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# Environmental indicator report 2018

## In support to the monitoring of the Seventh Environment Action Programme

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European Environment Agency

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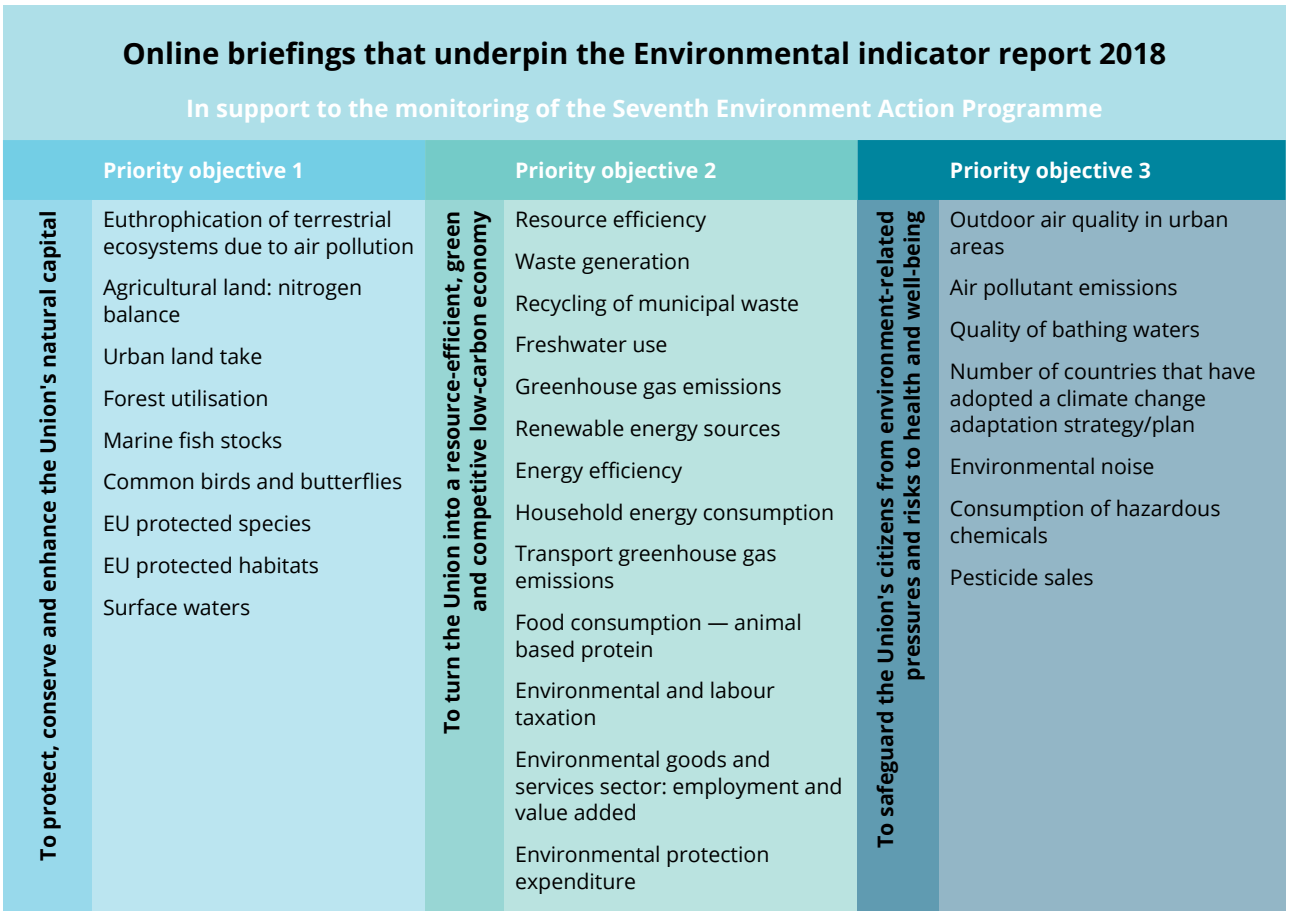
# Online briefings underpinning this report




**https://www.eea.europa.eu/airs/2018**

# Summary

This is the third edition of the annual European Environment Agency (EEA) *Environmental indicator report — in support to the monitoring of the European Union Seventh Environment Action Programme*.

The Seventh Environment Action Programme (7th EAP) 2014-2020 provides an overarching strategic framework for EU environment policy planning and implementation. It contains nine priority objectives, of which three thematic priority objectives are considered central. These aim to:

1. 'protect, conserve and enhance the Union's natural capital';

2. 'turn the Union into a resource-efficient, green, and competitive low-carbon economy';

3. 'safeguard the Union's citizens from environment-related pressures and risks to health and well-being'.

As with the first two editions, this report examines — with the help of 29 indicators — whether or not the EU is on the right path to achieve the 7th EAP's three thematic priority objectives by 2020. The report updates last year's results with the latest data (mainly from 2016 and 2017) and information.

Table S.1 summarises the indicator results across the three priority objectives in a scoreboard. For each indicator, more detailed assessments are available online ([1]). The table shows long term indicator past trends as well as the outlook for meeting selected objectives relevant to the achievement of the thematic priority objectives by 2020 ([2]). A full description of the scoreboard methodology including a conceptual illustration can be found in Box 3 (see page 12).

This year's scoreboard enables the following summary assessment of progress by 7th EAP thematic priority objective to be made:

- Priority objective 1: the EU's natural capital is not yet being protected, maintained and enhanced in line with the ambitions of the 7th EAP. The 2020 outlook remains bleak overall for the selected set of objectives related to this priority objective.

- Priority objective 2: the 2020 outlook shows mixed progress. The EU is on track to meet climate and renewable energy related targets, although it is uncertain whether it will meet its energy efficiency target. There have been resource efficiency improvements. However, waste generation increased recently and a reduction in the environmental impact of production and consumption is uncertain for the housing sector and unlikely for the food and mobility sectors.

- Priority objective 3: the 2020 outlook for this objective is also mixed. There have been substantial reductions in emissions of air and water pollutants in recent decades. However, there are still key concerns over air quality and noise pollution in urban areas, and chronic exposure of the population to mixtures of chemicals.

Overall progress per thematic priority objective remains similar to that depicted in the scoreboards in the previous two editions of this report: positive and negative trends and outlooks across the board and a gloomy outlook for Priority objective 1. Nevertheless, the prospects of meeting some of the selected objectives within the priority objectives have deteriorated from one year to the next.

Last year's scoreboard amended downwards the 2020 prospects for meeting the objectives that corresponded to land take and ammonia emissions indicators — see Priority objectives 1 and 3 in table S1.

The changes in these two 2020 outlooks have been retained in this year's scoreboard. The latest data show that ammonia emissions, arising mainly from

([1]) https://www.eea.europa.eu/airs/2018

([2]) The table shows that in some cases although there have been improvements in the past it is unlikely that the related objectives will be met by 2020. This is because the improvements to-date and any expected improvements up to 2020 will not be sufficient to meet the objectives.

**Table S.1 Indicator scoreboard by 7th Environment Action Programme thematic priority objective**

| Indicator | EU indicator past trend [a] | Outlook for meeting the selected objective by 2020 |
|---|---|---|
| **Priority objective 1: 'to protect, conserve and enhance the Union's natural capital'** | | |
| (!) Exposure of terrestrial ecosystems to eutrophication due to air pollution (*) | ▲ | ● |
| Gross nutrient balance in agricultural land: nitrogen | ▲ | ● |
| (!) Land take (*) | ▲ | ● |
| (!) Forest: growing stock, increment and fellings | ▲ | ● |
| Status of marine fish and shellfish in European seas | ▲ | ● |
| Abundance and distribution of selected species (common birds (*) and grassland butterflies) | ▲ | ● |
| (!) Species of European interest | ▲ | ● |
| (!) Habitats of European interest | ▲ | ● |
| Status of surface waters | ▲ | ● |
| **Priority objective 2: 'to turn the Union into a resource-efficient, green, and competitive low-carbon economy'** | | |
| Resource productivity | ▲ | ● |
| Waste generation in Europe (excluding major mineral wastes) — absolute and per capita | ▲ | ● |
| Recycling of municipal waste (*) | ▲ | ● |
| Use of freshwater resources | ▲ | ● |
| Total greenhouse gas emission trends and projections | ▲ | ● |
| Share of renewable energy in gross final energy consumption | ▲ | ● |
| Progress on energy efficiency in Europe | ▲ | ● |
| Energy consumption by households | ▲ | ● |
| Greenhouse gas emissions from transport | ▲ | ● |
| (!) Animal product consumption (animal protein) | ▲ | ● |
| Share of environmental and labour taxes in total tax revenues | ▲ | ● |
| Employment and value added in the environmental goods and services sector (EGSS) compared with the whole economy | ▲ | ● |
| Environmental protection expenditure in Europe (deflated absolute value) | ▲ | ● |
| **Priority objective 3: 'to safeguard the Union's citizens from environment-related pressures and risks to health and well-being'** | | |
| Exceedance of air quality standards in urban areas (nitrogen dioxide: $NO_2$; dust particles: $PM_{10}$; fine particulate matter: $PM_{2.5}$; ozone: $O_3$) | ▲ $NO_2$, $PM_{10}$, $PM_{2.5}$<br>▲ $O_3$ | ● |
| Emissions of the main air pollutants in Europe (sulphur oxides: $SO_2$; nitrogen oxides: $NO_x$; fine particulate matter: $PM_{2.5}$; non-methane volatile organic compounds: NMVOCs; ammonia: $NH_3$) (*) | ▲ $SO_2$, $NO_x$, $PM_{2.5}$, NMVOCs<br>▲ $NH_3$ | ● $SO_2$, $NO_x$, $PM_{2.5}$ NMVOCs<br>● $NH_3$ |
| Bathing water quality | ▲ | ● |
| Number of countries that have adopted a climate change adaptation strategy and/or plan | N.A. | ● |
| Exposure to environmental noise | ▲ | ● |
| Consumption of chemicals, by hazard class | ▲ | ● |
| Total sales of pesticides | ▲ | ● |

| EU indicator past trend | | Outlook for meeting the selected objective by 2020 | |
|---|---|---|---|
| ▲ | Improving trend | ● | It is likely that the EU will meet the objective by 2020 |
| ▲ | Stable or unclear trend | ● | It is uncertain whether or not the EU will meet the objective by 2020 |
| ▲ | Deteriorating trend | ● | It is unlikely that the objective will be met by 2020 |

**Notes:** [a] The examined past trend period is unique to each indicator and is specified in Annex 2.

(*) The indicator past trend is also available at EEA member country aggregate level and not just at EU aggregate level. The colour assessment remains the same for the EU and the EEA member country (including the EU) indicator past trend.

(!) The indicator has not been updated with more recent data in this year's report.

N.A. Non applicable.

agricultural production, have continued to increase. Also, although there are no more recent land take (i.e. land lost to artificial surfaces such as buildings and roads) data in this edition of the report, there are still no policies in sight promoting the necessary reductions in the rate of land take to remain on track to meeting the related 2020 objective.

Under Priority objective 2 of this year's scoreboard, the 2020 prospects for three more indicators were adjusted downwards. Concerns were also raised in relation to a fourth indicator.

First, primary energy consumption (used here to measure progress in energy efficiency) increased in both 2015 and 2016. Preliminary estimates show that it also increased in 2017, reaching a higher level than that corresponding to the linear pathway required to meet the energy efficiency target by 2020. The outlook towards meeting the energy efficiency target by 2020 has therefore been changed from likely to uncertain.

Energy consumption in households (used as a proxy to track progress in reducing the overall environmental impact of production and consumption in the housing sector) increased both in 2015 and 2016 ([3]) . Energy efficiency improvements in the housing sector over these years were not sufficient to outweigh the increase in energy consumption. This makes the prospects of reducing household energy consumption within the period of the 7th EAP uncertain. As such, this edition has revised the outlook towards meeting this objective from likely to uncertain to be met by 2020.

The third indicator concerns transport greenhouse gas emissions (used as a proxy to track progress in reducing the overall environmental impact of production and consumption in the mobility sector), which increased year-on-year from 2014 until 2016. Preliminary estimates show that emissions also increased in 2017. This makes it more unlikely that there will be an overall reduction in greenhouse gas emissions from transport during the period of the 7th EAP implementation (2014-2020). As such, this year's scoreboard has modified the outlook towards meeting this objective from uncertain to unlikely to be met by 2020.

Waste generation increased over the 2010-2016 period, in particular since 2014. The prospects of waste generation being in decline by 2020 remained, as with the previous years' scoreboard assessments, uncertain, not least because of the few data points available for the assessment. Nevertheless, the risk that the EU will miss this 2020 objective increased.

For several other scoreboard indicators — across the three thematic priority objectives — analysis showed a slow-down in progress in the more recent years of the examined time series ([4]). These developments do not currently mean there is an increased risk of a downwards amendment of the prospects for meeting the 2020 objectives that correspond to these indicators. This is either because previous progress has been enough to keep the EU on track or because it is already known that the objectives will not be met.

The low economic activity level in the EU following the 2008 financial crisis contributed to several of the positive past trends shown in the scoreboard. However, the EU's relatively high economic growth in recent years has contributed to the recent deceleration in progress observed for several of the examined indicators.

This environment-economy relationship underscores that further environment and climate policy implementation efforts across the board are essential. It also highlights that a lot more focus on mainstreaming further environmental and climate objectives into those policy domains that contribute most to the degradation of natural capital, human health impacts, inefficient use of natural resources and climate change is needed. The most important domains include energy supply and demand, agri-food production and consumption, transport and mobility, and urban infrastructure development.

([3]) 2016 is the latest year with available data for this indicator.

([4]) More specifically a slow-down in progress was observed in gross nitrogen balance in agricultural land, resource productivity, total greenhouse gas emissions, share of renewable energy in gross final energy consumption, employment and value added in the environmental goods and services sector, exceedances of the nitrogen dioxide air quality standard and emissions of sulphur oxides, nitrogen oxides and non-methane volatile organic compounds.

Looking beyond 2020, the EU can most effectively make progress towards wider sustainability commitments through ambitious policies, and sizeable and sustainable financial investments in support of their implementation.

More specifically, the EU will need to accelerate climate change mitigation and adaptation efforts, the preservation of natural capital and the reduction of the impacts of environmental pollution on people's health in order to achieve the 7th EAP's 2050 vision of 'living well, within the limits of our planet'. These efforts will also contribute to meeting the many related EU commitments under the 2015 Paris Agreement on climate change and the United Nations' 2030 Agenda for Sustainable Development.

The focus of these efforts should be on transforming production and consumption aspects of the economy, including the influence of Europe's consumption patterns on natural capital and people's health outside Europe — our so-called environmental footprint.

# Reader's guide

This is the third edition of the EEA annual *Environmental Indicator Report — in support to the monitoring of the Seventh Environment Action Programme* (EEA, 2016; EEA, 2017a).

The Seventh Environment Action Programme or 7th EAP (EU, 2013), provides an overarching framework for EU environment policy planning and implementation to be achieved by 2020, guided by a vision for 2050 of 'living well, within the limits of our planet'.

Like the two previous editions, this report examines whether or not the EU is on the right path to achieve, by 2020, the 7th EAP's three thematic priority objectives.

The thematic priority objectives aim to:

1. protect nature and strengthen ecological resilience;
2. boost sustainable, resource-efficient, low-carbon growth;
3. effectively address environment-related threats to health and well-being.

Box 1 gives the thematic priority objectives and includes information on the long-term vision of the 7th EAP and the other six priority objectives (see also EC, 2016).

This report uses a set of 29 indicators to track past progress and to provide an outlook to 2020 for meeting objectives relevant to the achievement of the thematic priority objectives. Box 2 details the origin and scope of the EEA *Environmental Indicator Reports — in support to the monitoring of the 7th Environment Action Programme*.

The indicator set remained by and large the same as in the previous two reports ([5]). The scoreboard methodology also remained the same, thus allowing for comparison with the results of the previous two scoreboards. Box 3 outlines the scoreboard methodology.

Online indicator briefings ([6]) provide more detail by scoreboard indicator, including underlying reasons for past trends, future challenges and opportunities for meeting related objectives, and country-level data. Annex 1 includes the list of scoreboard indicators and corresponding briefings, while Annex 2 presents the time periods examined and sources by scoreboard indicator.

In the first edition of this report in 2016, the latest available year for most of the indicators was 2014, the first year in which the 7th EAP was in force. It therefore acted as a baseline for tracking progress towards the achievement of the three thematic priority objectives. The report discussed the 7th EAP thematic priority objectives, the scoreboard indicator approach and results. It also reflected on the systemic and interlinked nature of the indicator underlying trends and pointed to other relevant knowledge as well as to data, indicator and knowledge gaps.

The second and current third editions of the report focus on updating the scoreboard results as such. This year's report updates the scoreboard indicators and corresponding briefings with the latest data — mostly from 2016 and 2017 — and the latest information. As with previous reports, it presents and discusses the scoreboard results and pays additional attention to trend developments over more recent years.

([5]) There were modifications in two indicators in the 2017 report compared with the 2016 report. More specifically, the food consumption indicator was changed to track the kilogramme (kg) consumption of protein in animal based products instead of the kg consumption of animal based products. The hazardous chemicals indicator was altered to track consumption instead of production of chemicals. These changes did not affect the scoreboard results and therefore it is possible to compare results of the three scoreboards (2016, 2017 and 2018).

([6]) https://www.eea.europa.eu/airs/2018

**Box 1 The Seventh Environment Action Programme — long term vision and priority objectives**

The General Union Action Programme to 2020 'Living well, within the limits of our planet' also known as 7th EAP provides a strategic direction to environment and climate policy planning to 2020, while helping to implement the environment and climate change objectives and targets already agreed by the EU.

It contains nine priority objectives to be achieved by 2020 and is guided by a vision for 2050:

'In 2050, we live well, within the planet's ecological limits. Our prosperity and healthy environment stem from an innovative, circular economy where nothing is wasted and where natural resources are managed sustainably, and biodiversity is protected, valued and restored in ways that enhance our society's resilience. Our low-carbon growth has long been decoupled from resource use, setting the pace for a safe and sustainable global society.'

It identifies three key priority objectives:

- 'to protect, conserve and enhance the Union's natural capital';
- 'to turn the Union into a resource-efficient, green, and competitive low-carbon economy';
- 'to safeguard the Union's citizens from environment-related pressures and risks to health and well-being'.

In order to support the achievement of these goals, the 7th EAP sets out a framework of four additional priority objectives that aim to deliver:

- better implementation of legislation;
- better information by improving the knowledge base;
- more and wiser investment for environment and climate policy;
- full integration of environmental requirements and considerations into other policies.

Two additional horizontal priority objectives complete the programme:

- to make the Union's cities more sustainable;
- to help the Union address international environmental and climate challenges more effectively.

**Box 2 Origin and scope of the EEA annual *Environmental indicator report — in support to the monitoring of the 7th Environment Action Programme***

The establishment of this EEA Annual Indicator Report Series (AIRS): *Environmental indicator report — in support to the monitoring of the Seventh Environment Action Programme* was inspired by Article 4.1 of the 7th EAP. This requires that the European Commission monitors the 7th EAP in the context of the regular monitoring process of the Europe 2020 Strategy (EC, 2010) and it stipulates that:

'This process shall be informed by the European Environment Agency's indicators on the state of the environment as well as indicators used to monitor progress in achieving existing environment and climate-related legislation and targets such as the climate and energy targets, biodiversity targets and resource efficiency milestones.'

The vast majority of the indicators referred to in Article 4.1 of the 7th EAP correspond to aspects of the three thematic priority objectives of the 7th EAP. In addition, indicator availability outside these three priority objectives is fairly limited across the relevant bodies and institutions in Europe.

The scope of this indicator report series, therefore, covers the three thematic priority objectives of the 7th EAP.

**Box 3 7th EAP thematic priority objectives scoreboard methodology**

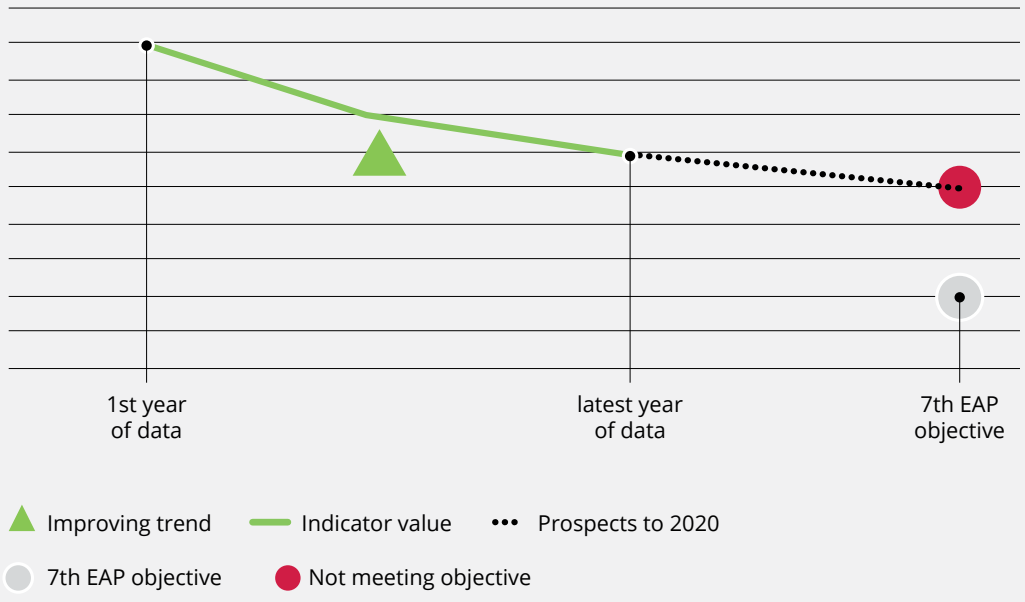
The scoreboard is a compilation of individual scoreboard lines. Each line is substantiated in a dedicated online briefing (https://www.eea.europa.eu/airs/2018). The same methodology applies across the scoreboard. Each scoreboard line presents the following information:

- **EU indicator past trend**: This indicates whether the value measured by the indicator between the base year and the latest available year shows an improving trend (▲), a deteriorating trend (▲), or a stable (change of less than 3 %) or unclear (because of a high level of inter-annual variation) trend (▲). The time series is unique to each of the indicators and reflects data availability and base-year requirements associated with the chosen selected objective. The scoreboard presents trends and outlooks at the EU level. In cases for which aggregated information on non-EU EEA member countries (Iceland, Liechtenstein, Norway, Switzerland and Turkey) is available, this is reflected in the indicator past trend and explained further in the scoreboard on a case-by-case basis.

- **Selected objective to be met by 2020**: The 7th EAP thematic priority objectives contain specific directional objectives to be met by 2020 — these are outlined in the first parts of paragraphs 28, 43 and 54 of the 7th EAP Decision (EU, 2013). These objectives, by their nature, are often qualitative and broad in scope and so it is not always easy to measure progress against them. The 2020 targets and other quantitative thresholds from the EU environmental legislation and policy that relate to key aspects of specific directional objectives were chosen as objectives to be met by 2020. In the absence of targets and other quantitative thresholds, specific (or parts of specific) directional objectives were selected instead if these were measurable and the indicators were readily available.

- **Indicative outlook for the EU meeting the selected objective by 2020**: This shows the indicative prospect of meeting the selected objective by 2020, using a traffic light system. The traffic light is green (●) if it is likely that the objective will be met, yellow (●) if this is uncertain or unclear and red (●) if it is unlikely that the objective will be met. The colours have been assigned on the basis of the available information specific to each indicator and to the corresponding selected objective. Overall, the colours were based on some combination of (1) the indicator-based trends observed over previous years; (2) the distance to target assessments (if available); (3) modelled estimates of future developments (if available); and (4) expert consideration.

A graphical example of the scoreboard methodology applied to an indicator is provided below:



The thematic priority objectives of the 7th EAP are wide-ranging, diverse and complex, reflecting today's environmental and societal challenges and those Europe can expect to face in the coming decades. It is not feasible to measure every possible variable within each objective; the data are not always available, while in some instances, ancilliary data were used as proxies. Indicators are therefore used here as simple measurements to enhance understanding of what is happening.

It should also be kept in mind that meeting the selected objectives by 2020 is not a guarantee that the environment has been protected enough, as objective setting is often the result of political compromises that balance the differing interests of various societal stakeholders.

This is the last edition of this annual indicator report series, since in 2019 and 2020 the EEA will be presenting the results of its regular 5-year *The European Environment — State and outlook report* (SOER). This will build on a broader set of knowledge including indicators and other information and will, inter alia, contribute to the monitoring and the evaluation of the 7th EAP and to the framing of any 8th EAP.

# 1 Key messages — 7th EAP priority objective 1: to protect, conserve and enhance the Union's natural capital

For priority objective 1, as with previous editions of the scoreboard, it can be discerned that the EU's natural capital is not yet being protected, maintained and enhanced in line with the ambitions of the 7th EAP. Natural capital continues to be degraded and depleted, and it is under a cumulative threat from the distributed impacts of habitat change, climate change ([7]), pollution, overexploitation of natural resources and invasive alien species (EEA, 2016; EEA 2017a).

Some of the indicators examined in this priority objective show an improving past trend. The EU continues, however, to not be on track to reach almost all of the associated 2020 objectives ([8]) (see Table 1).

For instance, nitrogen losses to the environment from agricultural land ([9]) (see Indicator 2 in Table 1), the area where ecosystems are exposed to eutrophication because of air pollution (see Indicator 1) and the rate of loss of land (e.g. arable land and land with permanent crops) to artificial surfaces (e.g. buildings, roads) (see Indicator 3) all show an improving past trend.

Nevertheless, these pressures continue to exert a considerable negative impact on natural capital. Additionally, in the most recent years of the past time series the trends have been less positive. Nitrogen losses from agricultural land have not decreased any further since 2010 and continue to be at an unacceptably high level (see EEA AIRS briefing PO1.2, 2018). Ammonia emissions, a key air pollutant that causes eutrophication of ecosystems and arises mainly from agriculture, increased in all of the three latest years for which data were available (2014-2016) (PO1.1, 2018 and PO3.2, 2018). The outlook towards meeting, by 2020, the milestone of keeping the rate of land take below 800 km$^2$ on average per year from 2000-2020 was already modified in last year's edition from uncertain to unlikely to be met. This was because evidence from complementary land take data sets

**Table 1** **Scoreboard — Seventh Environment Action Programme priority objective 1: 'to protect, conserve and enhance the Union's natural capital'**

| Indicator | EU indicator past trend ([a]) | Selected objective to be met by 2020 | Outlook for the EU meeting the selected objective by 2020 |
|---|---|---|---|
| (!) 1. Exposure of terrestrial ecosystems to eutrophication due to air pollution (*) | ▲ | Reduce areas of critical load exceedance with respect to eutrophication by 43 % from 2000 levels — Air Pollution Strategy (EC, 2005) | ● |
| The area where ecosystems are exposed to eutrophication because of air pollution (excess atmospheric nitrogen deposition) has decreased. According to a scenario assuming that current legislation is fully implemented, it will, nevertheless, fall short of the 2020 objective. | | | |
| 2. Gross nutrient balance in agricultural land: nitrogen | ▲ | Manage the nutrient cycle in a more sustainable way (nitrogen) — 7th EAP | ● |
| Overall, the losses of nitrogen from agricultural land to the environment, expressed as the nitrogen balance, decreased from 2000 to 2015, which is a positive development. However, between 2010 and 2015 there were no further decreases. On average, for the EU, an unacceptable level of nitrogen losses from agricultural land to the environment is still being recorded. Further efforts are needed to manage the nutrient cycle for nitrogen sustainably in the EU. | | | |

([7]) For example, because of climate change, species are changing their life cycles and are migrating northwards and to higher altitudes, various invasive alien species have established themselves or have expanded their range and interaction between species that depend on each other is being affected (EEA, 2017b).

([8]) The only case where the selected objective is reached is in the area of sustainable forest management (see Indicator 4 in Table 1). In this case, overall forest harvesting is expected to remain below overall forest growth up to 2020. This is, nevertheless, only in relation to the rate of use of forest resources. Other aspects of forest status captured through other indicators give cause for concern. For example, climate change, pollution and encroaching human development are posing an increased threat to the long-term stability and health of Europe's, forests and the conservation status of a high proportion of forest species and habitats assessments remains unfavourable (EEA, 2016 and PO1.4, 2018).

([9]) The use of fertilisers is the main factor determining the nitrogen balance and the surplus of nitrogen released from agricultural land to the environment.

**Table 1** **Scoreboard — Seventh Environment Action Programme priority objective 1: 'to protect, conserve and enhance the Union's natural capital' (cont.)**

| Indicator | EU indicator past trend ([a]) | Selected objective to be met by 2020 | Outlook for the EU meeting the selected objective by 2020 |
|---|---|---|---|
| (!) 3. Land take (*) | ▲ | Keep the rate of land take below 800 km² on average per year from 2000-2020 in order to remain on track to achieving the aim of no net land take by 2050 — Resource Efficiency Roadmap (EC, 2011a) | ● |
| Although the EU average annual land take over the 2000-2012 period declined, it remained above the 800-km² milestone. Significant reductions in the rate of annual land loss to urban and infrastructure extension are therefore required from 2012 to 2020 if the 2020 objective is to be met. Key land take drivers and complementary data sources point to developments in the opposite direction (i.e. an increase in land take since 2012), making it unlikely that the objective will be met. | | | |
| (!) 4. Forest: growing stock, increment and fellings | ▲ | Forest management is sustainable — 7th EAP (focus solely on forest resources) | ● |
| Since 1990, EU forests overall have been harvested at a lower rate than they have grown (at around 60-70 %), indicating sustainable forest management in relation to the forest utilisation rate. Despite expected increased harvesting of forests, the overall forest utilisation is expected to remain sustainable up to 2020. | | | |
| 5. Status of marine fish and shellfish in European seas | ▲ | Ensure healthy fish stocks — Common Fisheries Policy and Marine Strategy Framework Directive (EC, 2008a) | ● |
| The EU is improving the state of its commercial fish and shellfish species in the North-East Atlantic Ocean and the Baltic Sea, while there are no signs of improvement in the Mediterranean Sea and the Black Sea. It is unlikely that the objective of healthy commercial fish and shellfish populations will be met in Europe's seas by 2020. | | | |
| 6. Abundance and distribution of selected species (common birds (*) and grassland butterflies) | ▲ | Meet the headline target of the EU Biodiversity Strategy (EC, 2011b): to halt the loss of biodiversity and the degradation of ecosystem services and restore them in so far as is feasible | ● |
| It is highly unlikely that the objective will be achieved by 2020 given the continuing declining trends for common birds and grassland butterflies. | | | |
| (!) 7. Species of European interest | ▲ | Ensure that 34.5 % of species assessments under the Habitats Directive are in a favourable or improved conservation status, and that 78 % of species assessments under the Birds Directive show a secure or improved status — EU Biodiversity Strategy | ● |
| The EU has shown limited progress in improving the conservation status of EU protected species and the pressures on species remain. It is therefore unlikely that the 2020 target will be met. | | | |
| (!) 8. Habitats of European interest | ▲ | Ensure that 34 % of habitat assessments under the Habitats Directive are in a favourable or improved conservation status — EU Biodiversity Strategy | ● |
| The EU has shown limited progress in improving the conservation status of EU protected habitats and the pressures on these habitats remain. It is therefore unlikely that the 2020 target will be met. | | | |
| 9. Status of surface waters | ▲ | Achieve good status of transitional, coastal and freshwaters — Water Framework Directive (EU, 2000) ([b]) | ● |
| Considering the large proportion of surface waters failing to meet 'good' ecological status, it is unlikely that the objective of achieving good status of waters will be met by 2020. | | | |

| EU indicator past trend | Outlook for the EU meeting the selected objective by 2020 |
|---|---|
| ▲ Improving trend | ● It is likely that the objective will be met by 2020 |
| ▲ Stable or unclear trend | ● It is uncertain whether or not the objective will be met by 2020 |
| ▲ Deteriorating trend | ● It is unlikely that the objective will be met by 2020 |

**Notes:** ([a]) The examined past trend period is unique to each indicator and it is specified in Annex 2.

([b]) Good status will also contribute to achieving good environmental status in context of the Marine Strategy Framework Directive.

(*) The indicator past trend is also available at EEA member country aggregate level and not just at EU aggregate level. The colour assessment remains the same for the EU and the EEA member country (including the EU) indicator past trend.

(!) The indicator has not been updated with more recent data in this edition.

pointed to an acceleration in land take within the 2009-2015 period. In addition, there were no policies in place to promote the necessary reductions to the rate of land loss, while the key drivers of land take (i.e. urban population, economic activity and transport activity) were on the increase (see EEA AIRS briefing PO1.3, 2018). This edition does not include more recent data in relation to land take. However, since the same conditions continue to prevail with regards to policies and key drivers, this year's scoreboard has retained the downwards adjustment of the prospects for meeting this objective by 2020.

Historically, fishing beyond sustainable levels has made it difficult to meet the objective of healthy fish stocks in marine waters. At present, in Europe's seas only about a third of commercial fish and shellfish stocks are in good environmental status ([10]). There are strong differences among the seas in the state and degree of progress with regard to achieving healthy fish stocks. Overall, the use of Europe's seas is, however, not sustainable and the EU 2020 objective of healthy commercial fish populations is unlikely to be met in Europe's seas (see Indicator 5) (PO1.5, 2018).

In 2015, the mid-term review of the EU Biodiversity Strategy (EC, 2015a) assessed that the EU is not on track to meet the objective of halting biodiversity loss by 2020 and restoring the potential of ecosystems to deliver services. The indicators on common birds and on grassland butterflies continue to show a declining trend in these species populations (see Indicator 6). The main reasons for this are changing rural land use, the intensification and specialisation of farming and land abandonment in areas with natural constraints (PO1.6, 2018). There is also a high proportion of assessments of EU protected species (60 %) and of habitats (77 %) whose conservation status is unfavourable and of EU protected birds (32 %) whose status is threatened or not secure. This is mainly a result of pressures such as habitat modification and loss, and pollution from sectors such as agriculture (see Indicators 7 and 8) (PO1.7 and PO1.8, 2018).

The EU's surface waters are also unlikely to meet the objective of achieving good status of waters by 2020 (see Indicator 9). This is because of pressures such as pollution, morphological changes, over-abstraction and hydrological changes affecting water flow (PO1.9, 2018).

In several of the areas covered by this priority objective, the frequency of data reporting required by policy and legislation extends to some years. This means that several of the indicators related to this objective are updated less frequently ([11]) than those under the other two thematic priority objectives, where indicators are more typically updated every year. Following the data reporting cycle, the status of the surface waters indicator was updated this year.

The state of and prospects for natural capital provide an indication of the environmental sustainability of our economy and society (EEA, 2016). The bleak outlook towards meeting the ambitions of this priority objective by 2020 provides cause for concern for the outlook towards the EU meeting the overall ambitions of the 7th EAP by 2020.

([10]) This assessment is based on the criteria of fishing mortality and reproductive capacity.
([11]) This is the case for the indicators on land take, forest, species and habitats of European interest and surface waters that are updated every 4-6 years depending on the indicator.

# 2 Key messages — 7th EAP priority objective 2: to turn the Union into a resource-efficient, green and competitive low carbon economy

For priority objective 2, the overall picture of indicator past trends in the EU and of the outlook to 2020 remains mixed. The EU is on track to meet climate and renewable energy related targets for 2020, while it is uncertain that it will meet its energy efficiency target. There have been resource efficiency improvements. However, waste generation has recently increased, while a reduction in the environmental impact of production and consumption is uncertain for the housing sector and unlikely for the food and mobility sectors.

In more recent years, slower positive progress or developments in the wrong direction are taking place in most of the indicators. Therefore, although the progress within this priority objective remains mixed, it is less than before.

One of the aims of this 7th EAP priority objective is that the Union will meet its 2020 climate and energy targets (see Indicators 5, 6 and 7 and the associated targets in Table 2).

The EU continues to be on track to meet its 2020 climate and renewable energy targets (Indicators 5 and 6). Renewed efforts may, nevertheless, be needed to ensure that the EU remains on course to meet these targets. This is because greenhouse gas emissions have more or less stopped decreasing since 2014 as a result of growing energy consumption from all sources of energy including from fossil fuels. Currently, preliminary estimates show a slight increase in greenhouse gas emissions in 2017 (see EEA AIRS briefing PO2.5, 2018). Similarly, the share of renewable energy in gross final energy consumption is increasing at a slower pace year-on-year since 2012, against the backdrop of increased energy use (PO2.6, 2018).

In this context, it is uncertain if the EU will meet its energy efficiency target (see Indicator 7). Primary energy consumption in the EU (used to measure progress on energy efficiency) increased both in 2015 and 2016. Preliminary estimates show that it increased also in 2017, reaching a level higher than that corresponding to the linear pathway for meeting the energy efficiency target by 2020 (PO2.7, 2018). This edition has therefore revised the outlook towards meeting the energy efficiency target by 2020 from likely to uncertain. The increases in energy consumption over the 2015-2017 period were mainly because of increased activity levels resulting from higher economic growth, lifestyle changes and slightly colder winters year-on-year. Further implementation of energy efficiency policies is needed at country level to ensure that the EU meets its target.

Turning the EU into a resource efficient economy is another important aim of this 7th EAP priority objective.

Resource productivity is the indicator that measures resource efficiency in terms of economic output per unit of material use and it improved during the period examined (2000-2017) (see Indicator 1). Some of the improvement was because of energy efficiency gains and the continuing implementation of climate and energy policies, which resulted in fossil fuels being replaced in energy production by renewable energy sources. Most of the change happened, however, between 2008 and 2013. This was mainly because the 2008 economic recession triggered a slow-down in the construction sector and therefore in the demand for non-metallic minerals over this period. Since 2013, the rate of improvement of resource productivity has slowed primarily as a result of an increase in the use of materials for construction purposes, driven by the return of economic growth. Resource productivity is projected to continue improving, albeit at an even lower rate compared with recent years — just under 1 % per year (PO2.1, 2018). Currently, there are no quantitative targets for improvements in resource productivity at EU level, although the 7th EAP has recognised the need for such targets.

Increasing resource efficiency is only an indication that economic output is growing more than resource use and emissions. It does not guarantee a reduction in environmental pressures or impacts in absolute terms; this often requires absolute reductions in resource use (EEA, 2015). The 7th EAP stresses the need for a reduction in the overall environmental impact of production and consumption in key socio-economic sectors. The production and consumption of food, housing and mobility are responsible for almost 80 % of all environmental impacts (EU, 2013). The indicators

**Table 2** **Scoreboard — Seventh Environment Action Programme priority objective 2: 'to turn the Union into a resource-efficient, green and competitive low-carbon economy'**

| Indicator | EU indicator past trend [a] | Selected objective to be met by 2020 | Outlook for the EU meeting the selected objective by 2020 |
|---|---|---|---|
| 1. Resource productivity | ▲ | Improve economic performance while reducing pressure on natural resources — Roadmap to a resource efficient Europe | ● |
| Resource productivity — economic output per unit of material used — increased in the period between 2000 and 2017. The rate of increase of resource productivity has slowed down since 2013. Resource productivity is expected to continue to increase in the coming years albeit at a reduced rate of just below 1 % per year. | | | |
| 2. Waste generation in Europe (excluding major mineral wastes) — absolute (*) and per capita | ▲ | Reduce absolute and per capita waste generation — 7th EAP | ● |
| The past trend (2010-2016) shows an increase in waste generation. The outlook towards 2020 remains, however, uncertain since the examined past time series is short and the increase relates mostly to just one data point (2014-2016). | | | |
| 3. Recycling of municipal waste (*) | ▲ | 50 % of selected materials in household and similar waste to be recycled by each EU Member State — Waste Framework Directive (EU, 2008b) | ● |
| The amount of municipal waste being recycled has been steadily increasing. The outlook for all Member States meeting the 2020 target is mixed. Several Member States have achieved, or are well on course to achieving the target. However, the target is some way off for others. | | | |
| 4. Use of freshwater resources | ▲ | Water abstraction should stay below 20 % of available renewable freshwater resources — Roadmap to a resource efficient Europe | ● |
| While the area in the EU that was affected by water stress decreased, hotspots for water stress conditions are likely to remain given continued pressures such as climate change, increasing population, urbanization and agriculture. | | | |
| 5. Total greenhouse gas emission trends and projections | ▲ | Reduce greenhouse gas emissions by 20 % compared with 1990 levels — 2020 Climate and Energy Package (Council, 2007) | ● |
| The decreasing trend in greenhouse gas emissions and their future evolution, as projected by the EU Member States, indicate that the 2020 greenhouse gas emission reduction target will be met. However, progress has slowed down since 2014 and preliminary estimates suggest that emissions increased in 2017. | | | |
| 6. Share of renewable energy in gross final energy consumption | ▲ | Reach a 20 % share of renewable energy in gross final energy consumption — Renewable Energy Directive (EU, 2009) | ● |
| The EU has steadily increased the share of renewable energy in its gross final energy consumption, although the rate of progress has been decreasing year-on-year since 2012. The EU continues to remain on course to meet its 2020 renewable energy target. | | | |
| 7. Progress on energy efficiency in Europe | ▲ | Improve energy efficiency by 20 % (compared with a business-as-usual scenario) — Energy Efficiency Directive (EU, 2012) | ● |
| Primary energy consumption decreased between 2005 and 2015. However, energy consumption increased in 2015 compared with 2014 and preliminary estimates indicate that it will increase also in 2016. Greater efforts are needed to keep the EU on track to meet its energy efficiency target. | | | |
| 8. Energy consumption by households | ▲ | Reduce the overall environmental impact of production and consumption in the housing sector — 7th EAP | ● |
| The energy consumption of households in the EU decreased between 2005 and 2016. It is, however, uncertain whether household energy consumption will decline during the 7th EAP period (2014-2020) since it increased both in 2015 and 2016. | | | |
| 9. Greenhouse gas emissions from transport | ▲ | Reduce the overall environmental impact of production and consumption in the mobility sector — 7th EAP | ● |
| Past transport greenhouse gas emissions increased from 1990 to 2016 despite a decline between 2008 and 2013 following the economic downturn. It is unlikely that emissions will decrease during the 7th EAP period (2014-2020) since emissions rose in each of the last 3 years (2014-2016) and preliminary results show an increase in emissions also in 2017. | | | |

**Table 2** **Scoreboard — Seventh Environment Action Programme priority objective 2: 'to turn the Union into a resource-efficient, green and competitive low-carbon economy' (cont.)**

| Indicator | EU indicator past trend [a] | Selected objective to be met by 2020 | Outlook for the EU meeting the selected objective by 2020 |
|---|---|---|---|
| (!) 10. Animal product consumption (animal protein) | ▲ | Reduce the overall environmental impact of production and consumption in the food sector — 7th EAP | ● |
| Per capita consumption of total protein from animal products (meat, dairy, eggs, and fish and seafood) remained relatively stable in the EU over the period examined (2000-2013). Per capita animal based product consumption is expected to increase over the 2014-2020 period for the vast majority of animal product categories and sub-categories. | | | |
| 11. Share of environmental and labour taxes in total tax revenues | ▲ | Shift taxation from labour towards the environment — 7th EAP | ● |
| For the EU as a whole, there has been no positive progress over the examined period and there are no indications of any change in the coming years. | | | |
| 12. Employment and value added in the environmental goods and services sector | ▲ | Promote a larger market share of green technologies in the Union and enhance the competitiveness of the European eco-industry — 7th EAP | ● |
| Employment and value added in the environmental goods and services sector have been growing faster than in the rest of the economy between 2003 and 2015, although since 2012 growth in the sector's value added slowed and employment remained more or less stable. The 2020 prospects for continued higher growth and employment creation in the sector compared with the rest of the economy are uncertain. They are also dependent on the sector competing with equivalent sectors in China and the USA, and on continuing ambitious renewable energy and green growth policies in Europe. | | | |
| 13. Environmental protection expenditure in Europe | ▲ | Increase in public and private sector funding for environment- and climate-related expenditure — 7th EAP | ● |
| Environmental protection expenditure has increased over the years and this seems likely to continue to 2020, strengthened by the EU's decision that at least 20 % of its 2014-2020 budget should be used on climate change activities. | | | |

| EU indicator past trend | Indicative outlook for the EU meeting the selected objective by 2020 |
|---|---|
| ▲ Improving trend | ● It is likely that the objective will be met by 2020 |
| ▲ Stable or unclear trend | ● It is uncertain whether or not the objective will be met by 2020 |
| ▲ Deteriorating trend | ● It is unlikely that the objective will be met by 2020 |

**Notes:** [a] The examined past trend period is unique to each indicator and is specified in Annex 2.

(*) The indicator past trend is also available at EEA member country aggregate level and not just at EU aggregate level. The colour assessment remains the same for the EU and the EEA member country (including the EU) indicator past trend.

(!) The indicator has not been updated with more recent data in this year's report.

available to track the overall environmental impact of these areas are limited and selected aspects (energy consumption in houses, greenhouse gas emissions from transport and animal product consumption) have been used instead as a proxy for overall environmental impact.

The energy consumption in houses (see Indicator 8) increased in both 2015 and 2016, compared with 2014 and 2015 respectively. The slightly colder winters in these years and the effects of longer-term trends related to lifestyle (more dwellings and more appliances per dwelling) are key reasons behind the increase in energy consumption. Furthermore, the energy efficiency improvements in the housing sector in these two years were not sufficient to outweigh this increase (PO2.8, 2018). The increase in household energy consumption for two consecutive years is making the prospects of reducing household energy consumption within the period of 7th EAP implementation (2014-2020) uncertain. This edition has therefore revised the outlook towards meeting the objective of reducing the overall environmental impact of production and consumption in the housing sector from likely to uncertain to be met by 2020.

Transport greenhouse gas emissions (see Indicator 9) increased year-on-year between 2014 and 2016, and preliminary estimates show that they also increased in 2017. The objective of reducing the environmental impact of the mobility sector was therefore revised from uncertain to unlikely to be met by 2020. This is because the increase in transport greenhouse gas emissions has been steady for more than half of the implementation period of the 7th EAP. The increases in transport greenhouse gas emissions are in line with increases over the same period in the level of economic activity — as measured by gross domestic product — as well as in the demand for transport and resulted from an increase in energy consumption by the sector (PO2.9, 2018).

Animal based product consumption (see Indicator 10) continues to be expected to increase over the 7th EAP (2014-2020) period and for the vast majority of animal product (sub-) categories (PO2.10, 2018). The 2020 outlook for the environmental impact of the food sector has remained, therefore, negative ([12]).

A circular economy in which nothing is wasted, as envisaged in the European Commission circular economy package (EC, 2015b), is also central to efforts to improve resource efficiency.

The prospects of waste generation being in decline by 2020 remain uncertain (see Indicator 2), not least because of the few data points available for the assessment. The risk that this objective will be missed has, nevertheless, increased further. This is because, in line with economic growth, waste generation increased since 2010, mainly over the 2014-2016 period ([13]) (PO2.2, 2018). In addition, despite high levels of municipal waste recycling (see Indicator 3) in some countries and strong improvement in many others, the low and slow progress rates in some countries are of concern and suggest that not every country will achieve the 2020 municipal waste target (PO2.3, 2018).

Freshwater (see Indicator 4) is relatively abundant in the EU. However, water availability and socio-economic activity are unevenly distributed leading to major differences in water stress levels across the continent. Water stress hotspots are likely to remain, primarily in southern Europe as well as in a number of highly densely populated areas across Europe. This is because of ongoing and projected pressures from climate change (such as increasing droughts in several parts of Europe), urbanisation and agricultural activities (PO2.4, 2018). It therefore remains uncertain whether water stress can be prevented or significantly reduced across the EU.

Environmental legislation has already played a key role in the process of turning the EU into a resource-efficient, circular and low-carbon economy. This can also be seen through the growth in the value added from the environmental goods and services sector of the EU economy and employment therein (see Indicator 12). Nevertheless, since 2012, growth in value added in the sector has slowed while employment creation remained more or less stable (PO2.12, 2018). Environmental protection expenditure (see Indicator 13) is expected to continue to increase up to 2020. This positive outlook is strengthened by the EU's decision that at least 20 % of its 2014-2020 budget should be spent on mitigating and adapting to climate change (PO2.13, 2018). This may have a positive impact on the environmental goods and services sector. However, global competition and recent reductions in domestic investments in the renewables sector continue to make the prospects of growth in the sector uncertain (PO2.12, 2018).

Finally, as Indicator 11 shows, there is wide scope for moving taxation away from labour and towards the environment (resource use and pollution). Such a shift has the potential to encourage job creation while incentivising resource efficiency improvements and low carbon solutions. The prospect of shifting taxation away from labour and towards the environment by 2020 remains poor since there has hardly been any shift at the EU level over the period examined (2002-2016). The share of total revenues from taxes on labour has been approximately eight times that of revenues from environmental taxes over this period (PO2.11, 2018).

([12]) The past trend and 2020 outlook assessments for this indicator were not updated in this edition because of a lack of more updated past trend data.

([13]) According to the scoreboard methodology, a difference of up to 3 % in the indicator value from the base year to the latest available year is considered significant enough to qualify a trend as improving or deteriorating. Last year's scoreboard assessed the waste generation past trend as stable since the increase between 2010 and 2014 was less than 3 %. This year's scoreboard assessed this trend as deteriorating since there was an increase of 5.1 % between 2010 and 2016.

# 3 Key messages — 7th EAP priority objective 3: to safeguard the Union's citizens from environment-related pressures and risks to health and well-being

For priority objective 3, EU progress continues to be mixed. There have been substantial reductions in emissions of air and water pollutants in recent decades. Key concerns persist, however, around air quality and noise pollution in urban areas and chronic exposure of the population to mixtures of chemicals. The 2020 outlook for this priority objective also remains unclear because of a lack of appropriate data on reducing the risks posed by chemicals and climate change.

One of the aims of this 7th EAP priority objective is that citizens throughout the Union benefit from high standards for bathing water. Bathing water is of high quality in the EU (see Indicator 4 and associated objective in Table 3). In the 2017 bathing season, 85 % of all EU bathing waters were of excellent quality, 8.6 % were of good quality and 2.4 % were of sufficient quality. This high level of quality is the result of decades of effort and investment. Ongoing efforts to address pollution sources — through improvements in the sewerage system and the reduction of pollution from farms — are expected to continue to further increase the proportion of bathing waters that meet excellent and good quality standards by 2020 (see EEA AIRS briefing PO3.3, 2018).

Air pollutant emissions (see Indicator 2) represent a key driver of air quality and ecosystem health. The EU as a whole remains on target to meet the 2020 EU and international air pollutant emission reduction commitments for all pollutants with the exception of ammonia. Approximately 90 % of ammonia emissions arise from agriculture, namely from the decomposition of animal manure and fertiliser application. Ammonia emissions increased the last 3 years with available data (2014-2016) and recent national projections — aggregated at EU level by the EEA — cast doubt on the prospects of meeting this target by 2020 (PO3.2, 2018). The outlook towards meeting the ammonia emission reduction commitment was revised in last year's edition from likely to uncertain to be met by 2020 ([14]). This year's results have confirmed the uncertainty of the prospects of meeting this target.

Air quality (see Indicator 1) and noise pollution (see Indicator 5) are main concerns in the progress towards Priority objective 3. Between 2000 and 2016, urban population exposure to exceedances of nitrogen dioxides and dust particles decreased, while the trend for ozone remained unclear due to significant inter-annual variations triggered by changes in meteorological conditions. In 2016, depending on the air pollutant, 6-13 % of the EU's urban population was exposed to concentration levels above the EU air quality standards. It is expected that the population in several urban areas across the EU will still be facing exceedances of the standards in 2020. It is therefore unlikely that the outdoor air quality standards examined in the scoreboard will be met by 2020. The transport sector (primarily road traffic), together with residential combustion in urban areas remain the main causes for this (PO3.1, 2018). The transport sector (mainly road traffic but also increasingly aviation), together with an expected continuing increase in people living in urban agglomerations, remain the main reasons that environmental noise pollution (see Indicator 5) will not significantly decrease by 2020. In 2012 — the year for which the most recent data have been compiled — approximately 100 million people in the EU were estimated to be exposed to road traffic noise levels exceeding the indicator threshold for the day, evening and night periods (PO3.5, 2018).

Another important concern is the harmful effects that chemicals may have on human health and on the environment. Indicators 6 and 7 on the consumption of hazardous chemicals and on total sales of pesticides provide an incomplete picture of the risks (PO3.6 and PO3.7, 2018). The hazardous chemicals indicator covers only some types of toxicity. It does not account for the

([14]) According to the scoreboard methodology, a difference of up to 3 % in the indicator value from the base year to the latest available year is not considered significant enough to qualify a trend as improving or deteriorating. Last year's scoreboard assessed the EU ammonia past trend as stable since the decrease between 2005 and 2015 was 3 %. This year's scoreboard assessed this trend as improving since there was a 4 % decrease in emissions between 2005 and 2016. However, it should be noted that the reporting countries can resubmit past air pollutant emission data and therefore the air pollutant emission past trend results can be affected by such resubmissions.

**Table 3** **Scoreboard — Seventh Environment Action Programme priority objective 3: 'to safeguard the Union's citizens from environment-related pressures and risks to health and well-being'**

| Indicator | EU indicator past trend (a) | Selected objective to be met by 2020 | Outlook for the EU meeting the selected objective by 2020 |
|---|---|---|---|
| 1. Exceedance of air quality standards in urban areas (nitrogen dioxide: $NO_2$; dust particles: $PM_{10}$; fine particulate matter: $PM_{2.5}$; ozone: $O_3$) | ▲ $NO_2$, $PM_{10}$, $PM_{2.5}$<br>▲ $O_3$ | Meet Air Quality Directive standards for the protection of human health — Air Quality Directive (EU, 2008c) | ● |
| There have been reductions in the exposure of the urban population to pollution levels above the EU air quality standards for particles and nitrogen dioxide, whereas exposure above the ozone standard has fluctuated so much over time that the trend is unclear. However, because of their widespread exceedance levels in urban areas, it is unlikely that the air quality standards for these pollutants will be met by 2020 throughout the EU. | | | |
| 2. Emissions of the main air pollutants in Europe (sulphur oxides: $SO_2$; nitrogen oxides: $NO_x$; fine particulate matter: $PM_{2.5}$; non-methane volatile organic compounds: NMVOCs; ammonia: $NH_3$) | ▲ $SO_2$, $NO_x$, $PM_{2.5}$, NMVOCs<br>▲ $NH_3$ | Reduce air pollutant emissions in accordance with the requirements of the amended Gothenburg Protocol and of the new EU National Emission Ceilings Directive by the following percentages: $SO_2$ 59 %, $NO_x$ 42 %, $PM_{2.5}$ 22 %, NMVOCs 28 % and $NH_3$ 6 % compared with 2005 levels (UNECE, 2012 and EU, 2016) | ● $SO_2$, $NO_x$, NMVOCs, $PM_{2.5}$<br>● $NH_3$ |
| Air pollutant emissions have decreased and current projections suggest that the EU as a whole is on target to meet its 2020 EU and international air pollutant emission reduction commitments for all but ammonia emissions. The latter increased year-on-year between 2014 and 2016, and it is uncertain whether the ammonia reduction commitment will be met. | | | |
| 3. Bathing water quality | ▲ | Increase the number of bathing waters classified as 'excellent' or 'good' under the Bathing Water Directive (EU, 2006) | ● |
| The share of bathing waters that meet excellent and good quality standards are likely to increase further due to implementation of the Bathing Water Directive, in particular the effect of measures on poor quality waters. | | | |
| 4. Number of countries that have adopted a national climate change adaptation strategy and/or plan | N.A. | Make decisive progress in adapting to the impact of climate change — 7th EAP | ● |
| There has been an increase in the number of countries that have adopted a national adaptation strategy and/or plan and this is expected to continue. However, information on the 'decisive progress' of these policies towards reducing vulnerability and enhancing resilience to climate change is limited, preventing firm conclusions with respect to the 2020 outlook. | | | |
| 5. Exposure to environmental noise | ▲ | Significantly decrease noise pollution — 7th EAP | ● |
| Efforts to reduce environmental noise tend to be offset by an increase in the number of people being exposed to high noise levels, in particular due to increasing road and aviation traffic, and an increase in the number of city inhabitants. | | | |
| 6. Consumption of chemicals, by hazard class | ▲ | Risks for the environment and health associated with the use of hazardous substances, including chemicals in products, are assessed and minimised — 7th EAP | ● |
| While the consumption of chemicals that are hazardous to health and the environment has declined over the years, it is not possible to equate this to a reduction in the accumulated risks to the environment and health. This is mainly because not all hazards and sources of chemical exposures have been included. The outlook towards 2020 is therefore unclear. | | | |
| 7. Total sales of pesticides | ▲ | The use of plant protection products does not have any harmful effects on human health or unacceptable influence on the environment, and such products are used sustainably — 7th EAP | ● |
| The total sales of pesticides remained constant between 2011 and 2016, indicating that there was no less reliance on pesticides in Europe. This indicator does not allow, at present, for a full evaluation of progress towards the 2020 objective as pesticide sales are not synonymous with the risk of harmful effects on humans and the environment. The outlook towards 2020 is therefore unclear. | | | |

| EU indicator past trend | | Outlook for the EU meeting the selected objective by 2020 | |
|---|---|---|---|
| ▲ | Improving trend | ● | It is likely that the objective will be met by 2020 |
| ▲ | Stable or unclear trend | ● | It is uncertain whether or not the objective will be met by 2020 |
| ▲ | Deteriorating trend | ● | It is unlikely that the objective will be met by 2020 |

**Notes:** (a) The examined past trend period is unique to each indicator and is specified in Annex 2.

(*) The indicator past trend is also available at EEA member country aggregate level and not just at the EU aggregate level. The colour assessment remains the same for the EU and the EEA member country (including the EU) indicator past trend, with the exception of ammonia emissions whereby the EEA member country aggregate past trend shows a stable (yellow) trend.

N.A. Non applicable.

actual exposure to chemicals, including the combined effects of mixtures of chemicals and latent effects evolving over time. The pesticides sales indicator only relates to the active pesticide ingredients and not to additives in pesticide products, although these may also be toxic. Furthermore, it takes into account neither the fate of the pesticides in the environment and humans, nor the full spectrum of their hazardous properties. These two indicators are therefore only an imperfect proxy for the risks the chemicals pose to human health and the environment. This is why the 2020 outlooks towards meeting the objectives corresponding to the pesticide and hazardous chemicals indicators were assessed as unclear.

The proposal in the 7th EAP for the development of an EU strategy for a non-toxic environment would provide the opportunity to manage risks to human health and the environment by reducing hazards via upstream prevention, and by designing safer chemicals and products. It should also be noted that, in 2018, the European Commission assessed the effectiveness and coherence of EU chemicals legislation and found that there is a need to speed up the substitution of hazardous chemicals with less hazardous chemicals (PO3.6, 2018).

Climate change presents major threats to the environment, the economy and human health and well-being, and it causes significant damages, for example infrastructure (e.g. in public works). Climate change requires society, the economy and infrastructure to adapt significantly, including substantial investment in climate mitigation and adaptation actions (EEA, 2017b and 2017c).

Climate change threats to health manifest themselves through impacts from extreme weather events, such as flooding and heatwaves, and changing patterns in the prevalence of infectious diseases. A key step towards making Europe resilient to the impact of climate change (including in the area of health) involves the adoption of effective national adaptation strategies and follow-up adaptation plans (see Indicator 4). To date, 25 EU Member States have adopted a national adaptation strategy and 15 have developed a national adaptation plan. It is expected that the number of countries that have adopted strategies and plans will further increase in the future. However, information on the progress policies make in reducing vulnerability and enhancing resilience is limited. It is, therefore, unclear whether Europe is making decisive progress in adapting to the impacts of climate change (PO3.4, 2018).

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# Annex 1 List of indicators and corresponding Annual Indicator Report Series (AIRS) 2018 briefings by 7th EAP thematic priority objective

| Indicators | Briefings |
|---|---|
| **Priority objective 1: to protect, conserve and enhance the Union's natural capital** | |
| Exposure of terrestrial ecosystems to eutrophication due to air pollution | Eutrophication of terrestrial ecosystems due to air pollution |
| Gross nutrient balance in agricultural land: nitrogen | Agricultural land: nitrogen balance |
| Land take | Urban land take |
| Forest: growing stock, increment and fellings | Forest utilisation |
| Status of marine fish and shellfish in European seas | Marine fish stocks |
| Abundance and distribution of selected species (common birds and grassland butterflies) | Common birds and butterflies |
| Species of European interest | EU protected species |
| Habitats of European interest | EU protected habitats |
| Status of surface waters | Surface waters |
| **Priority objective 2: to turn the Union into a resource-efficient, green and competitive low-carbon economy** | |
| Resource productivity | Resource efficiency |
| Waste generation in Europe (excluding major mineral wastes) absolute and per capita levels | Waste generation |
| Recycling of municipal waste | Recycling of municipal waste |
| Use of freshwater resources | Freshwater use |
| Total greenhouse gas emission trends and projections | Greenhouse gas emissions |
| Share of renewable energy in gross final energy consumption | Renewable energy sources |
| Progress on energy efficiency in Europe | Energy efficiency |
| Energy consumption by households | Household energy consumption |
| Greenhouse gas emissions from transport | Transport greenhouse gas emissions |
| Animal product consumption (animal protein) | Food consumption — animal based protein |
| Share of environmental and labour taxes in total tax revenues | Environmental and labour taxation |
| Employment and value added in the environmental goods and services sector | Environmental goods and services sector: employment and value added |
| Environmental protection expenditure in Europe | Environmental protection expenditure |
| **Priority objective 3: to safeguard the Union's citizens from environment-related pressures and risks to health and well-being** | |
| Exceedance of air quality standards in urban areas (nitrogen dioxide: $NO_2$; dust particles: $PM_{10}$; ozone: $O_3$; fine particulate matter: $PM_{2.5}$) | Outdoor air quality in urban areas |
| Emissions of the main air pollutants in Europe (sulphur oxides: $SO_2$; nitrogen oxides: $NO_x$; ammonia: $NH_3$; non-methane volatile organic compounds: NMVOCs; fine particulate matter: $PM_{2.5}$) | Air pollutant emissions |
| Bathing water quality | Quality of bathing waters |
| Number of countries that have adopted a climate change adaptation strategy and/or plan | Number of countries that have adopted a climate change adaptation strategy/plan |
| Population exposure to environmental noise | Environmental noise |
| Consumption of chemicals by hazard class | Consumption of hazardous chemicals |
| Total sales of pesticides | Pesticide sales |

# Annex 2 Scoreboard indicators: examined time periods and sources

| Scoreboard component | Time period examined | Sources ([a]) |
|---|---|---|
| **7th EAP priority objective 1: to protect, conserve and enhance the Union's natural capital** | | |
| Exposure of terrestrial ecosystems to eutrophication due to air pollution | 2000-2020 | EEA indicator: CSI 005/AIR004 |
| Gross nutrient balance in agricultural land: nitrogen | 2000-2015 | Eurostat data set: aei_pr_gnb |
| Land take | 2000-2012 | EEA indicator: CSI014/LSI 001 |
| Forest: growing stock, increment and fellings | 1990-2010 | EEA indicator: SEBI 017<br>UNECE report ([b]) |
| Status of marine fish and shellfish in European seas | Status: 2015<br>Trend 2003-2012 | EEA indicator: CSI032/MAR 007 |
| Abundance and distribution of selected species (common birds and grassland butterflies) | 1990-2015 | EEA indicator: CSI050/SEBI/001 |
| Species of European interest | 2007-2012 | EEA indicator: CSI007/SEBI 003 |
| Habitats of European interest | 2007-2012 | EEA indicator: CSI057/SEBI 005 |
| Status of surface waters | 2009-2015 | EEA report ([c]) |
| **7th EAP priority objective 2: to turn the Union into a resource-efficient, green and competitive low-carbon economy** | | |
| Resource productivity | 2000-2017 | Eurostat data set: env_ac_rp |
| Waste generation in Europe (excluding major mineral wastes) | 2010-2016 | Eurostat data set: env_wasgen<br>EEA indicator: CSI041/WST004 |
| Recycling of municipal waste | 2004-2016 | Eurostat data set: env_wasmun<br>EEA indicator: CSI052/WST005 |
| Use of freshwater resources | 2002-2015 | EEA indicator: CSI018/WAT001 |
| Total greenhouse gas emission trends and projections | 1990-2017<br>Data for 2017 are approximated estimates | EEA report ([d])<br>EEA indicator CSI010/CLIM050 |
| Share of renewable energy in gross final energy consumption | 2005-2017<br>Data for 2017 are approximated estimates | EEA indicator: CSI048/ENER028 |
| Progress on energy efficiency in Europe | 2005-2017<br>Data for 2017 are approximated estimates | EEA report ([d]) |
| Energy consumption by households | 2005-2016 | Eurostat data set: nrg_100a |
| Greenhouse gas emissions from transport | 1990-2017<br>Data for 2017 are approximated estimates | EEA indicator: TERM002 |
| Animal product consumption (animal protein) | 2000-2013 | EEA indicator SCP020 |
| Share of environmental and labour taxes in total tax revenues | 2003-2016 | Eurostat data set: tsdgo410<br>DG ECFIN ([e]) |

| Scoreboard component | Time period examined | Sources ([a]) |
|---|---|---|
| Employment and value added in the environmental goods and services sector | 2003-2015 | Eurostat data sets: env_acegss2, env_ac_egss1 |
| Environmental protection expenditure in Europe | 2006-2017 | Eurostat data sets: env_ac_pepsgg, env_ac_pepsnsp, env_ac_pepssp, nama_10_gdp |
| **7th EAP priority objective 3: to safeguard the Union's citizens from environment-related pressures and risks to health and well-being** | | |
| Exceedance of air quality standard values in urban areas (nitrogen dioxide: $NO_2$; dust particles: $PM_{10}$; ozone: $O_3$; fine particulate matter: $PM_{2.5}$) | 2000-2016 for $NO_2$, $PM_{10}$, $O_3$<br>2006-2016 for $PM_{2.5}$ | EEA indicator: CSI004/AIR003 |
| Emissions of the main air pollutants in Europe (sulphur oxides: $SO_2$; nitrogen oxides: $NO_x$; ammonia: $NH_3$; non-methane volatile organic compounds: NMVOCs; fine particulate matter: $PM_{2.5}$) | 2005-2016 | EEA indicator: CSI040/AIR005 |
| Bathing water quality | 2011-2017 | EEA report ([f]) |
| Number of countries that have adopted a climate change adaptation strategy and/or plan | 2005-2018<br>Data for 2018 cover up to September 2018 | Climate adapt ([g]) |
| Population exposure to environmental noise | 2007-2012 | EEA indicator: CSI051/TERM005 |
| Consumption of chemicals by hazard class | 2004-2015 | Eurostat data set: env_chmhaz |
| Total sales of pesticides | 2011-2016 | Eurostat data set: aei_fm_salpest09 |

**Notes:** ([a]) All EEA indicators (including their underpinning data sets) as well as all Eurostat data sets, are accessible through the EEA (www.eea.europa and https://www.eea.europa.eu/data-and-maps/indicators/#c0=10&c12-operator=or&b_start=0) and the Eurostat (www.ec.europa.eu/Eurostat and https://ec.europa.eu/eurostat/web/environment/environmental-indicator-catalogue) websites respectively.

([b]) UNECE report ECE/TIM/SP/37, Forests in the UNECE region.

([c]) EEA Report No 7/2018, *European waters — Assessment of status and pressures 2018.*

([d]) EEA Report No 16/2018, *Trends and projections in Europe 2018 - Tracking progress towards Europe's climate and energy targets*, European Environment Agency.

([e]) https://ec.europa.eu/taxation_customs/sites/taxation/files/taxation_trends_report_2018.pdf

([f]) EEA Report No 2/2018*, European Bathing Water Quality in 2017.*

([g]) http://climate-adapt.eea.europa.eu/countries-regions/countries

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