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The EU Environmental Implementation Review
Country Report - GERMANY

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

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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[1]. 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[2] and refer to the 2030 Agenda for Sustainable development and related Sustainable Development Goals (SDGs)[3] to the extent to which they reflect the existing obligations and policy objectives of EU environmental law[4].

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

Germany has a strong set of environmental policies and laws. In general there is good implementation of EU environmental law and the government follows a proactive strategy in developing comprehensive environmental policies at the national level. The move towards a circular economy is characterised by high recycling rates, no landfill, high worldwide demand for German technology and good eco-innovation performance.

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

Main Challenges

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

- Improve air quality (NO_x, PM_{10}) which could contribute considerably to improving citizens' health and quality of life.
- Address water pollution in particular by nitrates to improve the groundwater quality and the water quality in the Baltic and the North Sea.
- Complete the designation process for Special Areas of Conversation and put in place clearly defined conservation objectives and measures for the site and provide adequate resources.

Main Opportunities

Germany could perform better on topics where there is already a good knowledge base and good practices. In particular Germany could:

- Take further steps to reduce environmentally harmful subsidies.
- Improve **cooperation between the different Länder** to better achieve the objectives for the marine environment.

Points of Excellence

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

- High recycling rate of municipal waste, no landfill
- Advanced approach as regards Green Infrastructure, with a national Green Infrastructure concept (planned), a Federal Blue Ecological network Programme (planned) and the Emscher valley restoration project as an example
- The Sustainable Development Strategy with its goal to limit land take rate (30 ha/d) until 2020.

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

[2] 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".

[3] United Nations, 2015. The Sustainable Development Goals

[4] This EIR report does not cover climate change, chemicals and energy.

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[5].

The circular economy concept increasingly permeates into Germany's political programmes and objectives. In 2002, the Federal Government had already embedded the goal to double the German resource productivity (how efficiently the economy uses material resources to produce wealth) by 2020 compared to 1994 in its sustainable development strategy.

In 2012 Germany set up its ProgRess programme[6] in order to promote resource efficiency. To reach the aim of decupling economic growth from the use of resources it contains guiding principles and concrete actions. A coordinated implementation is followed by a national platform ("Nationale Plattform Ressourceneffizienz" (NaRess)) which includes representatives from the economy as well as environmental and consumer organisations and trade unions. Information most relevant to SME are provided by the VDI Centre for Resource Efficiency (VDI ZRE), a competence centre of the Association of German Engineers working on behalf of the Federal Ministry of the Environment, Nature Safety, Building and Nuclear Safety (BMUB). In March 2016, the federal government adopted a successor programme, ProgRess II (2016-2019), which encompasses a total of 123 different resource efficiency measures and aims to decisively contribute to the transition towards a circular economy. The waste and circular economy policy realm remains a focus area but aspects of "sustainable building and sustainable urban development" as well as "resource efficiency of information and communications technology (ICT) products" have been taken up in ProgRess II. This approach to resource efficiency at the national level is supported by additional programmes, measures and actions at regional level.

The German green tech sector is expected to continue developing dynamically in the coming years and the market for environmental technology and resource efficiency is estimated to be worth EUR 344 billion, of which material efficiency covers EUR 48 billion and waste management and recycling encompasses EUR 17 billion. Until 2025 the domestic green tech market is expected to rise up to a volume of EUR 740 billion, while annual growth in the German environmental technology and resource efficiency sector is likely to average 6.6 percent during this period[7].

There is high demand for German technology and know-how worldwide. German companies have, for example, a global market share of 64% in technologies for the automated separation of materials, such as the optical and sensor based identification and separation of various plastic fractions in waste. By 2020, annual growth of 15% for waste sorting technologies is expected and the waste market is expected to grow at least 3% annually[8].

Employment in the environmental goods and services sector has increased by 101,680 full-time equivalents (FTE) in 2007 to 490,558 FTE in 2012[9].

As as regards resource productivity[10] (how efficiently the economy uses material resources to produce wealth) Germany (2014) is with 2.17 EUR/kg in the mid-range of

[5] European Commission, 2015. Proposed Circular Economy Package

[6] Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) Germany: Deutsches Ressourceneffizienzprogramm (ProgRess) February 2012

[7] Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) Germany "GreenTech made in Germany 4.0" July 2014

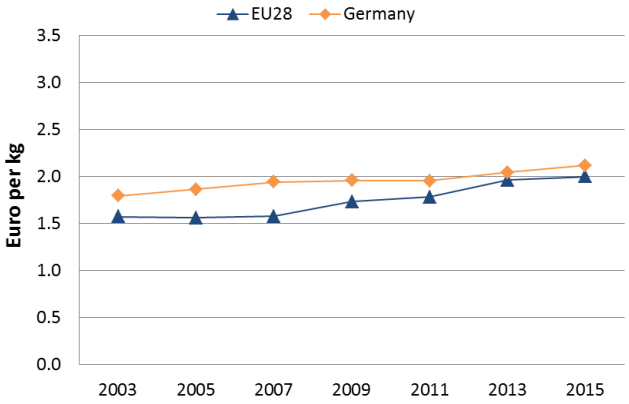
[8] Eco-innovation Observatory: Eco-Innovation scoreboard 2015

[9] Eurostat, Employment in the environmental goods and services sector, accessed June 2016

[10] Resource productivity is defined as the ratio between gross domestic product (GDP) and domestic material consumption (DMC).

all member states (EU average: 2.09 EUR/kg) due to its export-oriented economy. Figure 1 shows a modest but stable increase in resource productivity since 2003.

Figure 1: Resource productivity 2003-15[11]



SMEs and resource efficiency

In the Flash 426 Eurobarometer "SMEs, resource efficiency and green markets" it is shown that 54% of Germany's SMEs have invested up to 5% of their annual turnover in their resource efficiency actions (EU28 average 50%), 31% of them are currently offering green products and services (EU28 average 26%), 62% took measures to save energy (EU28 average 59%), 42% to minimise waste (EU28 average 60%), 32% to save water (EU28 average 44%), and 45% to save materials (EU28 average 54%). From a circular economy perspective, 38% took measures to recycle by reusing material or waste within the company (EU28 average 40%), 12% to design products that are easier to maintain, repair or reuse (EU28 average 22%) and 22% were able to sell their scrap material to another company (EU28 average 25%).

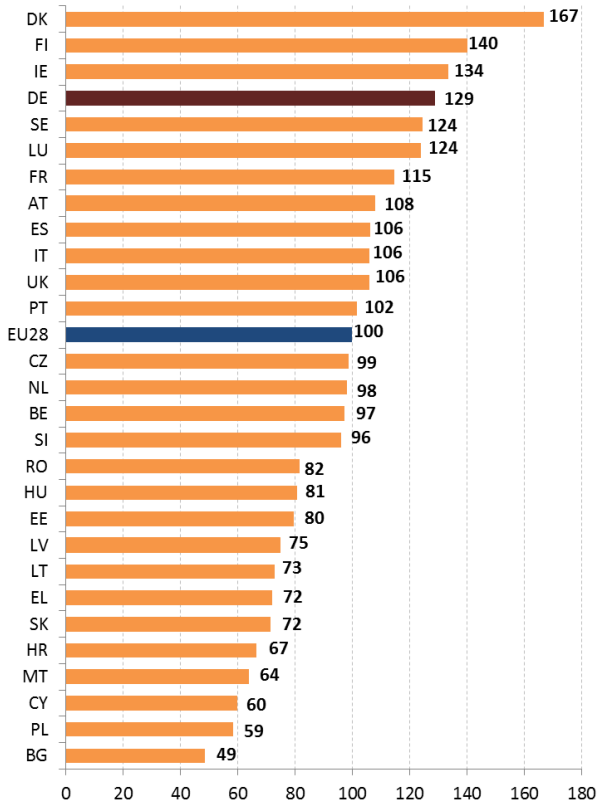
According to the Flash 426 Eurobarometer, the resource efficiency actions undertaken allowed the reduction of production costs in 45% of the Germany's SMEs (EU28 average 42%).

The Flash 426 Eurobarometer "SMEs, resource efficiency and green markets" shows that 27% of the SMEs in Germany have one or more full time employee working in a green job at least some of the time (EU28 average 35%). Germany has an average number of 2.0 full time green employees per SME (EU28 average 1.7%)[12].

According to recent research[13] new policy instruments that go beyond the existing legal waste instruments are still required on all different levels. Such instruments could include product design which enables recycling, or the support of business models that contribute to waste prevention. The regulatory framework needs strengthening as circular economy policy is not consistent due to too many coexisting schemes that are designed according to the classical linear system, e.g., concerning the transport of construction and demolition waste to be reused as resources. Unclear and overlapping responsibilities among various federal levels and ministries are another barrier in this context. This also includes the question of the relation and responsibilities of municipalities and private waste companies that are not organised from a long-term circular economy perspective but rather as to short-term market shares and competition.

Eco-Innovation

Figure 2: Eco-Innovation Index 2015 (EU=100)[14]



Germany has the fourth highest eco-innovation (EI) performance in the EU according to the 2014-15 Eco-Innovation Scoreboard.

Germany has 1200 EMAS registered organisations[15], which makes it the biggest achiever in terms of EMAS in

[11] Eurostat, Resource productivity, accessed October 2016

[12] 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).

[13] Wilts, H., 2016, Nachhaltige Innovationsprozesse in der kommunalen Abfallwirtschaftspolitik – eine vergleichende Analyse zum Transition Management städtischer Infrastrukturen in deutschen Metropolregionen

[14] Eco-innovation Observatory: Eco-Innovation scoreboard 2015

[15] Eurostat: Organisations and sites with eco-management and audit scheme (EMAS) registration, 2015

the EU. Indeed, it represents 30% of the total registration (3921).

Suggested action

- Further strengthen the existing circular economy policy framework.

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.

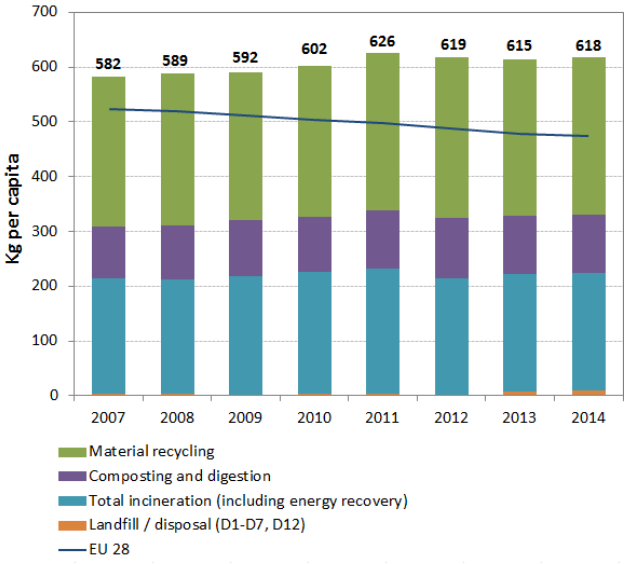
The EU's approach to waste management is based on the "waste hierarchy" which sets out an order of priority when shaping waste policy and managing waste at the operational level: prevention, (preparing for) reuse, recycling, recovery and, as the least preferred option, disposal (which includes landfilling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

The progress towards reaching recycling targets and the adoption of adequate WMP/WPP[16] 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.

Municipal waste[17] generation has remained practically at the same level (618 kg/y/inhabitant in 2014, the last year for which data is available) in Germany in the last three years. The figure increased slightly between 2008 and 2010 and remained stable in 2011 and 2012, a rate higher than the EU average[18] (474 kg/y/inhabitant) as shown in Figure 3.

Figure 3 depicts the municipal waste by treatment in Germany in terms of kg per capita, which shows that recycling is the most common treatment operation and that recycling, composting and landfilling has remained practically the same during the last years.

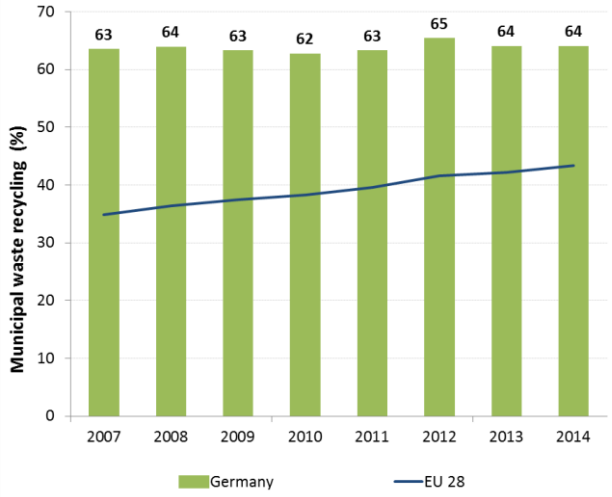
Figure 3: Municipal waste by treatment in Germany 2007-14[19]



Germany is among the top performers in the EU with regard to waste management with high recycling of municipal solid waste (64%) and very low landfilling (0.3%). The incineration rate (including energy recovery) stands at 35%.

Figure 4 shows that Germany has already reached the EU 2020 recycling target[20] and is well above the EU average of 44%.

Figure 4: Recycling rate of municipal waste 2007-14[21]



In order to meet the proposed future targets (65% recycling of municipal waste and between 55% and 85% for packaging waste by 2030) (COM(2015)595, 594), and

[16] Waste Management Plans/Waste Prevention Programmes

[17] Municipal waste consists of waste collected by or on behalf of municipal authorities, or directly by the private sector (business or private non-profit institutions) not on behalf of municipalities.

[18] In the EIR we are referring to the data MS annually report to ESTAT on the basis of the Joint Questionnaire which provides for a common base line.

[19] Eurostat, Municipal waste and treatment, by type of treatment method, accessed October 2016

[20] 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.

[21] Eurostat, Recycling rate of municipal waste, accessed October 2016

to fully implement the waste hierarchy, future efforts should be related to further increasing recycling rates and reducing energy recovery of recyclable waste. In 2005 measures were taken to effectively ban landfilling of waste with a high calorific value. Extended Producer Responsibility (EPR) systems are in place for different waste streams.

Incentive systems to favour prevention and participation in separate collection (Pay as you through - PAYT) schemes are in place but not across the whole country. Where they are in place they are highly efficient.

Germany has 16 regional waste management plans, two of them are outdated and currently under review.

Suggested action

- Introduce new economic instruments to implement further the waste hierarchy, i.e. promote prevention, make reuse and recycling more economically attractive, and shift reusable and recyclable waste away from incineration.
- The cost effectiveness of the EPR systems in place should be further analysed and improved if required.
- Complete missing Waste Management Plans in order to cover the whole territory.

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.

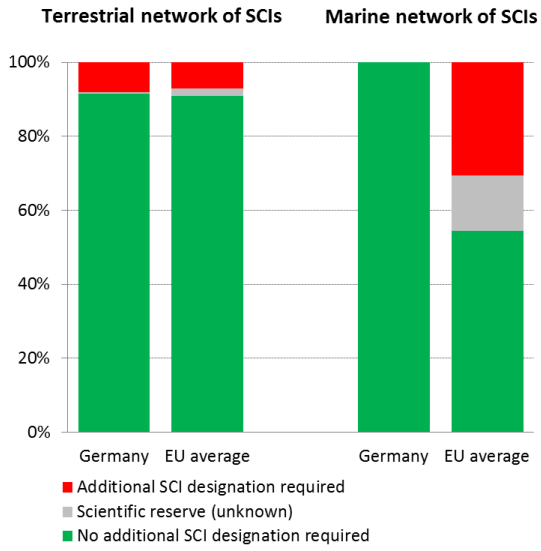
The 1992 EU Habitats Directive and the 1979 Birds Directive are the cornerstone of the European legislation aimed at the conservation of the EU's wildlife. Natura 2000, the largest coordinated network of protected areas in the world, is the key instrument to achieve and implement the Directives' objectives 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 Ares 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[22] both in land and at sea, should be the key items to measure the performance of Member States.

By early 2016, 15.4% of the national land area of Germany is covered by Natura 2000 (EU average 18.1%), with Birds Directive Special Protection Areas (SPAs) covering 11.3% (EU average 12.3%) and Habitats Directive SCIs covering 9.4% (EU average 13.8%).

The latest assessment of the Natura 2000 network shows that there are minor insufficiencies in SCIs designation for the terrestrial component of the network in a limited number of Länder[23] as shown in Figure 5[24].

Figure 5: Sufficiency assessment of SCI networks in Germany based on the situation until December 2013 (%)[25]



By the end of 2015, Germany designated 71,9% of the sites of community interests as Special Areas of Conservation (SACs) according to Art. 4(4) of the Habitats Directive and established conservation objectives as well as management measures in order to achieve or maintain a good conservation status according to Art. 6(1) in 55,1% of the SACs. These failures are now subject to an infringement procedure.

Nature protection in Germany falls within the competence of 16 'Länder' and the Exclusive Economic Zone (EEZ) is in the competence of the Federal State.

According to the latest report on the conservation status of habitats and species covered by the Habitats Directive[26], 28% of the habitats' biogeographic assessments were favourable in 2013 (EU 27: 16 %). On the other hand, 39 % are considered to be unfavourable–

[22] 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.

[23] 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.

[24] 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 biographical 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.

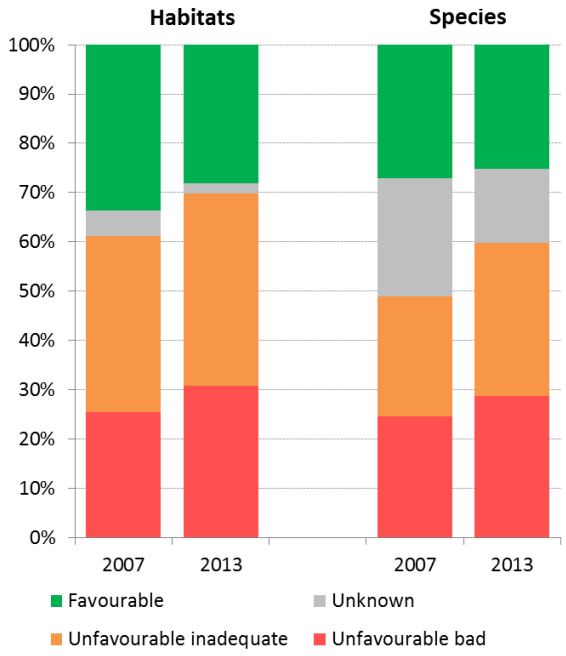
[25] European Commission, internal assessment.

[26] The core of the 'Article 17' report is the assessment of conservation status of the habitats and species targeted by the Habitats Directive.

inadequate[27] (EU27: 47%) and 31 % are unfavourable – bad (EU27: 30%). As for the species, 25 % of the assessments were favourable in 2013 (EU27: 23%) 31 % at unfavourable-inadequate (EU27: 42%) and 29% unfavourable-bad status (EU27: 18%). This is depicted in Figure 6[28]. Furthermore, 27% and 29.7 % of the unfavourable assessments respectively for species and habitats were showing a positive trend in 2013.

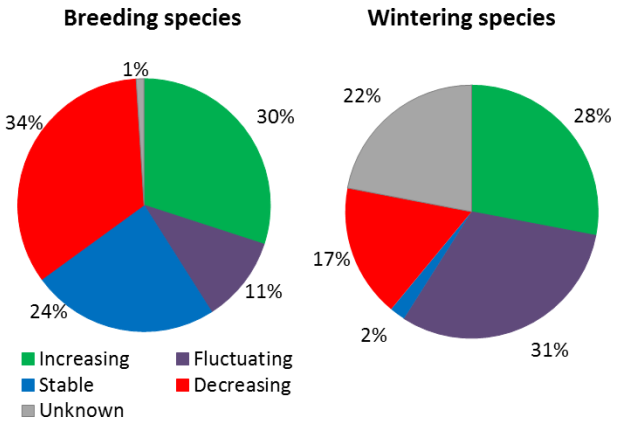
Main pressures come from agriculture in relation to changes of agricultural practices and intensification. The agricultural sector benefits from various exemptions from many nature protection regulations[29].

Figure 6: Conservation status of habitats and species in Germany in 2007/2013 (%)[30]



According to the official report submitted by Germany under Article 12 of the Birds Directive[31], 54% of the breeding species showed short-term increasing or stable population trends (for wintering species this figure was 30%) as shown in Figure 7.

Figure 7: Short-term population trend of breeding and wintering bird species in Germany in 2012 (%)[32]



Suggested action

- Complete the Natura 2000 designation process and put in place clearly defined conservation objectives and 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.
- Develop and promote smart and streamlined implementation approaches, in particular as regards site and species permitting procedures, ensuring the necessary knowledge and data availability and strengthen communication with stakeholders.
- Ensure that pressures coming from agriculture are adequately addressed and that this sector fully applies the nature protection law.

Estimating Natural Capital

The EU Biodiversity Strategy to 2020 calls on the Member States to map and asses 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.

Initial valuations have been carried out and tested, e.g. in the framework of "Natural Capital Germany – TEEB DE"[33], the German follow-up project to the international TEEB study (TEEB – The Economics of Ecosystems and

[27] 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.

[28] Please note that a direct comparison between 2007 and 2013 data is complicated by the fact that Bulgaria and Romania were not covered by the 2007 reporting cycle, that the 'unknown' assessments have strongly diminished particularly for species, and that some reported changes are not genuine as they result from improved data / monitoring methods.

[29] For example activities under "good agricultural land use" and "good farming practice" are exempted from the protection regime of the national nature protection law in the 'Länder'.

[30] 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 biographical region with the Member State), respectively. The information is based on Article 17 of the Habitats Directive reporting - national summary of Germany

[31] Article 12 of the Birds Directive requires Member States to report about the progress made with the implementation of the Birds Directive.

[32] Article 12 of the Birds Directive reporting - national summary of Germany

[33] Naturkapital Deutschland – TEEB DE (2016): Ökosystemleistungen in der Stadt - Gesundheit schützen und Lebensqualität erhöhen. Hrsg. von Ingo Kowarik, Robert Bartz und Miriam Brenck. Technische Universität Berlin, Helmholtz-Zentrum für Umweltforschung – UFZ. Berlin, Leipzig.

Biodiversity), which analyses, with the aid of case studies, the interactions between ecosystem services[34], value added by economic activity, and human wellbeing.

A scoping study for a National Assessment of Ecosystems and their Services in Germany (NEA-DE) has been undertaken by an interdisciplinary team. The Ecosystem Services Partnership Germany (ESP-DE) is an initiative of the scientific community to develop new strategic partnerships between researchers and practitioners to apply the concept of ecosystem services in favour of the protection and sustainable use of natural resources.

The Federal Environment Ministry initiated several research studies and projects in this field (development of nation-wide indicators, physical mapping of Ecosystem Services, valuation of Cultural Ecosystem Services, integration of Ecosystem Services into the national environmental accounting).

Suggested action

- Engage all administrative levels and 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[35] 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 national Green Infrastructure concept will be published in Germany in 2017. All relevant federal nature conservation strategies, objectives and concepts will be brought together in a single document to improve the integration of nature conservation policy in all federal activities, e.g., flood protection, federal transport infrastructure and energy networks.

Germany's National Natural Heritage scheme covers outstanding natural and cultural landscapes of national conservation interest. About 155,000 ha should be transferred to Länder, the German Federal Environmental Foundation, nature conservation organisations or foundations to be conserved in perpetuity.

In 2012, the German government adopted the Federal Defragmentation Programme (Bundesprogramm Wiedervernetzung) aimed at maintaining and restoring Green Infrastructure across the national German road network. The programme aims to reconnect habitat corridors for flora and fauna focussing primarily on the existing road network, but also on new planned federal roads, nature conservation and landscape management as well as integrated spatial planning to facilitate the reconnection of a national biotope network.

In 2009, Germany presented a Status Report on German Floodplains, which documented their dramatic decline. The German Government is preparing a Federal Blue Ecological Network Programme (Bundesprogramm Blaues Band Deutschland), which will deal with the restoration of rivers and floodplains in Germany. The

[34] Ecosystem services are benefits provided by nature such as food, clean water and pollination on which human society depends.

[35] European Union, Green Infrastructure — Enhancing Europe's Natural Capital, COM/2013/0249

Blue Ecological Network was inspired by the European Green Belt initiative. The German stretch of the Green Belt, previously the border between East and West Germany, is part of the national natural heritage and has since become a valuable biotope network running through the country.

An important initiative for Green Infrastructure in urban areas started in June 2015 with the "Green in Cities - for a liveable future" conference at which a "green paper[36]" was presented outlining the importance and multiple functions of urban green infrastructure as well as current challenges and perspectives related to it. A planned "white paper" will recommend actions to be taken to improve Green Infrastructure in the German urban areas.

For the future, the main challenges relate to the systematic integration of Green Infrastructure in the planning, financing and implementation of development schemes in both urban and rural areas.

Germany is at the forefront of applying innovative green infrastructure solutions to address some of the challenges faced by stagnating and shrinking metropolitan regions. The approach recognizes the potential of city green to improve the urban environment and quality of life, and to counteract decay as residential and industrial areas decline. The Emscher valley restoration project in the Ruhr area of Germany provides an inspiring example of how ecological restoration can be a driver for renewal in post-industrial landscapes. Over more than 25 years the towns and cities in the region, together with private business, have invested billions of EUR in restoring a landscape that was previously the centre of the coal and steel industries. The focal point for the restoration work was the river Emscher that for decades had been covered over and used essentially as a waste canal. The river is now open to the sky and pollution has been dramatically reduced. Some of the buildings of the steel and coal industries have been transformed into cultural centres hosting international events; there is a long-distance cycle path and a marina. The Emscher development has given rise to over one thousand jobs and has provided the focal point for the economic and social renewal of the entire region[37].

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 0.21% in Germany over the period 2006-12, below the EU average (0.41%), It represented 7224 hectares per year and was mainly driven by the sprawl of industrial and commercial sites[38]. The percentage of built up land in 2009 was 5.06%, as well above the EU average percentage (3.23%)[39].

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

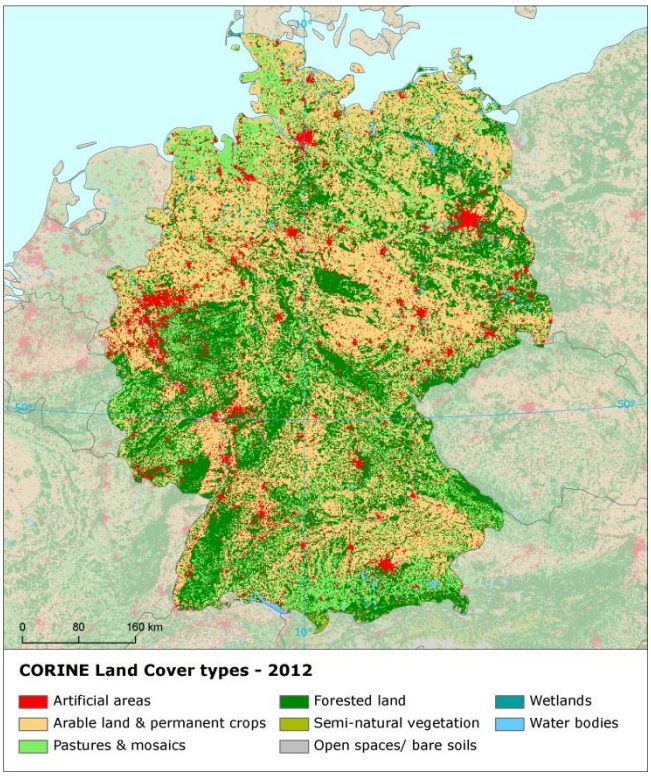
[36] Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (BMUB), 2015. Grün in der Stadt –Für eine lebenswerte Zukunft

[37] Emschergenossenschaft, 2016. Generationenprojekt Emscher-Umbau. Information in English provided by the Danish Architecture Centre.

38 European Environment Agency Draft results of CORINE Land Cover (CLC) inventory 2012; mean annual land take 2006-12 as a % of 2006 artificial land.

[39] European Environment Agency, 2016. Imperviousvalenvness and imperviousness change

Figure 8: Land Cover types in Germany 2012[40]



In 2002 the German National Sustainable Development Strategy set the goal to cut down average daily land take figure from 130 hectares of land between 1997 and 2000 to 30 hectares by the year 2020. In 2008 to 2012 the daily soil loss went down to 74 hectares; in 2012 it amounted to 69 hectares.

The soil erosion rate in 2010 was with 1.25 tonnes per ha and per year below EU28 average (2.46 tonnes)[41].

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 Germany and other EU Member States is being performed by the EU 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)[42] aims to achieve Good Environmental Status (GES)[43] 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 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 was to establish a Programme of Measures (2016). The Commission assesses whether these elements constitute an appropriate framework to meet the requirements of the MSFD.

Despite an ambitious objective on non-indigenous species (aiming at zero introduction of new non-indigenous species) good environmental status and environmental targets are sufficiently specific and quantitatively defined not for all descriptors[44]. It is therefore too early to say whether German marine waters are in a good state as there were weaknesses in identifying what a "good environmental status" is in the first place.

Germany also established a monitoring programme of its marine waters in 2014. However, it seems that its monitoring programme needs further refinement and development to constitute an appropriate framework to monitor progress towards Good Environmental Status. Many descriptors are expected to be adequately addressed by the national monitoring programmes only by 2018[45].

German marine protected areas covered 25,670 square kilometres of its marine waters, with 7969.1 square kilometres in the Baltic Sea and 17,701.2 square kilometres in the North Sea[46].

[40] European Environment Agency, Land cover 2006 and changes country analysis [publication forthcoming]

[41] Eurostat, Soil water erosion rate, Figure 2, accessed November 2016

[42] European Union, Marine Strategy Framework Directive 2008/56/EC

[43] The MSFD Directive 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"

[44] Report from the Commission "The first phase of implementation of the Marine Strategy Framework Directive (2008/56/EC) - The European Commission's assessment and guidance" COM(2014)097 and COM(2014)097 final

45 . 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)

[46] 2012 Data provided by the European Environmental Agency to the European Commission– Not published

Suggested action

- Continue work to improve the definitions of GES in particular for biodiversity descriptors, including through regional cooperation by using the work of the relevant Regional Sea Conventions.
- Address knowledge gaps.
- Further develop approaches assessing (and quantifying) impacts from the main pressures in order to lead to improved and more conclusive assessment results for 2018 reporting.
- Continue to integrate existing monitoring programmes required under other EU legislation and to implement joint monitoring programmes developed at (sub) regional level, for instance by the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) and Convention on the Protection of the Marine Environment of the Baltic Sea Area (HELCOM).
- Continue and to enhance comparability and consistency of monitoring methods within its marine (sub-) regions.
- Enhance the cohesion between approaches in the Member State's two marine regions.
- Ensure that all of the monitoring programme is implemented without delay, and is appropriate to monitor progress towards its GES.

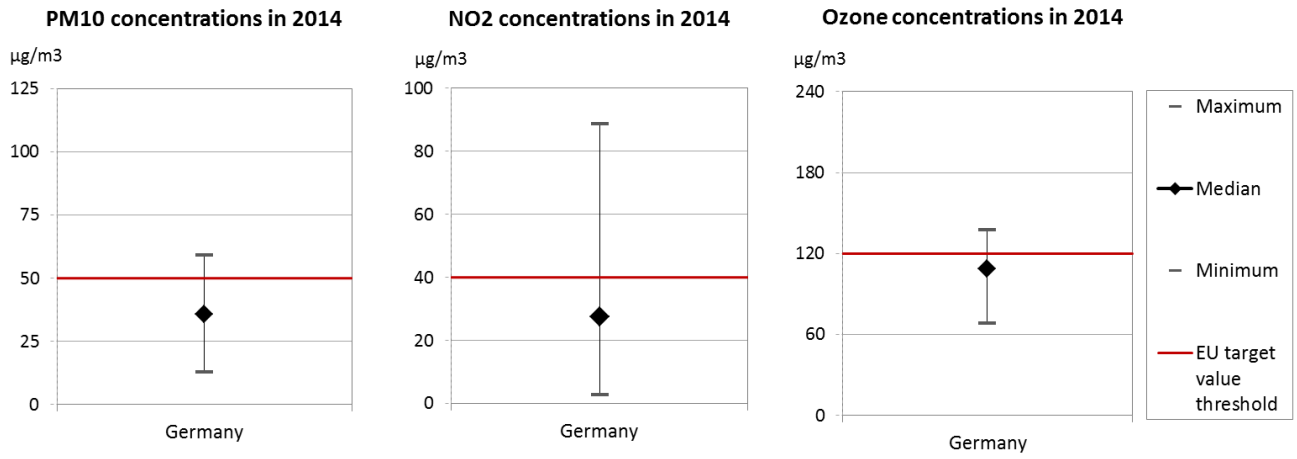
3. Ensuring citizens' health and quality of life

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[47], which establishes health-based standards and objectives for a number of air pollutants.

Figure 9: Attainment situation for PM_{10}, NO_2 and O_3 in 2014



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 Germany[48]. Reductions between 1990 and 2014 for sulphur oxides (-93%) ensure air emissions for this pollutant to be within currently applicable national emission ceilings[49]. Despite emissions reductions were recorded for nitrogen oxides (-58%), volatile organic compounds (-69%) and ammonia (-7%), total emissions for these pollutants are above current ceilings. 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 emission ceiling partly results from the reporting of new sources of emissions which were not estimated or considered at the time when the emission ceilings were set. The exceedance of the nitrogen oxides emission ceiling is partly due to the actual driving emissions of these pollutants from diesel vehicles.

Despite these reductions in the emissions of air pollutants, air quality in Germany continues to give cause for concern. For the year 2013, the European Environment Agency estimated that about 73 400 premature deaths were attributable to fine particulate matter[50] concentrations, 2 500 to ozone[51] concentration

[47] European Commission, 2016. Air Quality Standards

[48] See EIONET Central Data Repository and Air pollutant emissions data viewer (NEC Directive)

[49] 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.

[50] Particulate matter (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, and is formed from gaseous pollutants in the air (secondary PM).

[51] Low ground-level ozone is produced by photochemical action on air pollutants and is also a greenhouse gas.

and over 10 610 to nitrogen dioxide[52] concentrations[53]. This is due also to exceedances above the EU air quality standards such as shown in Figure 9[54].

For 2014, exceedances above the EU air quality standards have been registered related to nitrogen dioxide (NO_2) in 34 air quality zones. Exceedances have also been registered related particulate matter (PM_{10}) in eight air quality zones. Furthermore, the target values regarding ozone concentrations are not being met in several air quality zones[55].

The persistent breaches of air quality requirements (for PM_{10} and NO_2), which have severe negative effects on health and environment, are being followed up by the European Commission through infringement procedures covering all the Member States concerned, including Germany. 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 Germany are above EUR 58 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 27 million workdays lost each year due to sickness related to air pollution, with associated costs for employers of EUR 3 500 million/year (income adjusted, 2010), for healthcare of above EUR 240 – 466 million/year (income adjusted, 2010), and for agriculture (crop losses) of EUR 715 million/year (2010)[56].

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_3) emissions to comply with currently applicable national emission ceilings[57], for example by introducing or expanding the use of low-emission agricultural techniques.
- Reduce NMVOCs emissions to comply with currently applicable national emission ceilings[58] (and to reduce ozone concentrations).
- Reduce nitrogen oxide (NO_x) emissions to comply with currently applicable national emission ceilings[59] and/or to reduce nitrogen dioxide (NO_2) (and ozone concentrations), inter alia, by reducing transport related emissions - in particular in urban areas.
- Reduce PM_{10} emission and concentration, inter alia, by reducing emissions related to energy and heat generation using solid fuels, to transport and to agriculture.

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[60]. 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.

Germany's implementation of the Environmental Noise Directive[61] is significantly delayed. The noise mapping for the most recent reporting round, for the reference year 2011, is mostly complete. However, action plans for noise management in the current period have not been adopted for many of the agglomerations, airports, major roads and major railways within the scope of the Directive. The Commission contacted the German

[52] 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 (NO2).

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

[54] Based on European Environment Agency, 2016. Air Quality in Europe – 2016 Report (Figures 4.1, 5.1 and 6.1)

[55] See The EEA/Eionet Air Quality Portal and the related Central Data Repository

[56] These figures are based on the Impact Assessment for the European Commission Integrated Clean Air Package (2013)

[57] 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.

[58] Ibid.

[59] Ibid.

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

[61] 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.

authorities with regard to the missing action plans, and continues to follow up on the situation.

Suggested action

- Complete the action plans for noise management.

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 *acquis*[62] 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.

Germany 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 Germany reported the status of 9072 rivers, 712 lakes, 5 transitional, 74 coastal and 989 groundwater bodies. Only 16% of natural surface water bodies achieve a good or high ecological status[63] and 5% of heavily modified or artificial water bodies[64] achieve a good or high ecological potential. 86% of surface water bodies, 90% of heavily modified and artificial water bodies and 63% of groundwater bodies achieve good chemical status[65]. 96% of groundwater bodies are in good quantitative status.

The main pressure on German waters is flow regulation and hydromorphological alteration that affect 79% of surface water bodies closely followed by diffuse sources of pollution that affect 75% of water. Point sources affect 28% of water bodies. There are significant regional differences pressures, e.g. point sources affect 79% of water bodies in Meuse river basin district or abstraction is also an important pressure in the Danube river basin district.

In the German RBMPs a number of exemptions have been applied. Apportionment of pressures per economic sectors is not completely transparent and measures for diffuse pollution[66] are insufficient. The Programmes of Measures are expected to result in 9% improvement of the global status and 11% improvement of the ecological status of natural surface water bodies. The chemical status of natural surface water bodies should improve by 3% and groundwater[67] by 5% while the quantitative status of ground water is not expected to change.

As regards drinking water, Germany reaches very high compliance rates of 99-100% for microbiological, chemical and indicator parameters laid down in the Drinking Water Directive[68].

As shown in Figure 10 in 2015, in Germany out of 2292 bathing waters, 90.3 % were of excellent quality, 6.3 % of good quality, 1.2 % of sufficient quality. 5 bathing waters were of poor quality or non-compliant while it was not possible to assess the remaining 44 bathing waters[69]. It is shown that Germany's bathing waters have a stable good quality over the years.

Water pollution by nitrates in Germany is a serious concern. There is significant evidence (e.g. last report on the implementation of the Nitrates Directive[70] and other

[62] 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)

[63] 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.

[64] 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.

[65] Good chemical status is defined in the Water Framework Directive referring to the quality standards established for chemical substances at European level.

[66] Diffuse pollution comes from widespread activities with no one discrete source.

[67] For groundwater, a precautionary approach has been taken that comprises a prohibition on direct discharges to groundwater, and a requirement to monitor groundwater bodies.

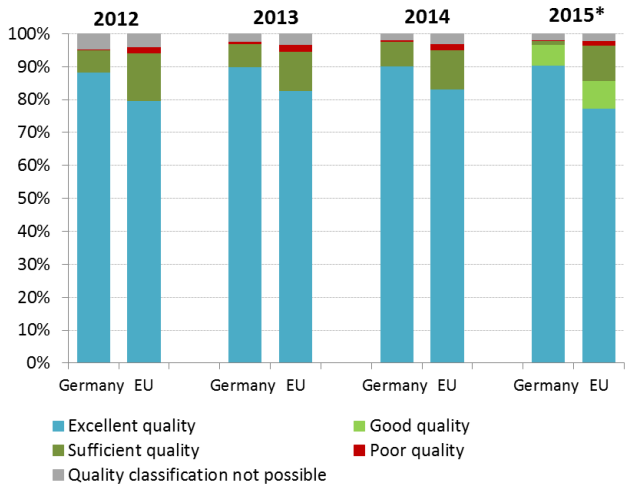
[68] Commission's Synthesis Report on the Quality of Drinking Water in the Union examining Member States' reports for the 2011-2013 period, foreseen under Article 13(5) of Directive 98/83/EC; COM(2016)666

[69] European Environment Agency, 2016. European bathing water quality in 2015, p. 26

[70] Report on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by

recent German reports[71]) of acute problems in groundwater and eutrophication problems, including in the Baltic and North Sea.

Figure 10: Bathing water quality 2012 – 2015[72]



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

Implementation of the nitrates directive has been mostly managed at federal level, with limited results especially for the areas with high surplus and livestock density, which have continued to show deteriorating trends[70]. Control measures have been of low effectiveness, also due to difficulty for the authorities in accessing key agricultural data because of legal barriers.

Germany demonstrates very high compliance rates with the Urban Water Treatment Directive, with 100% of its waste water load collected and 99.9% of that load being subject to secondary treatment. In 2012, total nitrogen was reduced by 82% and total phosphorus by 90%, which means that Germany also fully complies with the requirements of Article 5(4) of the Directive on more stringent treatment[73].

Flood risk areas have already been identified and mapped in Germany[74]. Germany is hit regularly by flooding incidents with serious economic damage costs. Records of flooding from rivers are the most common with some 162 significant flood events being recorded between 2000 and 2011. For the 11 major floods recorded between 2002 and 2013, the total direct costs were EUR 34 billion. The average cost per flood was EUR 3.1 billion[75].Some Bundesländer have included investments for the management and prevention of floods by using green infrastructure measures in the regional programmes supported by the EU structural funds.

Suggested action

- Refine the analysis of pressures of the water environment to understand better which pressures prevent the achievement of good status and in which sectors measures are needed.
- Plan more effective Programmes of Measures and ensure sufficient funding for the measures. More effective measures to tackle diffuse pollution from agriculture are necessary.
- Enhance implementation of the nitrates directive in a way which addresses the current serious water pollution, especially in intensive agricultural areas.

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.[76] 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[77].

The European Commission will launch a new EU benchmark system in 2017[78].

nitrates from agricultural sources based on Member State reports for the period 2008–2011.

[71] E.g. Report from the German Advisory Council for the Environment (SRU), 2015. Stickstoff: Lösungsstrategien für ein drängendes Umweltproblem and Report from the Federal Environment Agency, 2015. Umweltbelastende Stoffeinträge aus der Landwirtschaft.

[72] European Environment Agency, State of bathing water, 2016

[73] 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).

[74] Commission Staff Working Document, 2015. Report on the progress in implementation of the Floods Directive, page 35

[75] RPA, 2014. Study on Economic and Social Benefits of Environmental Protection and Resource Efficiency Related to the European Semester, study for the European Commission.

[76] European Environment Agency, Urban environment

[77] http://urbanagendaforthe.eu/

[78] 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. EUROCITIES, ICLEI, CEMR,

The EU stimulates green cities through awards and 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.

Several Bundesländer foresee environment related investments under sustainable urban development measures (green infrastructures in the building sector, sustainable transport, rehabilitation of brownfields) within their regional programmes.

The "Sensible water use in Frankfurt am Main" project was developed in 1990. The aim was to remove the link between water consumption and population and economic growth. The water-saving campaign that became known as the "Frankfurt Way" relied on citizens understanding the need to use water sensibly. The measures were designed to encourage a sensible approach to water and to publicise the opportunities for upgrading water-saving devices in the home. The aim of the campaign – to reduce water consumption by 20% by 2000 – was achieved in via initiatives such as: 100% of the water consumed by business and private customers is metered and the quality is checked. The water lost from leaking pipes is roughly 3.3% of the amount distributed. There has been a steady decrease in leakages in the water network over a number of years.

German cities were awarded twice the European Green Capital, Hamburg in 2011 and Essen in 2017.

Hamburg combined comprehensive approaches, policy - commitment and the necessary funding needed to resolve the numerous metropolitan challenges. On the whole, it has an integrated and participative planning strategy, a strong commitment towards a "green" vision and structured monitoring with respect to climate change.

Essen is making big efforts to establish itself as a 'City in transformation' that is overcoming a challenging industrial history to reinvent itself as a 'Green City'. The City credits its citizens and their ability to change as key to this success, which is visible through an specific application tag line "ESSENtials – changing the way we act". It has built green and blue corridors within the city and is investing in green infrastructure. In addition, the city of Essen has implemented a range of practices to protect and enhance nature and biodiversity. Future plans focus not only on the greening of the city but also on the promotion of biodiversity in new green areas and in particular on species which are resilient to climate change.

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.

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

Committee of the Regions, Covenant of Mayors and others.

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.

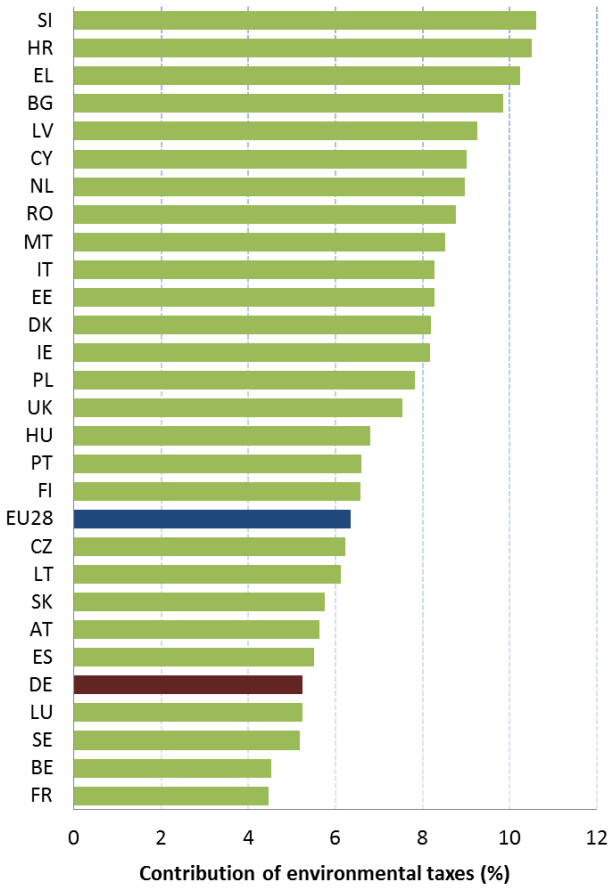
Taxing pollution and resource use can generate increased revenue and brings important social and environmental benefits.

Environmental tax revenue amounted to 2% of Germany's GDP in 2014 (EU28 average: 2.46%), representing an 11-year low for Germany, having fallen from 2.6% in 2003. Considering total environmental taxation revenue as a proportion of GDP, in 2014 Germany ranked 22nd in the EU28. The level of environmental taxes compared to total taxes and social contributions is relatively low (5.24 % in Germany in 2014 vs 6.35 % in the EU28) as shown in Figure 11.

An issue of concern is the flat-rate taxation of privately used company cars, which was estimated to total a subsidy of EUR 5,167 million in 2012[79].

A 2016 study suggests that there is considerable potential for shifting taxes from labour to environmental taxes[80]. Under a good practice scenario[81] these could generate an additional generate an additional EUR 19,316 million in 2018, rising to EUR 41,607 million in 2030. This would be equivalent to 0.61% and 1.04% of GDP in 2018 and 2030, respectively. The largest potential source of revenue would come from suggested increase in vehicle taxes generating EUR 25,422 million of revenues by 2030.

Figure 11: Environmental tax revenues as a share of total revenues from taxes and social contributions (excluding imputed social contributions) in 2014[82]



Germany introduced an ecological tax reform program over the years 1999 to 2003, where rates of petrol and diesel taxation were increased. At the same time electricity taxation was reintroduced. The introduction, in 2005, of the German 'Lkw-Maut', a distance-based road-pricing scheme for heavy-goods vehicles on motorways, was agreed under the same government, but was technically not part of the tax reform. In 2006 taxes were introduced on coal with the implementation of the EU's Energy Taxation Directive.

Additional steps on market-based instruments generating fiscal revenues included the 2009 restructuring of vehicle taxation on the basis, at least in part, of CO_2 emission performance, and the introduction, in 2011, of an aviation tax and a tax on nuclear fuels.

[79] Harding M. 2014. Personal Tax Treatment of Company Cars and Commuting Expenses – Estimating the Fiscal and Environmental Costs. OECD Taxation Working Papers, No. 20, p.27

80 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.

81 The good practice scenario means benchmarking to a successful taxation practice in another Member State.

[82] Eurostat, Environmental tax revenues, accessed October 2016

In recent years, no measures have been taken to broaden the tax base by reducing environmentally harmful tax expenditure, such as energy tax reductions and exemptions or the favourable taxation of company cars.

A government coalition treaty establishes that Lkw-Maut, the road-pricing scheme, should be extended to other federal roads.

In terms of progress in the environmentally harmful subsidies (EHS) reform, Germany has begun the process of phasing-out its hard-coal mining subsidies by 2018. To progress further in this line of action, following a reform of the eco-tax legislation in 2012, energy intensive industries that are partly or fully exempted from the tax on electricity consumption, are obliged to introduce an energy audit system or to make use of energy audits.

According to a study[83] published by the German environment agency (UBA) in 2014, the level of EHS reached EUR 52 billion, of which EUR 24 billion in the area of transport followed by EUR 21.6 billion in the area of energy.

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[84]. 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.

A national strategy on Green Public Procurement (GPP) is included in the German Integrated energy and climate protection programme[85] which establishes mandatory targets for all authorities at federal level to use life-cycle costing in their procurement procedures to ensure energy-efficient and environment-friendly public procurement[86]. The Commission has proposed EU GPP criteria[87].

Guidelines[88], criteria lists and vendor questionnaires for numerous products and services (heat supply, office equipment, furniture, consumer electronics, cleaning and hygiene) were elaborated.

In addition, the Federal Government committed itself within the German Strategy for Sustainable Development[89] to translating sustainability into concrete administrative actions by improving sustainable procurement.

According to a 2010 study, the share of German authorities that included GPP requirements in between 50% and 100% of their contracts was estimated between 10 and 20%[90].

According to a 2011 survey, German authorities included at least one of the EU core green criteria in 60% of the GPP-relevant contracts, and 31% of the contracts included all the relevant EU core green criteria[91].

Investments: 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)[92] 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 European Fund for Strategic Investment[93] (EFSI) may also support implementation and spread off best practice.

Germany benefits, through 47 national and regional programmes, from European Structural and Investment Funds (ESIF) funding of EUR 27.9 billion over the period

[83] Umweltbundesamt, Aktualisierte Ausgabe 2014. Umweltschädliche Subventionen in Deutschland, Dessau-Roßlau.
[84] European Commission, 2015. Public procurement
[85] Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit, Das Integrierte Energie- und Klimaschutzprogramm (IEKP) from 2008, revised in 2012 and 2013.
[86] European Commission, 2015. Documentation on National GPP Action Plans
[87] 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.
[88] Umweltbundesamt, Product recommendations for green procurement for contracting authorities.
[89] German government "Perspectives for Germany – Our Strategy for Sustainable Development", 2002
[90] Adelphi et al, 2011. Strategic Use of Public Procurement in Europe, report for the European Commission.
[91] CEPS, 2012. Monitoring the Uptake of GPP in the EU27
[92] 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.
[93] EIB: European Fund for Strategic Investments

2014-2020[94].

EUR 10,773.8 million (38.6%) is coming from the European Fund for Regional Development (ERDF), EUR 9445.9 million (33.8%) from the European Agricultural Fund for Rural Development (EAFRD), EUR 219.6 million (0.8%) from the European Maritime and Fisheries Fund (EMFF) and EUR 7495.6 million (26.8%) from the European Social Fund (ESF).

In total, EUR 3037.7 million are dedicated to the Thematic objective (TO) Environment Protection and Resource efficiency, EUR 2268.6 million through the different EAFRD programmes, EUR 655.8 million through the ERDF programmes and EUR 113.3 million through the EMFF programme. In addition, EUR 2920.95 m is foreseen for TO Low Carbon Economy and EUR 2714.5 million for TO Climate Change Adoption and Risk Prevention.

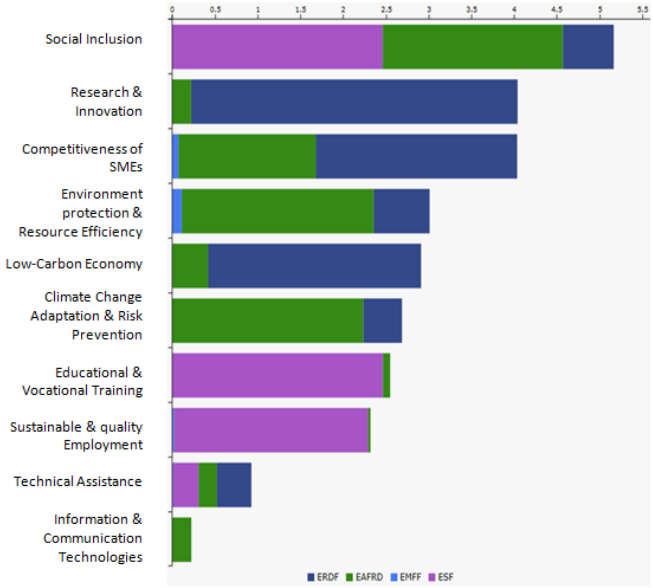
With regard to the integration of environmental concerns into the Common Agricultural Policy (CAP), the two key areas for Germany (as for all Member States) are, first, using Rural Development funds to pay for environmental land management and other environmental measures, while avoiding financing measures 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'.

The approved National Rural Development Program (EARDF) amounts overall to EUR 9383.8 million. The planned spending on the ecosystem priority, priority 4 is EUR 4533 million, which represents 48.7% of the total budget, and EUR 1963 million, 21.1% of the total budget is dedicated to agri-environment-climate measures. In general the German EARDFs present some good measures and the link with environmental policies is well underpinned. Some area such as the North West of Germany have serious environmental problem such as water pollution, and the measures in place will not be sufficient to solve the problems, in the absence of the revision of the baseline, i.e. the Nitrates Directive. The figures at national level hide disparities. Two Länder are above 60 % for priority 4 (Bavaria, Baden Wurttemberg) but one is below 40% (Saxony). Two Länder have a very low budget for agri-environment measures (Brandenburg and Hessen are below 10%) while Bavaria and Baden Wurttemberg put a high effort on the environment: they allocate an amount above 30 % of their budget to agri-environment measures.

The Direct Payment envelope of Germany for the period 2015-2020 is EUR 24,254 million, according to common provisions, 30 % of which (7,28 m) being 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 areas, and if appropriate Germany could review its implementation of this.

Figure 12 depicts the 2014-2020 EU Structural and Investment Funds budget allocation for Germany.

Figure 12: EU Structural & Investment Funds 2014-2020: Budget Germany by theme, EUR billion[95]



It is too early to draw conclusions as regards the use and results of ESIF for the period 2014-2020, as the relevant programmes are still in an early stage of their implementation. However, concrete results are expected to be achieved with ERDF support in Germany 2014-20, such as a decrease of annual primary energy consumption of public buildings of more than 233 million KWh/year, and the creation or rehabilitation of more than 5 million square meters of open space in urban areas.

In addition, *the Renewable energy finance guarantee*, a risk–sharing facility for loans to renewable energy projects in Germany and France is under assessment under the **European Funds for Strategic Investments** (EFSI)[96]. Under the same umbrella agreements with an intermediary bank have been signed for SME financing provided by European Investment Fund (EIF) amounting to EUR 203 million.

In February 2015, Germany announced that it will contribute EUR 8 billion[97]n to the Investment Plan for Europe through the KfW Bankengruppe (German banking

[94] European Commission : European Structural and Investment Funds Country Data for Germany

[95] European Commission, European Structural and Investment Funds Data By Country

[96] European Commission Country factsheets - Investment Plan

[97] European commission, 2015: Investment Plan for Europe: EFSI ready for take-off

group).

The Integrated **LIFE** Project *Living River Lahn* (EUR 15.7 million)[98] will contribute to the implementation of the Water Framework Directive in order to achieve a "good ecological status" of surface waters in the catchment area of the Lahn River in the German Laender Hessen and Rhineland-Palatinate. In addition to the LIFE funding itself, the project will facilitate the coordinated use of around EUR 28 million in complementary funding from the European Agricultural Fund for Rural Development and national funds.

[98] LIFE Programme: Integrated LIFE projects, February 2016

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[99]. 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

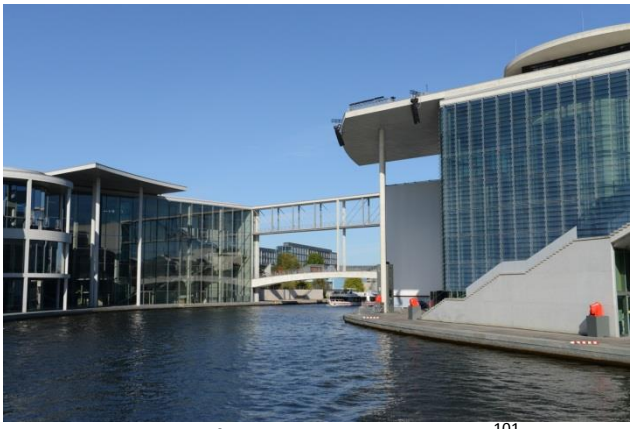
Those involved in implementing environment legislation at Union, national, regional and local levels need to be equipped with the knowledge, tools and capacity to improve the delivery of benefits from that legislation, and the governance of the enforcement process.

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 given assessment is only preliminary since the Commission has work ongoing to improve the country-specific knowledge about the quality and functioning of their administrative system.

The 2013 European Quality of Government Index puts Germany ninth place out of the 28 Member States[100].

Germany is one of the Member States that increased its budgetary expenditure on the environment, in resource efficiency and in green growth areas, alongside budgetary increases in non-environmental areas. Spending by the BMU almost doubled from 2008-2012 (from EUR 847,000 to EUR 1.6 million).



The transposition of the revised EIA Directive[101] will be an opportunity to streamline the regulatory framework on environmental assessments. The Commission encourages the streamlining of the environmental assessments because this approach reduces duplication and avoids unnecessary overlaps in environmental assessments applicable for a particular project. Moreover, streamlining helps reducing unnecessary administrative burden and accelerates decision-making, without compromising the quality of the environmental assessment procedure. The Commission has issued a guidance document in 2016 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,

[99] The Commission has work ongoing to improve the country-specific knowledge about quality and functioning of the administrative systems of Member States.

[100] European Commission, Working Paper "Regional Governance Matters: A Study on Regional Variation in Quality of Government within the EU https://nicholascharron.wordpress.com/european-quality-of-government-index-eqi/

[101] The transposition of Directive 2014/52/EU is due in May 2017.

and the Industrial Emissions Directive[102].

Legislative competences are shared between the federal level ("Bund") and the level of the Länder. The 2006 reform of the Constitution transferred more policies to the federal level. Most environmental policies (waste disposal, air protection, water and nature protection) are "concurrent [shared] competences", where the Länder have the right to adopt their own provisions as long as the "Bund" refrains from legislation; in some areas under the condition that uniform laws are required for the whole country. This is the case for instance where EU environmental law needs to be implemented. It is mainly up to the "Bund" to transpose these provisions into national legislation. Where the Bund makes use of the "concurrent competence", the Länder may adopt additional legislation. However, they may only deviate from the "Bund" legislation in a few special policy areas exhaustively listed in the constitution[103] such as certain topics of water and nature protection law ("derogatory power").

Legislative initiatives are prepared by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit – BMUB) at federal level, and by the environmental ministries of the Länder. They are co-ordinated horizontally with the other ministries concerned.

Compliance performance in Germany is good, with a relatively high number of complaints, and considerably less Pilots and infringement cases. Cases often focus on differing interpretations of EU law. Nature protection, River Water management and air pollution have also led to a number of cases and the last two are of increasing concern.

In some of the environmental cases where individuals or NGOs have gained access before the national courts over the past years, the German judges referred several requests for preliminary rulings to the Court of Justice of the EU. This represented a valuable contribution to the development of EU environment law, since preliminary rulings enable the Court of Justice to give a coherent interpretation of the EU law.

Germany has established a specialised environmental protection agency (Umweltbundesamt[104], UBA) whose main tasks centre around gathering data concerning the state of the environment, investigating the relevant interrelationships and making projections and then, based on these findings, providing federal bodies such as the Ministry of the Environment with policy advice. It also provides the general public with information and answer questions on all of the various issues that it addresses. Apart from these activities, UBA implements environmental law by making sure that it is applied in areas such as CO_2 trading and approval processes for chemicals, pharmaceutical drugs and pesticides. UBA´s mission is early detection of environmental risks and threats so that it can assess them and find viable solutions for them in a timely manner. UBA does this by conducting research in its own labs and by outsourcing research to scientific institutions in German and abroad.

Coordination and integration

Since 2002, the German government has continuously updated its National Sustainable Development Strategy[105], which serves as a guide for the implementation of the principles of sustainable development in the Federal Government Policy as a whole. The latest Progress Report has been adopted in 2012, another one, organising the strategy around the 17 SDGs, will follow in late 2016.

The Management Concept for a Sustainable Development consists of management rules, indicators and targets as well as institutions to steer the strategy: The ten management rules summarise the guiding principle of sustainable development and the associated requirements. Key indicators for 21 fields of action have been associated with 38 goals, most of which can be quantified.

The State Secretaries' Committee for Sustainable Development which is chaired by the Head of the Federal Chancellery is in charge of the further development and monitoring of the national strategy. The Committee updates the details of the National Sustainable Development Strategy and regularly monitors the development of the sustainability indicators. All ministries are involved in shaping and implementing the strategy. The Committee is also the contact for the Parliamentary Advisory Council for Sustainable Development, for the federal states (Länder) and for the associations of local authorities as well as the German Council for Sustainable Development. To provide external expertise the German government also put in place the German Council for Sustainable Development in 2001. The Sustainable Development Council advises the Federal Government on all matters relating to sustainable development.

[102] European Commission, 2016. Guidance document on streamlining environmental assessments conducted under Article 2(3) of the Environmental Impact Assessment Directive.

[103] See Art. 72 Abs. 3 GG

[104] Umweltbundesamt is the German environmental protection agency

[105] Bundesregierung Deutschland, 2002. German Sustainable Development Strategy

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[106] 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 Figure13.

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*[107], *EUFJE*[108], *ENPE*[109] *and EnviCrimeNet*[110], 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)[111] 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 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[112].

Germany has taken steps towards risk-based compliance assurance, notably use of sophisticated risk-criteria to target environmental inspections, in particular concerning supervision of industrial facilities.

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

- data-collection arrangements to track the use and effectiveness of different compliance assurance interventions[113];
- the extent to which risk-based methods are used to direct compliance assurance at the strategic level and in relation to critical activities outside of industrial installations, especially specific problem-areas highlighted elsewhere in this Country Report, i.e. the threats to protected habitat types and species, poor air quality and the pressures on water quality from diffuse sources of pollution.

A good example of cooperation and coordination is the task force ("Stabsstelle Umweltkriminalität") established in Nordrhein-Westfalen to ensure effective coordination,

[106] European Union, Environmental Crime Directive 2008/99/EC

[107] European Union Network for the Implementation and Enforcement of Environmental Law

[108] European Union Forum of judges for the environment

[109] The European Network of Prosecutors for the Environment

[110] EnviCrimeNet

[111] European Union, Environmental Liability Directive 2004/35/CE

[112] 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.

[113] Some good practices have been noted such as publication of environmental inspections reports, including information on the level of detected non-compliance See for instance for North Rhine-Westphalia: http://www.brd.nrw.de/umweltschutz/umweltinspektionen/Umweltinspektionsberichte.html. This transparency is supported by national case-law, see decision of the Higher Administrative Court of North Rhine-Westphalia, 8 B 1101/14: https://www.justiz.nrw.de/nrwe/ovgs/ovg_nrw/j2014/8_B_1101_14_Beschluss_20141106.html

better targeted compliance monitoring and efficient treatment of information provided by citizens[114]. Germany is very active within the environmental compliance assurance networks, in particular within IMPEL. For instance, it led a long-term project in whose framework a risk assessment tool for planning of environmental inspections called Integrated Risk Assessment Method (IRAM) was developed and is currently used by many IMPEL members' authorities[115].

Together with the United Kingdom, The Netherlands and other Member States, Germany prepared in the framework of the 'Make it Work' project principles for drafting provisions on compliance assurance in EU Environmental law[116].

For the period 2007-2013, Germany reported 60 cases of environmental damage handled under the Environmental Liability Directive. This included a share of biodiversity damage cases (often viewed as more difficult due to their novelty at EU level) well above the EU average. However, there is scope for further measures to improve the implementation of the Directive. While Germany did not introduce mandatory financial security, the insurance market appears to work effectively, with good levels of voluntary take-up, providing a model for other Member States of how a voluntary approach can work.

Suggested action

- Improve transparency on the organisation and functioning of compliance assurance and on how significant risks are addressed, as outlined above.
- Step up efforts in the implementation of the Environmental Liability Directive (ELD) to improve the evidence base in Germany with proactive initiatives, in particular by setting up a national register of ELD incidents.

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.

Germany has a predictable and transparent legal review system for environmental cases. The courts exercise a comprehensive legal review of administrative acts and omissions. However, in several sectors of EU environmental law the German law does not provide standing for the public (such as air, waste and water), in particular not for environmental NGOs[117]. Furthermore recent judgments of the CJEU on access to justice in environmental matters[118] still have to be complied with in the national law.

Suggested action

- Take the necessary measures to ensure standing of environmental NGOs to challenge acts or omissions of a public authority in all sectoral EU environmental laws, in full compliance with EU law as well as the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in environmental matters (Aarhus Convention)[119].

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

[114] It has been explored that the clear increase in detected illegally killed birds of prey is very likely linked to the activities of this task force, see 'Stocktaking of the main problems and review of national enforcement mechanisms for tackling illegal killing, trapping and trade of birds in the EU', BioIntelligence, 2011, p. 18 and 92. However, the same study also indicates some inconsistent use of cooperation mechanisms across the country, p. 93.

[115] For more detailed information on this IMPEL project see http://www.impel.eu/tools/risk-criteria-database-iram/.

[116] http://www.ieep.eu/assets/1791/MiW_drafting_principles_on_compliance_assurance_July_2015.pdf.

[117] Access to justice, 2012/2013. Implementation of Articles 9.3 and 9.4 of the Aarhus Convention in the Member States of the European Union, study for the European Commission.

[118] case C-137/14 –Commission v Germany

[119] In 2016 the Federal Government adopted the “Draft Bill aligning the Environmental Appeals Act and other Provisions to Stipulations of European and International Law”.

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[120], the Access to Environmental Information Directive[121] and the INSPIRE Directive[122] 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[123]. 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.

Germany's performance on the implementation of the INSPIRE Directive as enabling framework to actively disseminate environmental information to the public is good. Germany has indicated in the 3-yearly INSPIRE implementation report[124] 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. In absence of data-sharing policies at other administrative levels, Federal law is in place to regulate and facilitate the sharing of spatial data.

Assessments of monitoring reports[125] issued by Germany and the spatial information that Germany has published on the INSPIRE geoportal[126] 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 reporting and monitoring regulations of EU environmental law. Germany, led by its steering committee on spatial data infrastructure and national focus point on INSPIRE has set up an initiative, as part of an action plan to further improve implementation, to identify existing but not accessible electronic datasets so far. In the short run, these data shall be made available "as is".

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.

[120] UNECE, 1998. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters
[121] European Union, Directive 2003/4/EC on public access to environmental information
[122] European Union, INSPIRE Directive 2007/2/EC
[123] Communication: EU eGovernment Action Plan 2016-2020 - Accelerating the digital transformation of government COM(2016) 179 final
[124] European Commission, INSPIRE reports
[125] Inspire indicator trends
[126] Inspire Resources Summary Report