



Council of the  
European Union

Brussels, 6 February 2017  
(OR. en)

5967/17  
ADD 8

ENV 103  
ECOFIN 70  
SOC 68  
COMPET 74  
POLGEN 9  
CONSOM 37

#### COVER NOTE

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From:	Secretary-General of the European Commission, signed by Mr Jordi AYET PUIGARNAU, Director
date of receipt:	6 February 2017
To:	Mr Jeppe TRANHOLM-MIKKELSEN, Secretary-General of the Council of the European Union
No. Cion doc.:	SWD(2017) 39 final
Subject:	COMMISSION STAFF WORKING DOCUMENT The EU Environmental Implementation Review Country Report - DENMARK <i>Accompanying the document</i> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions The EU Environmental Implementation Review: Common Challenges and how to combine efforts to deliver better results

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Delegations will find attached document SWD(2017) 39 final.

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Encl.: SWD(2017) 39 final



EUROPEAN  
COMMISSION

Brussels, 3.2.2017  
SWD(2017) 39 final

**COMMISSION STAFF WORKING DOCUMENT**

**The EU Environmental Implementation Review  
Country Report - DENMARK**

*Accompanying the document*

**Communication from the Commission to the European Parliament, the Council, the  
European Economic and Social Committee and the Committee of the Regions**

**The EU Environmental Implementation Review: Common Challenges and how to  
combine efforts to deliver better results**

{COM(2017) 63 final}  
{SWD(2017) 33 - 38 final}  
{SWD(2017) 40 - 60 final}

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## Executive summary

### About the Environmental Implementation Review

In May 2016, the Commission launched the Environmental Implementation Review (EIR), a two-year cycle of analysis, dialogue and collaboration to improve the implementation of existing EU environmental policy and legislation<sup>1</sup>. As a first step, the Commission drafted 28 reports describing the main challenges and opportunities on environmental implementation for each Member State. These reports are meant to stimulate a positive debate both on shared environmental challenges for the EU, as well as on the most effective ways to address the key implementation gaps. The reports rely on the detailed sectoral implementation reports collected or issued by the Commission under specific environmental legislation as well as the 2015 State of the Environment Report and other reports by the European Environment Agency. These reports will not replace the specific instruments to ensure compliance with the EU legal obligations.

The reports will broadly follow the outline of the 7th Environmental Action Programme<sup>2</sup> and refer to the 2030 Agenda for Sustainable development and related Sustainable Development Goals (SDGs)<sup>3</sup> to the extent to which they reflect the existing obligations and policy objectives of EU environmental law<sup>4</sup>.

The main challenges have been selected by taking into account factors such as the importance or the gravity of the environmental implementation issue in the light of the impact on the quality of life of the citizens, the distance to target, and financial implications.

The reports accompany the Communication "*The EU Environmental Implementation Review 2016: Common challenges and how to combine efforts to deliver better results*", which identifies challenges that are common to several Member States, provides preliminary conclusions on possible root causes of implementation gaps and proposes joint actions to deliver better results. It also groups in its Annex the actions proposed in each country report to improve implementation at national level.

### General profile

Denmark is a typical low-lying country, characterised by a

long coastline and several hundred islands. Most of the country is cultivated, i.e. approximately 60% is agricultural farmland, 16% is forest or heath, 7% is lakes, rivers and wetland areas, and 11% is covered by roads and built-up areas.

Over the recent years environmental status in some areas has improved. However, these improvements are not sufficient to meet the objectives for water bodies, biodiversity is under pressure, a great part of Danish nature is still in an unfavourable condition, and resource consumption is among the highest in the world<sup>5</sup>.

### Main Challenges

The two main challenges with regard to implementation of EU environmental policy and law in Denmark are:

- ❖ Reduce pressures on nature from intensive agriculture, including the use of pesticides and nutrients.
- ❖ Improve air quality, especially in densely populated areas.

### Main Opportunities

Denmark could perform better on topics where there is already a good knowledge base and good practices. This applies in particular to:

- ❖ Reinforce policies to promote waste prevention and to make reuse and recycling more economically attractive, especially by shifting away from incineration, in order to further improve the resource efficiency.
- ❖ Promote sustainable agricultural practices
- ❖ Implement clean air action plan.

### Points of Excellence

Where Denmark is a leader on environmental implementation, innovative approaches could be shared more widely with other countries. Good examples are:

- ❖ Denmark's promotion of the circular economy stands out. Integration into multiple policy areas, especially waste prevention, eco-innovation, green investment, but also beyond, appears key.
- ❖ Public participation in environmental decision-making as well as sharing environmental information is well implemented in Denmark.

<sup>1</sup> Communication "Delivering the benefits of EU environmental policies through a regular Environmental Implementation Review" ([COM/2016/316 final](#)).

<sup>2</sup> Decision No. 1386/2013/EU of 20 November 2013 on a General Union Environmental Action Programme to 2020 "[Living well, within the limits of our planet](#)".

<sup>3</sup> United Nations, 2015. [The Sustainable Development Goals](#)

<sup>4</sup> This EIR report does not cover climate change, chemicals and energy.

<sup>5</sup> European Environment Agency.

## Part I: Thematic Areas

### 1. Turning the EU into a circular, resource-efficient, green and competitive low-carbon economy

#### Developing a circular economy and improving resource efficiency

The 2015 Circular Economy Package emphasizes the need to move towards a lifecycle-driven 'circular' economy, with a cascading use of resources and residual waste that is close to zero. This can be facilitated by the development of, and access to, innovative financial instruments and funding for eco-innovation.

SDG 8 invites countries to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. SDG 9 highlights the need to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. SDG 12 encourages countries to achieve the sustainable management and efficient use of natural resources by 2030.

#### Measures towards a circular economy

Transforming our economies from linear to circular offers an opportunity to reinvent them and make them more sustainable and competitive. This will stimulate investments and bring both short and long-term benefits for the economy, environment and citizens alike<sup>6</sup>.

Denmark's resource productivity<sup>7</sup> (how efficiently the economy uses material resources to produce wealth) in 2015 in terms of value produced per kg of resources used is 2.26 EUR/kg, above an EU average of 2 EUR/kg. Figure 1 shows that this represents a modest but stable increase since 2011.

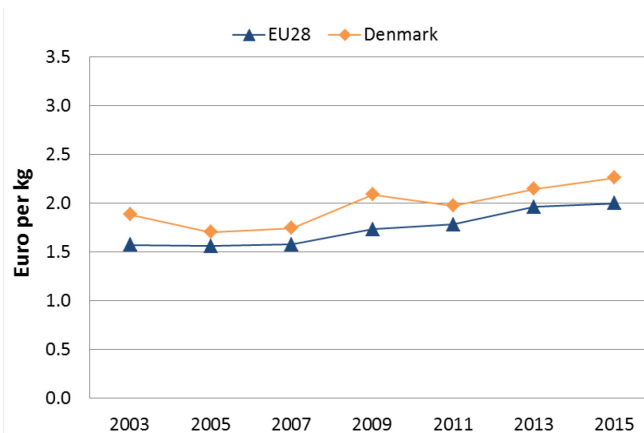
Many activities contribute to a circular economy in Denmark, and eco-innovation is a tool in that process.

In 2015 Denmark launched a strategy for waste prevention 'Denmark without Waste II' with 72 initiatives closely linked to circular economy<sup>8</sup>. The Strategy has two cross-cutting topics, Transition in Danish businesses and Green Consumption, and five action areas: Less food waste, Construction, Clothing and textiles, Electrical and electronic equipment, and Packaging<sup>9</sup>.

Efforts by businesses and consumers are crucial in terms of reducing waste volumes, and they are therefore essential for the two cross-cutting topics. The five action areas have been selected on the basis of an assessment identifying areas with great potential for waste prevention as well as on the basis of extensive stakeholder engagement.

The Danish Eco-Innovation Program (in Danish: MUDP - Miljøteknologisk Udviklings- og Demonstrationsprojekt) dates back to 2007. MUDP promotes the development and application of new efficient environmental solutions to environmental challenges while simultaneously supporting growth and employment. The general focus of MUDP is on: water; climate change adaptation; circular economy and recycling of waste; cleaner air; less noise; fewer hazardous chemicals; the industry's environmental performance; and ecological and sustainable construction (Danish Environmental Protection Agency).

Figure 1: Resource productivity 2003-15<sup>10</sup>



The Danish Green Investment Fund<sup>11</sup> is an independent state loan fund with the purpose of co-financing economically viable projects that facilitate and support the sustainable development in Denmark. The fund seeks to bridge the gap between traditional bank financing and equity capital.

In the field of eco-innovation, under the Danish Eco-Innovation Program (Miljøteknologiske Udviklings- og Demonstrationsprogram - MUDP) the Board decided that

<sup>6</sup> European Commission, 2015. [Proposed Circular Economy Package](#)

<sup>7</sup> Resource productivity is defined as the ratio between gross domestic product (GDP) and domestic material consumption (DMC).

<sup>8</sup> [http://eng.mst.dk/media/164923/denmark-without-waste-ii\\_wasteprevention.pdf](http://eng.mst.dk/media/164923/denmark-without-waste-ii_wasteprevention.pdf)

<sup>9</sup> In line with the idea of circular economy, a number of best practice examples in Denmark with focus on business models that prevent

the generation of waste were published in "Moving towards a circular economy – successful Nordic business models" (Nordic Council of Ministers, 2015).

<sup>10</sup> Eurostat, [Resource productivity](#), accessed October 2016,

<sup>11</sup> <http://gronfond.dk/en/>

for 2016, following priorities will be given to projects that:

- Contribute to achieving the objectives of the “Vandvisionen 2015”<sup>12</sup> of doubling the export of Danish water technology by 2025 and the objective to create a more efficient water sector.
- Increase the quality and efficiency of water and waste supply management.
- Promote circular economy by ensuring better (re)use of resources and waste; reduce harmful emissions and chemicals of concern in products and materials.
- Help to reduce fine particle and flue gas emissions from industry and transport.
- Support climate adaptation in such way so that the preservation of the countryside can go hand in hand with the protection of coasts and cities against erosion and flooding.

Regarding good practices, Amminex Emission technology was developed in Denmark. The company's unique NOx reduction technology is based on a system for ammonia storage and delivery, known as ASDS™. The system reductant is ammonia bound in a solid, together called AdAmmine™, to dramatically reduce the emissions of toxic NOx gasses from diesel exhaust.

### SMEs and resource efficiency

Danish SMEs provide about 65% of the country's employment (compared to the EU average of about 67%). They account for nearly 62% of total value added (compared to the EU average of nearly 58%)<sup>13</sup>.

In the Flash 426 Eurobarometer “SMEs, resource efficiency and green markets”, it is shown that 51% of Denmark's Small and Medium-sized enterprises (SMEs) have invested up to 5% of their annual turnover in their resource efficiency actions (just above the EU28 average of 50%), 32% of them are currently offering green products and services (EU28 average 26%), 71% took measures to save energy (EU28 average 59%), 63% to minimise waste (EU28 average 60%), 52% to save water (EU28 average 44%), and 61% to save materials (EU28 average 54%). From a circular economy perspective, 39% took measures to recycle by reusing material or waste within the company (EU28 average 40%), 29% to design products that are easier to maintain, repair or reuse (EU28 average 22%) and 39% were able to sell their scrap material to another company (EU28 average 25%).

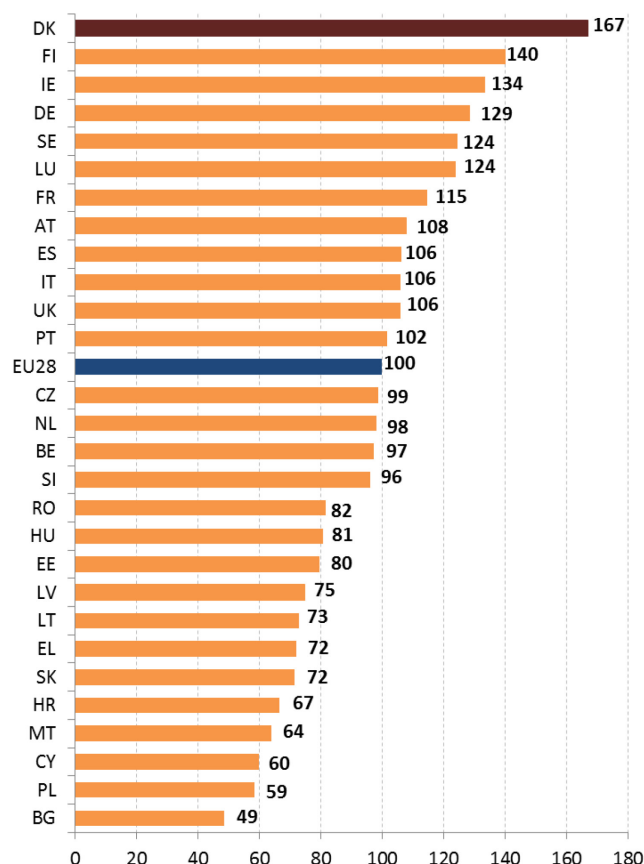
According to the Flash 426 Eurobarometer, the resource efficiency actions undertaken allowed the reduction of production costs in a 41% of the Denmark's SMEs (EU28 average 45%). The Flash 426 Eurobarometer shows that

27% of the SMEs in Denmark have one or more full time employee working in a green job at least some of the time (EU28 average 35%). Denmark has an average number of 1.6 full time green employees per SME (EU28 average 1.7)<sup>14</sup>.

### Eco-innovation

With an overall score of 167, the 2015 Danish eco-innovation performance scores first place, up from second in 2014 as shown in Figure 2.

**Figure 2: Eco-Innovation Index 2015 (EU=100)**<sup>15</sup>



Denmark is followed by Finland (index 140), Ireland (index 134), Germany (index 129) and Sweden and Luxembourg (both index 124) in the list of EU28 member states (EU average at 100). Denmark has never been ranked below fourth place (2013) in the Eco-innovation scoreboard during 2010-2015.

Denmark has 40 EMAS registered organisations or 7 registrations per million inhabitants, which is around the EU average (8 registrations per million inhabitants)

<sup>12</sup> Water vision 2015 (DANVA) <http://www.uk.vandtek.dk/about-vandtek/water-vision-2015>

<sup>13</sup> [2015 SBA Fact Sheet Denmark](#)

<sup>14</sup> The Flash 426 Eurobarometer “SMEs, resource efficiency and green markets” defines “green job” as a job that directly deals with information, technologies, or materials that preserves or restores environmental quality. This requires specialised skills, knowledge, training, or experience (e.g. verifying compliance with environmental legislation, monitoring resource efficiency within the company, promoting and selling green products and services).

<sup>15</sup> [Eco-innovation Observatory](#): Eco-Innovation scoreboard 2015



Concerning the EU Ecolabel, Denmark has 49<sup>16</sup> licenses or 9 registrations per million inhabitants which is more than double the EU average (4 registrations per million inhabitants).

## Waste management

Turning waste into a resource requires:

- Full implementation of Union waste legislation, which includes the waste hierarchy; the need to ensure separate collection of waste; the landfill diversion targets etc.
- Reducing per capita waste generation and waste generation in absolute terms.
- Limiting energy recovery to non-recyclable materials and phasing out landfilling of recyclable or recoverable waste.

SDG 12 invites countries to substantially reduce waste generation through prevention, reduction, recycling and reuse, by 2030.

The EU's approach to waste management is based on the "waste hierarchy" which sets out an order of priority when shaping waste policy and managing waste at the operational level: prevention, (preparing for) reuse, recycling, recovery and, as the least preferred option, disposal (which includes landfilling and incineration without energy recovery).

The progress towards reaching recycling targets and the adoption of adequate WMP/WPP<sup>17</sup> should be the key items to measure the performance of Member States. This section focuses on management of municipal waste for which EU law sets mandatory recycling targets.

The amount of municipal waste<sup>18</sup> generated in Denmark is the highest in the EU (758 kg/y/inhabitant compared to the EU average of 475 kg/y/inhabitant) in 2014. This is however partly linked to methodological issue in terms of the scope of definition of municipal waste.

Figure 3 depicts the municipal waste by treatment in Denmark in terms of kg per capita, which shows that recycling remains stable and so does incineration, which is still the main waste treatment operation benefitting from subsidies decided in the past. Denmark has the second highest proportion of incinerated waste (54%) (EU average is 27%) and recycling accounts for 44% in 2014, which is almost exactly the EU average (43.4%). Denmark has one of the lowest proportions of municipal waste landfilled (1%) (EU average is 28%).

Figure 3: Municipal waste by treatment in Denmark<sup>19</sup>

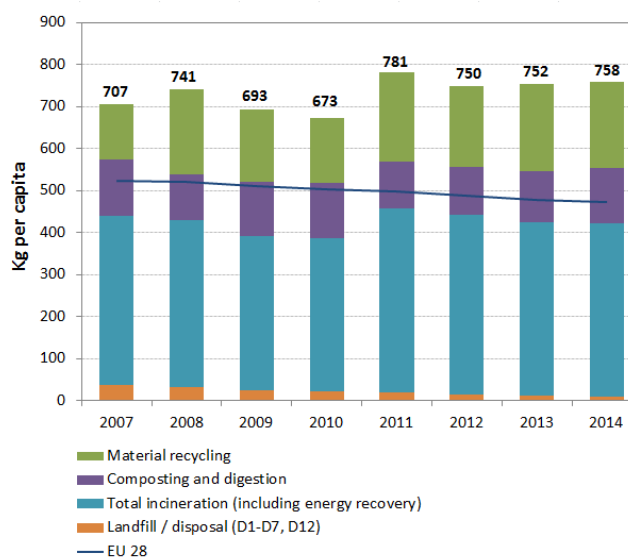
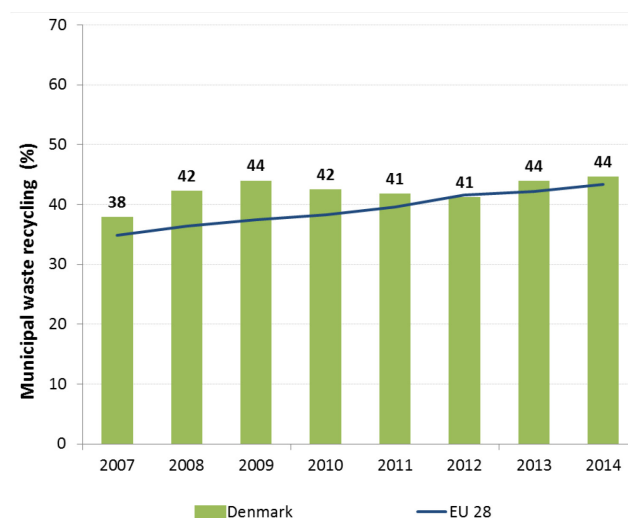


Figure 4 shows that Denmark still has to step up its recycling rate to achieve the EU 2020 target of 50%<sup>20</sup>.

Figure 4: Recycling rate of municipal waste 2007-14<sup>21</sup>



Denmark has taken appropriate steps to improve waste management and implement the current European waste targets. While it remains one of the countries in the EU with the largest amounts of municipal waste produced per capita and with a high percentage incinerated, it is noted that its Waste Management Plan foresees a shift away from incineration towards more recycling.

Moving towards the targets of the Roadmap on Resource Efficiency, which outlines how we can transform Europe's economy into a sustainable one by 2050, could create

<sup>16</sup> European Commission, [Ecolabel](#).

<sup>17</sup> Waste Management Plans/Waste Prevention Programmes

<sup>18</sup> Municipal waste consists of waste collected by or on behalf of municipal authorities, or (according to the OECD guidelines) directly by the private sector (business or private non-profit institutions) not on behalf of municipalities.

<sup>19</sup> Eurostat, [Municipal waste and treatment, by type of treatment method](#), accessed October 2016

<sup>20</sup> Member States may choose a different method than the one used by ESTAT (and referred to in this report) to calculate their recycling rates and track compliance with the 2020 target of 50% recycling of municipal waste.

<sup>21</sup> Eurostat, [Recycling rate of municipal waste](#), accessed October 2016

over 2,500 additional jobs and increase the annual turnover of the waste sector by over EUR 260 million<sup>22</sup>.

#### Suggested action

- Reinforce policies, including economic instruments, to promote waste prevention (e.g. PAYT), make reuse and recycling more economically attractive.
- Shift reusable and recyclable waste away from incineration e.g. by gradually phasing out subsidies to incineration or introducing incineration taxes.

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<sup>22</sup> Bio Intelligence service, 2011. [Implementing EU Waste legislation for Green Growth](#), study for European Commission. The breakdown per country on job creation was made by the consultant on Commission demand but was not included in the published document.

## 2. Protecting, conserving and enhancing natural capital

### Nature and Biodiversity

The EU Biodiversity Strategy aims to halt the loss of biodiversity in the EU by 2020, restore ecosystems and their services in so far as feasible, and step up efforts to avert global biodiversity loss. The EU Birds and Habitats Directives aim at achieving favourable conservation status of protected species and habitats.

SDG 14 requires countries to conserve and sustainably use the oceans, seas and marine resources, while SDG 15 requires countries to protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

The 1992 EU Habitats Directive and the 1979 Birds Directive are the cornerstone of the European legislation aimed at the conservation of the EU's wildlife. Natura 2000, the largest coordinated network of protected areas in the world, is the key instrument to achieve and implement the Directives' objectives to ensure the long-term protection, conservation and survival of Europe's most valuable and threatened species and habitats and the ecosystems they underpin.

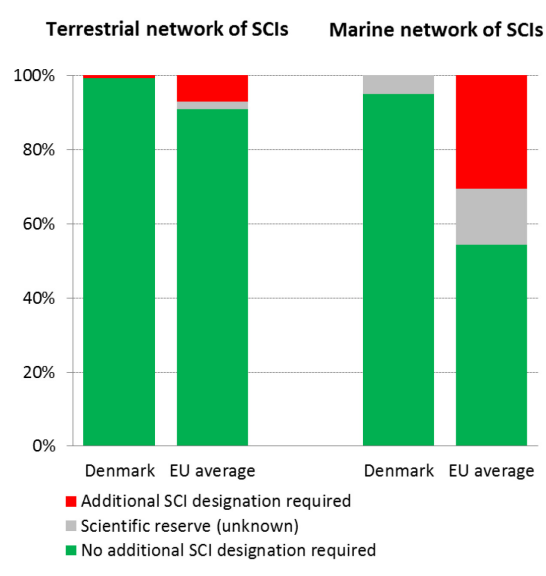
The adequate designation of protected sites as Special Areas of Conservation (SAC) under the Habitats Directive and as Special Protection Areas (SPA) under the Birds Directive is a key milestone towards meeting the objectives of the Directives. The results of Habitats Directive Article 17 and Birds Directive Article 12 reports and the progress towards adequate Sites of Community Importance (SCI)-SPA and SAC designation<sup>23</sup> both in land and at sea, should be the key items to measure the performance of Member States.

In early 2016, 8.3% of the Danish national territory is covered by Natura 2000 (EU average 18.1%), with Birds Directive SPAs covering 6.0% (EU average 12.3%) and Habitats Directive SCIs covering 7.4% (EU average 13.8%). Furthermore, substantial marine areas have been designated, covering app. 17% of the Danish EEZ. There are altogether 364 Natura 2000 sites in Denmark- (113 SPAs and 261 SACs), however with a big overlap.

As shown in Figure 5<sup>24</sup>, based on an assessment of the

sufficiency of the SCI network<sup>25</sup> for Annex II species and Annex I habitats occurring in Denmark, the Natura 2000 network in Denmark is almost complete and close to complete in the Atlantic and Continental terrestrial and Marine Atlantic and Baltic region.

**Figure 5: Sufficiency assessment of SCI networks in Denmark based on the situation until December 2013 (%)**<sup>26</sup>



All sites have been designated as Special Areas of Conservation (SAC) and conservation objectives and measures have been established for each of them.

Denmark is an agricultural country with approximately 2/3 of the land area being cultivated. The area of open natural habitat has declined considerably over the past century but is now relatively stable, at around 10% of Denmark's territory. The Danish marine environment is of great importance, e.g. with the rather shallow waters containing marine habitat types and habitats for e.g. internationally important numbers of waterfowl. 27% of Denmark's plant and animal species, which have been studied or assessed are Red-Listed<sup>27</sup>. 54% of Red-Listed

<sup>23</sup> Sites of Community Importance (SCIs) are designated pursuant to the Habitats Directive whereas Special Areas of Protection (SPAs) are designated pursuant to the Birds Directive; figures of coverage do not add up due to the fact that some SCIs and SPAs overlap. Special Areas of Conservation (SACs) means a SCI designated by the Member States.

<sup>24</sup> The percentages in Figure 5 refer to percentages of the total number of assessments (one assessment covering 1 species or 1 habitat in a given biogeographical region with the Member State); if a habitat type or a species occurs in more than 1 Biogeographic region within a given Member State, there will be as many individual assessments as there

are Biogeographic regions with an occurrence of that species or habitat in this Member State.

<sup>25</sup> For each Member State, the Commission assesses whether the species and habitat types on Annexes I and II of the Habitats Directive, are sufficiently represented by the sites designated to date. This is expressed as a percentage of species and habitats for which further areas need to be designated in order to complete the network in that country. A scientific reserve is given when further research is needed to identify the most appropriate sites to be added for a species or habitat. [The current data](#), which were assessed in 2014-2015, reflect the situation up until December 2013.

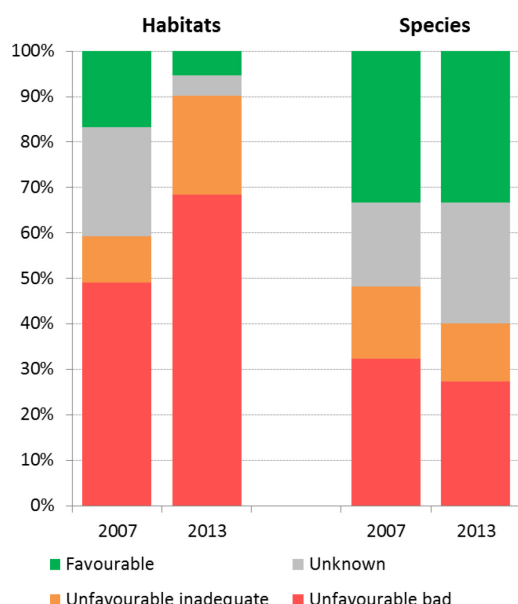
<sup>26</sup> European Commission, internal assessment.

<sup>27</sup> The IUCN Red List is the world's most comprehensive inventory of the global conservation status of biological species. It is set upon precise

species are associated with forest habitats. Threats facing these species include fragmentation of populations, deteriorating habitats, disturbances, and climate change. Intensive agriculture, including the use of pesticides and nutrients, continues to impact biodiversity, the aquatic environment, and drinking water. The nitrogen load has decreased in the last number of years. However, the use of pesticides has been increasing since 2014.

According to the Danish report under Article 17 Habitats Directive<sup>28</sup>, almost 70% of the habitat assessments are in unfavourable-bad<sup>29</sup> status (for comparison, 30% at EU27 level) as shown in Figure 6. Only 5% of the assessments show favourable status (for comparison, 16% at EU27-level).

**Figure 6: Conservation status of habitats and species in Denmark in 2007/2013 (%)**<sup>30</sup>



Alarming is that e.g. all forest habitats' assessments are unfavourable-bad as well as most of the grassland, bog or mire and coastal habitat types. Denmark is one of the countries reporting the most habitat assessments with unfavourable status. Agriculture and pollution are the most frequently reported pressures of high importance. Structure and functions are reported highly unfavourable

criteria to evaluate the extinction risk of thousands of species.

<sup>28</sup> The core of the 'Article 17' report is the assessment of conservation status of the habitats and species targeted by the Habitats Directive.

<sup>29</sup> Conservation status is assessed using a standard methodology as being either 'favourable', 'unfavourable-inadequate' and 'unfavourable-bad', based on four parameters as defined in Article 1 of the Habitats Directive.

<sup>30</sup> These figures show the percentage of biogeographical assessments in each category of conservation status for habitats and species (one assessment covering 1 species or 1 habitat in a given biogeographical region with the Member State), respectively. The information is based on Article 17 of the Habitats Directive reporting - [national summary of Denmark](#)

for all forest types and forestry measures and high deposition of airborne nitrogen are indicated as threats.

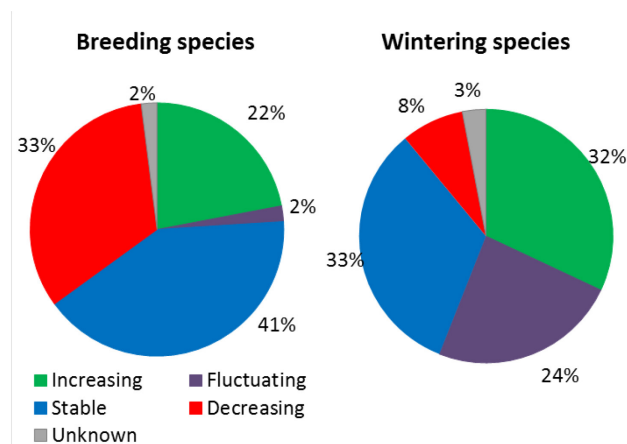
According to Denmark, marine habitats are still under the influence of nutrients supplied from surface water and from atmospheric deposition, but in recent years, there are good signs of many years of efforts to limit emissions.

The results are better concerning species assessments (other than birds), namely 34% are at favourable status (EU27: 23%), 13% at unfavourable-inadequate (EU27: 42%), however 28% have unfavourable-bad status (EU27: 18%).

The results from the Article 12 report<sup>31</sup> under the Birds Directive show that short-term trends of breeding birds are improving for 22% of the taxa and stable for 41% and decreasing for 33% of taxa as shown in Figure 7. The same categories for long-term trends are 39%, 19% and 38%.

The Danish government has informed the Commission that regarding planned national initiatives planned in the *Naturpakken*, the Nature Package includes an additional 13,300 ha high-nature value forest in the national forests (owned by the government) and at least 900 additional ha of high-nature value privately own forests. Funding for 2016-22 is 87.9 million DKK and 20 million DKK annually from 2021 (not including EU-funding).

**Figure 7: Short-term population trend of breeding and wintering bird species in Denmark in 2012 (%)**<sup>32</sup>



### Suggested action

- Make further efforts to ensure that the Natura 2000 network is managed towards favourable conservation status of protected habitats and species, especially by reducing the pressures from agriculture.

<sup>31</sup> Article 12 of the Birds Directive requires Member States to report about the progress made with the implementation of the Birds Directive

<sup>32</sup> Article 12 of the Birds Directive reporting - [national summary of Denmark](#)

- Put in place clearly defined conservation objectives, reinforce the necessary conservation measures for the sites and provide adequate resources for their implementation in order to maintain/restore species and habitats of community interest to a favourable conservation status across their natural range.

### Estimating Natural Capital

The EU Biodiversity Strategy to 2020 calls on the Member States to map and assess the state of ecosystems and their services in their national territory by 2014, assess the economic value of such services, and promote the integration of these values into accounting and reporting systems at EU and national level by 2020.

While a more comprehensive mapping and analysis of ecosystems and ecosystem services<sup>33</sup> have still to be carried out, several studies have already confirmed the value of specific ecosystem services in forestry, agriculture and fisheries. A MAES<sup>34</sup> project finalised in 2014 provided an overview of existing data sources and methods and revealed the large unexploited potential for combining modelling and mapping of ecosystems services and economic valuation of biodiversity and ecosystem services in Denmark. In cooperation with Danish Universities, a follow-up MAES project launched in 2015 will illustrate synergies and trade-offs between 6 ecosystem services and biodiversity, based on data covering 1/6 of the area of Denmark.

### Suggested action

- Continue support for the mapping and assessment of ecosystems and their services, and valuation work and develop natural capital accounting systems.



### Green Infrastructure

The EU strategy on green infrastructure<sup>35</sup> promotes the incorporation of green infrastructure into related plans and programmes to help overcome fragmentation of habitats and preserve or restore ecological connectivity, enhance ecosystem resilience and thereby ensure the continued provision of ecosystem services.

Green Infrastructure provides ecological, economic and social benefits through natural solutions. It helps to understand the value of the benefits that nature provides to human society and to mobilise investments to sustain and enhance them.

A large element of Denmark's efforts is aimed at retaining and improving existing biodiversity habitats, as well as the restoration of wetlands and wood habitats<sup>36</sup>.

The development of ecological corridors/networks has been integrated into the spatial planning system and the Spatial Planning Act. In recent years, Danish municipalities have started creating green and sustainable cities using Green Infrastructure as a broader concept.

In May 2016 a political agreement on a Danish Nature Programme was adopted. The programme focuses on natural forests and allocates new areas to natural forests adding up to 25,000 hectares. The programme also establishes means for local projects and new interconnected nature areas for the benefit of threatened species. According to the programme, nature areas close to cities should be developed and opportunities for the population to enjoy nature through outdoor activities will be promoted. The programme attaches great priority to stimulate farmers to manage and protect nature through incentives such as subsidies for hedgerows and possibilities to redistribute of land in order to protect vulnerable nature areas and better use non-vulnerable areas. The programme introduces a revision of the regulatory framework for nature protection in order to create a more efficient and less bureaucratic administration.

An innovation is a "Green Map" of Denmark which will provide both a strategic framework for nature policy and will function as an actual map for planning purposes. It will contribute to targeting ongoing and new initiatives with the greatest impact in terms of ecosystem services.. It will show where existing valuable nature is and where new potential areas that can create connectivity could be. By 2017, municipalities must designate areas of the map, based on a common base map and common criteria. They will be included in municipal plans for the

<sup>33</sup> Ecosystem services are benefits provided by nature such as food, clean water and pollination on which human society depends.

<sup>34</sup> Mapping and assessment of ecosystems and their services

<sup>35</sup> European Union, Green Infrastructure — Enhancing Europe's Natural Capital, [COM/2013/0249](https://ec.europa.eu/eip/natural-capital/)

<sup>36</sup> Ministry of Environment, [Biodiversity - the building block of life](https://www.mst.dk/om-mst/temaer/biodiversitet/biodiversitet-og-landbrug)



first time in 2017 and gradually refined and implemented by 2050.

Benefits of green infrastructure for Denmark are illustrated by hedgerow planting. Hedgerows are natural features acting as wildlife corridors or stepping stones. Hedgerow planting reduces soil erosion through windbreaks which also provide habitats for various species. Under the Danish Rural Development Programme 2007-2013, farmers could ask for reimbursement of 40–60% of the cost for establishing 1–7 rowed hedges or woodlots smaller than 0.5 ha. As a follow up, a national support scheme is under development to establish more shelterbelts and biotope improving plantations

Besides the subsidy, the success of the hedgerow planting scheme (Denmark has a very low soil erosion rate compared to other European countries) has been attributed to farmers' participation, good products and governmental action with a windbreak law that has been revised multiple times.

## Soil protection

The EU Soil Thematic Strategy highlights the need to ensure a sustainable use of soils. This requires the prevention of further soil degradation and the preservation of its functions, as well as the restoration of degraded soils. The 2011 Road Map for Resource-Efficient Europe, part of Europe 2020 Strategy provides that by 2020, EU policies take into account their direct and indirect impact on land use in the EU and globally, and the rate of land take is on track with an aim to achieve no net land take by 2050.

SDG 15 requires countries to combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world by 2030.

Soil is an important resource for life and the economy. It provides key ecosystem services including the provision of food, fibre and biomass for renewable energy, carbon sequestration, water purification and flood regulation, the provision of raw and building material. Soil is a finite and extremely fragile resource and increasingly degrading in the EU. Land taken by urban development and infrastructure is highly unlikely to be reverted to its natural state; it consumes mostly agricultural land and increases fragmentation of habitats. Soil protection is indirectly addressed in existing EU policies in areas such as agriculture, water, waste, chemicals, and prevention of industrial pollution.

Artificial land cover is used for settlements, production systems and infrastructure. It may itself be split between built-up areas (buildings) and non-built-up areas (such as linear transport networks and associated areas).

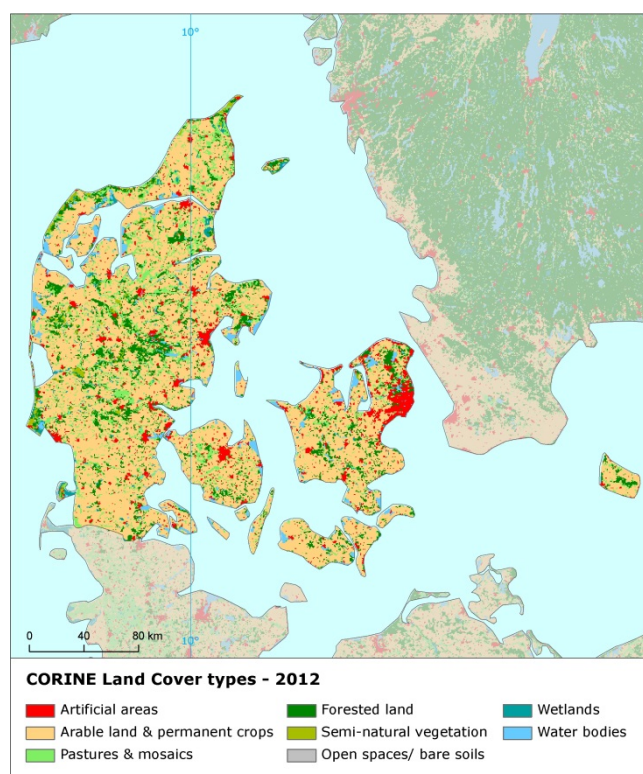
The annual land take rate (growth of artificial areas) as provided by CORINE Land Cover was 0.44% in Denmark over the period 2006-12, around the EU average (0.41%). It represented 1495 hectares per year<sup>37</sup> and was mainly driven by diffuse residential developments.

The annual land take rate (land taken for urban and other artificial land development) in Denmark was 0.44% over the period 2000-2006, close to the EU average (0.46%). It represented 1,495 hectares per year and was mainly driven by diffuse residential developments. The percentage of built up land in 2009 was 3.58%, close to the EU average (3.23%)<sup>38</sup>.

The soil water erosion rate in 2010 was 0.50 tonnes per ha per year, well below EU28 average (2.46 tonnes)<sup>39</sup>.

Figure 8 shows the different land cover types in Denmark in 2012.

**Figure 8: Land Cover types in Denmark in 2012**<sup>40</sup>



There are still not EU-wide datasets enabling the provision of benchmark indicators for soil organic matter decline, contaminated sites, pressures on soil biology and diffuse pollution. An updated inventory and assessment of soil protection policy instruments in Denmark and other EU Member States is being performed by the EU

<sup>37</sup> European Environment Agency [Draft results of CORINE Land Cover \(CLC\) inventory 2012](#); mean annual land take 2006-12 as a % of 2006 artificial land.

<sup>38</sup> European Environment Agency, 2016. [Imperviousness and imperviousness change](#)

<sup>39</sup> Eurostat, [Soil water erosion rate](#), Figure 2, accessed November 2016

<sup>40</sup> European Environment Agency, Land cover 2012 and changes country analysis [publication forthcoming]

Expert Group on Soil Protection.

## Marine protection

The EU Coastal and Marine Policy and legislation require that by 2020 the impact of pressures on marine waters is reduced to achieve or maintain good environmental status and coastal zones are managed sustainably.

SDG 14 requires countries to conserve and sustainably use the oceans, seas and marine resources for sustainable development.

The Marine Strategy Framework Directive (MSFD)<sup>41</sup> aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 by providing an ecosystem approach to the management of human activities with impact on the marine environment. The Directive requires Member States to develop and implement a marine strategy for their marine waters, and cooperate with Member States sharing the same marine region or sub region.

As part of their marine strategies, Member States had to make an initial assessment of their marine waters, determine GES<sup>42</sup> and establish environmental targets by July 2012. They also had to establish monitoring programmes for the on-going assessment of their marine waters by July 2014. The next element of their marine strategy is to establish a Programme of Measures (2016). The Commission assesses whether these elements constitute an appropriate framework to meet the requirements of the MSFD.

The Danish marine waters are part of two marine regions, the North-East Atlantic Ocean and the Baltic Sea. Denmark is therefore party to both the Convention for the protection of the marine environment of the North-East Atlantic (OSPAR Convention) and the Convention on the Protection of the Marine Environment of the Baltic Sea (HELCOM). The North Sea is one of the busiest maritime areas, with exploitation of oil and gas reserves also occurring in parallel to the important maritime traffic. In addition, overfishing and bottom-trawling might impact the biodiversity in that region. In the Baltic Sea, main risks for biodiversity relate to eutrophication, overfishing and bycatch, pollution by contaminants and oil, and introduction of non-indigenous species<sup>43</sup>.

Denmark has a comprehensive Marine Environmental Act and fishing is regulated by the EU Common Fisheries Policy. In relation to hazardous substances, Denmark has a comprehensive chemicals regulation. With wastewater plans, plans for the aquatic environment, as well as

nature restoration projects, Denmark has achieved large reductions in nitrogen and phosphorus loadings to the marine environment. Furthermore, the designated Natura 2000 sites are essential in the protection of biodiversity in Danish marine areas. In Denmark, 97 marine or partly marine Natura 2000 sites have been designated, totalling 18% of Denmark's marine area..

To minimise the spread of non-indigenous species, Denmark ratified the IMO Ballast Water Management Convention in 2012.

In its implementation of the MSFD, despite an ambitious and overall consistent determination of the GES, Denmark did not sufficiently clearly define all the descriptors. They are defined in a qualitative manner, avoiding reference to specific baselines, reference states or thresholds. Apart from descriptors on biodiversity, underwater noise and eutrophication, GES is set in high-level and general terms. In addition, insufficient reference is made to standards in existing EU legislation or in the relevant Regional Sea Conventions, with the exception of the descriptor on eutrophication, which usefully refers to the Water Framework Directive<sup>44</sup>.

Denmark has had a formalized monitoring of the aquatic environment for many years. Through the years, the monitoring has been expanded or adapted to cover new legislation, primary EU Directives. In 2014, the monitoring program was adapted in order to meet the requirements under the MSFD.

With the exception of a few elements of some descriptors the monitoring programme is implemented and will be used for the initial assessments being prepared by the regional sea conventions. The Commission will in the near future publish an assessment of the Danish MSFD Monitoring Programme<sup>45</sup>.

Danish marine protected areas covered 19,101.9 square kilometers of its marine waters, with 5,290.8 square kilometers in the Baltic Sea and 13,811.1 in the Greater North Sea<sup>46</sup>.

In its reports on the implementation of the MSFD, the Commission provided guidance to assist Denmark in its implementation of the Marine Strategy Framework Directive.

<sup>41</sup> European Union, [Marine Strategy Framework Directive 2008/56/EC](#)

<sup>42</sup> The MSFD defines Good Environmental Status (GES) in Article 3 as: "The environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive".

<sup>43</sup> European Environment Agency, 2016, [The Baltic Sea](#).

<sup>44</sup> Commission Staff Working Document Accompanying the Commission Report on "The first phase of implementation of the Marine Strategy Framework Directive (2008/56/EC) - The European Commission's assessment and guidance" ([SWD\(2014\) 049 final](#) and [COM\(2014\)097 final](#)) [SWD\(2014\) 049 final](#) and [COM\(2014\)097 final](#))

<sup>45</sup> Commission Staff Working Document Accompanying the Commission Report assessing Member States' monitoring programmes under the Marine Strategy Framework Directive (COM(2017)3 and SWD(2017)1 final)

<sup>46</sup> 2012 Data provided by the European Environmental Agency – Not published.

### Suggested action

- Continue work to improve the definitions of GES including through regional cooperation by using the work of the relevant Regional Sea Conventions.
- Address knowledge gaps.
- Continue integrating monitoring programmes already existing under relevant EU legislation and other joint monitoring programmes where they exist, developed at regional or sub regional level, for instance by OSPAR and HELCOM.
- Enhance comparability and consistency of monitoring approaches within its marine regions.
- Urgently report and implement its programme of measures<sup>47</sup>.
- Ensure that all of the monitoring programme is implemented without delay, and is appropriate to monitor progress its GES.

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<sup>47</sup> As of 7.10.2016, DK had not yet reported its programme of measures to the Commission



### 3. Ensuring citizens' health and quality of life

#### Air quality

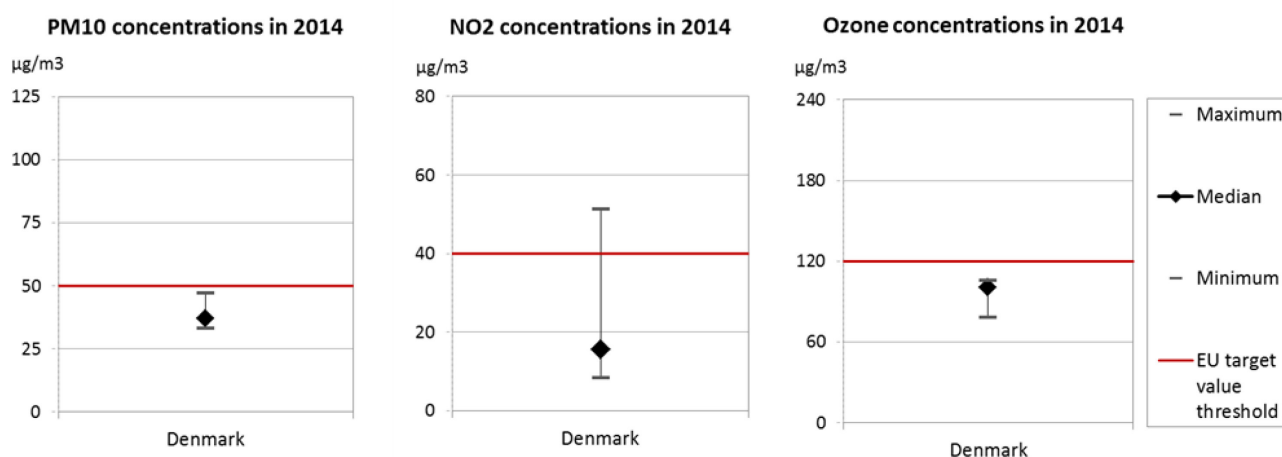
The EU Clean Air Policy and legislation require that air quality in the Union is significantly improved, moving closer to the WHO recommended levels. Air pollution and its impacts on ecosystems and biodiversity should be further reduced with the long-term aim of not exceeding critical loads and levels. This requires strengthening efforts to reach full compliance with Union air quality legislation and defining strategic targets and actions beyond 2020.

The EU has developed a comprehensive suite of air quality legislation<sup>48</sup>, which establishes health-based standards and objectives for a number of air pollutants.

currently applicable national emission ceilings<sup>50</sup>. Significant emission reductions have been recorded for volatile organic compounds (-48%) as well as ammonia (-42%), however emissions for these pollutants are above current ceilings, by 24% and 6%, respectively. It should be noted that the exceedance of the volatile organic compounds ceiling is largely the result from the recent addition of volatile organic compounds emissions from agriculture to the emission inventories, while the exceedance of the ammonia ceiling partly results from the reporting of new sources of ammonia emissions which were not estimated or considered at the time when the emission ceilings were set.

At the same time, air quality in the Denmark continues to

**Figure 9: Attainment situation for PM10, NO2 and O3 in 2014 in Denmark**



**Note:** These graphs show concentrations as measured and reported by the Member State at different locations; specifically they show, (a) for PM10, the 90.4 percentile of daily mean concentration, which corresponds to the 36th highest daily mean, (b) for NO2, the annual mean concentration, and (c) for O3, the 93.2 percentile of maximum daily 8-hour mean concentration values, which corresponds to the 26th highest daily maximum. For each pollutant they depict both the lowest and highest concentration reported, as well as the median values (i.e. note that 50% of the stations report lower concentrations than the respective median value, the other 50% report higher concentrations). The air quality standards as set by EU legislation are marked by the red line.

As part of this, Member States are also required to ensure that up-to-date information on ambient concentrations of different air pollutants is routinely made available to the public. In addition, the National Emission Ceilings Directive provides for emission reductions at national level that should be achieved for main pollutants.

The emission of several air pollutants has decreased significantly in Denmark<sup>49</sup>. Reductions between 1990 and 2014 for sulphur oxides (-94%), nitrogen oxides (-62%) ensure air emissions for these pollutants are within the

give cause for concern. For the year 2013, the European Environment Agency estimated that about 2890 premature deaths were attributable to fine particulate matter<sup>51</sup> concentrations, 110 to ozone<sup>52</sup> concentration

<sup>50</sup> The current national emission ceilings apply since 2010 ([Directive 2001/81/EC](#)); revised ceilings for 2020 and 2030 have been set by [Directive \(EU\) 2016/2284](#) on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC.

<sup>51</sup> PM is a mixture of aerosol particles (solid and liquid) covering a wide range of sizes and chemical compositions. PM10 (PM2.5) refers to particles with a diameter of 10 (2.5) micrometres or less. PM is emitted from many anthropogenic sources, including combustion.

<sup>52</sup> Low level ozone is produced by photochemical action on pollution and it is also a greenhouse gas.

<sup>48</sup> European Commission, 2016. [Air Quality Standards](#)

<sup>49</sup> See [EIONET Central Data Repository](#) and [Air pollutant emissions data viewer \(NEC Directive\)](#)

and over 60 to nitrogen<sup>53</sup> dioxide concentrations<sup>54</sup>. This illustrates the importance of ensuring that the exceedances above the EU air quality standards such as shown in Figure 9<sup>55</sup> are brought to a halt.

For 2014, exceedances above the EU air quality standards have been registered related to annual mean concentration of nitrogen dioxide (NO<sub>2</sub>) in one air quality zone (Copenhagen)<sup>56</sup>.

The persistent breach of air quality requirements for NO<sub>2</sub>, which have negative effects on health and environment, are being followed up by the European Commission through infringement procedures covering all the Member States concerned, including Denmark. The aim is that adequate measures are put in place to bring all zones into compliance.

It has been estimated that the health-related external costs from air pollution in Denmark are above EUR 3 billion/year (income adjusted, 2010), which include not only the intrinsic value of living a full health life but also direct costs to the economy. These direct economic costs relate to 814 thousand workdays lost each year due to sickness related to air pollution, with associated costs for employers of EUR 115 million/year (income adjusted, 2010), for healthcare of above EUR 11 million/year (income adjusted, 2010), and for agriculture (crop losses) of EUR 44 million/year (2010)<sup>57</sup>.

### Suggested action

- Maintain downward emissions trends of air pollutants in order to achieve full compliance with currently applicable national emission ceilings and air quality limit values - and reduce adverse air pollution impacts on health, environment and economy.
- Reduce ammonia (NH<sub>3</sub>) emissions to comply with currently applicable national emission ceilings<sup>58</sup>, for example by introducing or expanding the use of low-emission agricultural techniques.

<sup>53</sup> NOx is emitted during fuel combustion e.g. from industrial facilities and the road transport sector. NOx is a group of gases comprising nitrogen monoxide (NO) and nitrogen dioxide (NO<sub>2</sub>).

<sup>54</sup> European Environment Agency, 2016. [Air Quality in Europe – 2016 Report](#). (Table 10.2, please see details in this report as regards the underpinning methodology)

<sup>55</sup> Based on European Environment Agency, 2016. [Air Quality in Europe – 2016 Report](#). (Figures 4.1, 5.1 and 6.1)

<sup>56</sup> See [EEA/Eionet Air Quality Portal](#) and the related [Central Data Repository](#)

<sup>57</sup> These figures are based on the [Impact Assessment for the Commission Integrated Clean Air Package](#) (2013)

<sup>58</sup> Under the provisions of the revised National Emission Ceilings Directive Member States now may apply for emission inventory adjustments. Pending evaluation of any adjustment application, Member States should keep emissions under close control with a view to further reductions.

- Reduce nitrogen oxide (NOx) emissions to comply with currently applicable national emission ceilings<sup>59</sup> and/or to reduce nitrogen dioxide (NO<sub>2</sub>) (and ozone concentrations), inter alia, by reducing transport related emissions - in particular in urban areas.
- Reduce NMVOCs emissions to comply with currently applicable national emission ceilings<sup>60</sup>.

### Noise

The Environmental Noise Directive provides for a common approach for the avoidance, prevention and reduction of harmful effects due to exposure to environmental noise.

Excessive noise is one of the main causes of health issues<sup>61</sup>. To alleviate this, the EU *acquis* sets out several requirements, including assessing the exposure to environmental noise through noise mapping, ensuring that information on environmental noise and its effects is made available to the public, and adopting action plans with a view to preventing and reducing environmental noise where necessary and to preserving the acoustic environment quality where it is good.

Danish authorities have fulfilled all their obligations with regards to the Environmental Noise Directive<sup>62</sup> for the current reporting period.

### Water quality and management

The EU water policy and legislation require that the impact of pressures on transitional, coastal and fresh waters (including surface and ground waters) is significantly reduced to achieve, maintain or enhance good status of water bodies, as defined by the Water Framework Directive; that citizens throughout the Union benefit from high standards for safe drinking and bathing water; and that the nutrient cycle (nitrogen and phosphorus) is managed in a more sustainable and resource-efficient way.

SDG 6 encourages countries to ensure availability and sustainable management of water and sanitation for all.

The main overall objective of EU water policy and legislation is to ensure access to good quality water in sufficient quantity for all Europeans. The EU water

<sup>59</sup> Ibid.

<sup>60</sup> Ibid.

<sup>61</sup> WHO/JRC, 2011, Burden of disease from environmental noise, Fritschi, L., Brown, A.L., Kim, R., Schwela, D., Kephelopoulou, S. (eds), [World Health Organization, Regional Office for Europe](#), Copenhagen, Denmark

<sup>62</sup> The Noise Directive requires Member States to prepare and publish, every 5 years, noise maps and noise management action plans for agglomerations with more than 100,000 inhabitants, and for major roads, railways and airports.

*acquis*<sup>63</sup> seeks to ensure good status of all water bodies across Europe by addressing pollution sources (from e.g. agriculture, urban areas and industrial activities), physical and hydrological modifications to water bodies) and the management of risks of flooding.

River Basin Management Plans (RBMPs) are a requirement of the Water Framework Directive and a means of achieving the protection, improvement and sustainable use of the water environment across Europe. This includes surface freshwaters such as lakes and rivers, groundwater, estuaries and coastal waters up to one nautical mile.

Denmark has provided information to the Commission from its second generation of RBMPs. However, as the Commission has not yet been able to validate this information for all Member States, it is not reported here.

In its first generation of RBMPs under the WFD Denmark reported the status of 16881 river bodies, 940 lakes, 162 coastal and 385 groundwater bodies. Only 30% of natural surface water bodies achieve a good or high ecological status<sup>64</sup> and 17% of heavily modified or artificial water bodies achieve a good or high ecological potential (61% unknown). Only 0.5% of surface water bodies (99.5% unknown), 0.1% of heavily modified and artificial water bodies<sup>65</sup> (99.6% unknown) and 57% of groundwater bodies achieve good chemical status<sup>66</sup>. 65% of groundwater bodies are in good quantitative status<sup>67</sup>.

Danish water bodies are affected by diffused pollution<sup>68</sup> (nutrients, organic matter and pesticides) from agriculture as well as point pollution (nutrients, organic and chemical contaminants) from urban wastewater, industry and aquaculture.

There were certain deficiencies in the Danish River Basin Management Plans for 2009-2015 in particular the methods for status assessments were not fully

developed. This has apparently been improved in the second generation of River Basin Management Plans, which are currently under examination. A number of exceptions were applied. The planned measures are expected to result in improvement of ecological status of surface water bodies by 29%. The measures should also bring improvement of ecological potential of artificial and heavily modified water bodies by 5%. No change in chemical and quantitative status of groundwater can be expected.

In the context of the Nitrates Directive, Denmark has decided to apply mandatory measures on its whole territory. With respect to water quality and nitrate concentration, progress has been made throughout the last years. However data show that there are still important issues both concerning nitrate concentrations, in particular in groundwater, and eutrophication of surface waters. In addition, agriculture remains the largest diffuse pollution contributor to coastal water in the country. This is a particularly serious issue considering that, when including the Kattegat, about 50% of the country drains into the Baltic Sea<sup>69</sup>, which is largely eutrophic and strongly affected by nutrients pollution.

Denmark is changing its legislation implementing the Nitrates Directive. In view of the high agricultural pressure (e.g. Denmark is one of the biggest pork producers in the EU<sup>70</sup>) and the existing water quality issues, waiving environmental standards could hinder the necessary nutrient pollution reduction in Danish waters and in the Baltic Sea and give rise to a further intensification of livestock farming.

As regards drinking water, Denmark reaches very high compliance rates of 99-100% for microbiological and chemical parameters, but shows a 98.7% compliance rate with indicator parameters laid down in the Drinking Water Directive<sup>71</sup>.

As shown in Figure 10, in 2015, in Denmark out of 1028 bathing waters, 85.7% were of excellent quality, 9.6% of good quality, 3.0% of sufficient quality. Six bathing waters were of poor quality or non-compliant while it was not possible to assess the remaining 11 bathing waters<sup>72</sup>.

<sup>63</sup> This includes the [Bathing Waters Directive \(2006/7/EC\)](#); the [Urban Waste Water Treatment Directive \(91/271/EEC\)](#) concerning discharges of municipal and some industrial waste waters; the [Drinking Water Directive \(98/83/EC\)](#) concerning potable water quality; the [Water Framework Directive \(2000/60/EC\)](#) concerning water resources management; the [Nitrates Directive \(91/676/EEC\)](#) and the [Floods Directive \(2007/60/EC\)](#)

<sup>64</sup> Good ecological status is defined in the Water Framework Directive, referring to the quality of the biological community, the hydrological characteristics and the chemical characteristics.

<sup>65</sup> Many European river basins and waters have been altered by human activities, such as land drainage, flood protection and building of dams to create reservoirs.

<sup>66</sup> Good chemical status is defined in the Water Framework Directive referring to compliance with all the quality standards established for chemical substances at European level.

<sup>67</sup> For groundwater, a precautionary approach has been taken that comprises a prohibition on direct discharges to groundwater, and a requirement to monitor groundwater bodies.

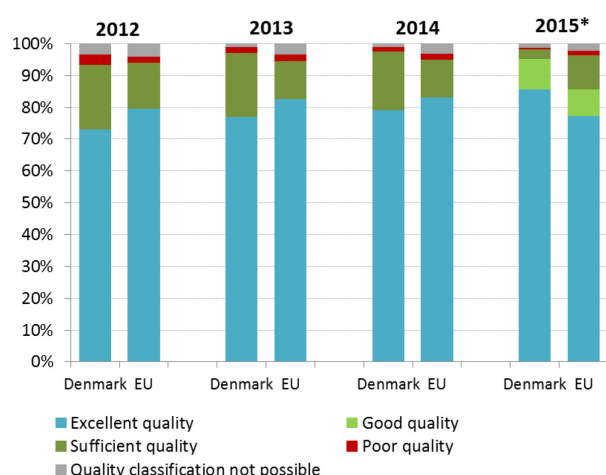
<sup>68</sup> Diffuse pollution comes from widespread activities with no one discrete source, e.g. acid rain, pesticides, urban run-off, etc.

<sup>69</sup> Lars Rydén, Pawel Migula, Magnus Andersson, 2003, *Environmental science: understanding, protecting and managing the environment in the Baltic Sea region*, Baltic University Press.

<sup>70</sup> Eurostat, [Pig farming sector - statistical portrait 2014](#)

<sup>71</sup> Commission's [Synthesis Report on the Quality of Drinking Water in the Union examining Member States' reports for the 2011-2013 period](#), foreseen under Article 13(5) of Directive 98/83/EC; COM(2016)666.

<sup>72</sup> European Environment Agency, 2016. [European bathing water quality in 2015](#), p. 26

Figure 10: Bathing water quality 2012 – 2015<sup>73</sup>

\*The category 'good' was introduced in the 2015 bathing water report

The quality of the bathing water in Denmark has improved every year from 2012 to 2015 as showed in figure 10. In 2015, Denmark was above the EU average bathing water quality.

Denmark is fully compliant with the Urban Waste Treatment Directive and demonstrates excellent compliance rates for secondary and more stringent treatment (99.3% of the load collected is subject to secondary treatment in accordance with Art 4 of the Urban Waste Water Treatment Directive and 98.8% of the load collected is subject to more stringent treatment in accordance with Article 5 of the Directive)<sup>74</sup>.



Denmark undertook a preliminary assessment of the risk of flooding from rivers and coastal waters<sup>75</sup>. Coastal flooding is of the most relevance to Denmark. Denmark has limited data on historic river flooding as they did not cause large amounts of damage, with the exception of

one area (Holstebro). Between 2002 and 2013, for the three floods recorded the total direct costs were EUR 1,400 million. The average cost per flood was EUR 450 million<sup>76</sup>, well above the EU average of EUR 370 million<sup>77</sup>.

#### Suggested action

- Improve methods for status assessment and analysis of pressures of water bodies<sup>78</sup>.
- Ensure that legislation implementing the Nitrates Directive includes measures proportionate to the Danish agricultural pressures and water quality issues. The measures chosen to implement the Directive should improve water quality both in the short and long term.

#### Enhancing the sustainability of cities

The EU Policy on the urban environment encourages cities to implement policies for sustainable urban planning and design, including innovative approaches for urban public transport and mobility, sustainable buildings, energy efficiency and urban biodiversity conservation.

SDG11 aims at making cities and human settlements inclusive, safe, resilient and sustainable.

Europe is a Union of cities and towns; around 75% of the EU population are living in urban areas<sup>79</sup>. The urban environment poses particular challenges for the environment and human health, whilst also providing opportunities and efficiency gains in the use of resources.

The Member States, European institutions, cities and stakeholders have prepared a new Urban Agenda for the EU (incorporating the Smart Cities initiative) to tackle these issues in a comprehensive way, including their connections with social and economic challenges. At the heart of this Urban Agenda will be the development of twelve partnerships on the identified urban challenges, including air quality and housing<sup>80</sup>.

The European Commission will launch a new EU benchmark system in 2017<sup>81</sup>.

The EU stimulates green cities through awards and

<sup>73</sup> European Environment Agency, [State of bathing water](#), 2016

<sup>74</sup> Eighth Report on the Implementation Status and the Programmes for Implementation (as required by Article 17) of Council Directive 91/271/EEC concerning urban waste water treatment (COM (2016)105 final) and Commission Staff Working Document accompanying the report (SWD(2016)45 final).

<sup>75</sup> Commission Staff Working Document, [Report on the progress in implementation of the Floods Directive](#), p. 37

<sup>76</sup> Based on those floods that are sufficient to exceed the threshold for inclusion in the EM-DAT database

<sup>77</sup> RPA, 2014. Study on Economic and Social Benefits of Environmental Protection and Resource Efficiency Related to the European Semester. Study for the European Commission, [Annex 1: Country fiches](#)

<sup>78</sup> The full set of recommendations relevant to the Water Framework Directive are found [here](#).

<sup>79</sup> European Environment Agency, [Urban environment](#)

<sup>80</sup> <http://urbanagendaforthe.eu/>

<sup>81</sup> The Commission is developing an [Urban Benchmarking and Monitoring \('UBaM'\) tool](#) to be launched in 2017. Best practices emerge and these will be better disseminated via the app featuring the UBaM tool, and increasingly via e.g. EUROCIITIES, ICLEI, CEMR, Committee of the Regions, Covenant of Mayors and others.



funding, such as the EU Green Capital Award aimed at cities with more than 100,000 inhabitants and the EU Green Leaf initiative aimed at cities and towns, with between 20,000 and 100,000 inhabitants. For example, in Denmark, the ERDF co-financed Copenhagen Cleantech Cluster has been shortlisted as a REGIOSTAR 2016 finalist by the European Commission<sup>82</sup>.

Copenhagen won the Green Capital Award in 2014. Increasing urban development in Copenhagen with accompanying expansion of the sewer system, as well as increased rainfalls intensity have meant increased pressure on central waste water treatment plants<sup>83</sup>. To minimise this pressure of draining off stormwater in new urban development areas, major renovation work is to be carried out according to the SUDS principles (Sustainable Urban Drainage Systems). The new Ørestad district, which was founded in 1996 and today is an area of 150 hectares, was established with a three-stringed system. In the three-stringed system, household wastewater is discharged to a central treatment plant, roof water is discharged to recreational canals whereas road water is treated locally before being discharged to the recreational canals.

Copenhagen placed public-private partnerships at the core of its approach to eco-innovation and sustainable employment. Its North Harbour project, for example, including a “Green laboratory” focusing on eco-technologies, has high potential for replication in the region around the city and beyond. Furthermore, Copenhagen alone has around 400 km of cycle paths, and about 40 per cent of the capital's population commute to work by bicycle<sup>84</sup>.



Danish authorities have fulfilled all their obligations with regards to the Environmental Noise Directive for the current reporting period.

## International agreements

The EU Treaties require that the Union policy on the environment promotes measures at the international level to deal with regional or worldwide environmental problems.

Most environmental problems have a transboundary nature and often a global scope and they can only be addressed effectively through international co-operation. International environmental agreements concluded by the Union are binding upon the institutions of the Union and on its Member States. This requires the EU and the Member States to sign, ratify and effectively implement all relevant multilateral environmental agreements (MEAs) in a timely manner. This will also be an important contribution towards the achievement of the SDGs, which Member States committed to in 2015 and include many commitments contained already in legally binding agreements.

The fact that some Member States did not sign and/or ratify a number of MEAs compromises environmental implementation, including within the Union, as well as the Union's credibility in related negotiations and international meetings where supporting the participation of third countries to such agreements is an established EU policy objective. In agreements where voting takes place it has a direct impact on the number of votes to be cast by the EU.

Denmark is performing as one of the best in the EU with regard to signing and ratifying such agreements.

<sup>82</sup> European Commission, [2016 REGIOSTARS](#) finalists.

<sup>83</sup> European Green Capital Award, 2011, [Good Practice Statement](#), p.25

<sup>84</sup> Denmark, [Green Living](#)

## Part II: Enabling Framework: Implementation Tools

### 4. Market based instruments and investment

#### Green taxation and environmentally harmful subsidies

The Circular Economy Action Plan encourages the use of financial incentives and economic instruments, such as taxation to ensure that product prices better reflect environmental costs. The phasing out of environmentally harmful subsidies is monitored in the context of the European Semester and in national reform programmes submitted by Member States.

Taxing pollution and resource use can generate increased revenue and bring important social and environmental benefits.

Environmental tax revenues relative to GDP are high compared to the EU although there is room to align their design more with their environmental objectives. They amounted to 4.08% of GDP in 2014, as compared with the EU average of 2.46%. In the same year environmental tax revenues accounted for 8.18% of total revenues from taxes and social-security contributions (EU28 average: 6.35%) as shown in Figure 11. This represents a modest decrease compared to 2013 (8.92%).

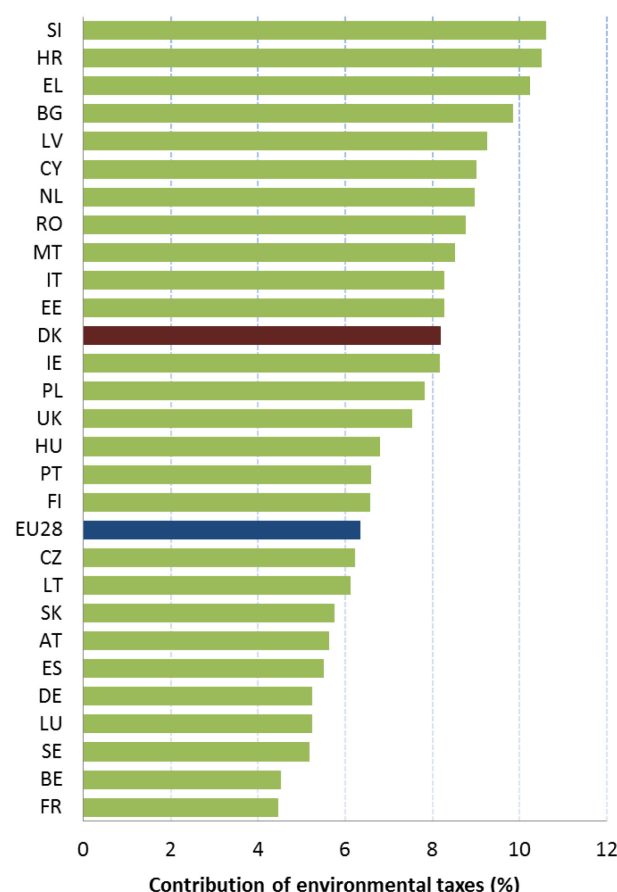
A 2016 study<sup>85</sup> based on levels of environmental taxes that already exist in similar countries, shows there might be considerable potential for shifting taxes from labour to environmental taxes in Denmark, which could be used to increase revenues or reduce other taxes. Under a good practice scenario<sup>86</sup>, these environmental taxes could generate an additional DKK 8.93 billion (EUR 1.2 billion) in 2018, rising to DKK 15.01 billion (EUR 2.01 billion) in 2030 (both in real 2015 terms), although this may decline as behaviour changes. This is equivalent to an increase by 0.42% and 0.55% of GDP in 2018 and 2030, respectively.

The largest potential source of revenue comes from the amendments to taxes on transport fuels generating DKK 10.59 billion in 2030 (EUR 1.42 billion) (real 2015 terms), equivalent to 0.39% of GDP.

Per capita road transport emissions in Denmark are

among the highest in the EU, which suggests that the structure of car taxation in Denmark, currently based on low annual and high registration taxes at the time of the purchase, is not meeting its environmental objectives. In an effort to counter the resulting disincentives to purchase newer and more efficient cars, car registration taxes have been lowered. This is offset by the gradual extension of car registration taxes to cover hydrogen and electric cars. To incentivise the use of hydrogen or electric cars, a 52% increase in the diesel 'countervailing charge' has been set, but exempting trucks, buses and tractors. Previous increases in the duty on emission of nitrogen oxides are also being rolled back.

**Figure 11: Environmental tax revenues as a share of total revenues from taxes and social contributions (excluding imputed social contributions) in 2014<sup>87</sup>**



The reduction of environmentally harmful subsidies is another key area. The discrepancy between tax rates for petrol and diesel has been fairly stable at about EUR 0.18 to EUR 0.20 per litre over the past two decades, but being close to 30% of the petrol tax, it is significant. The

<sup>85</sup> Eunomia Research and Consulting, IEEP, Aarhus University, ENT, 2016. [Study on Assessing the Environmental Fiscal Reform Potential for the EU28](#). N.B. National governments are responsible for setting tax rates within the EU Single Market rules and this report is not suggesting concrete changes as to the level of environmental taxation. It merely presents the findings of the 2016 study by Eunomia *et al* on the potential benefits various environmental taxes could bring. It is then for the national authorities to assess this study and their concrete impacts in the national context. A first step in this respect, already done by a number of Member States, is to set up expert groups to assess these and make specific proposals.

<sup>86</sup> The good practice scenario means benchmarking to a successful taxation practice in another Member State.

<sup>87</sup> Eurostat, [Environmental tax revenues](#), accessed October 2016

discrepancy is addressed with a partially offsetting circulation surtax on diesel vehicles, which has recently been increased. Nevertheless, Denmark would benefit from phasing out the reduced energy duty for diesel, especially if coordinated with similar moves in neighbouring countries, which will not only address negative impacts on environment but at the same time will deliver additional revenues.

## Green Public Procurement

The EU green public procurement policies encourage Member States to take further steps to reach the target of applying green procurement criteria to at least 50% of public tenders.

Green Public Procurement (GPP) is a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life-cycle when compared to goods, services and works with the same primary function that would otherwise be procured.

The purchasing power of public procurement equals to approximately 14% of GDP<sup>88</sup>. A substantial part of this money is spent on sectors with high environmental impact such as construction or transport, so GPP can help to significantly lower the impact of public spending and foster sustainable innovative businesses. The Commission has proposed EU GPP criteria<sup>89</sup>.

A National Strategy on GPP is in force through the government strategy on Intelligent Public Procurement<sup>90</sup>. Denmark has adopted the indicative political target of 50% of GPP as referred to in the GPP communication<sup>91</sup>.

Denmark has a well-functioning procurement system that is quite advanced in its strategic dimension, as it includes green, SME, social and to lesser extent innovation criteria. Procurement is conducted primarily at the local level, whereas the central government and the regions have a lesser share of procurement.

GPP criteria are developed at the national level, however for the most part the EU GPP criteria are being communicated to the procurers. National GPP criteria have been developed for the product groups: electricity using products, timber, and transport (small and large vehicles). The EU GPP criteria are recommended for the product groups where there is no national guidance<sup>92</sup>. To

support the uptake of GPP initiatives such as knowledge sharing networks, partnership for frontrunners, TCO tools, best practice examples, GPP task force etc. have been launched at national level.

The implementation of Green Public Procurement was investigated at national level for the year 2013 in a report published in 2016. The report finds that in 24% of the tenders covered all relevant green criteria has been applied and in 71% of the tenders one or more criteria has been applied. In the report, GPP has been measured within the 9 product areas related to the 50% target in EU<sup>93</sup>.

## Investments: the contribution of EU funds

European Structural and Investment Funds Regulations provide that Member States promote environment and climate objectives in their funding strategies and programmes for economic, social and territorial cohesion, rural development and maritime policy, and reinforce the capacity of implementing bodies to deliver cost-effective and sustainable investments in these areas.

Making good use of the European Structural and Investment Funds (ESIF)<sup>94</sup> is essential to achieve the environmental goals and integrate these into other policy areas. Other instruments such as the Horizon 2020, the LIFE programme and the EFSI<sup>95</sup> may also support implementation and spread of best practice.

Denmark has ERDF funding of EUR 206.6m over the 2014-2020 programming period (see Figure 12). Apart from investments in energy efficiency measures in businesses, the ERDF programmes does not envisage investments in environmental projects as such; but projects may contain components addressing environmental issues or climate change directly.

As Denmark makes substantial environmental investments from national sources, only relatively small, explicit investments from the ERDF have been deemed necessary. The regions have adopted development strategies, which capture the challenges and opportunities identified for the individual region (smarty specialization). Important elements of these strategies are business clusters e.g. CLEANTECH.

The National Rural Development Program of Denmark (RDP) allocates EUR 918.8m from EARDF.

<sup>88</sup> European Commission, 2015. [Public Procurement](#)

<sup>89</sup> In the Communication "Public procurement for a better environment" (COM/2008/400) the Commission recommended the creation of a process for setting common GPP criteria. The basic concept of GPP relies on having clear, verifiable, justifiable and ambitious environmental criteria for products and services, based on a life-cycle approach and scientific evidence base.

<sup>90</sup> Denmark, [Green Living](#)

<sup>91</sup> European Commission, 2015. [Documentation on National GPP Action Plans](#)

<sup>92</sup> European Commission, 2015. [Documentation on National GPP Action Plans](#)

<sup>93</sup> European Commission, 2015. [Documentation on National GPP Action Plans](#)

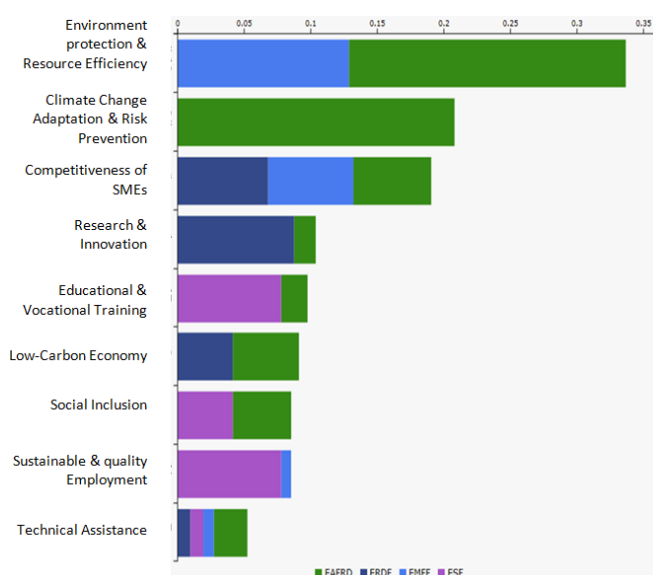
<sup>94</sup> ESIF comprises five funds – the European Regional Development Funds (ERDF), the Cohesion Fund (CF), the European Social Fund (ESF), the European Agricultural Fund for Rural Development (EAFRD), and the European Maritime and Fisheries Fund (EMFF). The ERDF, the CF and the ESF together form the Cohesion Policy funds.

<sup>95</sup> European Investment Bank, 2016 [European Fund for Strategic Investments](#)

The budget for agri-environment-climate measures represents 22.5% of the total EAFRD budget - of the approved RDP and, since DK does not propose to increase the allocation for agri-environment-climate measure, the relative contribution will therefore significantly decline, although there are other measures that contribute to restoring, preserving and enhancing ecosystems related to agriculture and forestry, as well as additional funds allocated to reducing ammonia emissions. Denmark does not activate the measure on compensation for restrictions emanating from implementation of Natura 2000 in the RDP.

Biodiversity financing in DK RDP is problematic since DK takes an "island" approach that does not consider areas outside Natura 2000, although these directly contribute to the objectives of Natura 2000, as well as the EU Biodiversity Strategy 2020. DK is committed to introducing measures to promote biodiversity in intensive agricultural areas.

**Figure 12: EU Structural & Investment Funds 2014-2020: Budget Denmark by theme, EUR billion<sup>96</sup>**



A small allocation exists to support high-nature value forests, and the reconversion of non-indigenous, non-resilient plantations to stands of native tree species.

The RDP includes measures for pasture management in high-nature value and Natura 2000 areas, as well as a measure for organic farming conversion and maintenance. However, the main focus of funding is not on biodiversity, but rather on tackling pollution. After the modification, the RDP is going to be one of the main instruments for voluntary measures on constructed mini-wetlands, to tackle nitrates pollution after the abolition of obligatory measures and the introduction of a new agricultural package. Currently, after adoption of the

agricultural package, there is no legal instrument, or any voluntary instrument (which would be anyway considered inadequate) to fill in the gap that exists to decrease nitrates pollution as necessary.

With regard to the integration of environmental concerns into the Common Agricultural Policy (CAP), the two key areas for Denmark (as for all Member States) are, first, using Rural Development funds to pay for environmental land management and other environmental measures, while avoiding financing measures which could damage the environment; and secondly, ensuring an effective implementation of the first pillar of the CAP with regard to cross compliance and 1st pillar 'greening'. 30% of direct payment envelope is allocated to greening practices beneficial for the environment. An environmentally ambitious implementation of 1st pillar greening would clearly help to improve the environmental situation in areas not covered by rural development, including intensive agricultural areas, and if appropriate Denmark could review its implementation of this.

For the year 2015 Denmark made it possible to use six elements laid down by the regulation as ecological focus areas (EFAs) out of a possible 18 elements. For example, from landscape features, only ponds and protected ancient elements can be declared by farmers as an EFA. On short rotation coppices as EFAs, fertiliser is allowed to be used and plant protection products are not allowed to be used. Denmark did not choose to implement EFA in the form of nitrogen fixing crops. As indicated by Denmark in informal exchanges, for the year 2016, only catch crops can be designated as an EFA. 20% of Natura 2000 grasslands were designated as environmentally sensitive, with nothing designated outside Natura 2000 areas, which is not an ambitious choice.

<sup>96</sup> European Commission, [European Structural and Investment Funds Data By Country](#)



## 5. Effective governance and knowledge

SDG 16 aims at providing access to justice and building effective, accountable and inclusive institutions at all levels. SDG 17 aims at better implementation, improving policy coordination and policy coherence, stimulating science, technology and innovation, establishing partnerships and developing measurements of progress.

Effective governance of EU environmental legislation and policies requires having an appropriate institutional framework, policy coherence and coordination, applying legal and non-legal instruments, engaging with non-governmental stakeholders, and having adequate levels of knowledge and skills<sup>97</sup>. Successful implementation depends, to a large extent, on central, regional and local government fulfilling key legislative and administrative tasks, notably adoption of sound implementing legislation, co-ordinated action to meet environmental objectives and correct decision-making on matters such as industrial permits. Beyond fulfilment of these tasks, government must intervene to ensure day-to-day compliance by economic operators, utilities and individuals ("compliance assurance"). Civil society also has a role to play, including through legal action. To underpin the roles of all actors, it is crucial to collect and share knowledge and evidence on the state of the environment and on environmental pressures, drivers and impacts.

Equally, effective governance of EU environmental legislation and policies benefits from a dialogue within Member States and between Member States and the Commission on whether the current EU environmental legislation is fit for purpose. Legislation can only be properly implemented when it takes into account experiences at Member State level with putting EU commitments into effect. The Make it Work initiative, a Member State driven project, established in 2014, organizes a discussion on how the clarity, coherence and structure of EU environmental legislation can be improved without lowering existing protection standards.

### Effective governance within central, regional and local government

Those involved in implementing environment legislation at Union, national, regional and local levels need to be equipped with the knowledge, tools and capacity to improve the delivery of benefits from that legislation, and the governance of the enforcement process.

### Capacity to implement rules

It is crucial that central, regional and local administrations have the necessary capacities and skills and training to carry out their own tasks and co-operate and co-ordinate effectively with each other, within a system of multi-level governance.



The Ministry of Environment and Food of Denmark includes the Department, the Danish AgriFish Agency and the Danish Veterinary and Food Administration, the Environmental Protection Agency, The Danish Nature Agency, the Danish Coastal Authority and the Agency for Water and Nature management. Three independent appeal boards are also linked to the Ministry including for environmental appeals (they have become part of the Ministry for Business and Growth since 1 January 2017). The Ministry itself is the political arm of the organisation with its main tasks being: policy development, minister related service and management. All parts of the ministry prepare and implement legislation.

The Environmental Protection Agency prepares legislation and guidelines and grants authorisations in several areas. Further duties include the monitoring of chemicals and offshore platforms.

Municipalities are responsible for granting permits and inspection of other enterprises and also carry out the majority of specific public sector duties. The municipalities are typically the point of contact for the general public and for companies wishing to access information on the environment.

The Danish regions are charged with the generation of regional development plans. They undertake special tasks in the areas of soil contamination and raw materials.

The 2013 European Quality of Government Index puts

<sup>97</sup> The Commission has work ongoing to improve the country-specific knowledge about quality and functioning of the administrative systems of Member States.

Denmark in first place out of the 28 Member States<sup>98</sup>.

Transposition and implementation of EU environmental legislation by Denmark has traditionally been good. In general, Denmark communicates the transposition legislation fast and the overall conformity of the Danish environmental legislation with the EU legislation is good.

The number of complaints and infringement cases concerning DK is low. The areas of concern are related to water management (e.g. timely adoption of River Basin Management Plans required by the Water Framework Directive) and air pollution (i.e. the compliance with limit values for air pollutants). The "agricultural package" which Denmark adopted in December 2015, is also subject to an investigation to make sure that it fulfils the requirements of the nitrates and water legislation.

### Coordination and integration

Impact assessments are important tools to ensure environmental integration in all government policies<sup>99</sup>. The Commission issued a guidance document in 2016<sup>100</sup> regarding the setting up of coordinated and/or joint procedures that are simultaneously subject to assessments under the EIA Directive, Habitats Directive, Water Framework Directive, and the Industrial Emissions Directive<sup>101</sup>.

### Compliance assurance

EU law generally and specific provisions on inspections, other checks, penalties and environmental liability help lay the basis for the systems Member States need to have in place to secure compliance with EU environmental rules.

Public authorities help ensure accountability of duty-holders by monitoring and promoting compliance and by taking credible follow-up action (i.e. enforcement) when breaches occur or liabilities arise. Compliance monitoring can be done both on the initiative of authorities themselves and in response to citizen complaints. It can involve using various kinds of checks, including inspections for permitted activities, surveillance for possible illegal activities, investigations for crimes and

audits for systemic weaknesses. Similarly, there is a range of means to promote compliance, including awareness-raising campaigns and use of guidance documents and online information tools. Follow-up to breaches and liabilities can include administrative action (e.g. withdrawal of a permit), use of criminal law<sup>102</sup> and action under liability law (e.g. required remediation after damage from an accident using liability rules) and contractual law (e.g. measures to require compliance with nature conservation contracts). Taken together, all of these interventions represent "compliance assurance" as shown in Figure 13.

Figure 13: Environmental compliance assurance



Best practice has moved towards a risk-based approach at strategic and operational levels in which the best mix of compliance monitoring, promotion and enforcement is directed at the most serious problems. Best practice also recognises the need for coordination and cooperation between different authorities to ensure consistency, avoid duplication of work and reduce administrative burden. Active participation in established pan-European networks of inspectors, police, prosecutors and judges, such as *IMPEL*<sup>103</sup>, *EUFJE*<sup>104</sup>, *ENPE*<sup>105</sup> and *EnviCrimeNet*<sup>106</sup>, is a valuable tool for sharing experience and good practices.

Currently, there exist a number of sectoral obligations on inspections and the EU directive on environmental liability (ELD)<sup>107</sup> provides a means of ensuring that the "polluter-pays principle" is applied when there are accidents and incidents that harm the environment. There is also publically available information giving insights into existing strengths and weaknesses in each Member State.

For each Member State, the following were therefore

<sup>98</sup> Dr Nicholas Charron, [European Quality of Government Index](#) 2013.

<sup>99</sup> Article 11 of the TFEU provides that "Environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development."

<sup>100</sup> European Commission, 2016. Commission notice — Commission guidance document on streamlining environmental assessments conducted under Article 2(3) of the Environmental Impact Assessment Directive (Directive 2011/92/EU of the European Parliament and of the Council, as amended by Directive 2014/52/EU).

<sup>101</sup> European Commission, 2016. Commission notice — [Commission guidance document on streamlining environmental assessments conducted under Article 2\(3\) of the Environmental Impact Assessment Directive](#) (Directive 2011/92/EU of the European Parliament and of the Council, as amended by Directive 2014/52/EU).

<sup>102</sup> European Union, [Environmental Crime Directive 2008/99/EC](#)

<sup>103</sup> [European Union Network for the Implementation and Enforcement of Environmental Law](#)

<sup>104</sup> [European Union Forum of judges for the environment](#)

<sup>105</sup> [The European Network of Prosecutors for the Environment](#)

<sup>106</sup> [EnviCrimeNet](#)

<sup>107</sup> European Union, [Environmental Liability Directive 2004/35/CE](#), p.56

reviewed: use of risk-based compliance assurance; coordination and co-operation between authorities and participation in pan-European networks; and key aspects of implementation of the ELD based on the Commission's recently published implementation report and REFIT evaluation<sup>108</sup>.

Planning of environmental compliance monitoring based on risk-based approaches is widely used in Denmark, in particular in relation to inspections of industrial installations<sup>109</sup>. Inspection guidance is in place and efforts have been done to develop a performance assessment framework focussing on specific environmental problems reflecting the competent authority's strategic priorities<sup>110</sup>. Some data collection arrangements which allow following trends and better targeting compliance assurance are established<sup>111</sup>. Municipalities are mainly in charge of inspection in the Danish de-centralised system<sup>112</sup>. Compliance promotion activities are conducted at regional and local level and mechanisms for a dialogue with the regulated community are in place<sup>113</sup>. Denmark is active within IMPEL, in particular in its Expert Team 'Land & Water'.

As regards enforcement, the set of sanctions applicable to environmental offences is not flexible enough to respond to different types of non-compliance behaviour and significant differences in sanctions application across the country have been observed<sup>114</sup>.

Up-to-date information is lacking in relation to the following:

- the extent to which risk-based methods are used to

direct compliance assurance in relation to critical activities outside of industrial installations, especially specific problem-areas highlighted elsewhere in this Country Report, poor air quality and the pressures on water quality from diffuse sources of pollution<sup>115</sup>.

- arrangements for cooperation and coordination between different municipal inspection authorities and between them and other authorities with relevant competencies.
- how the Danish authorities ensure a targeted and proportionate response to different types of non-compliant behaviour, in particular in relation to serious breaches detected, given indications that there is a low probability of being criminally prosecuted and sentenced for environmental offences and that fines cannot be imposed through administrative proceedings.

Concerning the ELD, the Danish authorities have issued a comprehensive guidance document with regard to the application of the directive especially focusing on the understanding of the term 'environmental damage'. For the period 2007-2013, however Denmark did not report any instance of environmental damage or imminent threat that was handled under the Environmental Liability Directive, suggesting that the Danish authorities apply a high bar before the Directive is considered applicable and that alternative instruments, which were in force prior to the directive, have been considered sufficient in the concrete cases. It is not mandatory for operators to take out insurance covering incidents under the ELD. The Danish State has encouraged the insurance industry to develop appropriate insurance products but there is no evidence to what degree such insurance policies have been taken out.

### Suggested action

- Improve transparency on the organisation and functioning of compliance assurance and on how significant risks are addressed, as outlined above.
- Encourage greater participation of competent authorities in the activities of ENPE, EUFJE and EnviCrimeNet.
- Take further steps to encourage the insurance industry to further develop and popularize insurance instruments covering environmental damage under the ELD.

<sup>108</sup> [COM\(2016\)204 final](#) and [COM\(2016\)121 final](#) of 14.4.2016. This highlighted the need for better evidence on how the directive is used in practice; for tools to support its implementation, such as guidance, training and ELD registers; and for financial security to be available in case events or incidents generate remediation costs.

<sup>109</sup> Study on 'Assessment and summary of the Member States' implementation reports for the IED, IPPCD, SED and WID. Industrial Emissions Directive, 2016, Amec Foster Wheeler Environment&Infrastructure UK Ltd in collaboration with Milieu Ltd, p. 187.

<sup>110</sup> Mazur, E. (2010), Outcome Performance Measures of Environmental Compliance Assurance: Current Practices, Constraints and Ways Forward, OECD Environment Working Papers, No 18, OECD Publishing, p. 10.

<sup>111</sup> For instance, an OECD study highlights statistics showing the trends in non-compliance among waste-water treatment plants and illustrating the positive impact of compliance measures on the behaviour of the regulated entities, *ibid*, p. 38-39.

<sup>112</sup> There are indications that municipalities suffer budget constraints and sometimes lack the expertise to inspect complex industrial installations. See 'Study into Possible Options for Revising Recommendation 2001/331/EC providing for minimum criteria for environmental inspections', COWI/Ecorys, 2011, p. 186-188.

<sup>113</sup> *Ibid*, p. 189.

<sup>114</sup> See 'Study into Possible Options for Revising Recommendation 2001/331/EC providing for minimum criteria for environmental inspections', COWI/Ecorys, 2011, p. 187 and '[Comparative study of pressures and measures in the major River Basin Management Plans](#)', Section Governance, 2012, p. 49.

<sup>115</sup> Some issues have been identified also in relation to control of water abstraction European Court of Auditors, Special Report No 4, 2014, Integration of EU water policy objectives with the CAP: a partial success, p. 35.

## Public participation and access to justice

The Aarhus Convention, related EU legislation on public participation and environmental impact assessment, and the case-law of the Court of Justice require that citizens and their associations should be able to participate in decision-making on projects and plans and should enjoy effective environmental access to justice.

Citizens can more effectively protect the environment if they can rely on the three "pillars" of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters ("the Aarhus Convention"). Public participation in the administrative decision making process is an important element to ensure that the authority takes its decision on the best possible basis. The Commission intends to examine compliance with mandatory public participation requirements more systematically at a later stage.

Access to justice in environmental matters is a set of guarantees that allows citizens and their associations to challenge acts or omissions of the public administration before a court. It is a tool for decentralised implementation of EU environmental law.

For each Member State, two crucial elements for effective access to justice have been systematically reviewed: the legal standing for the public, including NGOs and the extent to which prohibitive costs represent a barrier.

Denmark provides excellent public participation and generally an effective access to justice in environmental matters. The public may, however, face problems obtaining legal standing when an authority refuses to intervene in case of an unlawful activity<sup>116</sup>.

### Suggested action

- Take the necessary measures to ensure that the costs of legal challenges involving EU environmental law are not prohibitively expensive, and in line with the requirements of EU law as well as the Aarhus Convention.

## Access to information, knowledge and evidence

The Aarhus Convention and related EU legislation on access to information and the sharing of spatial data require that the public has access to clear information on the environment, including on how Union environmental law is being implemented.

It is of crucial importance to public authorities, the public

and business that environmental information is shared in an efficient and effective way. This covers reporting by businesses and public authorities and active dissemination to the public, increasingly through electronic means.

The Aarhus Convention<sup>117</sup>, the Access to Environmental Information Directive<sup>118</sup> and the INSPIRE Directive<sup>119</sup> together create a legal foundation for the sharing of environmental information between public authorities and with the public. They also represent the green part of the ongoing EU e-Government Action Plan<sup>120</sup>. The first two instruments create obligations to provide information to the public, both on request and actively. The INSPIRE Directive is a pioneering instrument for electronic data-sharing between public authorities who can vary in their data-sharing policies, e.g. on whether access to data is for free. The INSPIRE Directive sets up a geoportal which indicates the level of shared spatial data in each Member State – i.e. data related to specific locations, such as air quality monitoring data. Amongst other benefits it facilitates the public authorities' reporting obligations.

For each Member State, the accessibility of environmental data (based on what the INSPIRE Directive envisages) as well as data-sharing policies ('open data') have been systematically reviewed.

Denmark's performance on the implementation of the INSPIRE Directive as enabling framework to actively disseminate environmental information to the public leaves room for improvement. Denmark has indicated in the 3-yearly INSPIRE implementation report<sup>121</sup> that the necessary data-sharing policies allowing access and use of spatial data by national administrations, other Member States' administrations and EU institutions without procedural obstacles are available and implemented. Denmark is implementing a common public data infrastructure with common public data-sharing policies based on open data principles.

Assessments of monitoring reports<sup>122</sup> issued by Denmark and the spatial information that Denmark has published on the INSPIRE geoportal<sup>123</sup> indicate that not all spatial information needed for the evaluation and implementation of EU environmental law has been made available or is accessible. The larger part of this missing spatial information consists of the environmental data required to be made available under the existing

<sup>117</sup> European Union, [Directive 2003/4/EC on public access to environmental information](#)

<sup>118</sup> European Union, [INSPIRE Directive 2007/2/EC](#)

<sup>119</sup> European Commission, 2016. [INSPIRE Directive](#)

<sup>120</sup> European Union, EU eGovernment Action Plan 2016-2020 - Accelerating the digital transformation of government [COM\(2016\) 179 final](#)

<sup>121</sup> European Commission, [INSPIRE reports](#)

<sup>122</sup> [Inspire indicator trends](#)

<sup>123</sup> [Inspire Resources Summary Report](#)

<sup>116</sup> European Commission, [2012/2013 access to justice in environmental matters in 2012/2013](#)

reporting and monitoring regulations of EU environmental law.

#### Suggested action

- Identify and document all spatial data sets required for the implementation of environmental law, and make the data and documentation at least accessible 'as is' to other public authorities and the public through the digital services foreseen in the INSPIRE Directive.