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The EU Environmental Implementation Review
Country Report - GREECE

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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This report has been written by the staff of the Directorate-General for Environment, European Commission. Any comments are welcome to the following e-mail address: ENV-EIR@ec.europa.eu

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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

Greece faces significant difficulties in implementing EU environmental legislation. This can be demonstrated by the high number of infringement cases currently ongoing against the country, very often at an advanced stage. Waste management is the area where the biggest problems can be observed, with illegal landfilling, very low recycling rate and the management of hazardous waste at the top of the list. Challenges remain in the field of urban waste water treatment, as well as regarding air quality, particularly in urban centres. Greece has a rich natural environment that can create numerous opportunities for sustainable development and growth. However, its protection needs to be strongly enhanced. Finally, it can often be observed that complex administrative structures and procedures can be the cause of significant delays and bottlenecks and sometimes represent the main obstacle for the implementation of environmental legislation in Greece. Financing is also a significant issue, particularly for areas where EU funding is not available.

Main Challenges

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

- Addressing the main waste management problems (closure of illegal landfills, treatment of hazardous waste) as a matter of absolute priority.
- Putting in place an efficient national system for the comprehensive administration and functioning of protected areas, raising awareness about Natura 2000 and creating incentives for investments promoting its benefits, improving capacity of competent authorities, ensuring effective environmental assessments at plan and project level, and improving enforcement of legislation on the ground.
- Completing implementation of the Urban Waste Water Treatment Directive, giving priority to those agglomerations that are subject to an infringement case.

Main Opportunities

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

- Invest in separate collection and recycling and use economic instruments to improve the country's overall waste management performance, which can result in the creation of jobs and revenues.
- Effectively protect, restore and ensure sustainable use of the country's natural capital, especially under the Natura 2000 network, so as to maximise potential benefits deriving from ecosystem services which can serve as powerful economic drivers,

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

including through green tourism and other sustainable activities.

- Simplify administrative procedures and improve cooperation of public authorities involved in the application of environmental policies, which will allow for smoother and quicker implementation.

Points of Excellence

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

- According to the EEA report 'European Bathing Water quality in 2015, 97.2 % of bathing waters in Greece were of excellent quality.
- Greece reaches very high compliance rates of 99-100% for microbiological, chemical and indicator parameters laid down in the Drinking Water Directive.
- Greece made good and early use of LIFE funds for proposing a substantial national list of sites for Natura 2000 under the Habitats Directive. Close collaboration of authorities and conservation NGOs in some cases has allowed building expertise and putting in place effective measures in specific areas.

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

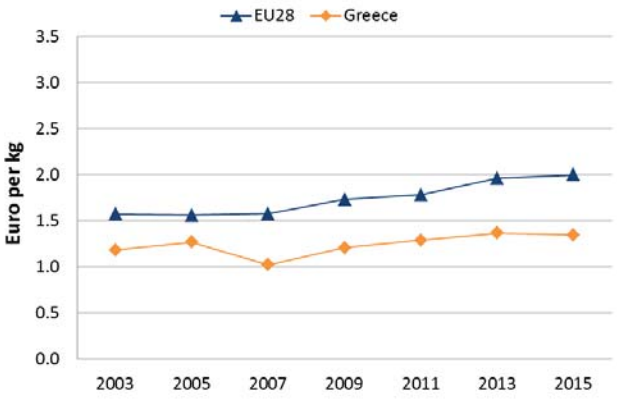
Transforming our economies from linear to circular offers an opportunity to reinvent them and make them more sustainable and competitive. This will stimulate investments and bring both short and long-term benefits for the economy, environment and citizens alike.[5]

Environmental policy in Greece focuses on the promotion of renewable energies and energy efficiency measures, which can promote eco-innovations. These measures, along with the new national Waste Management Plan (WMP) can facilitate the transition towards a circular economy.

Greece established a Green Fund in 2010, whose objective is to stimulate growth through protecting the environment and providing support for environmentally friendly projects and initiatives.

Greece is performing below EU average in terms of resource productivity[6] (how efficiently the economy uses material resources to produce wealth), with 1.35 EUR/kg (EU average is 2) in 2015[7]. Figure 1 shows that Greece's resource productivity has increased steadily but modestly since 2007. Resource productivity has increased slightly compared to 2014.

Figure 1: Resource productivity 2003-15[8]



The Operational Programme on Competitiveness, Entrepreneurship and Innovation under the new NSRF (2014-2020) will allocate EUR 28.8 million on the promotion of innovative technologies for environmental protection and resource efficiency in the areas of waste management, water management, soil contamination and air pollution. The support will include research & development (R&D) activities in businesses for the development and uptake of antipollution technologies and monitoring mechanisms. Another EUR 28.3 million will be allocated to supporting green growth and eco-innovation both in the private and public sectors. The supported activities will include actions to increase the technological know-how on environmental protection and the eco-design of products.

SMEs and resource efficiency

According to the Flash 426 Eurobarometer, the resource efficiency actions undertaken by Greek SMEs allowed the reduction of production costs for 65% of them.

The Flash Eurobarometer shows that 48% of the SMEs in Greece have one or more full time employee working in a green job[9] at least some of the time. Greece has an average number of 2.8 full time green employees per SME.

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

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

[7] Eurostat, Resource productivity, accessed July 2016

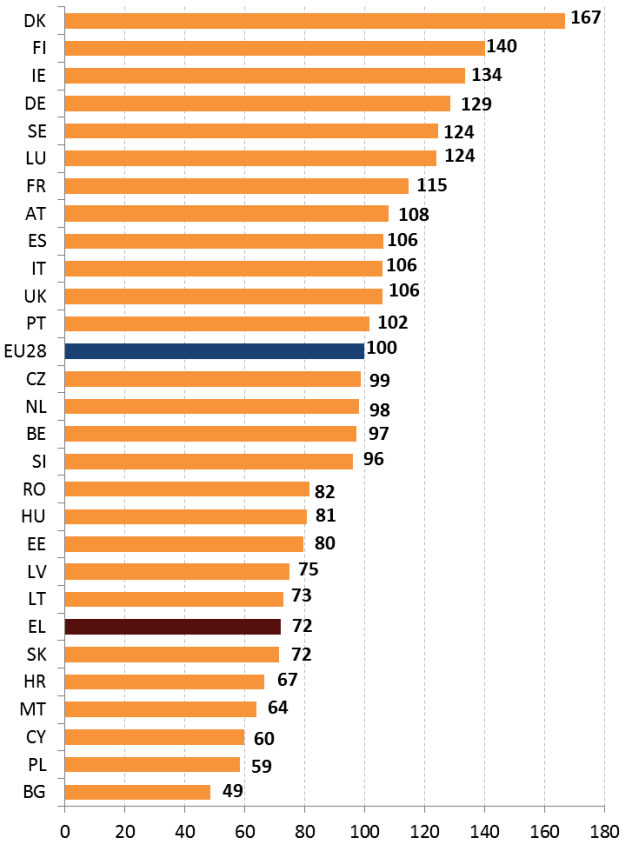
[8] Eurostat, Resource productivity, accessed October 2016

[9] 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).

Eco-innovation

As illustrated in Figure 2, with a score of only 72 (on an EU-28 average of 100), Greece ranks seventh from the bottom in the EU-28 ranking of eco-innovative countries.

Figure 2: Eco-Innovation Index 2015 (EU=100)[10]



Greece continues to lack a clear and cohesive framework for the support of eco-innovation and eco-industries. Nevertheless, the framework has improved through the 2014 Action Plan for the Implementation of the National Strategy for Research, Technological Development and Innovation for the period 2015-2021, which promotes specific activities in relation to eco-innovation.

The long-lasting deterioration of the economy has made any kind of systematic funding for eco-innovation unrealistic. Austerity policies have had a major impact on public funding leading to stagnation in terms of R&D expenses and delays in payments.

On the administrative side, it is an often repeated complaint that Greece's complex bureaucratic stipulations (despite the progress achieved in the last years) dissuade if they do not prevent actors and investors from developing eco-innovations[11]. Moreover, the regulatory framework changes frequently, thus limiting the ability of involved actors to plan and organise investments.

Finally, social barriers towards eco-innovation remain, mostly related to public attitudes and ignorance of the benefits of innovation (especially in the area of energy efficiency in the built environment)[12].

In the past 2 years, efforts to introduce eco-innovations in the construction sector have continued. Due to the economic crisis, companies have sought to explore opportunities afforded by eco-innovation focusing (amongst others) on transparent solar cells which can be used in windows, nanotechnology products to improve indoor air quality and smart meters for energy efficiency. The size of the sector was reduced further due to the economic crisis and its share dropped from 7% of GDP in 2007 to 2.9% of GDP in 2014. As a result, the uptake of eco-innovation also decreased.

Greece also benefits from its significant natural capital in renewable energies – solar, wind, tidal – growth in green and alternative tourism and innovation in agriculture and the food industry.

Suggested action

- Incentivise the savings of energy and water and increase the level of recycling among SMEs.
- Facilitate the development of eco-innovation initiatives in the country, especially at the local level.

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

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

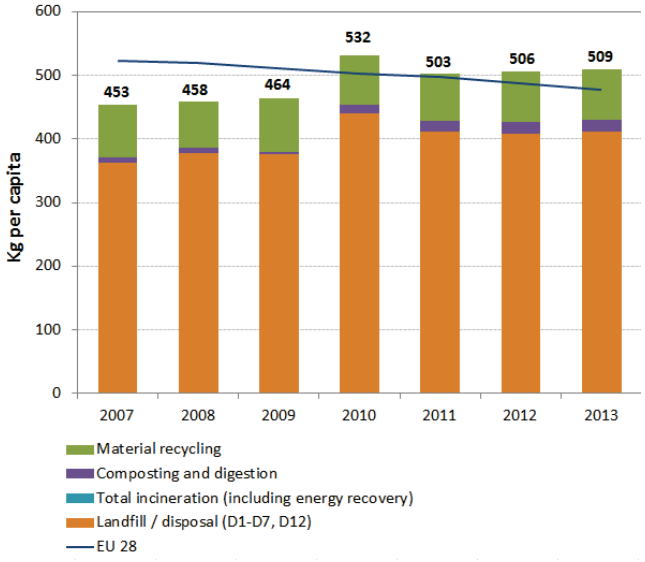
[11] Valavanidis A. et al., 2015, Atmospheric Pollution in Urban Areas of Greece and Economic Crisis. Trends in air quality and atmospheric pollution data, research and adverse health effects.

[12] Knight and Bell, 2013

adoption of adequate WMP/WPP[13] should be the key items to measure the performance of Member States. This section focuses on management of municipal waste[14], for which EU law sets mandatory recycling targets.

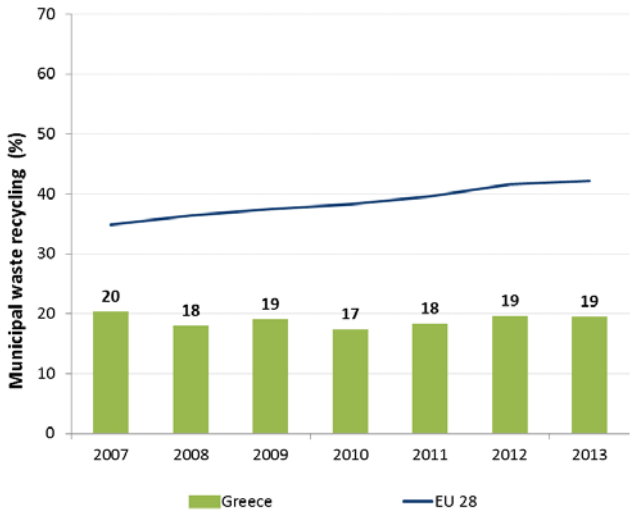
The waste management situation in Greece is a major structural problem. As shown in Figure 3, municipal waste generation in Greece has remained at the same level over the past few years, being now (2013 figures) slightly over the EU average (510kg/y/inhabitant compared to EU average of around 477 kg). Greece landfills the majority of its municipal waste (81%, compared to 31% for EU-28 average), with only 16% being recycled (EU-28 – 27%) and 4% composted (EU-28 – 15%).

Figure 3: Municipal waste by treatment in Greece 2007-13[15]



Greece has failed to comply with the first (2010) landfill diversion target. In addition, Greece decreased its packaging waste recycling in 2013 (from 58.6% in 2012 to 52.4% in 2013). Therefore, the country is no longer meeting the packaging waste recycling target of 55%. As shown in Figure 4, Greece has not yet reached the recycling target. Only if it steps up its efforts significantly will it be able to up recycling rates to reach the 50% recycling target by 2020[16].

Figure 4: Recycling rate of municipal waste in 2007-13[17]



A landfill tax has been in force since 1 January 2014. However, its effective implementation remains unclear to date. In addition, despite the major waste management problems the country needs to address, only 5% of the landfill tax revenues are to be allocated for support to local authorities to improve their waste management performance, with the rest being devoted to the reimbursement of the public debt. The use of economic instruments is insufficient and the existing schemes are performing poorly.

Additional measures will be needed to promote the diversion of biodegradable waste from landfill and to establish and control separate collection infrastructure and schemes, specifically to implement door-to-door separate collection. There are limited Extended Producer Responsibility (EPR) schemes (few waste streams covered) or equivalent systems in place, not able to cover the full costs of separate collection and recycling of the main waste streams. No incentive systems exist to favour prevention and participation to separate collection (PAYT schemes) and no incentives are provided for local authorities to develop separate collection. Care must be taken not to move from landfilling to poor quality Mechanical and Biological Treatment installations.

Addressing the issue of illegal landfilling is a key priority, as whilst illegal landfills remain open (or new ones are being created), it is difficult to make an economic success of legal waste management operations and the jobs and growth potential of the recycling sector cannot be realised. The proper treatment of hazardous waste throughout the country is of equal importance.

As regards the EU structural and cohesion funds for the programming period 2014-2020, Greece has foreseen the allocation of significant amounts for waste management

[13] Waste Management Plans/Waste Prevention Programmes

[14] 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.

[15] Eurostat, http://ec.europa.eu/eurostat/documents/2995521/7214320/8-22032016-AP-EN.pdf/eea3c8df-ce89-41e0-a958-5cc7290825c3.

[16] 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.

[17] Eurostat, Recycling rate of municipal waste, accessed October 2016. For Greece, 2014 data were not available.

projects. However, as at the time of adoption of the Operational Programmes the country had not fulfilled the relevant ex-ante conditionality (T0 6.2), it submitted an action plan and added a clause of self-suspension of funds for waste management projects, until a new national Waste Management Plan and a Waste Prevention Programme in line with the requirements of the Waste Framework Directive were put in place.

The Waste Prevention Programme was adopted in 2014 and the National Waste Management Plan (not covering all waste streams) in December 2015. According to national legislation, the updating of Regional Waste Management Plans in line with the national one is also obligatory – the 13 Regional Plans were expected to be ready by the end 2016 and some were adopted by that time.

Improving its waste management performance, preventing and reducing waste generation as well as increasing reuse and recycling rates will improve resource efficiency of the Greek economy, create jobs and provide business opportunities. Full implementation of the existing legislation could create more than 15,900 jobs in Greece and increase the annual turnover of the waste sector by EUR 1.675 million. Moving towards the targets of the Roadmap on resource efficiency which outlines how we can transform Europe's economy into a sustainable one by 2050, could create over 19,000 additional jobs and increase the annual turnover of the waste sector by almost two million euros[18].

Suggested action

- Address the issues of closure and rehabilitation of illegal landfills and of the treatment of hazardous waste as matters of absolute priority.
- Properly enforce and gradually increase landfill taxes to phase-out landfilling of recyclable and recoverable waste. Use the revenues to support the separate collection and alternative infrastructure in conjunction with a better allocation of the cohesion policy funds to the first steps of waste hierarchy. Avoid building excessive infrastructure for the treatment of residual waste.
- Invest in separate collection, sorting and recycling (including composting) in the coming years, in order to reach the 2020 recycling target.
- Extend and improve the cost-effectiveness, monitoring and transparency of existing EPR schemes and eliminate free-riding
- Complete missing Waste Management Plans in order to cover the whole territory.

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

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.

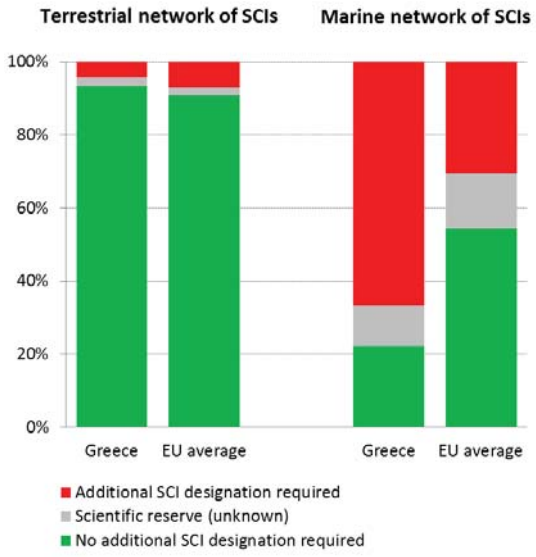
The adequate designation of protected sites as Special Ares of Conservation (SAC) under the Habitats Directive and as Special Protection Areas (SPA) under the Birds Directive is a key milestone towards meeting the objectives of the Directives. The results of Habitats Directive Article 17 and Birds Directive Article 12 reports and the progress towards adequate Sites of Community Importance (SCI)-SPA and SAC designation[19] both in land and at sea, should be the key items to measure the performance of Member States.

27.9% of the national land area of Greece is covered by Natura 2000 (EU average 18.1%), with Birds Directive SPAs covering 20.94% (EU average 12.3%) and Habitats Directive SCIs covering 16.21% (EU average 13.8%)[20]. Greece has so far designated 419 Natura 2000 sites, including 241 SCIs under the Habitats Directive and 202 SPAs under the Birds Directive.

While the terrestrial part of the Greek Natura 2000 network is largely complete, the marine part still presents significant insufficiencies in terms of designation both of SCIs and SPAs[21] (see Figure 5).

For 239 SCIs the 6-year deadline laid down by the Habitats Directive for designating them as Special Areas of Conservation (SACs) and establishing appropriate conservation objectives and measures has expired, but as of April 2016, Greece had not fulfilled these obligations.

Figure 5: Sufficiency assessment of SCI networks in Greece based on the situation until December 2013 (%)[22]



SPAs benefit from horizontal protection measures under national legislation, but a number of key implementing acts necessary to enact legal provisions are still missing.

Greece has adopted a sound and comprehensive law on biodiversity[23] and a national biodiversity strategy[24] based thereon. Neither is significantly implemented.

Management plans and other site protection tools (legal acts, management bodies) have been developed for a number of sites, in most cases through LIFE or European Regional Development Fund (ERDF) financing. However, few are actually being implemented in a coordinated and stable way.

[19] 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.

[20] 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 do not add up due to the fact that some sites are designated as both SCIs and SPAs. Special Areas of Conservation (SACs) means a SCI designated by the Member States.

[21] 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. The current data, which were assessed in 2014-2015, reflect the situation up until December 2013.

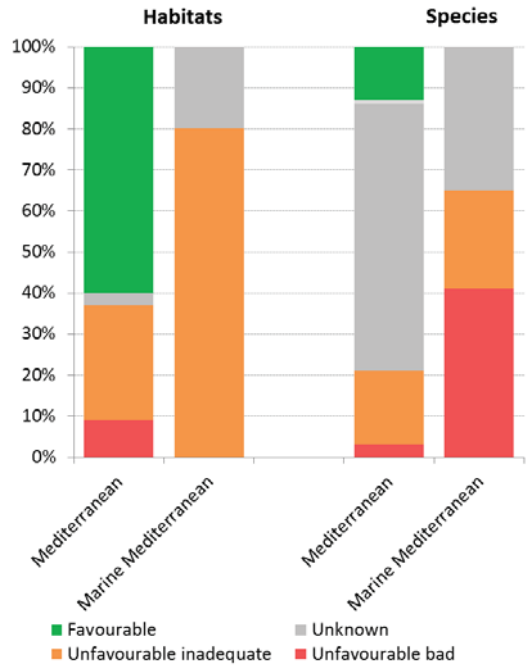
[22] European Commission, internal assessment.

[23] Law 3937/2011

[24] Ministerial Decision 40332/2014

According to the latest report[25] of Greece on the conservation status of habitats and species covered by the Habitats Directive[26], only 60% of the assessments for Mediterranean habitat types and 13% for species indicate a favourable conservation status, while for 65% of the species and 20% of marine habitats the status is unknown[27]. This is depicted in Figure 6.

Figure 6: Conservation status of habitats and species in Greece in 2006 (%)[28]



A major obstacle to the effective protection and management of the Natura 2000 sites as a whole is the lack of a national system for the comprehensive administration and functioning of protected areas (including strategy, structure, management schemes, responsibilities, financing, enforcement, monitoring).

The lack of awareness (among authorities, stakeholders, public) about Natura 2000 and its benefits, coupled with a lack of incentives for investments promoting those benefits, as well as the poor capacity to support sustainable land management and integration with other policies and to enforce legal provisions, are also acknowledged as major obstacles to achieving the objectives of the Nature Directives.

These deficiencies are illustrated by the high number of complaints and infringement cases on issues such as the degradation of designated sites, poor quality of Appropriate Assessments under Article 6(3) of the Habitats Directive, lack of strategic assessments and insufficient protection of species and habitats, also as a result of illegal activities.

The main causes of loss of biodiversity in Greece are related to past and current policies concerning unsustainable land use, agriculture, fisheries, forest use, transport, tourism and production and consumption patterns.

In 2014 Greece adopted its National Biodiversity Strategy, which officially refers to ecosystem services. The project "Towards a Natural Capital Accounting" was officially approved. The Hellenic Ecosystem Services Partnership (researchers, Civil Society Organisations, decision makers and professionals dedicated to the research into and application of Ecosystem Services[29] in the Greek part of the Mediterranean Basin) is involved in this project.

Suggested action

- Complete site designations, especially in the marine part, and put in place clearly defined conservation objectives and measures for the sites that are adequately resourced. Strengthen communication with stakeholders.
- Establish a stable and efficient national system for the administration and functioning of protected areas that can also recognise and harness the full economic potential of healthy ecosystem services.
- Build capacity of competent authorities (central, regional, site management bodies) for implementing Management Plans, increasing awareness about Natura 2000 and incentives for investments promoting its benefits, and tackling illegal activities affecting wildlife through enhanced enforcement, both within and outside Natura 2000 areas.

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

[26] Due to the overdue submission of the Greek Art. 17 report for the period 2007-2012, data are drawn from the 2001-2006 report.

[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] These figures show the percentage of biogeographical assessments in each category of conservation status for habitats and species, respectively. The information is based on Article 17 of the Habitats Directive reporting - national summary of Greece

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

- Improve the overall quality of Appropriate Assessments at plan and project level.
- Secure efficient use of available ERDF and European Agricultural Fund for Rural Development (EAFRD) funds for nature conservation, based on the Prioritised Action Framework (PAF). Greece can also capitalise on its rich natural capital to create sustainable jobs and income, notably in tourism.
- Engage and provide government support to the mapping and assessment of ecosystems and their services, valuation and development of natural capital accounting systems.

Green Infrastructure

The EU strategy on green infrastructure[30] 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.

In Greece, restoration and rehabilitation of degraded habitats and species has been carried out within some protected areas, e.g. the restoration of Lake Carla, of a burned fir forest in Parnitha National Park and of Grecian Juniper Woods in Prespa National Park.

Soil protection

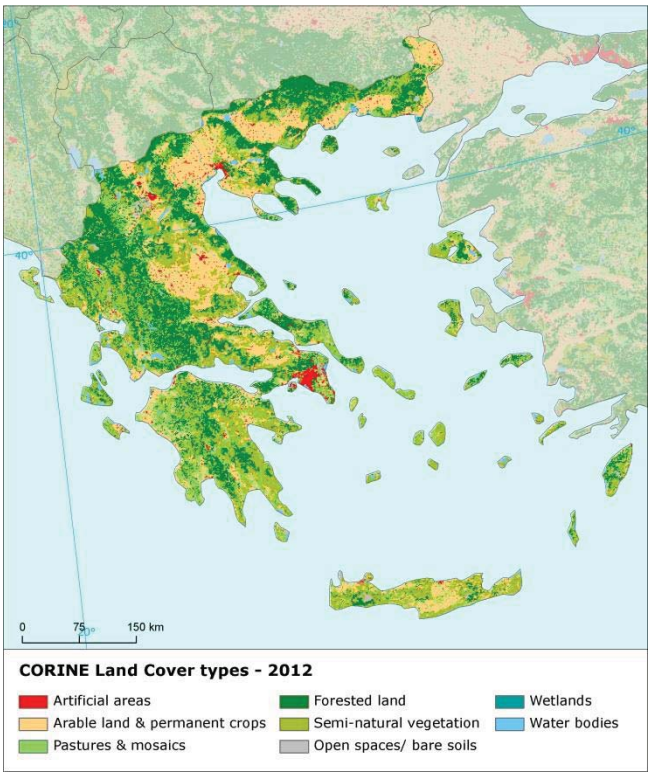
The EU Soil Thematic Strategy highlights the need to ensure a sustainable use of soils. This requires the prevention of further soil degradation and the preservation of its functions, as well as the restoration of degraded soils. The 2011 Road Map for Resource-Efficient Europe, part of Europe 2020 Strategy 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. 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 not subject to a comprehensive and coherent set of rules in the EU. Existing EU policies in areas such as agriculture, water, waste, chemicals, and prevention of industrial pollution however contribute to the protection of soils but the continuous degradation of soil suggests that it is insufficiently protected.

Figure 7 shows the different land cover types in Greece in 2012.

Figure 7: Land Cover types in Greece 2012[31]



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 percentage of built up land in Greece in 2009 was 1.35%, well below the EU-average (3.23%)[32].

The annual land take rate (growth of artificial areas) as provided by CORINE Land Cover was 0.7% in Greece over the period 2006-12, well above the EU average (0.41%). It represented 2657 hectares per year[33].

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

[31] European Environment Agency, Land cover 2012 and changes country analysis [publication forthcoming]

[32] European Environment Agency, 2016. Imperviousness and imperviousness change

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

The soil water erosion rate in 2010 was 4.13 tonnes per hectare per year, above EU-28 average (2.46 tonnes)[34].

There are still no 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 Greece 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)[35] aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 by providing an ecosystem approach to the management of human activities with impact on the marine environment. The Directive requires Member States to develop and implement a marine strategy for their marine waters, and cooperate with Member States sharing the same marine region or subregion.

As part of their marine strategies, Member States had to make an initial assessment of their marine waters, determine GES[36] and establish environmental targets by July 2012. They also had to establish monitoring programmes for the on-going assessment of their marine waters by July 2014. The next element of their marine strategy is to establish a Programme of Measures (2016). The Commission assesses whether these elements constitute an appropriate framework to meet the requirements of the MSFD.

The Mediterranean Sea region has been identified by the EEA in its 2015 State of the Environment report as one of the main climate change hotspots (i.e. one of the areas most responsive to climate change) due to water scarcity, concentration of economic activities in coastal areas, and reliance on climate-sensitive agriculture. The introduction of invasive alien species presents an important threat in the Mediterranean Sea Region with the number of invasive alien species increasing significantly since 1970. Finally, the unique biodiversity of the Mediterranean Sea Region is also threatened by pollution from land-based sources, such as discharges of excess nutrients and hazardous substances, marine litter, over-fishing, and degradation of critical habitats.

With regard to the specificities of the implementation of the MSFD, there is a lack of clarity in what constitutes GES, as there is no systematic use of the 2010 Commission's Decision criteria and indicators and in most cases no threshold values and baselines are provided. Thus, the criteria for GES were not considered as measurable[37].

It is therefore too early to say whether Greek waters are in good status.

Greece has not yet reported on its monitoring programme under the MSFD, therefore no assessment has been carried out, contrary to other Member States, for which the Commission provided guidance in its report assessing monitoring programmes under the MSFD[38].

In 2012, Greek marine protected areas covered 7,413.5 square kilometres of its marine waters, with 2,521.6 square kilometres in the Ionian and Central Mediterranean Sea, 74.1 square kilometres in the Adriatic Sea and 4,817.8 square kilometres in the Aegean and Levantine Sea[39].

Suggested action

- Continue work to improve the definitions of GES, including through regional cooperation by using the work of the relevant Regional Sea Convention with the aim to make GES measurable.
- Urgently report and implement the national programme of measures[40].
- Finalise, implement and report to the Commission the monitoring programme of Greek marine waters as soon as possible.
- 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.

[34] Eurostat, Soil water erosion rate, accessed June 2016

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

[36] The MSFD defines Good Environmental Status (GES) in Article 3 as: "The environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive"

[37] Commission Staff Working Document Accompanying the Commission Report on "The first phase of implementation of the Marine Strategy Framework Directive (2008/56/EC) - The European Commission's assessment and guidance" (SWD(21014) 049 final and COM(2014)097 final)

[38] Report from the Commission assessing Member States' monitoring programmes under the Marine Strategy Framework Directive (COM(2017)3) and its accompanying Staff Working Document (SWD(2017)1 final).

[39] 2012 Data provided by the European Environmental Agency – Not published

[40] As of 7.10.2016, Greece had not yet reported its programme of measures to the Commission

3. Ensuring citizens' health and quality of life

Air quality

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

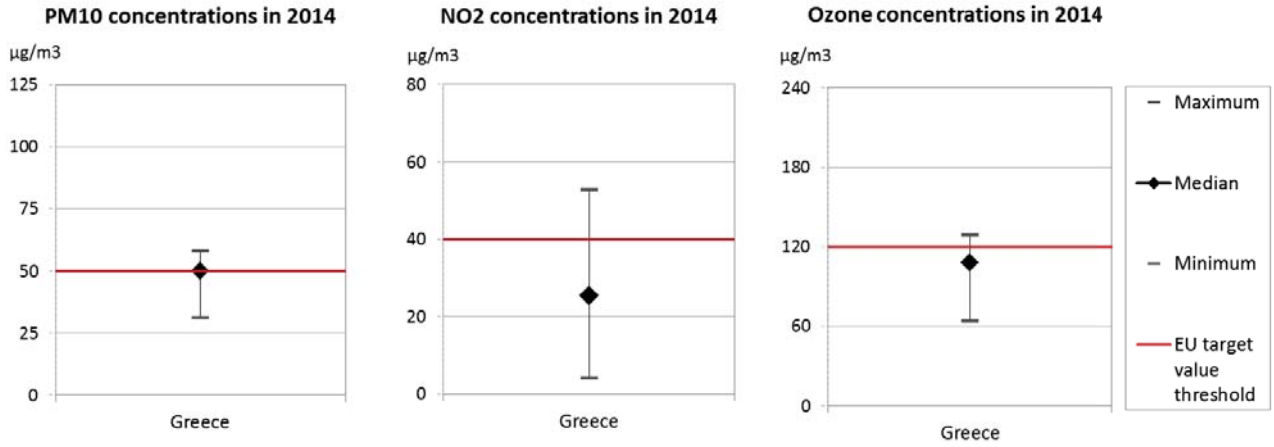
The EU has developed a comprehensive suite of air quality legislation[41], which establishes health-based standards and objectives for a number of air pollutants. As part of this, Member States are also required to ensure that up-to-date information on ambient concentrations of different air pollutants 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 Greece[42]. Reductions between 1990 and 2014 for sulphur oxides (-71%), nitrogen oxides (-24%), ammonia (-28%) as well as volatile organic compounds (-53%) ensure air emissions for these pollutants are within the currently applicable national emission ceilings[43].

At the same time, air quality in Greece continues to give cause for concern. For the year 2013, the European Environment Agency estimated that about 13,730 premature deaths were attributable to fine particulate matter[44] concentrations, more than 840 to ozone[45] concentrations and 1,490 to nitrogen dioxide[46] concentrations.[47] This is also due to exceedances above the EU air quality standards, such as shown in Figure 8[48].

For 2014, exceedances above the EU air quality standards were registered for nitrogen dioxide (NO_2) and particulate matter (PM_{10}) in one air quality zone each (Athens and Thessaloniki, respectively). Furthermore, in

Figure 8: Attainment situation for PM10, NO2 and O3 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.*

[41] European Commission, 2016. Air Quality Standards

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

[43] 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.

[44] 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 both combustion and non-combustion sources.

[45] Low level ozone is produced by photochemical action on pollution and it is also a greenhouse gas.

[46] 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).

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

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

several air quality zones the target values and long-term objectives regarding ozone concentrations are not being met.[49]

The persistent breaches of air quality requirements (for PM_{10}), 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 Greece. The aim is that adequate measures are put in place to bring all zones into compliance.

It is estimated that the health-related external costs of air pollution in Greece are above EUR 7 billion/year (income adjusted, 2010), which include not only the intrinsic value of living a full, healthy life, but also direct costs to the economy. These direct economic costs relate to 3 million workdays lost each year due to sickness related to air pollution, with associated costs for employers of EUR 396 million/year (income adjusted, 2010), for healthcare of above EUR 27 million/year (income adjusted, 2010), and for agriculture (crop losses) of EUR 108 million/year (2010)[50].

Suggested action

- Maintain downward emissions trends of air pollutants in order to achieve full compliance with air quality limit values - and reduce adverse air pollution impacts on health, environment and economy.
- Reduce nitrogen oxide (NOx) emissions to comply with currently applicable national emission ceilings[51] and/or to reduce nitrogen dioxide (NO2) (and ozone concentrations), inter alia, by reducing transport related emissions - in particular in urban areas.
- Reduce PM10 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[52]. 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.

The implementation of the Environmental Noise Directive[53] in Greece is delayed. Due to the implementation method adopted, an in-depth analysis is not possible at the moment.

Suggested action

- Complete noise mapping and 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*[54] 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

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

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

[51] 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.

[52] 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

[53] 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.

[54] 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)

nautical mile.

In its first generation of RBMPs Greece reported the status of 1142 rivers, 48 lakes, 43 transitional, 133 coastal and 366 groundwater bodies. 49% of natural surface water bodies achieve a good or high ecological status[55] (while the status of 21% is unknown) and only 6% of heavily modified or artificial water bodies achieve a good or high ecological potential (43% unknown). Only 44% of surface water bodies (51% unknown), 13% of heavily modified and artificial water bodies (60% unknown) and 85% of groundwater bodies achieve good chemical status[56]. 83% of groundwater bodies are in good quantitative status[57].

The main pressure on the Greek surface waters is diffuse pollution[58], which affects 63% of water bodies. Point sources of pollution affect 44% of water bodies and abstraction 6%. There are significant regional differences, e.g. diffuse sources of pollution affect all water bodies in the Northern and Western Peloponnese river basin district but only 15% in the Western Macedonia river basin district.

The Greek RBMPs have some deficiencies that result in uncertainties about the status and effectiveness of Programmes of Measures (PoMs). In particular there are weaknesses in monitoring, methodologies for status assessment and the link between pressures and PoMs. The planned measures are expected to result in the improvement of the ecological and chemical status of surface water bodies by 11% and 3% respectively. The measures should also bring about the improvement of ecological potential of artificial and heavily modified water bodies[59] by 8% and of chemical status by 3%.

The adoption of the second generation of all (14) Greek RBMPs, which was expected in December 2015, has been significantly delayed.

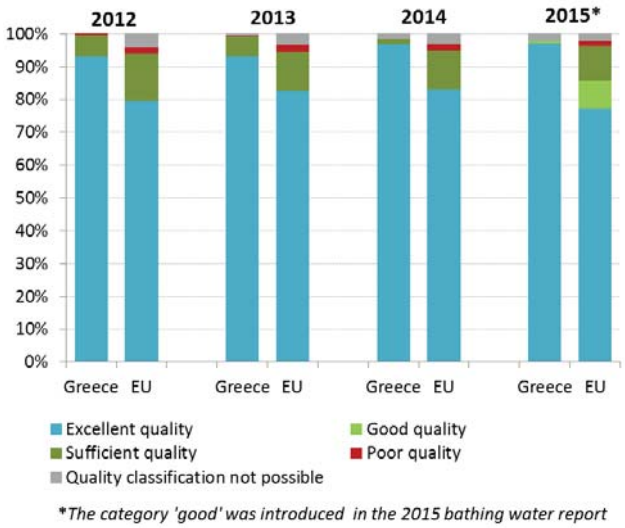
Greek legislation related to nitrates is obsolete and there are currently two infringement procedures open concerning the Nitrates Directive: one concerning the need to designate further nitrate vulnerable zones and to establish proper action programmes for these new zones and one concerning the non-adequacy of the action programmes for the existing nitrate vulnerable zones.

The nitrate vulnerable zone designation has been improved, but Greece still needs to improve the measures implementing the Nitrates Directive and establish proper action programmes for all nitrate vulnerable zones (existing and new ones)

As regards drinking water, Greece reaches very high compliance rates of 99-100% for microbiological, chemical and indicator parameters laid down in the Drinking Water Directive[60].

As shown in Figure 9, in Greece in 2015 out of 1542 bathing waters, 97.2% were of excellent quality and 0.6% of good quality, while it was not possible to assess the remaining 34 bathing waters.

Figure 9: Bathing water quality 2012 – 2015[61]



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

With a total generated load of 12.3 million population equivalents (p.e.) and 492 agglomerations above 2000 p.e., Greece demonstrates high general compliance rates with the Urban Waste Water Treatment Directive: 100% for collection (Article 3), albeit with large part of its agglomerations served by individual systems, and 96.4% for secondary treatment of waste water (Article 4). However, some areas have been very slow to comply, resulting in advanced legal action.

99.6% of the waste water load collected is subject to more stringent treatment in accordance with Article 5 of the Urban Waste Water Treatment Directive. It should be noted that 23% of the Greek territory is considered as sensitive, i.e. more stringent treatment is applicable only there and in the agglomerations whose size is above 10,000 p.e. However, 16% of the above-mentioned total p.e. is addressed via individual or other systems, whose appropriateness to protect the environment might be

[55] 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.

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

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

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

[59] 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.

[60] 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

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

questionable[62].

Management and prevention of floods is an area where potentially more economical nature-based solutions could improve resource efficiency through reducing costs and delivering multiple benefits. Over the last decade Greece has claimed damages to the EU Solidarity Fund for one major and three regional floods, which caused damages of over EUR 3 billion. The total EU aid granted amounts to EUR 112.7 million.

The absence of flood risk and flood hazard maps in Greece is the subject of an infringement procedure initiated in 2015.

Suggested action

- Improve water policy in line with the intervention logic of the Water Framework Directive[63], i.e. update as soon as possible the first RBMPs, do a more detailed assessment of pressures to improve monitoring in order to know the status of water bodies and design effective PoMs that address all the main pressures identified. Improve assessment methods to provide more certainty about the water status.
- Cover all identified pressures and implementation gaps in PoMs and ensure adequate funding.
- Assess new physical modifications of water bodies in line with article 4(7) of the Water Framework Directive. In these assessments alternative options and adequate mitigation measures have to be considered.
- Move forward quickly with the preparation of new Action Programmes fully compliant with the provisions of the Nitrates Directive.
- Complete implementation of the Urban Waste Water Treatment Directive, giving priority to those agglomerations that are subject to an infringement case.

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[64]. 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[65].

The European Commission will launch a new EU benchmark system in 2017[66].

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.

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

[62] European Commission, Eighth Report on the Implementation Status and the Programmes for Implementation of the Urban Waste Water Directive (COM (2016)105 final) and Commission Staff Working Document accompanying the report (SWD (2016)45 final).

[63] The full set of recommendations in relation to the WFD are here

[64] European Environment Agency, Urban environment

[65] http://urbanagendaforthe.eu/

[66] 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, Committee of the Regions, Covenant of Mayors and others.

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.

Currently, Greece has signed but not yet ratified the Offshore Protocol of the Barcelona Convention, the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean, the Protocol on Integrated Coastal Zone Management, three agreements under the Convention on Long-range Transboundary Air Pollution (the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, the Persistent Organic Pollutants Protocol and the Heavy Metals Protocol), the Kiev Protocol on Pollutant Release and Transfer Registers, the African-Eurasian Migratory Waterbird Agreement, the Protocol on Strategic Environmental Assessment to the Espoo Convention, and the Nagoya Protocol[67].

Suggested action

- Increase efforts to be party to relevant multilateral environmental agreements, by signing and ratifying the remaining ones.

[67] Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

Part II: Enabling Framework: Implementation Tools

4. Market based instruments and investment

Green taxation and environmentally harmful subsidies

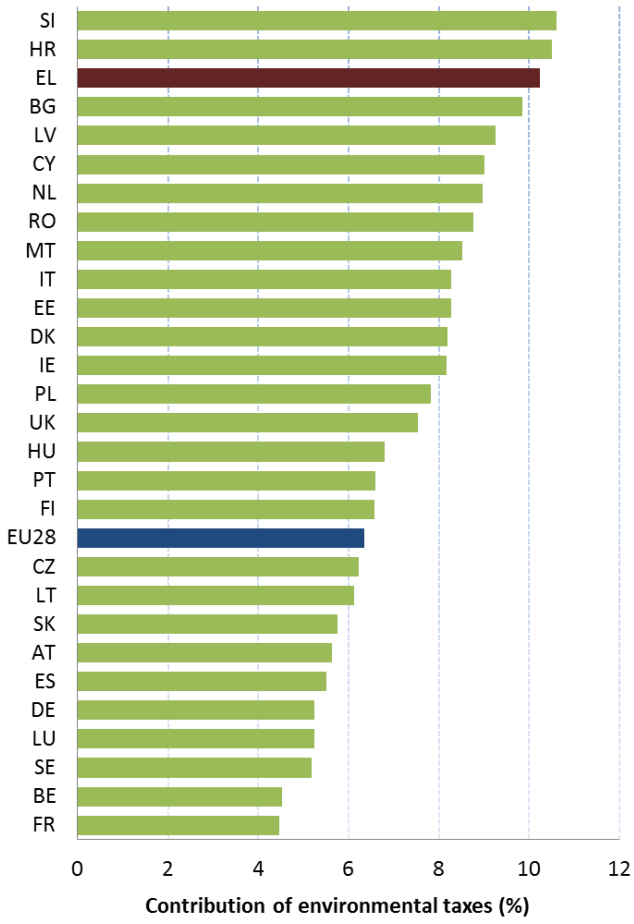
The Circular Economy Action Plan encourages the use of financial incentives and economic instruments, such as taxation to ensure that product prices better reflect environmental costs. The phasing out of environmentally harmful subsidies is monitored in the context of the European Semester and in national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

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

Revenues from environment-related taxes reached 3.68% of GDP in 2014 in Greece against an EU average of 2.46%. This percentage share is up from 3.55% in the preceding year. Energy taxes amounted to 2.94% of GDP, significantly above the EU average of 1.88%[68]. In the same year environmental tax revenues accounted for 10.24% of total revenues from taxes (excluding social-security contributions) (EU-28 average: 6.35%) as shown in Figure 10.

A 2016 study suggests that there is considerable potential for shifting taxes from labour to environmental taxes[69]. Under a good practice scenario[70] these could generate an additional EUR 1.41 billion in 2018, rising to EUR 3.01 billion in 2030 (both in real 2015 terms). This is equivalent to an additional 0.72% and 1.09% of GDP in 2018 and 2030, respectively. The largest potential source of revenue would come from the proposed amendments to taxes on transport fuels: currently Greece taxes diesel fuel much lower than petrol, which is not justified by the level of environmental impacts those fuels have. The increase could account for EUR 1.12 billion in 2030 (real 2015 terms), equivalent to 0.4% of GDP. The next largest contribution could come from the introduction of a water abstraction tax. This accounts for EUR 0.96 billion in 2030 (real 2015 terms), equivalent to 0.35% of GDP.

Figure 10: Environmental tax revenues as a share of total revenues from taxes and social contributions (excluding imputed social contributions) in 2014[71]



Greece provides a full refund of excise duty paid on fuels used for domestic shipping purposes. As of 1 April 2012, it has been providing a partial refund of excise duty paid on diesel used in agriculture. The excise duty paid on diesel used for industrial or commercial purposes is also reduced. Tax exemptions and reductions exist for coal and coke used exclusively for electricity generation. In addition, electricity used in agriculture is exempt from excise tax[72]. Such subsidies go against the climate and

[68] Eurostat, Environmental tax revenues, accessed June 2016

[69] 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.

[70] The good practice scenario means benchmarking to a successful taxation practice in another Member State.

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

[72] OECD, 2013. "Foreword", in Taxing Energy Use: A Graphical Analysis, OECD Publishing.

energy policy objectives; removing them would be beneficial both for the environment and the budgetary debt reduction.

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[73]. 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.

Currently there is no National Action Plan (NAP) or National Strategy on GPP in Greece. Legislation is under preparation, stipulating the development of a GPP NAP.[74]

According to a 2010 study, the share of Greek authorities that included GPP requirements in between 50% and 100% of their contracts is estimated between 10 and 20%[75].

Investments: the contribution of EU funds

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

Making good use of the European Structural and Investment Funds (ESIF)[76] is essential to achieve the environmental goals and integrate these into other policy areas. Other instruments such as the Horizon 2020, the LIFE programme and the EFSI[77] may also support implementation and spread of best practice.

For the 2014-2020 programming period Greece has adopted 20 operational programmes (OPs). In particular, 13 Regional multi-fund Programmes (ERDF & ESF) and 7 national sector-specific programmes, namely one for Competitiveness, Entrepreneurship and Innovation (ERDF & ESF), one for Transport Infrastructures, Environment & Sustainable Development (ERDF & CF), one for Reform of Public Sector (ERDF & ESF), one for Human Resources, Education and Lifelong Learning (ESF), one for Technical Assistance (ERDF, ESF & CF), one for the European Agricultural Fund for Rural Development (EAFRD) and one for the European Maritime and Fisheries Fund (EMFF) are foreseen.

In the new period the total amount that Greece will receive is EUR20.6 billion (EC contribution).

The biggest share – EUR 8.1 billion (40.1%) of funding is coming from the European Fund for Regional Development (ERDF).

EUR 4.7 billion (23.1%) – from the European Agricultural Fund for Rural Development (EAFRD).

EUR 3.6 billion (18.1%) - from the European Social Fund (ESF).

EUR 3.2 billion (15.9%) - from the Cohesion Fund (CF).

EUR 388.7 million (1.9%) from the European Maritime and Fisheries Fund (EMFF).

In total, EUR 4.2 billion is dedicated to Thematic objective (TO) 6 Environment Protection and Resource efficiency, EUR 1.73 billion through the CF, EUR 1.39 billion through the EAFRD programme, EUR 1 billion through the ERDF programme and EUR 136 million through the EMFF. In addition, EUR 2.1 billion is foreseen for TO4 Low Carbon Economy (ERDF, CF, EAFRD and EMFF) and EUR 1.2 billion for TO5 Climate Change Adoption and Risk Prevention (EAFRD, ERDF and CF) (see Figure 11).

Greece is a major user of the European Investment Portal. This may help to attract investment into Greek environmental projects.

Figure 11 depicts the 2014-2020 EU Structural and Investment Funds budget allocation for Greece.

[73] European Commission, 2015. Public procurement

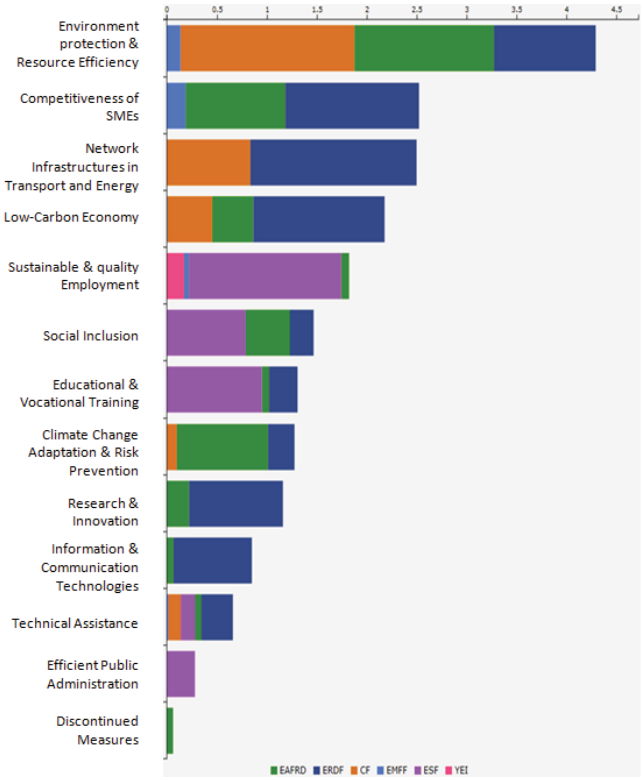
[74] European Commission, 2015. Documentation on National GPP Action Plans

[75] Adelphi et al. 2011. Strategic Use of Public Procurement in Europe, Study for the European Commission

76 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.

77 European Investment Bank, 2016 European Fund for Strategic Investments

Figure 11: European Structural and Investment Funds 2014-2020: Budget Greece by theme, EUR billion[78]



One good practice example is the Environmental Network, a network of national and regional environmental and managing authorities ensuring integration through the ESIF activities[79].

With regard to the integration of environmental concerns into the Common Agricultural Policy (CAP), the two key areas for Greece (as for all Member States) are, firstly, 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 the effective implementation of the first pillar of the CAP with regard to cross-compliance and first pillar 'greening'.

With regard to the Rural Development second pillar, the total EAFRD budget for Greece is EUR354m, of which 7.5% is allocated to the agri-environment-climate measure. Many of the Greek environmental measures remain near the baseline, lacking environmental ambition. Poor coverage by Natura 2000 management plans puts biodiversity at risk, and this should have been given more focus. The situation with regard to irrigation and water management also needs to be kept up to date with the implementation of the Water Framework Directive.

For the first pillar, the national direct payment envelope is EUR185bn/year, for which 30% is allocated to greening. Given the prevalence of small farms and permanent crops in Greece, the impact of greening is reduced.

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 at an early stage of their implementation. As for the 2007-2013 period, data suggest that the total use of ERDF and CF as of September 2016 is 99.5% for all investment categories, including the environmental sector[80].

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

[79] http://www.eysped.gr/el/Pages/epedi.aspx

[80] Final data for the period 2007-2013 will only be available at the end of 2017.

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[81]. 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.

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

Capacity to implement rules

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

The Ministry of Environment & Energy is responsible for the elaboration of a global environmental policy, the preparation of plans and programmes, and the control of their execution. The Ministry is also in charge of the transposition of EU environmental Directives into national law.

At the decentralised level, the regional and municipal authorities exercise, within their areas, certain environmental competences and assure the practical application of various environmental measures (e.g. water quality, waste management, impact assessments). An environmental inspectorate has been operational since 2004, but its decisions and reports are often ignored.

Reaching the deadlines and requirements imposed by EU environmental legislation appears to remain an issue of concern. This could be explained by the relatively low (and reduced during the last years) number of human resources dealing with the huge environmental acquis, combined with the bottlenecks created by the lengthy and complicated administrative procedures in place, which often involve many actors from various levels of public administration.

The number of open cases is very high (27 infringement cases, of which 19 at 258 stage and 8 at 260 stage). In general, there are no significant problems regarding the quality of transposition of the EU Directives (the problems are essentially related to their implementation). The Court of Justice has imposed fines on Greece for non-compliance with EU law provisions in the fields of solid waste and urban waste water

treatment and penalty payments remain due as long as the judgments of the Court are not fully executed by the Member State.

The transposition of the revised EIA Directive[82] will be an opportunity to streamline the regulatory framework on environmental assessments. The Commission encourages the streamlining of the environmental assessments to avoid overlaps in environmental assessments and accelerate decision-making, without compromising the quality of the environmental assessment procedure. The Commission has issued a guidance document in 2016[83] regarding the setting up of coordinated and/or joint procedures that are simultaneously subject to assessments under the EIA Directive, Habitats Directive, Water Framework Directive, and the Industrial Emissions Directive.

Suggested action

- Simplify environmental administrative procedures and improve cooperation of public authorities (at national, regional and local levels) involved in the application of environmental policies.

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[84] and action under liability law (e.g. required remediation after damage from an accident using liability rules) and contractual law (e.g. measures to require compliance with nature conservation contracts). Taken together, all of these interventions represent "compliance assurance" as shown in Figure 12.

Figure 12: 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*[85], *EUFJE*[86], *ENPE*[87] *and EnviCrimeNet*[88], 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)[89] 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[90].

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

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

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

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

[86] European Union Forum of judges for the environment

[87] The European Network of Prosecutors for the Environment

[88] EnviCrimeNet

[89] European Union, Environmental Liability Directive 2004/35/CE, p.56

[90] 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.

Over the last decade, Greece has made efforts to improve its system of inspections of industrial facilities. Some relevant data collection and analysis are undertaken and annual activities reports are published online by the Hellenic Environmental Inspectorate, which is empowered to carry out inspections and other compliance assurance tasks across environmental policy subject-areas[91].

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

- data-collection arrangements to track the use and effectiveness of different compliance assurance interventions;
- 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[92], especially specific problem-areas highlighted elsewhere in this Country Report, i.e. illegal landfills, the threats to protected habitat types and species, poor air quality and the pressures on water quality from diffuse and point sources of pollution, including deficient urban and domestic waste-water systems.
- how the Greek authorities ensure a targeted and proportionate response to different types of non-compliant behaviour, in particular in relation to serious breaches detected, given indications that there is a low probability of being criminally prosecuted and sentenced for environmental offences.

Greece does not actively participate in the activities of the European networks of environmental professionals, in particular since the beginning of the financial crisis.

For the period 2007-2013, Greece reported 52 cases handled according to the requirements of the Environmental Liability Directive. The country established a supporting administrative office for the implementation of the Directive and has participated in the Commission's training programme for competent authorities and other stakeholders. It also decided to establish mandatory financial security (to pay for remediation where operators cannot) which however has not become operational to date. The implementation of the Directive appears to have had positive effects on taking preventive measures and addressing environmental damage, but lack of resources presents a challenge.

Suggested action

- Improve transparency on the organisation and functioning of compliance assurance and on how significant risks are addressed, as outlined above.
- Encourage greater participation of competent authorities in environmental compliance networks.
- Step up efforts in the implementation of the Environmental Liability Directive (ELD) with proactive initiatives, in particular by drafting national guidance.

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.

Greece grants the public, notably individuals and NGOs, a broad access to justice in environmental cases. The costs for bringing a case to a court are also not prohibitively high. This guarantees that members of the public are provided with good conditions for asking for a judicial review in environmental matters in Greece. However, the court procedures, including environmental cases, in Greece are very long[93].

[91] Hellenic Environmental Inspectorate

[92] Weaknesses have been identified concerning strategic planning and preparation of inspection plans and programmes, see Study on 'Assessment and summary of the Member States' implementation reports for the IED, IPPCD, SED and WID. Industrial Emissions Directive, 2016, Amec Foster Wheeler Environment&Infrastructure UK Ltd in collaboration with Milieu Ltd, p. 234-235.. Weaknesses have also been identified in relation to control of water abstraction, see European Court of Auditors, Special Report No 4, 2014, Integration of EU water policy objectives with the CAP: a partial success, p. 31f

[93] European Commission, 2012/2013 access to justice in environmental matters

Access to Information, knowledge and evidence

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

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

The Aarhus Convention[94], the Access to Environmental Information Directive[95] and the INSPIRE Directive[96] 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[97]. 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.

Greece's performance on the implementation of the INSPIRE Directive as enabling framework to actively disseminate environmental information to the public leaves room for improvement. Greece has indicated in the 3-yearly INSPIRE implementation report[98] 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 but not fully implemented. Although it is mandated by Greek law that spatial data have to be exchanged free of charge between public authorities, the implementation of this legislation within Greek administration is in many cases problematic. Of 600 spatial data sets that have been identified by Greece, only 30 have been made available for publication.

Assessments of monitoring reports[99] issued by Greece and the spatial information that Greece has published on the INSPIRE geoportal[100] 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 (Annex III of the INSPIRE Directive), which may be due to lacking or insufficient coordination in Greece between INSPIRE stakeholders.

Suggested action

- Critically review the effectiveness of data policies and amend them, taking 'best practices' into consideration.
- 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.

[94] UNECE, 1998. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters

[95] European Union, Directive 2003/4/EC on public access to environmental information

[96] European Union, INSPIRE Directive 2007/2/EC

[97] European Union, EU eGovernment Action Plan 2016-2020 - Accelerating the digital transformation of government COM(2016) 179 final

[98] European Commission, INSPIRE reports

[99] Inspire indicator trends

[100] Inspire Resources Summary Report