the plan level. What matters is that there is no reasonable scientific doubt as to the absence of adverse effects of *each* plan or project on the integrity of the site concerned.[145]

About the no-doubts criterion, it stems from the *Orleans* case that only those measures which are completed at the moment of the appropriate assessment can be taken into account when authorising a project based on Article 6(3) of the Directive.[146] *Orleans* concerned the development of a large part of the port of Antwerp (Belgium), affecting the Natura 2000 site. The Court established that the Belgian Regional Development Implementation Plan allowing the project established that the development would be possible only after the sustainable establishment of habitats and habitats of species in core ecological areas. Second, the Court established that a decision would have to declare that habitats in the nature reserves had in fact been sustainably created, and the application for a planning permit relating to implementing the intended use of the area concerned would also have had to include that decision. Accordingly, the negative effects would have taken place only after that certainty regarding the effectiveness of the positive effects had been established. Yet, the Court ruled that such certainty would have been acquired only after the plan had been adopted, and thus, that the proposed measures could not be authorised solely under Article 6(3) of the Directive.

In the PAS judgment a second way was introduced to achieve an authorisation solely based on Article 6(3) of the Directive. This is possible even before the measures to avoid damage are realised when there is no scientific doubt about the effectiveness of the proposed measure. This means that, even when a measure has not been carried out yet, it is still possible to speak of a mitigation measure. What matters is that there is scientific certainty about the effectiveness of such a measure, thus avoiding the significant damage that would otherwise occur. This criterion is clearly less demanding than the previous one. Still, the question is when scientific certainty exists about the effectiveness of a measure. This criterion could therefore be more difficult to fulfil in practice than it seems. It is still unclear what burden of proof the Court would consider to be sufficient under this approach. In the PAS judgment, the Court left this matter to the national court to decide, in an exercise of judicial subsidiarity.[147] Yet, it

[141] Case C-258/11, *Peter Sweetman and Others v An Bord Pleanála (Sweetman)*, ECLI:EU:C:2013:220 para 39.

[142] Case C-521/12, *T.C. Briels and Others v Minister van Infrastructuur en Milieu (Briels)*, ECLI:EU:C:2014:330.

[143] Joined Cases C-293/17 and C-294/17, *Coöperatie Mobilisation for the Environment UA and Vereniging Leefmilieu v College van Gedeputeerde Staten van Limburg and College van Gedeputeerde Staten van Gelderland*, ECLI:EU:C:2018:882 (PAS judgment).

[144] Ibid., para 95.

[145] Ibid., para 104.

[146] See, e.g., Zijlmans (2016) 870.

[147] On this practice and for more references, see Bogojevic (2015) 1.

cannot be discounted that the Court of Justice will formulate some guidance in future case law if called upon to clarify this issue.

In conclusion, the presence of so many cases about the meaning of Article 6 of the Habitats Directive and the elapsing of so many years from the introduction of the Directive can partially explain why so many nature conservation sites are not in a favourable status of conservation. In light of the above, I hypothesise that the manner in which the EU legislator balanced the need of adaptability with that of legal certainty under this Directive has provided the basis for implementation approaches which, in retrospective, where not in line with the meaning of the Directive. Yet, at the point in time in which Member States adopted these regimes, it was open to debate which interpretation, and thus implementation approach, fulfilled the requirements of the Directive. At the same time, this discussion seems to have focused mostly on whether the provisions of the Directive were complied with, thus legal effectiveness, without paying attention to whether the application of whichever regulatory regime ensured a favourable status of conservation of protected sites. Other considerations seems to have prevailed.

d. Monitoring duties

The Habitats Directive requires monitoring and Reporting. As regards both habitats and species protection, Article 11 requires Member States to undertake surveillance of the conservation status of the natural habitats and species referred to in Article 2 with particular regard to priority natural habitat types and priority species. Besides, specific monitoring duties exists also as regards the incidental capture and killing of the animal species listed in Annex IV (a), based on Article 12(4) of the Directive. Moreover, under Article 17 of the Directive, Member States have to Report to the Commission information about the adopted conservation measures.

This surveillance activities contribute to the adaptation of the protection regime under the Directive. On the one hand, special area of conservation may be considered for declassification where this is warranted by natural developments noted as a result of the surveillance provided for in Article 11. Besides the findings from the surveillance can justify Member States´ decision to consider the taking in the wild of specimens of species of wild fauna and flora listed in Annex V as well as their exploitation as being compatible with their being maintained at a favourable conservation status. Furthermore, in the light of the information gathered based on Article 14(1) of the Directive, Member States are required to perform further research or adopt conservation measures to ensure that incidental capture and killing does not have a significant negative impact on the species concerned.

As such, thus, these monitoring and Reporting duties should contribute to the development of the protection regime, as they can help to update the conservation objectives of Natura 2000 sites.

3.3.4. Waste Management

European legislation in the field of waste management is organized in three main categories, namely: horizontal measures, measures regarding waste installations and measures regarding specific streams of waste.[148] In 2001 Tromans wondered whether Union waste law is a 'complete mess'.[149] Certainly it is complex, provoking litigation at the 'higher level', to use Lee's expression.[150] Therefore, it is unsurprising that waste law generated some of the most interesting cases

[148] European Environmental Bureau, *EU Environmental Policy Handbook*, 2005, 86. [M.Shinn]

[149] Tromans (2001), no answer was provided.

[150] Lee (2005) 214.

concerning gold-plating.[151] These cases regarded several Directives regulating waste in general and in specific.[152]

In 1974[153] the Commission presented its proposal for a Directive on waste as part of the Union environmental programme launched in 1973.[154] The proposal responded to the intentions of some Member States to regulate waste management at a national level.[155] Given the delicate relationship between waste and free movement of goods, the Union legislator decided to act quickly. Nine Member States participated in the negotiations, and the European Parliament did not have legislative power. The structure of the Old Waste Directive (Directive 75/442/EEC) was straightforward. First, it established the field of application by defining waste and indicating its exceptions (Articles 1 and 2). Second, it required the Member States to take appropriate measures to encourage waste prevention, recycling and reuse (Article 3). Third, it imposed a duty of care upon the Member States regarding waste disposal (Article 4).[156] Fourth, it operationalized the duty of care regarding disposal by requiring the Member States to establish competent authorities and waste management plans (Articles 5 and 6), to ensure that waste was disposed of properly (Articles 7 and 8) and to enforce the measures taken pursuant to Articles 7 and 8 by means of periodic inspections or supervision (Articles 9 and 10). Finally, in addition to imposing a duty to Report (Article 13), it regulated cost allocation by means of the 'polluter pays' principle (Article 11).

In 1988 the Commission proposed a Directive amending the Old Waste Directive.[157] This aimed at improving the consistency within Union waste law by transforming the Old Waste Directive into a framework Directive. In March 1991, also as a consequence of the Commission's Communication on a Community strategy for waste[158] and the Council Resolution of 7 May 1990 on waste,[159] Directive 91/156/EEC, substantially reforming the Old Waste Directive, was issued. Its principal reforms were: a) the introduction of a hierarchy of priorities, noting prevention as the main priority in the context of waste management (Article 3); b) the introduction of the so-called proximity and self-sufficiency principles[160] in the plan requirements (Article 5); and c) the application of the permit requirement to undertakings and installations disposing of their own waste and recovering waste, as long as they are not exempted (Articles 9-11).[161]

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[151] Case C-194/01 *Commission v Austria* [2004] ECR I-4579; Case C-318/98 *Fornasar* [2000] ECR I-4785; Case C-203/96 *Dusseldorp* [1998] ECR I-7045; Case C-324/99 *DaimlerChrysler* [2001] ECR I-9897; Case C-6/03 *Deponiezweckverband Eiterköpfe* [2005] ECR I-2753 and Case C-64/09 *Commission v France* [2010] ECR I-3283.

[152] Directive 75/442/EEC on waste; Directive 91/689/EEC on hazardous waste, *OJ 1991 L 377/20*; Directive 91/31/EC on landfill waste, *OJ 1999 L 182*; and Regulation (EC) 259/93 on the shipment of waste, *OJ 1993 L 30* and Directive 2000/53/EC on end-of-life vehicles, *OJ 2000 L 269, 34*.

[153] COM(74) 1297 final.

[154] Council of the European Union, document number R-2414/74, 1. OJ 1973, C 112/28.

[155] Ibid., 1 and 2.

[156] The expression 'duty of care' has been adapted from Chalmers (1995), 297. It should be noted that initially the Court of Justice clarified that Article 4 is considered as having a programmatic value meaning that it indicates the goals towards which the Member States must strive. It does not contain obligations that are directly applicable; see Case C-236/92 *Comitato di coordinamento per la difesa della Cava a.o.* [1994] ECR I-483, paras. 12 and 14. Later, jurisprudence revised this position and stated that this Article could have direct effect, see Tieman (2003), p. 131 with reference to Case C-365/97 *Commission v Italy* [1999] ECR I-7773, paras. 67-68; Case C-387/97 *Commission v Greece* [2000] ECR I-5047 par. 55-57 and Case C-318/98 *Fornasar* [2000] ECR I-4785.

[157] COM(88) 391 final. I could only analyse the version published in the Official Journal, in which there is no explanatory memorandum.

[158] SEC(89) 934 final.

[159] *OJ 1990 C 122/2*.

[160] The proximity principle means that waste should be disposed of as near as possible to the place where it is generated. The self-sufficiency principle means that each Member State should be capable of disposing of its own waste. See Jans (1993), 708.

[161] See also Van Calster (2000), p. 162 for an overview of the reasons behind the reform of the Old Waste Directive.

Following the 6th Environmental Action Programme[162] and the Thematic Strategy on the Prevention and Recycling of Waste,[163] in December 2005 the Commission presented its proposal for a new Waste Directive repealing Directive 2006/12/EC,[164] which had codified the Old Waste Directive.[165] The negotiations rounds have been characterized by the activism of the European Parliament, which had co-legislative power, and of those Member States that, under the Old Waste Directive, had introduced legislative systems pursuing waste prevention and recovery.[166] The main reasons for the repeal were threefold: 1) clarify some definitions; 2) bring the Old Waste Directive in line with the new approaches adopted by the Thematic Strategy (such as lifecycle thinking); and 3) simplify the existing legal framework. The achievement of the first aim required the insertion of improved definitions of waste, recovery and disposal (Article 3).[167] The second aim required the introduction of a specific objective, namely that of reducing the environmental impact from waste generation and management, taking into account the whole lifecycle (Article 1),[168] the introduction of minimum standards and the use of the end-of-life criterion (mainly Article 4).[169] Finally, the third aim of the reform was pursued by incorporating the Old Waste Directive, the Hazardous Waste Directive[170] and the Waste Oil Directive into one Directive.[171]

When we focus on the manner in which the EU legislator shaped the manner in which objectives, plans and programmes, general binding rules, authorisation requirements and monitoring duties are regulated under the central piece of legislation in this field, the Waste Directive, the following picture emerges.

a. Regulatory objectives

Compared to the manner in which the other core Directives analysed in this Report specify the objectives aimed at, the Waste Directive clearly does not focus on quality standards. Article 1 of the Waste Directive states:

> *This Directive lays down measures to protect the environment and human health by preventing or reducing the generation of waste, the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use, which are crucial for the transition to a circular economy and for guaranteeing the Union's long-term competitiveness.*

As we can see, this Directive focus on a specific sort of goods, waste. The rest of the Waste Directive sets out the provisions aiming at attaining this goal. The Waste Directive does contain targets expressed in a numerical manner, specifically in Article 11 about re-use and recycling, but these targets are not related to any specific environment. Article 11(2) states:

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[162] Decision 1600/2002/EC, *OJ 2002 L 242*

[163] COM(2005), 666 final.

[164] Directive 2006/12/EC on waste, OJ 2006 L 114/9. This Directive replaced Directive 75/442 in 2006. However, this replacement only covered linguistic aspects. No change occurred with regard to its content.

[165] COM(2005), 667 final.

[166] See below the Section on Articles 8 and 11.

[167] COM(2005), 667 final, 2.

[168] COM(2005), 667 final, 2.

[169] Ibid., 2.

[170] Directive 91/689/EEC on hazardous waste, *OJ 1998 L 23/ 39.*

[171] Directive 75/439/EEC on the disposal of oil, *OJ 1975 L 194/2.*

2. In order to comply with the objectives of this Directive, and move to a European circular economy with a high level of resource efficiency, Member States shall take the necessary measures designed to achieve the following targets:

(a) by 2020, the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass from households and possibly from other origins as far as these waste streams are similar to waste from households, shall be increased to a minimum of overall 50 % by weight;

(b) by 2020, the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste shall be increased to a minimum of 70 % by weight;

(c) by 2025, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 55 % by weight;

(d) by 2030, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 60 % by weight;

(e) by 2035, the preparing for re-use and the recycling of municipal waste shall be increased to a minimum of 65 % by weight.

It should be noted that these targets are not established based on scientific insights. It is not ecology that drives the setting of these thresholds.

When looked at from the perspective of legal certainty, the indication of specific deadlines for the achievement of the targets and the specification of these targets by means of specific percentage based on the weight of the produced waste can surely help understanding what Member States are expected to do. These clarity comes however at the cost of the ability to adapt these targets based on new insights. A legislative reform is needed.

As well known, the clarity of these targets is influenced by the clarity of the concepts of waste, end of waste and by product as defined in Article 3, which means that clarity is yet to be achieved.

b. Plans and programs

Similarly to the other Directives analysed in this Report, the Waste Directive prescribes the making of plans, specifically waste management plans (Article 28) and the adoption of programmes of measures, specifically waste prevention programmes (Article 29). Next these two main forms of plans and programmes, the Waste Directive also speaks of 'implementation plans' , which only apply when a Member States activates the procedure to postpone the deadlines for attaining the targets for preparation for re-use and recycling set out in Article 11. I will mainly focus on waste management plans and waste prevention programmes, given their unconditional applicability. Article 28 states:

1. Member States shall ensure that their competent authorities establish, in accordance with Articles 1, 4, 13 and 16, one or more waste management plans.

Those plans shall, alone or in combination, cover the entire geographical territory of the Member State concerned.

2. The waste management plans shall set out an analysis of the current waste management situation in the geographical entity concerned, as well as the measures to be taken to improve environmentally

sound preparing for re-use, recycling, recovery and disposal of waste and an evaluation of how the plan will support the implementation of the objectives and provisions of this Directive.

3. The waste management plans shall contain, as appropriate and taking into account the geographical level and coverage of the planning area, at least the following:

(a) the type, quantity and source of waste generated within the territory, the waste likely to be shipped from or to the national territory, and an evaluation of the development of waste streams in the future;

(b) existing major disposal and recovery installations, including any special arrangements for waste oils, hazardous waste, waste containing significant amounts of critical raw materials, or waste streams addressed by specific Union legislation;

(c) an assessment of the need for closure of existing waste installations, and for additional waste installation infrastructure in accordance with Article 16.

Member States shall ensure that an assessment of the investments and other financial means, including for local authorities, required to meet those needs is carried out. This assessment shall be included in the relevant waste management plans or in other strategic documents covering the entire territory of the Member State concerned;

(ca) information on the measures to attain the objective laid down in Article 5(3a) of Directive 1999/31/EC or in other strategic documents covering the entire territory of the Member State concerned;

(cb) an assessment of existing waste collection schemes, including the material and territorial coverage of separate collection and measures to improve its operation, of any derogations granted in accordance with Article 10(3), and of the need for new collection schemes;

(d) sufficient information on the location criteria for site identification and on the capacity of future disposal or major recovery installations, if necessary;

(e) general waste management policies, including planned waste management technologies and methods, or policies for waste posing specific management problems;

(f) measures to combat and prevent all forms of littering and to clean up all types of litter;

(g) appropriate qualitative or quantitative indicators and targets, including on the quantity of generated waste and its treatment and on municipal waste that is disposed of or subject to energy recovery.

4. The waste management plan may contain, taking into account the geographical level and coverage of the planning area, the following:

(a) organisational aspects related to waste management including a description of the allocation of responsibilities between public and private actors carrying out the waste management;

(b) an evaluation of the usefulness and suitability of the use of economic and other instruments in tackling various waste problems, taking into account the need to maintain the smooth functioning of the internal market;

(c) the use of awareness campaigns and information provision directed at the general public or at a specific set of consumers;

(d) historical contaminated waste disposal sites and measures for their rehabilitation.

Article 29 states:

1. Member States shall establish waste prevention programmes setting out at least the waste prevention measures as laid down in Article 9(1) in accordance with Articles 1 and 4.

Such programmes shall be integrated either into the waste management plans required under Article 28 or into other environmental policy programmes, as appropriate, or shall function as separate programmes. If any such programme is integrated into the waste management plan or into those other programmes, the waste prevention objectives and measures shall be clearly identified.

2. When establishing such programmes, Member States shall, where relevant, describe the contribution of instruments and measures listed in Annex IVa to waste prevention and shall evaluate the usefulness of the examples of measures indicated in Annex IV or other appropriate measures. The programmes shall also describe existing waste prevention measures and their contribution to waste prevention.

The aim of such objectives and measures shall be to break the link between economic growth and the environmental impacts associated with the generation of waste.

2a. Member States shall adopt specific food waste prevention programmes within their waste prevention programmes.

5. The Commission shall create a system for sharing information on best practice regarding waste prevention and shall develop guidelines in order to assist the Member States in the preparation of the Programmes.

When looked at from the perspective of legal certainty and adaptability, Article 28 of the Waste Directive simply requires that the whole territory shall eventually be covered, but leaves to the Member States to decide whether a national plan or a series of regional/local plans is used to fulfil this obligation. Also as regards the programme of preventing measures, the Article 29 of the Directive addresses the Member States without specifying any further the authority who should adopt such programmes. The Directive allow the Member States to select the authorities that, in their opinion, are best placed to make the plans and programmes. In practice, a combination of national plans and local waste management plans are formulated, such as is the case for example in the Netherlands.[172] The Directive does not address the possibility of transboundary waste management plans or waste prevention programmes, underlying the nationalistic approach followed by the Directive.

[172] Squintani (2013), Chapter 4

Public participation is specifically addressed un Article 31 which states:

> *Member States shall ensure that relevant stakeholders and authorities and the general public have the opportunity to participate in the elaboration of the waste management plans and waste prevention programmes, and have access to them once elaborated, in accordance with Directive 2003/35/EC or, if relevant, 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 (9). They shall place the plans and programmes on a publicly available website.*

By mean of this provision, the Waste Directive aligns with the general framework adopted by the EU to implement the Aarhus Convention at Member States level.

When we focus on the regulation of the content of waste management plans, we can notice that Article 28(3) indicates a series of information that should be included in the plan. The focus of Article 28 is mostly on providing the information, rather than prescribing the inclusion of the type of measures about which the information attain. For example, Article 28(3) requires Member States to include in waste management plans information on the measures to attain the objective laid down in Article 5(3a) of Directive 1999/31/EC, on landfilling of waste. This formula does not make clear whether the plans prescribed under Article 28 of the Waste Directive have a prescriptive nature, in the sense that they prescribe what measures Member States will take, or a descriptive nature, meaning that the listing of the measures does not comport the legal obligation of adopting such measures, at least not from an EU law perspective. The finding that waste management plans are subject to public participation suggests that they are considered a documents setting the legal framework for further action, but this is not clear from the Directive.

Article 29 uses a more direct language than Article 28 about the content of waste prevention programmes. Such programmes have to contain at least the measure as laid down in Article 9(1), establishing the obligation for the Member States to take a series of measures, such as the promotion and support of sustainable production and consumption models. Annex IV to the Directive provides a list of waste prevention measures that can be included in the waste prevention programmes, such as use of planning measures, or other economic instruments promoting the efficient use of resources.[173] Theis list only include examples, which have thus no binding force. More generally, also as regards the waste prevention programmes, the text of the Directive does not allow to conclude with certainty whether the waste prevention programmes have prescriptive or descriptive nature, under EU law.

Under Article 30, Member States are required to evaluate waste management plans and waste prevention programmes at least every sixth year and revise them as appropriate and, where relevant, in accordance with Articles 9 and 11. Adaptability is thus aimed at by means of a regular revision process, leaving to the Member States to decide whether adaptation of the plans and programmes before the indicated deadlines is desirable.

c. General binding rules

Aiming at regulating a result ace of human activities, waste, the Waste Directive has provisions which albeit addressed to the Member States, require or may require a certain conduct by private natural and legal persons. For example, Article 8 of the Waste Directive regulates so-called extended producer responsibility. Article 8(1) states:

[173] Annex IVa to the Directive indicates another list of examples, this time about economic instruments and other measures to incentivize the application of the waste hierarchy referred to in Article 4(3) of the Directive.

1. In order to strengthen the re-use and the prevention, recycling and other recovery of waste, Member States may take legislative or non-legislative measures to ensure that any natural or legal person who professionally develops, manufactures, processes, treats, sells or imports products (producer of the product) has extended producer responsibility.

Such measures may include an acceptance of returned products and of the waste that remains after those products have been used, as well as the subsequent management of the waste and financial responsibility for such activities. These measures may include the obligation to provide publicly available information as to the extent to which the product is re-usable and recyclable.

Where such measures include the establishment of extended producer responsibility schemes, the general minimum requirements laid down in Article 8a shall apply.

Member States may decide that producers of products that undertake financial or financial and organisational responsibilities for the management of the waste stage of a product's life cycle of their own accord should apply some or all of the general minimum requirements laid down in Article 8a.

Article 8a, referred to in the previous provisions, states (3):

3. Member States shall take the necessary measures to ensure that any producer of products or organisation implementing extended producer responsibility obligations on behalf of producers of products:

(a) has a clearly defined geographical, product and material coverage without limiting those areas to those where the collection and management of waste are the most profitable;

(b) provides an appropriate availability of waste collection systems within the areas referred to in point (a);

(c) has the necessary financial means or financial and organisational means to meet its extended producer responsibility obligations;

(d) puts in place an adequate self-control mechanism, supported, where relevant, by regular independent audits, to appraise:

(i) its financial management, including compliance with the requirements laid down in points (a) and (b) of paragraph 4;

(ii) the quality of data collected and Reported in accordance with point (c) of paragraph 1 of this Article and with the requirements of Regulation (EC) No 1013/2006;

(e) makes publicly available information about the attainment of the waste management targets referred to in point (b) of paragraph 1, and, in the case of collective fulfilment of extended producer responsibility obligations, also information about:

(i) its ownership and membership;

(ii) the financial contributions paid by producers of products per unit sold or per tonne of product placed on the market; and

(iii) the selection procedure for waste management operators.

As we can see from these provisions, once adopted, these provisions will translate into obligations imposed on waste producers. These provisions are phrased in terms of positive obligations, thus by means of an obligations to do something. From the perspective of legal certainty, positive obligations such as those mentioned in Articles 8 and 8a of the Waste Directive could, in certain cases, offer more legal certainty than achieved at the moment. For example, the positive duty to make publicly available information about the selection procedure for waste management operators, does make clear that such information must be published, but it does not provide indications about how the selection procedure takes place, and thus whether it complies or not with regulatory standards, such as competition rules. Also the obligation to put in place an adequate self-control mechanism does not make clear when a self-control mechanism can be considered adequate. Such info can be provided by the Member States, but still, the Directive does not provide an EU benchmark on this matter.

The Waste Directive also contains provisions leading to general binding rules phrased in the form of negative obligations, such as Article 18 establishing a ban on mixing of hazardous waste. Article 18(1) states:

> *1. Member States shall take the necessary measures to ensure that hazardous waste is not mixed, either with other categories of hazardous waste or with other waste, substances or materials. Mixing shall include the dilution of hazardous substances.*

This provision once implemented will lead to a prohibition to mix hazardous waste which should be quite straightforward, at least based on the text of the Directive.[174]

d. Authorization requirements

The Waste Directive has a specific chapter on permits and registrations. Article 23 states:

> *1. Member States shall require any establishment or undertaking intending to carry out waste treatment to obtain a permit from the competent authority.*
>
> *Such permits shall specify at least the following:*
>
> *(a) the types and quantities of waste that may be treated;*
>
> *(b) for each type of operation permitted, the technical and any other requirements relevant to the site concerned;*
>
> *(c) the safety and precautionary measures to be taken;*
>
> *(d) the method to be used for each type of operation;*
>
> *(e) such monitoring and control operations as may be necessary;*
>
> *(f) such closure and after-care provisions as may be necessary.*
>
> *2. Permits may be granted for a specified period and may be renewable.*

[174]It should be noted that Member States can introduce derogations from this prohibition based on Article 18(2) which can of course affect the clarity of the prohibition, depending on how such derogations are phrased.

> *3. Where the competent authority considers that the intended method of treatment is unacceptable from the point of view of environmental protection, in particular when the method is not in accordance with Article 13, it shall refuse to issue the permit.*

This provision does not only indicate the existence of a permit duty. It also indicates the minimum information and thus standards that a permit should include. It also explicitly states that environmental protection and protection of human health shall be a ground for rejecting permit requests.

From the perspective of legal certainty, however, the use of the formula ´unacceptable from the point of view of environmental protection´ leaves room for diverging interpretations. Also the formula ´not in accordance with Article 13´ is less clear than a pima facia analysis would suggest. It refers indeed to Article 13, which states:

> *Member States shall take the necessary measures to ensure that waste management is carried out without endangering human health, without harming the environment and, in particular:*
>
> *(a) without risk to water, air, soil, plants or animals;*
>
> *(b) without causing a nuisance through noise or odours; and*
>
> *(c) without adversely affecting the countryside or places of special interest.*

This provision speaks about risk avoidance as regards water, air, soil, plants or animals, without however clarifying what this standard actually means. Also in this case, thus, there is room for diverging interpretations. Most notably, it could be questioned whether risk avoidance as regards plants and programmes is fulfilled as soon as none of the provisions of the Habitats Directive is jeopardized. Yet, it could also be interpreted that also other plants and animals than those protected under the Habitats Directive needs to be protected in the context of waste management. From the perspective of internal coherence among EU environmental acts, it can be argued that this formula does not, in any case, allow more room for pollution than that allowed under the relevant Directives concerning the environmental aspects mentioned in this provision. Legal certainty would benefit from a more refined formulation of the linkage between the Waste Directive and other environmental Directives.

Also from the perspective of adaptability, Article 23 of the Waste Directive could be improved. This provision does not really prescribe a mechanism ensuring that permit requirements are automatically updated. The most common mechanism in this context would have been a clause linking the validity of the permit to a period of time, as it was the case under the Old Waste Directive. A more general requirement to update the permit in light of new insights about the state of technique or environment would have also allowed for a more.

These findings do not apply as apply to those waste treatment installations that are subject to an integrated permit based on the Industrial Emissions Directive, considering that the Industrial Emissions Waste Directive contains a specific procedure aiming at adapting permits to changes in the installations, technical knowledge or environmental conditions.[175]

e. Monitoring duties

The Directive set out a series of Reporting duties. Article 37 states:

[175] Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Text with EEA relevance, *OJ 2010 L 334, 17–119*, Articles 18-21.

1. Member States shall Report the data concerning the implementation of points (a) to (e) of Article 11(2) and Article 11(3) for each calendar year to the Commission.

They shall Report the data electronically within 18 months of the end of the Reporting year for which the data are collected. The data shall be Reported in the format established by the Commission in accordance with paragraph 7 of this Article.

The first Reporting period shall start in the first full calendar year after the adoption of the implementing act that establishes the format for Reporting, in accordance with paragraph 7 of this Article.

2. For the purposes of verifying compliance with point (b) of Article 11(2), Member States shall Report the amount of waste used for backfilling and other material recovery operations separately from the amount of waste prepared for re-use or recycled. Member States shall Report the reprocessing of waste into materials that are to be used for backfilling operations as backfilling.

For the purposes of verifying compliance with points (c), (d) and (e) of Article 11(2) and Article 11(3), Member States shall Report the amount of waste prepared for re-use separately from the amount of waste recycled.

3. Member States shall Report the data concerning the implementation of Article 9(4) and (5) to the Commission every year.

They shall Report the data electronically within 18 months of the end of the Reporting year for which the data are collected. The data shall be Reported in the format established by the Commission in accordance with paragraph 7 of this Article.

The first Reporting period shall start in the first full calendar year after the adoption of the implementing act that establishes the format for Reporting, in accordance with paragraph 7 of this Article.

4. Member States shall Report the data on mineral or synthetic lubrication or industrial oils placed on the market and waste oils separately collected and treated for each calendar year to the Commission.

They shall Report the data electronically within 18 months of the end of the Reporting year for which the data are collected. The data shall be Reported in the format established by the Commission in accordance with paragraph 7.

The first Reporting period shall start in the first full calendar year after the adoption of the implementing act that establishes the format for Reporting, in accordance with paragraph 7.

5. The data Reported by Member States in accordance with this Article shall be accompanied by a quality check Report and a Report on the measures taken pursuant to Article 11a(3) and (8), including detailed information about the average loss rates where applicable. That information shall be Reported in the format for Reporting established by the Commission in accordance with paragraph 7 of this Article.

6. The Commission shall review the data Reported in accordance with this Article and publish a Report on the results of its review. The Report shall assess the organisation of the data collection, the sources of data and the methodology used in Member States as well as the completeness, reliability, timeliness and consistency of that data. The assessment may include specific recommendations for

improvement. The Report shall be drawn up after the first Reporting of the data by Member States and every four years thereafter.

7. By 31 March 2019, the Commission shall adopt implementing acts laying down the format for Reporting the data referred to in paragraphs 1, 3, 4 and 5 of this Article. For the purposes of Reporting on the implementation of points (a) and (b) of Article 11(2), Member States shall use the format established in Commission Implementing Decision of 18 April 2012 establishing a questionnaire for Member States Reports on the implementation of Directive 2008/98/EC of the European Parliament and of the Council on waste. For the purpose of Reporting on food waste, the methodology developed under Article 9(8) shall be taken into account when developing the format for Reporting. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 39(2) of this Directive.

These Reporting duties are linked to the measure adopted under Articles 11(2) on the measures to achieve the preparation for re-use and recycling targets, Article 11(3), on the implementation plan applicable when Member States activate the procedure to postpone the attainment of the targets in Article 11(2) and Article 9(4)(5) on the measures adopted to prevent food waste and to encourage re-use of waste.

As regards the effectiveness of the measures mentioned in waste management plans and the waste prevention plans, the Directive does not indicate how the assessment should take place. Based on Articles 9(4)(5)(7) and 37 of the Directive, the Commission has adopted Implementing Decision (2021/19 on 18 December 2020 laying down a common methodology and a format for Reporting *reuse* in accordance with the Waste Directive. Article 1 of this Implementing Decision, however, only states:

1.For the purposes of Article 9(4) of Directive 2008/98/EC, Member States shall measure reuse by carrying out a qualitative and a quantitative monitoring of measures on reuse.

2.The qualitative monitoring referred to in paragraph 1 shall include an identification and description of measures on reuse and an assessment of their impacts or expected impacts, on the basis of the available data. The qualitative monitoring shall be carried out each year.

3.The quantitative monitoring referred to in paragraph 1 shall be carried out by measuring reuse generated by reuse operators or households in accordance with any of the following methods or a combination of those methods or any other method equivalent in terms of relevance, representativeness and reliability:

(a) direct measurement of reuse by using a measuring device to determine the mass of reused products;

(b) mass balance calculation of reuse on the basis of the mass of inputs and outputs of products in reuse operations;

(c) questionnaires and interviews of reuse operators or households;

(d) diaries of individuals keeping a record or log of information on reuse on a regular basis.

The quantitative monitoring for a given product category shall be carried out at least once every three years. The first monitoring shall cover all product categories and shall be carried out for the first Reporting period referred to in the third subparagraph of Article 37(3) of Directive 2008/98/EC.

4.Member States shall take appropriate measures to ensure the reliability and accuracy of the data on reuse. In particular, Member States shall ensure that the measurement of reuse carried out in accordance with the common methodology set out in this Article is based on a representative sample of the population or of reuse operators or households as applicable.

As we can see, these provision leaves considerable flexibility to the Member States on how to measure reuse. The quantitative assessments leaves great room of maneuver to the Member States. They can choose among different approaches, none of which is further regulated. The clause 'appropriate measures to ensure the reliability and accuracy of the data' used in Article 1(4) of the Implementing Decision is open to diverging interpretations. This finding applies also to the concept of 'representative sample of the population or of reuse operators'. Accordingly, even if this provision requires to qualitatively assess the expected impact of the measures adopted to encourage reuse, it does not offer a concrete basis to easily assess whether Member States measures are or will be effective.

This consideration also applies even more to the other cases in which the Waste Directive requires an evaluation or assessment of the instruments indicated in the waste management plan or waste prevention programmes is mentioned in the Directive, such as at Article 28(3)(cb), given that as regards these other instances in which an assessment or evaluation is required, not further indicated are provided by the European Union.

This finding applies also to the implementation plans prescribed under Article 11(3) of the Directive in case a Member States activates the procedure to postpone the achievement of the deadlines for the preparation for re-use and recycling targets. Annex IVb to the Directive does requires various assessments of existing and envisaged measures, but how this assessment should be carried out is not regulated.

Accordingly, even if the monitoring requirements under the Waste Directive allow for a certain degree of legal certainty and adaptability, the lack of rules concerning the establishment of a benchmark to evaluate the effects of the plans and programmes makes it arbitrary to establish whether less or more measures are necessary, and therefore whether the plans and programmes should be adapted. It also makes it more difficult to check compliance with the Directive. In conclusion, legal certainty and adaptability and not well served by this lack of clear requirements on the assessment of the effectiveness of plans and programmes.

3.3.5. Main findings based on the analysis of core EU Environmental Directives

The analysis of the four core EU Environmental Directives presented in this Section has revealed marked similarities and differences about the manner in which the Directives cope with adaptability and legal certainty. The most marked similarities concern the Habitats Directive, the WFD and the AQD, as these Directive all use quality standards as tool to formulate the Directives' goals. The Waste Directive does not use this technique simply because this Directive does not focus on one environmental medium or ecosystem. It focuses on the end goods produced by human activities, waste.

Still all these Directives make use of plans and programmes to steer the implementation at national level and simplify the oversights of the implementation efforts from the European Union. In none of these Directives, the EU legislator clearly indicates how the effectiveness of the proposed measures should be established.

The most marked similarity among the Habitats Directive, the WFD and the AQD when looked at from the perspective of legal certainty and adaptability is that they base quality standards on scientific insights. Yet, only the first two Directives have highly adaptive systems. In the context of the ADQ, the quality standards can be adapted only through a legislative process at EU level. This could explain why

in this field of environmental protection there is a marked discrepancy between the evolution of scientific insights as represented in the WHO guidelines and the thresholds indicated in the AQD.

Finally, a similarity that all four the analysed Directives have shown is the lack of regulatory standards on how to predict the effectiveness of the measures envisaged to achieve the goals set out by the Directives. Only the Waste Directive has recently made a first attempt to regulate the subject matter, but the level of flexibility allowed by the adopted regime does not really clarify how to predict the effectiveness of envisaged measures. This lacuna could explain the findings from the EEA studies on the status of the environment. Without knowing in advance whether the proposed measure will be effective, the chance increases that the adopted measure result ineffective.

3.4. Whether core European Environmental Directives make a coherent use of legislative techniques, such as minimum clauses and optional clauses, to harmonize the respective subject matters[176]

There are two main legislative techniques used by the EU legislator to show the Member States minimum harmonisation. First, the Union legislator shows minimum harmonisation by means of minimum clauses. In the literature,[177] two kinds of minimum clauses are distinguished: a) explicit minimum clauses, and b) implicit minimum clauses. Second, the Union legislator indicates the room for green-plating by means of options. The main difference between these two kinds of legislative techniques is that the latter is, generally speaking, more specific than the former. Indeed 'options' usually refer to a given measure that can be adopted or non-adopted by the Member States in the implementation phase.

It is unclear whether the EU legislator is aware of such techniques. By looking at the implementation Reports of the Commission, it is possible to see that this institution keeps track of the use that Member States make of options. Similarly, the implementations Reports provide information about the presence of national targets that are stricter than those established by the EU legislator.[178] Instead, few references can be found to the presence of national measures establishing stricter means than those required by the EU legislator to achieve an EU goal. Despite the attention given by the Commission to what Member States do when implementing options and minimum clauses related to the *height* of the level of protection of the environment, I have not retrieved documents showing that the three EU institutions mainly involved in the legislative process are aware of the difference between minimum clauses and options as regards the manner in which they indicate the room for green-plating. This difference is further explained below.

3.4.1. Minimum clauses

Minimum clauses usually state that Member States are *allowed* to take more stringent measures. They reassure the Member States that EU measures based on Article 192 TFEU comply with Article 193 TFEU. A distinction exists between explicit minimum clauses and implicit minimum clauses.

Explicit minimum clauses are clauses literally stating that Member States are allowed to maintain or introduce more stringent protective measures.[179] At times, explicit minimum clauses are formulated in

[176] This section builds upon and makes use of knowledge mainly from Squintani (2019).

[177] See Hofhuis (2006) 71-83, with further references.

[178] Squintani (2013) Chapter 2.

[179] See Sevenster (1992) 68-69 for an enumeration of old Directives and regulations falling within this category.

relation to the content of the EU measure based on Article 192 TFEU as a *whole*. For example, Article 14 of the Birds Directive states:

> *Member States may introduce stricter protective measures than those provided for under this Directive.*

In some cases, explicit minimum clauses are not related to the whole of the content of the EU measure based on Article 192 TFEU at hand. They relate only to a specific part thereof. For example, Article 7(2) of the AQD states:

> *In each zone or agglomeration where fixed measurements are the sole source of information for assessing air quality, the number of sampling points for each relevant pollutant shall not be less than the minimum number of sampling points specified in Section A of Annex V.*

As we can see, this provision clearly states that Section A of Annex V pursues only minimum harmonisation, and thus that the Member States are allowed to have more sampling points.

Implicit minimum clauses are, instead, clauses that by mean of their content and purposes lead to minimum harmonisation.[180] Usually these provisions are recognizable by the use of terms such as 'not later than', 'at least' or 'not more than'. For example, Article 16(1) of the CITES Regulation, which states:

> *Member States shall take appropriate measures to ensure the imposition of sanctions for at least the following infringements of this Regulation: […]*

An enumeration of infringements follows this sentence. Once again, the dictum 'at least' allows the Member States to introduce sanctions for other infringements than those indicated under Article 16(1).

3.4.2. Opt-in and opt-out clauses

In addition to minimum clauses, Union environmental measures often include *opt-in* and *opt-out* clauses addressed to the Member States. By making use or non-use of such clauses, Member States go beyond EU requirements.[181] Usually, these clauses allow for specific measures to be adopted ('*opt-in* clauses') or not to be adopted ('*op-out* clauses'). For example, Article 15(2) of the Waste Directive represents an example of an *opt-in* clause.[182] It states:

> *Member States may decide that the costs of waste management are to be borne partly or wholly by the producer of the product from which the waste came and that the distributors of such product may share these costs.*

Accordingly, Member States may hold more subjects liable than required by Union law. Although no reference is made to the level of environmental protection provided, it can be assumed that enlarging the pool of liable subjects to include the producers and distributors of the products from which the waste came encourages these subjects to produce and distribute products with a lower waste impact.

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[180] See Sevenster (1992) 68 -70 for several examples of such clauses.

[181] As regards the linkage between opt-out clauses and green-plating see Veltkamp (1998) 188 and Jans & Vedder (2012) 114, footnote 64. See also Misonne (2011) 198.

[182] Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives, [2008] *OJ L 312/3*.

Instead, Article 4(5) of the WFD provides an opt-out clause. It states:

> *5. Member States may aim to achieve less stringent environmental objectives than those required under paragraph 1 for specific bodies of water when they are so affected by human activity, as determined in accordance with Article 5(1), or their natural condition is such that the achievement of these objectives would be infeasible or disproportionately expensive, and all the following conditions are met:*
>
> *(a) the environmental and socioeconomic needs served by such human activity cannot be achieved by other means, which are a significantly better environmental option not entailing disproportionate costs;*
>
> *(b) Member States ensure,*
>
> *— for surface water, the highest ecological and chemical status possible is achieved, given impacts that could not reasonably have been avoided due to the nature of the human activity or pollution,*
>
> *— for groundwater, the least possible changes to good groundwater status, given impacts that could not reasonably have been avoided due to the nature of the human activity or pollution;*
>
> *(c) no further deterioration occurs in the status of the affected body of water;*
>
> *(d) the establishment of less stringent environmental objectives, and the reasons for it, are specifically mentioned in the river basin management plan required under Article 13 and those objectives are reviewed every six years.*

If a Member State does not use this option, the regime in Article 4(1) applies. In other words, a higher quality standard applies, leading to a higher level of protection of environmental.

It is also possible that secondary Union environmental measures contain provisions permitting a choice between two or more different legal instruments or regimes. We could call this kind of clauses '*A-or-B* clauses', in which Member States must choose between A or B. The decision to use option A rather than option B, or vice versa, can influence the level of environmental protection at national level. For example, Article 16(1) of the Integrate Pollution and Prevention Control Directive stated:

> *Member States shall ensure that, in accordance with the relevant national legal system, members of the public concerned have access to a review procedure before a court of law or another independent and impartial body established by law to challenge the substantive or procedural legality of decisions, acts or omissions subject to the public participation provisions of this Directive when: (a) they have a sufficient interest; or (b) they maintain the impairment of a right, where administrative procedural law of a Member State requires this as a precondition.*

If a Member State does not implement the option offering the lowest high level of environmental protection among those offered by the EU measure at hand, it does not keep burdens to the minimum.

These two legislative techniques provide the Member States with information about the room for going beyond the EU minimum level of protection. Three kinds of information are distinguished in this Section: a) information about the *existence* of the room for going beyond the EU minimum level of

protection, b) information about the *kind* of measure that is allowed, and c) information about the *height* of the level of protection of the environment that can be pursued. All minimum clauses and options provide information about the existence of the room for going beyond the EU minimum level of protection. Only certain clauses provide information about the kind of measure that is allowed and the height of the level of protection that can be pursued. In most of the cases only information about what kind of measure is allowed is provided. In certain cases, not even this information is provided. In total, clauses indicating the room for going beyond the EU minimum at national level can be divided in three categories:

a) clauses only showing the existence of the room for going beyond the EU minimum level of protection;
b) clauses showing the existence of the room for going beyond the EU minimum level of protection g and the kind of measure that can be adopted; and
c) clauses showing the existence of the room for going beyond the EU minimum level of protection, the kind of measure that is allowed and the height of the level of protection that can be pursued.

Clearly, category (c) offers the highest level of clarity followed by category (b). Category (a) offers the lowest level of clarity. It should be noted that my analysis of EU secondary law concerning the use of these different legislative techniques has not revealed any pattern in the manner in which the EU legislature operates. No clear *modus operandi* emerged in this context. As stated above, the EU legislature does not seem to make conscious use of these different legislative techniques.

From the perspective of legal certainty, it would help in when adopting further harmonising measures, the EU legislator considers the effects on legal certainty inherent to the different techniques used to shape the room that Member States have to deviate from the EU minimum standards.

3.4.3. Main findings based on the analysis of the legislative techniques used to indicate minimum harmonisation

The analysis of the manner in which the EU legislator indicates the room that Member States have to go beyond minimum harmonisation has revealed the existence of different level of legal certainty offered by the three main techniques used in (core) EU environmental legislation. In many cases, the regulatory approach does not offer the highest level of legal certainty possible. No clear patterns concerning the choice among the various techniques was detected to justify this finding.

3.5. The impact of the subsidiarity and proportionality principles[183]

Subsidiarity and proportionality shape the usage, and form and content, of EU measures, respectively. This has clearly been the case also for the Directives here analysed. Focusing on the Habitats Directive in particular, the following considerations can be made.

[183] This section builds upon and makes uses of knowledge from, Squintani (2012) 180-200; and Squintani (2019).

3.5.1. The impact of subsidiarity and proportionality on the Habitats Directive

When the Habitats Directive was negotiated, considerations based on these two principles led to a fundamental regulatory choice: to establish a strict regulatory regime only on protected sides and not on buffer zones or areas of conjunction.[184]

The connection between Natura-2000 sites is covered by Articles 3 and 10 Habitats Directive. Article 3(3) Habitats Directive states that when the Member States consider it necessary, they shall endeavour to improve the ecological coherence of Natura 2000 by maintaining, and where appropriate developing, features of the landscape which are of major importance for wild fauna and flora, as referred to in Article 10. Article 10 Habitats Directive states that Member States shall endeavour, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura-2000 network, to encourage the management of features of the landscape which are of major importance for wild flora and fauna. The concept "features of the landscape having major importance in the protection of wild flora and fauna" refers to features that are essential for the migration, dispersal and genetic exchange of wild species. Hence, they include ecological corridors.

From the analysis of the Council's minutes, it emerges that the provisions on the features of the landscape were at the centre of a long discussion. The Commission's proposal required the Member States to avoid pollution in areas outside special area of conservations.[185] Further, it required the Member States to ensure the protection of distinct features of the landscape which are of outstanding local importance to wildlife. Member States could derogate from this obligation, if they took counterbalancing measures ensuring that systems connecting special protected areas (alias ecological corridors) were maintained.

Within the Council, several delegations had doubts on the advisability of the insertion of this article in the Directive, [186] with Spain opposing compulsory measures to this extent.[187] At the same time, the Netherlands and Germany proposed adding a sentence stating that linking areas have particular importance.[188] Five months later, a provision, inserted in Article 3, imposed the obligation to maintain and, where appropriate, develop ecological corridors between special protected areas.[189] While several delegations had reservations, with the United Kingdom considering this proposal a double of proposed Article 8 (today Article 10), Denmark, Germany and the Netherlands considered this provision essential for the coherence of Natura 2000 and proposed to add a definition of ecological corridors in Article 1.[190] In April/May 1991, Article 1 defined ecological corridors, Article 3 regulated them and Article 8 (today Article 10) covered features of the landscape of outstanding importance for the conservation of wild fauna and flora. However, the latter article only covered measures taken in the context of land-use planning and development policies.

[184] On the important of focusing also on buffer zones and areas's of conjunction, For example, Bastmeijer & Willems (2010) p. 85 et seq. and Fleurke & Trouwborst (2011) 95 et seq., with further references.

[185] COM(88) 381 final, proposed Article 8.

[186] European Communities, the Council, 28 February 1989, Doc. Num. 4708/89, Annex, 15.

[187] European Communities, the Council, 13 November 1989, Doc. Num. 9862/89, Annex, 19.

[188] Id.

[189] European Communities, the Council, 8 April 1991, Doc. Num. 5572/91, Annex, 12.

[190] Id., at 13.

Many delegations maintained reservations.[191] Belgium, Spain, France, Portugal and the United Kingdom pleaded for the deletion of Article 3(3) and Greece clearly asked to make proposed Article 8 optional.[192] Five days later, the clause 'where they consider it necessary' was added to Article 8.[193] In July 1991, this clause was added to Article 3 as well,[194] and the concept ecological corridor was deleted from Article 1. Now, Articles 3 and 10 only refer to features of the landscape. This is a broader concept covering more measures than just ecological corridors.

As we can see, first of all, the explicit reference to ecological corridors was not inserted in the Directive. At the end, the concept 'features of the landscape' was preferred given the fact that it offers more flexibility to the Member States.[195] Second, when we focus on the clause 'where they consider it necessary', the above shows that it represents a political compromise between the Dutch, German and Danish position on the one hand, and the position of, in particular, Greece and Spain on the other. Indeed, while it gives discretion to the Member States, the necessity criterion suggests that Member States freedom is not unlimited. However, when we take the development of ecological corridors into consideration, we notice that from the very beginning Article 3 has been making reference to the appropriateness criterion. This criterion lowers the legal relevance of the necessity criterion. In my opinion, this indicates that the Member States did not want to establish an obligation with regard to the development of such areas. Although in Article 10 there is no reference to the appropriateness criterion, this provision only requires the encouragement of the management of 'features of the landscape'. The reference to a duty to encourage seems to be the consequence of the fact that, in order to avoid double regulation, Article 10 has been confined to the field of planning law. This is an area where, traditionally, Union law refrains from taking measures.[196] In my opinion, this means that with regard to the development of ecological corridors, Article 10 does not impose a stricter regime than that imposed by Article 3. In other words, Article 10 does not impose the development of ecological corridors.

In the example of the regulation of ecological corridors, the Union restricted its powers to the benefit of the Member States, during the negotiation rounds within the Council. Albeit implicitly, this was the result of two factors. First, Member States considered themselves as better placed to choose the measures to be taken in a concrete case (subsidiarity).[197] Second, Member States feared that, in certain cases, the development of ecological corridors would have been too burdensome in relation to the objectives of the Habitats Directive (proportionality).[198]

From the perspective of legal certainty, the reliance on subsidiarity and proportionality in the context of the negotiation of the provisions on ecological corridors increased uncertainty. In particular, it is not clear whether Article 10 refines Article 3(3) or rather, whether the two provisions

[191] Id., where certain delegations stated that they could accept proposed Article 8 if it did not impose a formal obligation.

[192] European Communities, the Council, 28 May 1991, Doc. Num. 6163/91, Annex, pp. 15 and 25.

[193] European Communities, the Council, 12 June 1991, Doc. Num. 6755/91 ADD 1, 4.

[194] European Communities, the Council, 29 July 1991, Doc. Num. 7700/91, Annex, 14.

[195] The only definition provided for the term 'features of the landscape' is in Article 10.

[196] Cf. Article 192(1) TFEU with Article 192(2)(b) TFEU.

[197] Several Member States had reservations with regard to the explicit reference to ecological corridors. At the end, the Habitats Directive refers to measures concerning features of the landscape, which is a concept allowing the Member States to choose between various instruments, Squintani (2013).

[198] Some Member States, such as Spain and Greece, asked to transform the proposed obligation into a competence. This suggests that they feared too much interference in their national competences. In particular, the reference to the appropriateness criterion in Article 3 suggests that Member States feared the imposition of overly high burdens with regard to measures taken outside a Natura-2000 site, Squintani (2013).

should be seen as covering two different legal fields, conservation law under Article 3(3) and planning/zoning law under Article 10. Furthermore, it is unclear whether the obligation to endeavour to improve the ecological coherence of Natura-2000 differs from the obligation to endeavour to encourage the ecological coherence of Natura-2000. More generally, it could be questioned whether, despite the use of the verb 'shall', Articles 3(3) and 10 establish any obligation at all with regard to the development of ecological corridors. Indeed, the use of clauses such as 'if they deem it necessary' and 'where appropriate' suggests great discretion on the part of the Member States.

Scholars seem divided. In 2009, Verschuuren wrote that Article 10 has no legal binding force,[199] because its language is too lenient towards Member States' obligations. Furthermore, a Commission's document suggests that the Commission does not consider Article 10 as imposing obligations.[200] Similarly, Cliquet *et al.* wrote in 2009 that Articles 3(3) and 10 are 'put rather weakly'.[201] Although these articles provide for a legal basis to take measures related to connectivity, both the Union and the Member States mostly focus on core areas. Therefore, they pleaded for a stronger commitment at Union level. In 2011, also Fleurke & Trouwborst stated that Articles 3(3) and 10 do not have 'teeth'.[202] In contrast, Backes *et al.* wrote in 2010 that although the obligation imposed by Article 10 is not a strong one, this does not mean that Article 10 does not impose any obligation at all on the Member States.[203] Consequently, national measures taken to connect nature reserves should not be seen as gold plating.[204] The Commission seems to have followed this approach in an infringement procedure against Portugal.[205] However, the CJEU's judgment does not clarify the legal value of Articles 3(3) and 10 Habitats Directive, because Portugal did not contest the Commission's infringement procedure and the CJEU did not assess their legal value.

More fundamentally, the way in which the Directive regulates ecological corridors affects the introduction of an instrument which is central for the adaptability of ecosystems. This becomes evident when we look what occurred in the Netherlands about the implementation of Articles 3 and 10 of the Directive.

In the Netherlands, nature reserves, including Natura-2000 sites, are fragmented.[206] To solve this problem, in 1990 the Netherlands started building a National Ecological Network.[207] Within the network, ecological corridors served to avoid the possible negative effects economic developments have on the migration patron of animals.[208] Around the millennium, it became evident that ecological corridors of a too generic nature would have not sufficed.[209] Accordingly, the legislator started focusing

[199] Verschuuren(2010), 436 et seq.

[200] COM(2009) 147 final, 11 and Kettunen et al. (2007).

[201] A. Cliquet et al (2009) 158, 171.

[202] Fleurke & Trouwborst (2011), 100.

[203] *Backes, Poortinga & Woldendorp* (2010) 19, 30.

[204] Id., at 30.

[205] See Case C-72/02 *Commission v. Portugal*, [2003] ECR I-6597. In this case, the Commission stated that, inter alia, Portugal did not implement Article 3(3), Article 10, Article 11 and Article 12(4) of Directive 92/43, or Article 7, and Article 8 of Directive 79/409.

[206] For example, Jongman & Kamphorst, Ecological Corridors in Land Use Planning and Development Policies, Council of Europe Publishing, Nature and environment, 2002 No. 125, 10.

[207] Proceedings of the Second Chamber of the States General, Kamerstukken II 1989/90, 21149, nrs. 2-3, 78 et seq.

[208] Id., 140.

[209] At the time they were called areas of conjunction and indicated any areas of conjunction between two natural reserves, id., at 80 et seq.

on certain specific ecological corridors, namely thirteen so-called strong ecological corridors.[210] In 2006, the Nature Management Plan,[211] upgrading the 1990 plan, was partially translated into planning law by means of another plan, the so-called National Space Strategy.[212] Under the National Space Strategy, planning decisions significantly affecting areas in the National Ecological Network should be avoided, unless there is no alternative solution and the project or plan pursues an imperative public goal.[213] Given that under Dutch law plans made by the central government do not bind local authorities,[214] who have a prominent role in the development of ecological corridors, in 2007 the government concluded several budget agreements with the Dutch provinces,[215] aiming at fostering the development of ecological corridors.[216]

In 2010 the Dutch government's attitude towards the development of ecological corridors changed.[217] Indeed, the government blocked their financing.[218] Although this seems to violate the National Space Strategy and the budget agreements, the government held its position. In reaction to the motions begun by members of the parliament against this situation, the government stated that the 2010 Government Coalition Agreement is binding and ended any discussion.[219] Furthermore, the provinces' protest based on the 2007 budget agreements[220] was settled by means of a political compromise, in which the government seems to agree to finance the investments that had occurred before 20 October 2010,[221] but without covering the costs for the further development of these areas.[222] This forced some provinces to stop their development programmes.[223]

Whether this decision followed a specific assessment, either generally or for each ecological corridor, is unclear. With regard to one case, the government admitted that no impact assessment had been performed.[224] More generally, this decision is in line with the Dutch policy on gold plating.[225] This policy, introduced in 2003, aims to avoid gold plating, which the government claims restricts economic

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[210] This term replaced the term ecological corridor, see Dutch Ministerie van LNV, Nota, Natuur voor Mensen, Mensen voor Natuur, 2000; and Alterra, Research Instituut voor de Groene Ruimte, Handboek Robuuste Verbindingen, Wageningen: Altera, 2001; and Dutch Ministeries van VROM, EZ, LNV en V en W, Nota Ruimte, Ruimte voor Ontwikkeling, 2006, at 113.

[211] Dutch Ministerie van LNV, Nota, Natuur voor Mensen, Mensen voor Natuur, 2000.

[212] Dutch Ministeries van VROM, EZ, LNV en V en W, Nota Ruimte, Ruimte voor Ontwikkeling, 2006.

[213] Dutch Ministeries van VROM, EZ, LNV en V en W, Nota Ruimte, Ruimte voor Ontwikkeling, 2006, at 114.

[214] Articles 1:3 and 4:84 of the General Administrative Law Act, Stb. 1992, 345.

[215] Squintani (2012).

[216] These agreements are based on the Act on the Organisation of Rural Areas, Stb. 2006, 666.

[217] Government Coalition Agreement, supra note 10, at p. 14.

[218] Id., Annex, p. 6. Provinces where informed by letter, see for example the letter that the Secretary of State for Economic affairs, Agriculture and Innovation has sent to Province Flevoland concerning the development of an ecological corridor between the *Veluwe* en the *Oostvaardersplassen*, reference number NLP 2010-3065.

[219] Letter of the Secretary of State for Economic affairs, Agriculture and Innovation, 32500 XIII 66, Vergaderjaar 2010-2011, Nr. 66, Motions Nr. 19, 20, 35 and 45.

[220] Letter of the Interproviciaal Overleg, October 21, 2010, reference number DIR 04156/2010.

[221] While in the Draft agreement (see the letter of Secretary of State for Economic affairs, Agriculture and Innovation H. Bleker, December 1, 2010, reference number DRZW. 2010-3837) ecological corridors were explicitly mentioned, in the final agreement reference to ecological corridors can only be read between the lines, see Interproviciaal Overleg en Ministerie van Economische Zaken, Landbouw en Innovatie, Onderhandelijngsakkord decentralisatie natuur, September 20, 2010.

[222] Ibid..

[223] See Squintani (2012).

[224] Letter of the Secretary of State for Economic affairs, Agriculture and Innovation, H. Bleker, Antwoorden op vragen van de leden Van Gerven en Jansen, October 25, 2010, reference number NLP 2010-3093, 2.

[225] J Jans et al. (2009) 219 and 220.

development.[226] In the Netherlands, any measure establishing burdens not required by Union law is seen as gold plating. Hence not only measures going further than required by Union law, but also measures facilitating the achievement of Union's requirements are gold plating. Initially, gold plating had to be avoided under this policy, unless a specific Dutch interest required it be undertaken.[227] This formulation implied a moment of evaluation. However, under the 2010 Government Coalition Agreement gold plating must be 'tracked down and eliminated'.[228] The clause 'unless a specific Dutch interests requires otherwise' is no-longer present. As regards the development of ecological corridors, the impression is that the government describes their development as being gold plating and thus a constraint upon the Dutch economy. This syllogism seems to have sufficed in convincing the government that the development of ecological corridors had to be blocked, without the need for performing any specific assessment.

3.5.2. Main findings about impact of subsidiarity and proportionality of nature conservation

Subsidiarity and Proportionality considerations have a clear impact on the manner in which nature conservation is implemented in the European Union. They influenced the manner in which the protection of buffer zones to Natura 2000 sites has been shaped under the Habitats Directive. They therefore contributed to the lack of a specific regulatory regime provided by the European legislator about these zones. Further research is needed in order to verify the linkage between the lack of this specific regulatory regime and the status of nature in the European Union.

3.6. Possible best practice examples of how problems linked to the implementation and application of European environmental legislation have been solved in Member States[229]

Within the limited time made available for this Report, it is only possible to focus on an example of implementation practice in the field of the core Directives analysed here which I analysed extensively before. I will refer to a study of the manner in which the Waste Directive, and its predecessors, have been implemented in the Netherlands and highlights how the chosen approach seems to have led to better environmental protection than that strictly required under the Directive, while at the same time benefiting economy and the competitiveness of Dutch waste management industry on the internal market. This study focused on waste management because the economist Porter had hypothesized that this field of environmental protection could have been a fruitful one to test the hypothesis that:

> *Strict*[-er, LS] *environmental regulations do not inevitably hinder competitive advantage against foreign rivals.*[230]

[226] Government Coalition Agreement of 2003, *Hoofdlijkenakkord voor het kabinet CDA, VVD, D66*, May 16, 2003, 12.

[227] Recently, a series of acts eliminated several cases of gold plating occurring in the field of nature conservation law. For example: the Act of 29 December 2008, Stb. 2009, 18; and the Act of 18 March 2010, Stb. 2010, 135.

[228] Government Coalition Agreement of 2003, Hoofdlijkenakkord voor het kabinet CDA, VVD, D66, May 16, 2003, at 13 and 14.

[229] This Section builds upon and makes uses of knowledge mainly from, Squintani (2019); and Squintani (2013b), 44-50.

[230] Porter (1991), 96. Comparative added by L.S. to adapt the formula to the European Union context. For a recent overview of the theoretical framework of the Porter's Hypothesis see Wagner (2003).

Later, Porter refined what became known as 'the Porter hypothesis' as follows:

> *Properly designed environmental regulation can trigger innovation that may partially or more than fully offset the costs of complying with them.*[231]

The Porter hypothesis, which focuses on substantive environmental provisions, rests on the idea that pollution is a form of economic waste, and involves unnecessary and incomplete utilization of resources.[232] In 2013, I performed a study in which I looked at the relationship between economic development and green-plating in one of the fields which Porter indicated as prone to showing evidence of the validity of his hypothesis, waste management.[233] In that study, I highlighted the development of green-plating in the Netherlands under the Waste (Framework) Directive between 1975 and 2013. The findings were juxtaposed with economic data concerning the development of Dutch industry in this sector, the manner in which Dutch government and the Dutch Waste Management Association look at these data, as well as to the stringency of the regulatory framework. Highlights from the analysis of the development of national regulatory standards in this sector. Its relevance for the economic development of the Dutch waste industry is presented in Section 3.6.2 and discussed in Section 3.6.3, below.

3.6.1. Stricter national standards in Dutch waste management[234]

Until the 1970s, dumping practices were a reality in the Netherlands.[235] To bring these practices to an end the Waste Act was passed in 1977.[236] The Waste Act focused on an environmentally sound disposal of waste and on waste recovery.[237] Over time, the legal framework on waste management has been strengthened. Most notably, in the 1990s, when waste management was integrated with other sector-specific acts into the Environmental Management Act,[238] the functioning of the instruments introduced with the Waste Act was reinforced, and priority was given to waste prevention.[239]

The New Waste Framework Directive was transposed in 2011 by means of an amendment to the EMA.[240] From the point of view of green-plating, this Act is particularly interesting because it was prepared in accordance with Guideline 331 of the Dutch Lawmaking Guidelines.[241] Accordingly, a legislative proposal should not contain any rules beyond those necessary for the transposition of

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[231] Porter & Van der Linde (1995a), 98. It should be noted that this hypothesis focuses on regulatory burdens and not specifically on administrative burdens. Moreover, this hypothesis refers to improvements in the performance of the firms affected by regulation and not to the overall benefits for a country. Therefore, the Porter Hypothesis is less broad than the costs/benefits analysis performed by the UK government.

[232] Porter & Van der Linde (1995b), 122.

[233] Squintani (2013b).

[234] This Section is based on Squintani (2013b).

[235] Proceedings of the Second Chamber of the States General, Kamerstukken II 1974/75, 13 364, no. 3, 34.

[236] *Afvalstoffenwet*, Stb. 1977, 455.

[237] Proceedings of the Second Chamber of the States General, Kamerstukken II 1976/77, 13 364, no. 5, 11 on the two pillars of the Waste Act.

[238] Environmental Management Act (*Wet milieubeheer*), Stb. 1979, 442, as amended.

[239] Proceedings of the Second Chamber of the States General, Kamerstukken II 1988/89, 21 246, no. 3, 8.

[240] Stb. 2011, 103 and Stb. 2011, 104.

[241] Prime Minister Circular of 18 November 1992, last amended by Prime Minister's Order, Minister of the Interior, 1 April 2011, nr. 310225, houdende vaststelling van de negende wijziging van de Aanwijzingen voor de regelgeving, Stcrt. 2001, nr. 6602.

the Directive, other than for technical reasons.[242] Furthermore, the Dutch government stated that, although more stringent protective measures are allowed under the Directive, measures that could affect the level playing field among Member States should be avoided.[243] However, the government also indicated that the transposition of this Directive had to take into consideration the existing status quo, which, as further discussed below, went further than required by Union law.[244] As can be seen, the Dutch government seemed ready to maintain stricter national standards, albeit implicitly.[245]

For example, Article 9 of the Old Waste Framework Directive applied the permit requirement to establishments or undertakings disposing of their waste at the place of production. In addition, Article 10 covered installations or undertakings that recover waste. In both cases, an exception could be granted under certain conditions (Article 11). Today, the Waste Directive maintains this approach (Articles 23-26). Member States that do not exempt operators from the permit requirement do not keep burdens to a minimum. Dutch law does not keep burdens to a minimum. In the 1990s, permit requirements were regulated in Chapter 8 of the Environmental Management Act, which applied to industrial establishments in general. The general rule was that any establishment had to be subjected to a permit to be established, changed and exploited, unless an order stated otherwise (Article 8.1). Establishments for the recovery of waste were explicitly mentioned as establishments for which a permit was required.[246] Waste producers discarding their own waste at the place of production were also not exempted from the permit requirement.[247] In 2009, two years before the transposition of the Waste Directive, the General Act on Environmental Permits replaced the provisions of Chapter 8 of the Environmental Management Act. Under this Act, only establishments with an IPPC installation or establishments listed in a specific order are subject to a permit requirement.[248] With regard to the management facilities of waste, Annex I sub C of the Environmental Permits Order states that establishments for the disposal or recovery of waste must have a permit, unless they fall under one of the thirty-three categories explicitly mentioned therein (Section 2.1(2) and Category 28.10 in Annex I, sub C).[249] The 2011-transposition act did not touch upon this system.[250] As can be seen, the Netherlands partly enforced the opt-out clause available under the Waste Directive in 2009. The use of this clause was part of a more general reform of the Dutch permitting system that aimed at lowering administrative burdens.[251] However, it should be noted that only certain activities are exempted under the General Act on

[242] Proceedings of the Second Chamber of the States General, Kamerstukken II 2009/10, 32 392, no. 3, 2.

[243] Proceedings of the Second Chamber of the States General, Kamerstukken II 2009/10, 32 392, no. 7, 4.

[244] Proceedings of the Second Chamber of the States General, Kamerstukken II 2009/10, 32 392, no. 3, 14.

[245] I will only focus on the provisions of Directive 2008/98/EC which have replaced the provisions of the Directive 2006/12/EC. Due to the general nature of these provisions, there is a greater chance that a discussion on the application of Dutch policy on gold-plating took place within the parliament.

[246] Category 28 under Annex I of Stb. 1993, 50.

[247] The content of the permit could be influenced by whether an establishment discarded waste coming from inside the establishment concerned or from outside.

[248] Stb. 2008, 496, *Wet algemene bepalingen omgevingsrecht*.

[249] Stb. 2010, 143, *Besluit omgevingsrecht* as amended by, in particular, Article II, letter J, point 11 Stb. 2010, 781. Activities involving non-separate collection were not exempted, nor were activities with mixed waste. New categories were exempted with Article II, letter G, point 13 Stb. 2012, 558 amending Category 28.10 in Annex I, sub C of the BOR.

[250] Proceedings of the Second Chamber of the States General, Kamerstukken II 2009/10, 32 392, no. 3, 13.

[251] Stb. 2010, 781, explanatory memorandum, 30.

Environmental Permits and Environmental Permits Order system. In particular, the reform covered installations for the recovery of homogenous flows of 'material unpackaged goods' (*vaste bulkgoederen*).[252] For example, activities for the recovery of ink cartridges for printers are covered by this reform. Activities were selected using generally applicable criteria, such as the homogeneity of the activities covered, and three specific waste-related criteria: a) activities must focus on the recovery of waste, in particular the recovery of raw materials; b) activities can be easily controlled without the need for complex analysis or studies;[253] and c) activities facilitate extended-producer-responsibility systems.[254] Certain kinds of human activities concerning waste can, due to their very nature, be regulated by means of an *ex post* control mechanism, i.e. inspections. Others require complex assessments. Accordingly, they should be subjected to an *ex ante* control mechanism as well, i.e. the permit. More generally, environmental concerns only partially seem to have driven the decision to use the opt-out clause in Article 24 of the Waste Directive.

Another case in environmental protection in the Netherlands was pursued by stricter measures than those prescribed under EU waste legislation occurs in the field of the targets for reuse or recycling. Article 11 of the Waste Directive establishes explicit *minimum* targets for the preparing for reuse and the recycling of at least paper, metal, plastic and glass from households (increase of an overall 50% by weight by 2020) and of non-hazardous construction and demolition waste (increase of an overall 70% by weight by 2020).[255] The clause 'to a minimum of' used in these provisions specifies that Member States can establish stricter targets. The Netherlands uses this option. As recognized by the Dutch government, the National Waste Management Plan 2009-2021 sets stricter binding standards than the Directive requires.[256] The amount of waste being recycled in the Netherlands has increased steadily,[257] and by 2015, the preparation for reuse and recycling of waste materials including at least household paper, metal, plastic and glass, or comparable waste, should be increased to an overall 60% by weight. In addition, by 2021, the preparation for reuse and recovery of other materials shall be increased to 95% in weight. As can be seen, by setting binding targets that are more stringent than those required by the Waste Directive the Netherlands has adopted more stringent measures.

Further, in line with the principle that the polluter should pay, Article 14 of the Waste Directive states that the costs of waste management shall be borne by the original waste producer or by the current or previous waste holders. In addition, the Member States *may* decide that the costs of waste management are to be borne partly or wholly by the producer of the product from which the waste came, and that the distributors of such products may share these costs. As can be seen, Article 14 provides an option with respect to the liability for the costs of waste management of the producers of the product from which the waste came. Member States using this option may be establishing more stringent measures. The Netherlands uses this option. From 1993, Dutch law has had two instruments that follow the principle of extended producer responsibility. Section 15.32

[252] Ibid.,, 36.

[253] Ibid.

[254] Ibid., 37.

[255] The targets for 2025 were not yet part of the Directive at the time I had performed this case study and are here not discussed.

[256] VROM, *Landelijk Afvalbeheerplan* 2009-2021 (LAP2), 91 and 92.

[257] *CBS, PBL, Wageningen UR (2010), Afvalproductie en wijze van verwerking, 1985–2008 (indicator 0204, version 09, 22 September 2010).* www.compendiumvoordeleefomgeving.nl. CBS, The Hague; Planbureau voor de Leefomgeving, The Hague/Bilthoven and Wageningen UR, Wageningen. See also Vereniging Afvalbedrijven, Annual Review 2010, *6.*

of the Environmental Management Act introduced the possibility of establishing a return deposit and a return premium. In addition, Title 15.10 of the Environmental Management Act allows the introduction of a system of so-called 'Waste Management Contributions', if an industrial association so requires. Waste Management Contributions are based on private funds that cover the cost for establishing the infrastructure required to recover products. Title 15.10 of the Environmental Management Act allows such contributions to be made compulsory for all producers or importers of the goods concerned on the Dutch market.[258] According to the Dutch government, the system described above increases waste prevention and recycling.[259] Therefore, this case of green-plating seems to be linked to environmental concerns. The government also stated that Union law leaves space for such rules.[260] This suggests that the Dutch legislator was aware of exceeding the minimum requirements imposed by the Directive.

In 2011 the government indicated its intention to redress this case of green-plating, albeit partially. In the legislative proposal for the transposition of the Waste Directive, a provision allowed the recovery of only *a part* of the costs from the producers of the products from which the waste came.[261] This change was in line with the minimum requirements established by the Directive. However, several members of Parliament questioned the meaning and the effects of the change. Some of them feared that the polluter pays principle and the principle of extended producer responsibility would have been negatively affected, along with legal certainty.[262] Others wanted the government to go even further. The People's Party for Freedom and Democracy called for the abolition of all provisions following extended producer responsibility.[263] The government replied that legal certainty should be guaranteed and therefore that it would have refrained from downgrading the status quo.[264] Unfortunately, due to an error of correlation with a parallel legislative proposal,[265] the current Section 9.5.2(3), letter b, of the Environmental Management Act allows the recovery of only a part of the costs from the producers of the products from which the waste came.[266] However, the parliamentary history of Section 10.17 of the Environmental Management Act casts doubt on the validity of Section 9.5.2(3), letter b, of the Environmental Management Act. The Dutch legislator did not want to downgrade the status quo. The transposition of Article 14 of the Waste Directive shows that legal certainty is considered a sufficient reason to justify green-plating. Interestingly, the claim of legal certainty made by certain exponents of Parliament did not rely on studies or empirical data. It was formulated on an abstract level. The decision to maintain the national standards was not supported by a substantiated cost/benefit analysis. Only due to a mistake was this standard was partially redressed.

[258] Such a measure serve to ensure the functioning of the infrastructures, which are developed by industry itself, Proceedings of the Second Chamber of the States General, Kamerstukken II 1992/93, 23 256, no. 3.

[259] Proceedings of the Second Chamber of the States General, Kamerstukken II 1993/94, 23 256, no. 5, 2 and 3.

[260] Proceedings of the Second Chamber of the States General, Kamerstukken II 1992/93, 23 256, no. 3, 7.

[261] Proceedings of the Second Chamber of the States General, Kamerstukken II 2009/10, 32 392, no. 2.

[262] Proceedings of the Second Chamber of the States General, Kamerstukken II 2009/10, 32 392, no. 6, 5-8.

[263] Idem, p. 4.

[264] Proceedings of the Second Chamber of the States General, Kamerstukken II 2009/10, 32 392, no. 7, 10.

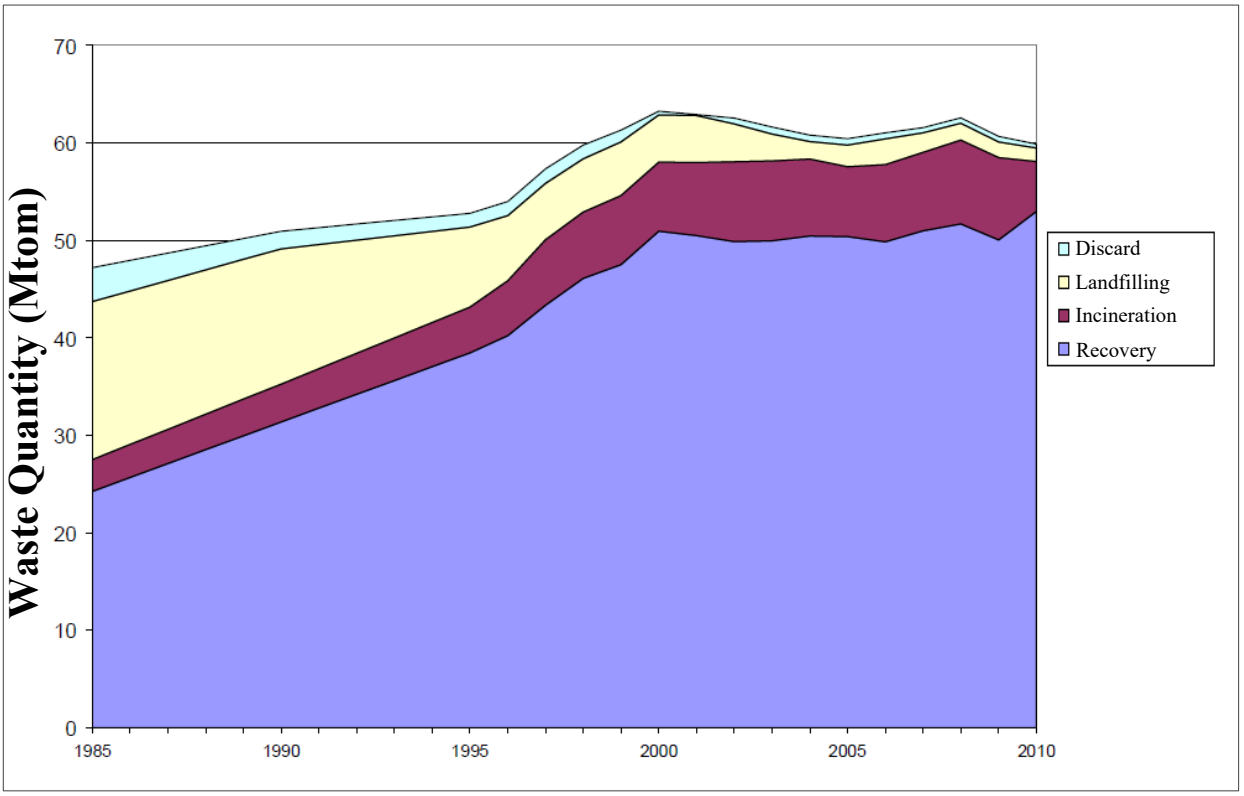
[265] Proceedings of the Second Chamber of the States General, Kamerstukken II 2007/08, 31 501, no. 2 adopted with Stb. 2011, 269.

[266] Section V, letter B1, Stb. 2011, 103 and Section I, letter D, Stb. 2011, 269.

3.6.2. Stricter standards in Dutch waste management and the development of Dutch waste industry

The effects of the Dutch regulatory framework for waste management, including the cases of stricter national standards described above, seem to have beneficial effects. The following figure shows that the amount of waste recovered in the Netherlands has been increasing steadily. This figures focuses on the trends till 2010 as this is the relevant time frame for the analysis performed in this section.

Figure 1 Waste trends in the Netherlands 1985-2010[267]



Both in 2010 and in 2014, the Dutch Ministry responsible for environmental protection underlined that environmental protection in the field of waste management does not seem to affect the economic growth of the sector.[268] If we compare the figures concerning the turnover of Dutch waste management industry in 2010/2011 with those concerning 2012/2013, we can see an increase from 5.7 milliard Euro per year to 7 milliard Euro per year.[269] Actually, the decrees in the amount of waste being landfilled, which can be partially linked to the increased amount of waste being recovered, could explain why the Netherlands could become a raw-material centre for Europe.[270] The Dutch Waste Management Association, in close dialogue with the political worlds, highlights the potentials of good functioning waste management policy, which, as seen in the

[267] Adapted from Figure 2.1 in *Landelijk Afvalbeheerplan 2009-2021 - Naar een materiaalketenbeleid*, 3 december 2014, 20

[268] VROM, *Landelijk Afvalbeheerplan 2009-2021 - Naar een materiaalketenbeleid*, 16 februari 2010, 24 and 25 and IenM, *Landelijk Afvalbeheerplan 2009-2021 - Naar een materiaalketenbeleid*, 3 december 2014, 19 and 20.

[269] Dutch Waste Management Association, Annual Review 2011, Afvalforum, May 2012, p.17 and Dutch Waste Management Association, Afval in Cijfers, May 2015, available at http://www.verenigingafvalbedrijven.nl/publicaties/poster-afval-in-cijfers.html (accessed June 2017).

[270] Dutch Waste Management Association, *Annual Review 2010*, 1.

previous Section, includes green-plating, for the economic growth of the sector in two different manners.

First, waste management services can be exported to fulfil the needs of other Member States. For example, in September 2011, the Netherlands started disposing of 248,000 tons of waste from Naples, for EUR 12 million. The importance of this economic opportunity and its linkage to the quality of waste management systems in the Netherlands is well represented by the following quotes from a Dutch Waste Management Association publication on waste imports published in 2011:[271]

> *The signposts at the border are going to change for good. With its considerable expertise in recycling waste streams, the Netherlands is promoting itself as a materials roundabout. Moreover, most Dutch waste-to-energy plants now have recovery (R1) status. Facilities that meet the European standards for high thermal efficiency are permitted to import combustible waste for treatment. According to statistics provided by NL Agency, more waste will be imported this year, especially from Germany and the UK in particular. Over the first five months of this year imports amounted to about 20,000 tonnes per month. This is 240,000 tonnes on an annual basis, compared with 144,000 tonnes in 2010. In May alone, import permits were issued for almost 500,000 tonnes of waste, bringing the total for this year to almost a million tonnes.*
>
> …
>
> *Hester Klein Lankhorst, head of the waste and material chains department at the Ministry of Infrastructure and the Environment, is delighted by the waste imports. 'It is a laudable development. It is much better for Dutch companies to incinerate waste with energy recovery than for it to end up in a landfill elsewhere in Europe. It is consistent with the philosophy of treating waste as a source of materials and energy. I repeatedly remind my British colleagues of the possibilities for exporting waste to the Netherlands, most recently at a meeting in Brussels.' Klein Lankhorst says the ministry is very keen to create a 'materials roundabout' in the Netherlands.*

The closing sentence in the second quote links waste imports with the second source for potential economic growth. Indeed, with the concept of a '*materials roundabout*' Dutch politicians and waste operators also mean the recovery of valuable raw materials.[272] Predicting a growing scarcity of raw materials for the production of consumer goods, Dutch politicians and waste management operators invest in waste recovery to transform the Netherlands into a raw-material centre for Europe.[273] This also has implications for the labour market, which is predicted to benefit from such developments.[274]

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[271] Dutch Waste Management Association, Netherlands imports more waste, Waste Forum, September 2011, 2.

[272] Dutch Waste Management Association, *Grondstoffenschaarste scherp op het netvlies*, Afvalforum, May 2012, 5 with referneces to both governmental and parliamentary sources. See also the estimations in Ton Bastein et al., Kansen voor de circulaire economie in Nederland, TNO-rapport, 11 juni 2013, TNO 2013 R10864.

[273] Dutch Waste Management Association, *Annual Review 2010*, 1.

[274] Bastein (2013).

3.6.3. Stricter standards in Dutch waste management and the development of Dutch waste industry: a verification of the Porter hypothesis?

It is for colleagues from the economic sciences to establish whether the manner in which the Dutch government regulates waste management represents a confirmation of the validity of the Porter hypothesis. From a legal perspective, it is possible to state that stricter standards existed in the past and still exist today in the Netherlands in the context of waste management, as shown in Section 3.6.1, above. Equally certain is that the turnover of Dutch waste management industry was growing during the referred period. The Netherlands was exporting waste management services and fostering its position on the internal market for the recovery of valuable raw materials. It can be concluded that environmental protection and economic growth were both fostered, as predicted by specific studies on this topic,[275] and actually they seem to have been mutually reinforcing.

Dutch industry and government seems to be aware of the competitive advantages that the relatively favourable status of waste management in the Netherlands comports in the context of an internal market for circular economy. The attention for circular economy, which at EU level made its official entry in 2014/2015,[276] started in the Netherlands in 2010/2011,[277] and took concrete form in Dutch government plan presented in 2016.[278] References to the role that Dutch successes in the context of domestic waste management could play in the context of an international circular economy are visible in documents from the Dutch government and industry concerning circular economy.[279] Such documents do not speak of stricter national standards in this regard. Yet, as demonstrated in Section 3.6.1 above, such stricter standards play a crucial role in the achievement of the high level of waste recovery, higher than required under EU law, forming part of the Dutch successes in the context of domestic waste management. Unconsciously, the Dutch government and industry seems to accept that the stricter national standards are good for the competitiveness of the Dutch economy in the field of waste management.

This result was not achieved on the short term. As shown in Section 3.6.1, some stricter national standards were implemented many years before their effects seemingly started to benefit Dutch economy in the field of waste management. This consideration suggests the need for long-term thinking when considering the costs/benefits of national implementing strategies.[280] Time is indeed an essential component for the success or failure of innovation dynamics and eco-

[275] Ibid.

[276] European Commission, Towards a circular economy: A zero waste programme for Europe, COM (2014) 398 final.

[277] The Dutch policy on circular economy was influenced by the European Policy on Resource efficiency, in particular the European Commission, Roadmap to a Resource Efficient Europe, COM (2011) 571 final, see Proceedings of the Second Chamber of the States General, Kamerstukken II 2012/2013, 33 043, nr. 15, 1.

[278] Proceedings of the Second Chamber of the States General, Kamerstukken II 2015/16, 32 852 and 33 043, Nr. 33, and the Annex to the document, Ministerie van Infrastructuur en Milieu en het ministerie van Economische Zaken, mede namens het ministerie van Buitenlandse Zaken en het ministerie van Binnenlandse Zaken en Koninkrijksrelaties, *Nederland circulair in 2050*, September 2016.

[279] Eg. Dutch Waste Management Association, *Grondstoffenschaarste scherp op het netvlies*, Afvalforum, May 2012; Bastein (2013); Proceedings of the Second Chamber of the States General, Kamerstukken II 2012/13, 33 043, nr. 15; Proceedings of the Second Chamber of the States General, Kamerstukken II 2015/16, 32 852 and 33 043, Nr. 33.

[280] Ekins & Venn (2009), p. 198, based on two Dutch studies: TME, *Technische vooruitgang en milieukosten, aanzet tot methodiekontwikkeling*, The Hague: TME; and RIVM, *Techno 2000; Modelling van de doling van eenheidskosten van technologieën in de tijd*, Rapportnummer 773008009, April. Bilthoven: RIVM.

innovation.[281] Yet, long-term thinking is something that, as highlighted in the literature,[282] regulatory impact assessments rarely do.

3.6.4. Main findings about Member States implementation best practices

This Section only presented one case study about how Member States implementation can actually foster environmental protection beyond the EU goals while improving economic growth. Long term thinking seems to have been a central element in the success story presented in the previous Sections.

This highlights the important to discuss whether EU law can stimulate an approach to the implementation of national law that is based on costs/benefits analyses that take into consideration the long-term effects of going beyond EU standards, thus helping reconciling environmental protection with economic growth.

[281] Ekins & Venn (2009), p. 197 with further references.

[282] Ekins & MacLeod (2009),. 233 and 234. See also Oosterhuis et al. (2006).

4. REFLECTION

In light of the analysis performed in Section 3, it is possible to answer the key questions posed as goal for this study in the manner, as Reported in the following Sections (one for each question).

4.1. Whether the conjunctive reading of core European Environmental Directives facilitate rather than constrain the achievement of the environmental objectives aimed at by the European legislator for water, waste, air and nature

When we consider the conjunctive relation between the Habitats Directive, the Air Quality Directive and the Water Framework Directive, we can notice that their objective all rely on scientific insights. This finding suggests that the goals expressed in these Directive do not as such stand in the way of a possible coexistence between the different regimes.

The analysis, however, also showed some differences. These differences can lead to coordination issues. Literature has focused specifically on the linkage between the Habitats Directive and the Water Framework Directive. This is due to the possible overlap between water management and nature conservation, also highlighted by the analysis of the petitions looked at in Section 3.2, above. In Case C-559/19 *European Commission v Kingdom of Spain* we saw that a bad status of underground waters under the Water Framework Directive can lead to a successful infringement procedure based on the Habitats Directive.

The relationship between these two Directives is regulated under Article 4(2) of the Water Framework Directive, which states:

> *Where more than one of the objectives under paragraph 1 relates to a given body of water, the most stringent shall apply.*

This provision makes thus reference to the quality standards established under Article 4(1) or surface water, groundwater and for protected areas. As regards the latter, Article 4(1)(c) explicitly states:

> *Member States shall achieve compliance with any standards and objectives at the latest 15 years after the date of entry into force of this Directive, unless otherwise specified in the Community legislation under which the individual protected areas have been established.*

This provision implicitly refers to the Habitats Directive. Accordingly in case stricter standards apply under the Habitats Directive than under the WFD, it could be argued that the stricter standards of the Habitats Directive apply. Considering that a good ecological status is also relevant in the assessment of the quality of water bodies under Annex V to the WFD, the application of the stricter standards from the Habitats Directive should not stand in the way to the achievement of the objectives of the WFD.

However, as explained by Van Rijswick and De Smedt:[283]

> *[…] the ecological environmental objectives under the WFD and those under the Habitats Directive are not defined in the same or even a comparable way. In contrast to the Habitats Directive, the WFD is not aimed at the protection of specific habitats and species, but does use the presence and the conservation status of the habitats and species, or at least some of these, as an indicator for the evaluation of the ecological status of the surface water. However, this does not mean that achieving the good preservation status required by the Habitats Directive means ipso facto that a comparable status of the water quality according to the WFD has been achieved, or vice versa.*
>
> *[…]*
>
> *The question of what the 'most stringent requirement' (Art 4(2) WFD) refers to is quite unclear. The WFD aims for the most natural ecological status possible for the water, but many ecologically valuable habitat types, such as limestone-rich marshes, may need less natural water, for example, because they need limestone-rich water, or water rich in nutrients.[11] Conversely, the WFD sometimes sets the bar somewhat lower than is necessary for the preservation of European protected habitats or species. This demonstrates that the ecological environmental objectives of the WFD cannot always be geared to the conservation objectives of the Habitats Directive.[12] Consequently, the question arises of which objective should take priority: the objectives of the WFD, which are aimed at the good ecological status of the surface water, or those of the Habitats Directive, which aims for a good conservation status of the European protected habitats and species, and on the grounds of which arguments. A possible position regarding this issue could be that, in principle, restoration of the ecological water status takes precedence because the entire aquatic ecosystem benefits from this, not only the specific habitats of species found in this.[13] However, this principle cannot be maintained if the good conservation status of habitats or species of importance to the European community is jeopardised at the level of the biogeographical region. In that hypothesis, the entire (aquatic) ecosystem is at risk and the preference for an 'ecosystem approach' over a 'species approach' cannot automatically apply. In such conflicts, it appears to be necessary to investigate whether an exemption of or derogation rule can be applied, since these are present in both Directives.*

As we can see, the coordination between these two central pieces of EU environmental law seems to have given rise to legal debate about their actual meeting. Whether in practice this leads to a weakening of the quality of protected nature reserves and/or protected water bodies is unclear. Considering the linkage between water management and nature conservation highlighted on the basis of the analysis of the petitions made available to the author of this study, it seems pivotal to perform field research to clarify this matter.

If such follow up studies confirm the existence of coordination problems between these two Directives based on the different ways in which the goals are formulated, the regulatory regimes should be reconsidered.

[283] Van Rijswick, De Smedt (2015) 417-433, 421.

4.2. Consider if a further harmonization of European environmental legislation can improve the level of environmental protection, legal certainty and adaptability of environmental protection

When looked at from the perspective of adaptability and legal certainty, the EU environmental Directives analysed in this study all shown room from improvement. Each Directive provided useful best practices on how to maximise adaptability and legal certainty.

The use of science as basis for setting quality standards is common practice in the field of nature, air and water, but in the field of air quality law the chosen legislative technique for formulating the quality standards maximises legal certainty at costs of its adaptability. Accordingly, over time it has departed from the new scientific insights in the field. Air quality law would thus benefit from further harmonisation aiming at aligning quality standards with scientific insights. This process is already ongoing at EU level.

Nature conservation law, on its part, could learn from water and air quality law in which the quality standards are linked to specific deadlines. The lack of such deadlines are particularly problematic as regards the amelioration goals of the Directive, as it makes difficult to assess and review the proposed action. EU nature conservation law could thus benefit from further harmonisation in the sense of the addition of a series of specific deadlines by which a good status of conservation shall be achieved.

Nature conservation law seems to have also specifically being influenced by the subsidiarity and proportionality principle during the incipit of the Habitats Directive, as discussed in Section 3.5, above. The decision to regulate the protection of features of the landscape other than core area's by means of an unclear regulatory regime can affect Nature 2000 zone. New scientific insights about the importance of buffer zones for Natura 2000 areas could be taken into account during a re-harmonisation of EU nature conservation law.

All the above Directives would benefit from the introduction of standards about the effectiveness of the measures envisaged to achieve the quality standards, on how to cope with transboundary pollution and to ensure that the quality standards are respected by all national authorities when adopting plans and assessing authorisations potentially affecting the quality standards. These considerations are further elaborated in the next sub-Sections.

4.3. Consider how a further harmonisation of EU environmental law can improve the protection nature in the Member States

When we look at the status of conservation of nature in Europe, as highlighted in Section 3.1, above, above, the impression emerges that the Habitats Directive is not capable of deliver the objectives it aims at.

The study performed in Section 3 highlighted three aspects that could benefit from further harmonisation. First is the aspect concerning the expression of a specific deadline for the achievement of the goals of the Directive. Differently from the WFD, the Habitats Directive does not indicate by which date the amelioration goal shall be achieved. This makes it difficult to adopt corrective measures as the urgency of doing so is not supported by a dedicate deadline.

Secondly, the Habitats Directive protects habitats predominantly by means of measures addressing the designated nature reserves. As discussed in Section 3.5 above, this seems to have been the consequence of the negotiation rounds surrounding the adoption of the Directive, based on proportionality and subsidiarity considerations (albeit implicitly). Features of the landscape of importance for the protection of Natura 2000 are regulated by a less stringent, and mostly lacunose,

regulatory regime. Further harmonisation could introduce a specific regulatory regime for buffer zone in order to strengthen the effectiveness of the already exiting regime about Natura 2000.

Thirdly, the Habitats Directive, similarly to the other Directives analysed in this study, would benefit from a further harmonisation of the manner in which the effectiveness of envisaged measures is assessed. This aspect is further discussed in the next Section.

4.4. Analyze the elements existing in the current EU environmental legislation, which can hinder its correct and consistent application by Member States without discrepancies

An important matter mentioned in Sections 3.3 and 4.2 above concerns the lack of binding standards on how to assess the effectiveness of envisaged or adopted measures. Neither the Air Quality Directive, nor the Water Framework Directive have provisions on this regard. The same finding applies also for the Habitats Directive. The Waste Directive started regulating his subject matter, but the way in which this has been done in 2020 leaves room for improvement.

This makes difficult to compare the analyses that Member States do in their plans and programmes under the Directives. This also hinders the ability to react to the proposed measures in time to protect or ameliorate the status of the environment.

5. RECOMMENDATIONS

Based on the reflection presented above, the following recommendations can be made:

Recommendation 1: Reach an interinstitutional agreement spelling out a series of drafting principles for environmental legislation;[284] These principle should include at least the following ones:

a. *Principle 1*: Address adaptability and legal certainty explicitly when drafting environmental legislation

   The explicit analysis of newly proposed measures and amendments to existing one in light of these two criteria can help in reducing the room for improvements highlighted in Section 3 of this Study.

b. *Principle 2*: Link quality standards to scientific insights and considerations, while reserving other considerations for the provisions operationalising the achievement of the quality standards

   This legislative practice is already ongoing as highlighted by the analysis of the Water Framework Directive, Waste Directive and Habitats Directive in Section 3. This principle aim at maintaining it.

c. *Principle 3*: For quality standards, give preference to clauses in legislation allowing for an automatic adaptability of the regulatory framework, rather than techniques that require further regulatory intervention;

   This principle aims at redressing shortcomings in the goals formulated based on scientific insights such as those noticed in the field or air quality.

d. *Principle 4*: Link the achievement of quality standards to clear deadlines

   This principle aims at redressing shortcomings in the clarity of environmental Directives, such as those noticed in the context of the Habitats Directive.

e. *Principle 5*: Link the quality standards to plans and programmes setting out the strategy on how the quality standards will be achieved

   The use of plans and programmes to operationalise the implementation of quality standards is common to all the Directive analysed in this Study. This principle aims at maintaining this practice while highlighting the importance of harmonising the content of plans and programmes.

f. *Principle 6*: Harmonise the manner in which the effectiveness of the measures indicated in the plans and programmes has to be estimated and reviewed

   This principle aims at redressing a specific shortcoming affecting the effectiveness of plan and programmes, the lack of a standards for estimating the effectiveness of measures envisaged to achieve the goals of environmental Directives. At the moment, this is a regulatory shortcoming common to all the Directives analysed in this Study.

[284] This recommendation is inspired by the proceedings within the context of the Make it Work initiative, http://minisites.ieep.eu/work-areas/environmental-governance/better-regulation/make-it-work/ (Accessed January 2022). This initiative is brought forward by a group of Member States and aims at streamlining the drafting of EU environmental legislation so as to simplify its implementation. For a reflection on the first set of guidelines produced in the context of this initiative, see L. Squintani (2016).

g. *Principle 7*: Allow individuals to rely on quality standards to challenge plans, programmes and individual decisions allegedly constraining the achievement of the quality standards

   While this possibility seems available in the context of all Directives analysed in this Study, as highlighted in Section 3.3, this finding was in certain cases only possible based on an interpretative exercise. Contrasting interpretations are possible. This principle aims therefore an enhancing the clarity of environmental law on this pivotal aspect.

h. *Principle 8*: When expressing standards in environmental legislation in terms of minimum standards, give preference to those legislative techniques that maximise legal certainty

   This principle aims at improving the relationship between EU environmental law and national implementing measures. The case studies on nature conservation and waste management presented in Sections 3.5 and 3.6, respectively, shown how important this relationship is. The lack of apparent standards about the choice between different legislative techniques about minimum harmonisation, despite the different levels of legal certainty that the various technique offer, does not help linking these two regulatory levels.

Recommendation 2: Re-harmonise nature conservation law, air quality law and water management law so as to implement the above mentioned principles.

Recommendation 3: Consider adding a specific regulatory regime for the protection of buffer zones, such as ecological corridors, into EU nature conservation law.

The case study presented in Section 3.5 showed that the content of the Habitats Directive has been influenced by considerations that can be reconducted to subsidiarity and proportionality. The lack of a specific protection regime about buffer zones, such as ecological corridors can directly be linked to these principles. The elapsing of 30 years since the adoption of the Habitats Directive and the actual status of conservation of nature, highlights the importance of reconsidering the regulatory choice made about buffer zones.

Recommendation 4: Develop research and analysis on the combined effects of the Water Framework Directive and the Habitats Directive.

This recommendation aims at following up on the findings presented in Section 3.1 above, about the potential diverging interpretations between the quality standards applying under the Habitats Directive and the Water Framework Directive. Only field research can help clarifying whether the potential divergences highlighted in legal literature find confirmation in real life.

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This study analyses the clarity and adaptability of EU environmental law and how these could be improved by means of regulatory options, by looking at four core EU environmental directives, in the field of water, air, nature and waste. Recommendations are made to improve the effectiveness of environmental law in European Union
The research has been prepared at the request of the European Parliament's Policy Department for Citizens' Rights and Constitutional Affairs as asked by the Committee on Petitions (PETI).

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