

Sustainable development in the European Union

Monitoring report on progress
towards the SDGs in an EU context

2019 edition



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Foreword of First Vice-President Timmermans and Commissioner Thyssen

Evidence is increasingly clear. If we simply persist in our current ways of producing, consuming and discarding, much of the planet will become uninhabitable before too long. But this should not instil in us fear and complacency. It should inspire us to action instead.



In September 2015, world leaders committed themselves to ending poverty, protecting the planet and ensuring that all people enjoy peace and prosperity. Countries around the world came together to adopt the UN 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals, agreeing on a concrete ‘to-do list for people and planet’. The SDGs, together with the Paris Agreement on Climate Change, are our roadmap and compass to a better world — a world where all people can enjoy a higher level of well-being in harmony with our natural environment.

Sustainable development is deeply rooted in the European project and firmly enshrined in the EU Treaties. The EU has been one of the leading forces behind the UN 2030 Agenda and is fully committed to its implementation. Whether our children and grandchildren will have a future to look forward to depends on whether we successfully transition, within the next decade at the latest, to a green economy. For this transition to be socially inclusive, it must respect the principles of democracy, rule of law and fundamental rights, and pay particular attention to protecting the most vulnerable in our societies. There is simply no sustainability without social sustainability.

Together with the reflection paper ‘Towards a Sustainable Europe by 2030’, published in January 2019, this monitoring report is our latest contribution to the debate on the shape of Europe and our world in 2030 and beyond, and on the transformative action we must take to get there. The main objective of this report is to show the progress made towards the SDGs in the EU. It will also feed into the EU’s contribution to the 2019 sessions of the UN High-Level Political Forum on Sustainable Development.

Knowing where we stand, identifying the most pressing sustainability challenges and critically examining our performance is essential if we are to ensure a sustainable Europe in a sustainable world.

Frans Timmermans
First Vice-President
European Commission

Marianne Thyssen
Commissioner
European Commission
Employment, Social Affairs,
Skills and Labour Mobility
Responsible for Eurostat

Foreword of Eurostat's Director-General

In January 2019, the European Commission presented its reflection paper 'Towards a Sustainable Europe by 2030', reaffirming the EU's commitment to delivering on the United Nations 2030 Agenda and its implementation. This intention was first expressed in the European Commission's Communication 'Next steps for a sustainable European future: European action for sustainability' in November 2016.



Both the European Commission and the European Council called for a detailed regular monitoring of the SDGs in an EU context, and the development of a reference indicator framework for this purpose. On the basis of this mandate, Eurostat has been publishing annual monitoring reports on the progress towards the SDGs in an EU context since 2017.

This 2019 edition of the report is based on an indicator set comprising around 100 indicators relevant for monitoring progress towards the 17 SDGs in an EU context. The indicators show that the EU has achieved progress towards many sustainable development objectives, but also point to areas where further effort is needed to put the EU on the right track.

I hope that this objective assessment of progress towards the SDGs in an EU context will help facilitate the discussions at the UN High-Level Political Forum (HLPF) in July 2019, where the European Commission will organise an event to present the EU's internal and external implementation of the Agenda.

I am certain that the 2019 monitoring report will be useful to interested European citizens, policy-makers, researchers and business people. It should help them to identify the main challenges the EU is facing at this moment and inspire them to undertake new sustainable development actions.

A handwritten signature in blue ink, which appears to read 'M. Kotzeva'.

Mariana Kotzeva

Director-General of Eurostat

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The data presented in this publication were extracted in mid-May 2019.

An online data code available under each table/figure can be used to directly access to the most recent data on Eurostat's website, at:

<https://ec.europa.eu/eurostat/data/database>

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Synopsis

Sustainable development objectives have been at the heart of European policy for a long time, firmly anchored in the European Treaties ⁽¹⁾ and mainstreamed in key projects, sectoral policies and initiatives. The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), adopted by the United Nations (UN) in September 2015, have given a new impetus to global efforts for achieving sustainable development. The EU has fully committed itself to delivering on the 2030 Agenda and its implementation through its internal and external policies, as outlined in the reflection paper ‘Towards a Sustainable Europe by 2030’ ⁽²⁾.

This publication, entitled ‘Sustainable development in the European Union — Monitoring report on progress towards the SDGs in an EU context (2019 edition)’, is the third in the series of annual monitoring exercises launched by Eurostat in 2017. It is based on the EU SDG indicator set that was developed to monitor progress towards the SDGs in an EU context. The set was adopted in May 2017 by the European Statistical System Committee and most recently reviewed in late 2018 ⁽³⁾ (see Annex II on page 356 for the complete set of indicators used in this report).



This synopsis chapter provides a statistical overview of progress towards the SDGs in the EU over the most recent five-year period (‘short-term’) for around 100 selected indicators. Where

data availability allows, the more detailed analyses

in the thematic chapters of this report also look at trends over the past 15 years (‘long-term’), to reflect the 15-year scope of the 2030 Agenda.

Indicator trends are assessed on the basis of their average annual growth rate during the past five years. For the 16 indicators with quantitative EU targets ⁽⁴⁾, progress towards those targets is assessed. These targets mainly exist in the areas of climate change, energy consumption, education, poverty and employment. All other indicators are assessed according to the direction and speed of change. Arrow symbols are used to visualise the results of these assessments. The meaning of these symbols is explained in the introduction and at the beginning of each thematic chapter; the overall approach to assessing indicator trends is explained in more detail in the introduction (see page 19).

For each SDG, this synopsis summarises progress in the selected indicators towards the respective goal. This summary is based on an average score for each SDG, which is obtained by calculating the mean of the individual indicator assessments, including the multi-purpose indicators. The method for summarising progress at the goal level based on the selected indicators is explained in the introduction (see page 25).

The findings presented in this publication are based on developments over a five-year timespan. Studies and reports that consider current status (in addition to or instead of trends), different indicators or different timespans may come to different conclusions.

How has the EU progressed towards the SDGs?

The overview figure on the next page shows a statistical summary of EU progress towards the SDGs over the most recent five years of available data ⁽⁶⁾, based on the average scores of the indicators selected for monitoring these goals in an EU context. Over this five-year period, the EU made progress towards almost all goals. Progress in some goals has been faster than in others, and movement away from the sustainable development objectives occurred in specific areas of a number of goals. A more detailed description of individual indicator trends can be found in the 17 thematic chapters of this report.

As the overview figure shows, the EU has made good progress in improving the living conditions of its citizens over the past five years. This improvement refers to gains in both actual and perceived health (SDG 3), reductions in certain dimensions of poverty and social exclusion (SDG 1), and increases in the quality of life in cities and communities (SDG 11). For example, both life expectancy and self-perceived health continued to grow in the EU, and Europeans seem to move towards healthier lifestyles. At the same time, severe material deprivation and low work intensity rates kept falling, while more and more citizens were able to fulfil their basic needs. These basic needs also include people's personal living situations, with fewer Europeans suffering from poor or inadequate housing conditions.

These favourable trends can be seen against the background of an improving economic situation in the EU over the past five years (mainly monitored by the indicators of SDG 8). Steady growth in the EU's gross domestic product (GDP) was accompanied by continuous increases in investment and employment, as well as declining unemployment (in particular youth unemployment and long-term unemployment).

The growing economic activity in the EU, however, has not always been accompanied by favourable developments in the use of natural resources and its negative environmental impacts, as exemplified by the positions of SDG 7, SDG 12, SDG 13 and SDG 15 in the overview figure. While greenhouse

gas emissions have been reduced, and the energy and resource intensity of GDP has steadily improved, consumption of materials and energy has increased in recent years, as has the generation of non-mineral wastes. The EU thus seems no longer on track to meet its respective 2020 targets for primary and final energy consumption. In addition, although the EU is on track to meet its 2020 greenhouse gas emission target, Europe continues to face intensifying climate impacts, such as increasing surface temperatures and ocean acidification. Furthermore, biodiversity — monitored by European indices for different groups of birds — continued to decline, while soil sealing through artificial and impervious surfaces kept growing.

Trends in the goal on education (SDG 4) appear largely favourable. The EU has already met its benchmarks for tertiary education and early childhood education and care, and is close to meeting the goals on early leavers from education and training, as well as on employment of recent graduates. Nevertheless, some areas of concern, such as underachievement in the PISA (Programme for International Student Assessment) test and adult learning, persist. The EU has also made some progress in supporting developing countries, for example, through financial flows and trade (SDG 17). Trends were mixed in the area of sustainable agricultural production and its environmental impacts (SDG 2). Developments in the goals on gender equality (SDG 5) and other forms of inequalities (SDG 10) were also mixed, with both growing and declining inequalities in different topic areas.

A slight movement away from sustainable development objectives was visible in the EU's innovation and transport performance, monitored by the indicators from SDG 9. Both R&D intensity and patent applications showed more or less stagnating trends over the past five years, and a shift towards more sustainable transport modes is not yet visible.

In the case of three goals — SDG 6 'clean water and sanitation', SDG 14 'life below water' and SDG 16 'peace, justice and strong institutions' — overall EU trends cannot be calculated due to insufficient data for the past five years.

Overview of EU-28 progress towards the SDGs over the past 5 years, 2019

(Data mainly refer to 2012–2017 or 2013–2018)



Summary at goal level

The goals are presented in order of average indicator trend assessments, from best to worst. Comparisons to 'last year's assessment' refer to the summary of EU progress towards the SDGs presented in the 2018 edition of the EU SDG monitoring report (6).



SDG 3 'Good health and well-being' continues to be the goal towards which the EU has seen strongest progress over the past five years, with clearly favourable trends in almost all

indicators. EU citizens do not only seem to increasingly let go of lifestyle-related risk factors, as shown by the reductions in obesity and smoking prevalence. They also suffer less from external health determinants such as noise and air pollution. Over the past five years, premature deaths due to chronic diseases and to HIV, tuberculosis and hepatitis fell continuously, and fewer people died in accidents at work or on the road. Together with significant improvements in access to healthcare, these trends have helped to further increase life expectancy in the EU, and they are also reflected in the improvements in self-perceived health of EU citizens. However, a recent slowdown in reducing road accidents has put the EU off track to reaching its target of halving road fatalities between 2010 and 2020.



The EU's situation regarding **SDG 1 'No poverty'** has seen a remarkable improvement compared with last year's assessment. This is mainly due to strong favourable trends from

2016 to 2017 for most poverty-related aspects. While for some indicators this recent improvement is a continuation or intensification of past developments, for others it represents a turnaround of previously unfavourable trends. Fewer people face problems related to their homes, such as overcrowding, poor dwelling conditions, a lack of sanitary facilities, or the inability to keep the home adequately warm. Moreover, as already mentioned above for SDG 3, fewer people are reporting unmet needs for

medical care. In the area of multidimensional poverty, the number of people suffering from severe material deprivation has continued to fall, and fewer people live in households with very low work intensity. However, due to the rise in the number of people at risk of poverty after social transfers until 2016, the improvement in the combined 'at risk of poverty or social exclusion' indicator has so far been too slow to put the EU on track to meet its target of lifting at least 20 million people out of this situation by 2020.



SDG 8 'Decent work and economic growth' is characterised by steady improvements in the EU's economic and labour market situation over the past few years.

Steady growth in real GDP per capita since 2013 has been accompanied by continued increases in employment and corresponding declines in long-term unemployment and in the number of young people not in education, employment or training. Due to steady gains over the past five years, the EU is well on track towards meeting its Europe 2020 target of raising the employment rate to 75 %. In addition, resource productivity and the EU's investment share of GDP have increased as well. However, not all people have benefitted equally from the improvements in the EU's labour market situation. Many more women than men still remain economically inactive due to caring responsibilities, and the prevalence of in-work poverty has grown.



As regards **SDG 4 'Quality education'**, the EU has already achieved two of its six 2020 benchmarks for education and training. The target of raising the share of the population aged 30

to 34 that has completed tertiary or equivalent education to at least 40 % was met in 2018, while the benchmark of at least 95 % of children aged between four and the starting age of compulsory education participating in early childhood education and care had already been achieved in 2016. Furthermore, the EU is on track to meet its benchmark for employed recent graduates. The EU is also close to reaching its target for reducing the

share of early school leavers, but a renewed effort seems needed to meet it by 2020. The situation is less favourable as regards the remaining two benchmarks. Education outcomes, as measured by pupils' performance in the PISA study for reading, maths and science, are still far from the respective EU target. Moreover, because of a stagnation in the proportion of adults participating in learning, the benchmark of raising this share to 15 % by 2020 will likely be missed.



The recent improvements in EU citizens' living conditions described for the two goals on poverty (SDG 1) and health (SDG 3) above have also led to a slightly improved situation for

SDG 11 'Sustainable cities and communities'

compared with last year's assessment. This is especially the case in the area of quality of life in cities and communities, where indicators overlap with those used for monitoring SDG 1 and SDG 3. In addition to the already mentioned improvements as regards overcrowding and poor dwelling conditions, as well as people's exposure to noise and air pollution, the share of EU citizens feeling affected by crime, violence and vandalism has decreased further. However, developments are less clear-cut for other aspects of SDG 11. Progress towards more sustainable transport modes has slowed down in recent years, and the stagnation in road transport deaths has put the EU off track towards meeting its respective target by 2020. Also, settlement areas have kept spreading, not only in absolute terms, but also per capita, meaning that land take has increased faster than the EU population. On a positive note, a continued increase in recycling of municipal waste has put the EU on track to meeting its respective target by 2030.



EU developments regarding **SDG 17 'Partnerships for the goals'** have been largely favourable, but need to be interpreted with some caution.

Total EU financing to developing countries increased over the past five years, although strong annual fluctuations in private flows make a reliable assessment of the trend

difficult. In contrast to private spending, official development assistance (ODA) has seen a more steady increase, even if the EU still has some way to go to meet its target of dedicating a share of 0.7 % of its gross national income to ODA by 2030. As regards trade, imports from developing countries continued to grow, in particular from China. Concerning financial governance within the EU, government debt to GDP ratios have improved across the EU since 2014, but many Member States remain above the 60 % reference level stipulated by the Treaty on the Functioning of the EU (?). Shares of environmental taxes in total tax revenues have stagnated at a low level, and a shift of taxation from labour towards environmental taxes has so far not been visible in the EU.



As there are no major issues about food security within the EU, monitoring **SDG 2 'Zero hunger'** in an EU context mainly focuses on malnutrition, as well as on the sustainability of

agricultural production and its environmental impacts. EU trends regarding malnutrition are clearly favourable, with shares of both obese and overweight people showing declines between 2014 and 2017. Trends over the past five years were more diverse for agricultural production and its environmental impacts. The labour productivity of the EU's agricultural sector improved and public investments in agricultural R&D increased. In addition, the area under organic farming grew steadily. However, some adverse impacts of agricultural production are still visible in the EU. Common farmland bird populations continued to decline, and ammonia emissions from agriculture increased. On a more positive note, nitrate concentrations in groundwater have fallen slightly across the EU since 2010.



SDG 5 'Gender equality' is characterised by mixed developments in the selected indicators. On the plus side, both the gender employment gap for recent graduates (aged 20 to 34) and the gender pay gap have narrowed over the past few years. Furthermore, the shares of women in national parliaments and in senior

management positions of the largest listed companies have grown considerably. On the other hand, progress in closing the gender gap in the total employment rate (20 to 64 age group) has stalled. Moreover, many more women than men still remain economically inactive due to caring responsibilities, and this gender gap has widened even further. In the area of education, the gender gap is reversed, meaning that women are ahead of men. While this gap has remained constant for early leavers from education and training, men continued to fall behind in attaining tertiary education.



The recent advances in EU citizens' income and living conditions reported for SDG 1 and SDG 11 above have also resulted in a considerable improvement in the overall

assessment of EU progress towards **SDG 10**

'Reduced inequalities' compared with last year.

As regards inequalities within Member States, monitored by indicators looking at income inequalities between different groups of society, the situation has slightly improved from 2016 to 2017. These recent improvements have however not been sufficient to fully offset the unfavourable developments observed between 2012 and 2016. As such, in 2017 the income gap between rich and poor was still larger than it was five years earlier. This was also the case for the average distance from the poverty threshold for those below this threshold, making it more difficult for these people to escape this situation. Past five-year trends were generally favourable regarding inequalities between countries. Both GDP per capita and gross disposable household income per capita of EU Member States continued to show convergence. Moreover, both imports from and financing to developing countries have increased over the past few years.



The situation regarding **SDG 7 'Affordable and clean energy'** has deteriorated compared with last year's assessment. This is

mainly due to the steady increases in the consumption of primary and final energy since 2014, which have

put the EU off track towards meeting its respective energy efficiency targets for 2020. This has gone hand in hand with an increase in the dependence on energy imports from outside the EU, which reached a new record high in 2017. On the other hand, the share of renewable energy in electricity, heating, cooling and transport is still rising, having slowed only slightly. Furthermore, favourable developments are visible for people's energy use at home: both per capita energy consumption of households and the proportion of people who are unable to keep their home adequately warm have declined. In addition, energy appears to be used more and more efficiently in the EU, as evidenced by the increase in energy productivity and the decline in the emissions of greenhouse gases per unit of energy consumed.



The unfavourable developments in energy consumption reported for SDG 7 above have also resulted in a deterioration of the overall assessment of **SDG 12**

'Responsible consumption

and production' compared with last year. For both energy and material use, only relative decoupling from economic growth is visible. This means that the recent increases in the EU's resource and energy productivity are mainly a result of strong GDP growth and do not reflect more sustainable consumption patterns of natural resources. Despite the increases in circular material use and recycling, total waste generation (excluding mineral wastes) continued to grow in the EU. Furthermore, the decline in CO₂ emissions from new passenger cars has slowed down recently. Favourable trends are visible in the consumption of toxic chemicals, with declining amounts of chemicals hazardous to health and to the environment over the past few years.



The indicators selected for **SDG 15 'Life on land'** show a mixed picture. Biodiversity-related indicators on common birds and grassland butterflies still show long-term declines,

and the areas protected under the Natura 2000 network have shrunk slightly. In addition, pressures from land take for human settlement purposes,

including soil sealing by impervious materials, continued to intensify. More favourable developments are visible for the status of the EU's water bodies and forests. Pollutant concentrations in rivers (phosphate and biochemical oxygen demand) and groundwater (nitrate) declined, and forest area increased in the EU. However, it needs to be noted that the selected indicators in this goal have a somewhat limited scope. Other stocktaking reports and evaluations conclude that the status of ecosystems and biodiversity in the EU is insufficient, and that the negative impacts of EU consumption patterns on global biodiversity are considerable ⁽⁸⁾.



Improvements in data availability and changes in methodology make an assessment of overall progress towards **SDG 13 'Climate action'** possible in this 2019 edition of the EU

SDG monitoring report. The overall assessment, however, is neutral, meaning that over the past few years, progress has been made in some areas, while negative developments occurred in others. While the EU's greenhouse gas emissions are still within the threshold to reach the 2020 target, the EU is no longer on-track to meet its 2020 energy efficiency target, and the increase in the share of renewable energies has slowed down (see the assessments for SDG 7 and SDG 12 above). EU countries are also increasingly facing the impacts of global climate change. European surface temperature in the most recent decade (2009–2018) was already 1.6 °C above pre-industrial times, an increase of 0.2 °C when compared with the preceding decade. Due to the absorption of CO₂ into the world's oceans, the mean ocean pH value continues to decline, and in 2016 reached an unprecedented low over pre-industrial levels.



SDG 9 'Industry, innovation and infrastructure' is characterised by largely stagnating trends, which explain the overall neutral assessment of this goal. As regards R&D and innovation, patent applications to the European Patent Office have declined since 2012, while the EU's R&D intensity has increased only marginally,

making the achievement of the respective 2020 target of raising R&D expenditure to 3 % of GDP rather unlikely. Overall stagnation is also visible in the efforts of making EU transport patterns more sustainable. While a modest shift towards more sustainable modes took place for passenger transport, an opposite trend was visible for freight transport. CO₂ emissions from new passenger cars are still decreasing, however, this positive trend has recently slowed down. Favourable developments are also visible for employment-related indicators, with continued increases in the share of R&D personnel and the proportion of people working in high- and medium-high technology and knowledge-intensive service sectors.

For the following three SDGs, average scores at goal level cannot be calculated due to insufficient data over the past five years.



For **SDG 6 'Clean water and sanitation'**, EU aggregate data are not available for several indicators. This makes it impossible to calculate an average score at goal level.

Nevertheless, available data paint a rather favourable picture for the EU concerning this goal. Since 2010, pollutant concentrations in rivers (phosphate and biochemical oxygen demand) and groundwater (nitrate) have declined. However, it needs to be noted that although average nitrate concentrations in European groundwater bodies are within EU drinking-water standards (50 mg/l), serious problems at the regional or local level still exist. Clearly favourable developments are visible for access to sanitation and bathing water quality. The share of people without improved sanitation facilities in their households has been steadily decreasing in the EU, with the vast majority of Member States already having universal access to sanitation. Europeans are also enjoying improved bathing water quality in inland waters.



Available data for **SDG 14 'Life below water'** still have a somewhat limited scope, which makes it impossible to calculate an average score at the goal level. While an ever-larger

marine territory is protected under the Natura 2000 network, the available data neither provide an indication on the effectiveness of the protection of species and habitats at the sites nor on their conservation status. Similarly, model-based indicators on sustainable fishery provide an (improving) picture only for the North-East Atlantic, while data for other EU waters such as the Mediterranean or the Black Sea (where the situation may be less favourable) are not yet robust enough to be considered for monitoring. The increase in the share of coastal bathing sites with excellent water quality has slowed in recent years, but overall the trend is still moderately positive. Unfavourable trends are however visible for ocean acidification, as already mentioned for SDG 13 above. Due to the absorption of CO₂ into the world's oceans, the mean ocean pH value continues to decline, and in 2016 reached an unprecedented low compared with pre-industrial levels.



The indicators for **SDG 16 'Peace, justice and strong institutions'** show that life in the EU has become safer over the past few years: deaths due to homicide or assault and the

perceived occurrence of crime, violence and vandalism in European neighbourhoods have both fallen considerably. Furthermore, government expenditure on law courts has increased. In addition, the decline in citizens' confidence in EU institutions observable since 2000 has come to a halt, with considerable gains in trust levels for the main EU bodies since 2013. Trends cannot be calculated for other aspects of SDG 16, including the perceived independence of the justice system, perceived corruption and violence against women, making an overall goal-level assessment for SDG 16 impossible.

Notes

⁽¹⁾ Articles 3 (5) and 21 (2) of the Treaty on European Union (TEU).

⁽²⁾ European Commission (2019), *Reflection paper: Towards a Sustainable Europe by 2030*, COM(2019)22.

⁽³⁾ For details, see [EU SDG Indicator set 2019](#) on Eurostat website.

⁽⁴⁾ See Table II.18 in Annex II.

⁽⁵⁾ The presentation is based on the assessment of the trends over the past 5 years ('short term') only. For future monitoring it is envisaged to expand it to 'long-term' development (i.e. 15 years) depending on the availability of longer time series.

⁽⁶⁾ See Eurostat (2018), *Sustainable development in the European Union — Monitoring report on progress towards the SDGs in an EU context (2018 edition)*, Publications Office of the European Union, Luxembourg.

⁽⁷⁾ *Treaty on the Functioning of the European Union*.

⁽⁸⁾ See European Environmental Agency (2015), *State of nature in the EU: biodiversity still being eroded, but some local improvements observed*, the *Mid-term review of the EU Biodiversity Strategy to 2020 (COM/2015/0478 final)* and Díaz et al. (2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on biodiversity and Ecosystem Services*.

Introduction

1. About this publication

Sustainable development objectives have been at the heart of European policy for a long time, firmly anchored in the European Treaties ⁽¹⁾ and mainstreamed in key projects, sectoral policies and initiatives. The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), adopted by the United Nations (UN) in September 2015, have given a new impetus to global efforts towards achieving sustainable development. The EU and its Member States are committed to this historic global framework agreement and to playing an active role to maximise progress towards the SDGs.

Eurostat supports this process through regular monitoring and reporting on progress towards the SDGs in an EU context. This publication is the third edition of Eurostat's series of monitoring reports, which provide a quantitative assessment of the EU's progress towards reaching the SDGs. This publication is based on the [EU SDG indicator set](#) (see Section 3.1, page 24), which includes indicators relevant to the EU and enables the monitoring of progress towards the goals in the context of long-term EU policies. It is aligned as far as appropriate with the UN list of global indicators,

but it is not completely identical. This allows the EU SDG indicators to focus on monitoring EU policies and on phenomena particularly relevant in a European context.

The Eurostat monitoring report is a key tool for facilitating the coordination of SDG policies, both at the EU level and with regards to Member States. As part of this process, it will promote the ongoing assessment and monitoring of progress in implementing the SDGs, and it will help to highlight their cross-cutting nature and the links between them.

This 2019 edition of the EU SDG monitoring report begins with a synopsis of the EU's overall progress towards the SDGs, followed by a presentation of the policy background at global and EU level and the way the SDGs are monitored at EU level (see 'policy background' and 'monitoring sustainable development in the EU' sections below). It also contains a brief overview on interlinkages between the SDGs. The detailed monitoring results are presented in 17 chapters, one for each of the 17 SDGs. The complete set of indicators used in this publication, as well as notes on methods and sources, are presented in Annex II (see page 356).

2. Policy background

2.1 The 2030 Agenda for Sustainable Development

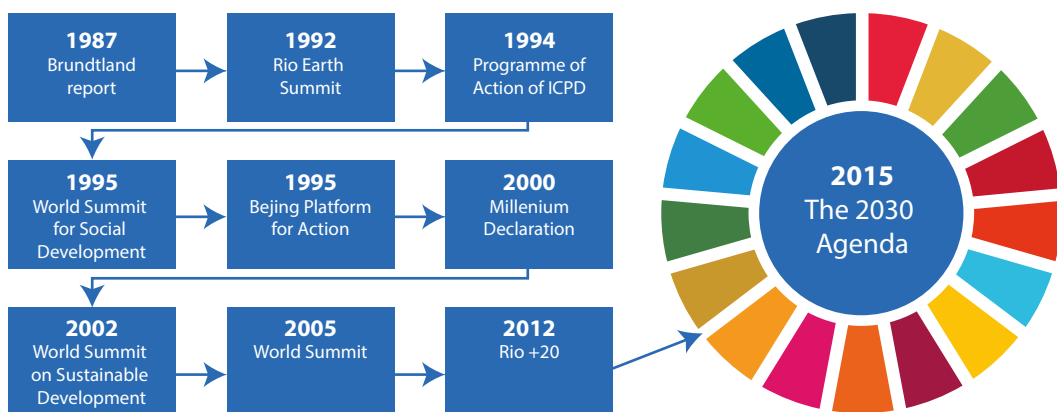
‘Development which meets the needs of the current generations without compromising the ability of future generations to meet their own needs’⁽²⁾. This is the definition of sustainable development that was first introduced in the Brundtland report⁽³⁾ by the World Commission on Environment and Development (WCED) in 1987, and it is the most widely used nowadays. After that, the Rio Declaration on Environment and Development (1992), the World Summit for Social Development (1995), the Programme of Action of the International Conference on Population and Development (ICPD) (1994), the Beijing Platform for Action (1995), the Millennium Declaration (from which the Millennium Development Goals were derived), the World Summit on Sustainable Development (2002), the 2005 World Summit⁽⁴⁾ and the UN Conference on Sustainable Development (Rio+20) in 2012 were among the most important milestones in the international pursuit of sustainable development, which paved the way forward for the 2030 Agenda⁽⁵⁾ (see Figure 0.1).

In September 2015, the UN General Assembly (UNGA) adopted the ‘Transforming our world: the 2030 Agenda for Sustainable Development’

document⁽⁶⁾. The 2030 Agenda is the new global sustainable development agenda. At the core of the 2030 Agenda is a list of 17 SDGs (see Figure 0.2) and 169 related targets to end poverty, protect the planet, and ensure prosperity and peace. The Agenda also calls for a revitalised global partnership to ensure its implementation. The SDGs are unprecedented in terms of significance and scope and go far beyond the UN Millennium Development Goals by setting a wide range of economic, social and environmental objectives and calling for action by all countries, regardless of their level of economic development. The Agenda emphasises that strategies for ending poverty and promoting sustainable development for all must go hand in hand with actions that address a wider range of social needs and foster peaceful, just and inclusive societies, protect the environment and help tackle [climate change](#). Although the SDGs are not legally binding, governments are expected to take ownership and establish national frameworks for the achievement of the 17 goals.

Monitoring of the SDGs takes place at various levels — national, regional, global and thematic. The UN High-Level Political Forum (HLPF) is the UN’s central platform to follow up and review the 2030 Agenda and the SDGs at the global level. To this end, the 2030 Agenda encourages UN member states to conduct voluntary national

Figure 0.1: Important milestones on the road to the Agenda 2030



This year's High-Level Political Forum (HLPF) is of significant political importance. There will be two sessions of the forum. First, the HLPF under the auspices of the Economic and Social Council will take place in New York in July 2019. It will address the theme 'Empowering people and ensuring inclusiveness and equality' and will conduct an in-depth review of SDG 4 (Quality education), SDG 8 (Decent work and economic growth), SDG 10 (Reduced inequalities), SDG 13 (Climate action) and SDG 16 (Peace, justice and strong institutions), in addition to SDG 17 (Partnerships for the goals), which is reviewed each year. Around 50 countries will conduct Voluntary National Reviews (VNRs) for the HLPF 2019. The European Commission will organise an event at the July HLPF to present the EU's internal and external implementation of the

2030 Agenda based on the Reflection Paper 'Towards a Sustainable Europe by 2030' ⁽¹⁰⁾, the 2019 Eurostat SDG monitoring report, the Joint Synthesis Report on implementation of the European Consensus for Development ⁽¹¹⁾ and the 2019 EU report on Policy Coherence for Development ⁽¹²⁾.

In addition, in September 2019, the UN General Assembly (UNGA) will hold a meeting of the HLPF on Sustainable Development at the level of Heads of States and Heads of Governments for the first time since the adoption of the Agenda, representing the end of the first four-year cycle of implementation and launch of the next one. This will be a platform where together the international leaders can pause, look back at areas where progress has been made and where it is insufficient to meet the Goals on time and discuss what can be done to catalyse it.

reviews of progress towards the SDGs ⁽⁷⁾. Regular reviews by the HLPF are voluntary, state-led, undertaken by both developed and developing countries, and provide a platform for partnerships, including through the participation of major groups and other relevant stakeholders ⁽⁸⁾. In view of this, many countries are updating their national sustainable development strategies based on the 2030 Agenda ⁽⁹⁾.

In order to follow up and review the goals and targets, a set of global indicators was designed by an Inter-Agency and Expert Group under the supervision of the UN Statistical Commission ⁽¹³⁾.

In July 2017, the UN General Assembly (UNGA) adopted a global indicator list, including 232 different indicators ⁽¹⁴⁾. However, only 43 % of those indicators are ready to use (these are classified as tier 1 by the UN); for a further 39 % data are available for less than 50 % of countries worldwide (tier 2), and for the remaining part no internationally established methodology is yet available (tier 3). There are gaps not only in developing countries, but also in developed nations, and filling these gaps requires financial resources, as well as knowledge-sharing and

investments in human capital. The UN anticipates two comprehensive reviews of the indicator set in 2020 and in 2025. The Inter-Agency and Expert Group on SDG indicators is currently working to fully implement the global indicator list and to improve it further. The modifications of the indicator list during the 2020 comprehensive review will include the replacement, deletion, refinement or adjustment of indicators and, in a few selected cases, the inclusion of additional indicators. Every year, the UN releases a Report of the Secretary-General on 'Progress towards the Sustainable Development Goals', followed by an SDG report for the broader public. The latter provides an overview of progress on each of the 17 SDGs based on selected indicators from the global indicator framework ⁽¹⁵⁾.

Achieving the SDGs around the world critically depends on a global partnership to enable the mobilisation of means of implementation, including financial and non-financial resources. Therefore, in addition to the definition of goals and targets and the development of a global indicator list, the mobilisation of resources for sustainable development is another important

Figure 0.2: The UN Sustainable Development Goals

element of the 2030 Agenda. A milestone in the intergovernmental negotiations for financing sustainable development was the Third International Conference on Financing for Development, which took place in July 2015 in Addis Ababa, Ethiopia. The conference adopted an outcome document that presents concrete actions for mobilising means of implementation as an integral part of the 2030 Agenda, the Addis Ababa Action Agenda ⁽¹⁶⁾.

The global indicator framework to monitor the implementation of the 2030 Agenda is complemented by indicators at the level of UN world regions and at national level. For example, indicator sets have been developed for the Asia-Pacific region ⁽¹⁷⁾, for Africa ⁽¹⁸⁾, and for Latin America and the Caribbean ⁽¹⁹⁾. At the European level, the UN Economic Commission for Europe (UNECE) developed a Roadmap on Statistics for Sustainable Development Goals in July 2017 ⁽²⁰⁾. The roadmap includes six substantive sections, focusing on (a) establishing national mechanisms for collaboration; (b) assessing the readiness of countries to provide data on global SDG indicators; (c) developing regional, national and sub-national indicators; (d) reporting mechanisms for data on SDG indicators; (e) capacity development for SDG statistics; and (f) communicating statistics for

SDGs. It includes recommendations for national statistical offices and concrete actions to support the Conference of European Statisticians member countries in implementing a measurement system for the SDGs ⁽²¹⁾. There is no separate regional indicator set proposed by the UNECE; however, the EU SDG indicator set as described in section 3.1 is in line with the UNECE roadmap.

2.2 Sustainable development in the European Union

Sustainable development has long been a central policy objective for the EU, enshrined in its treaties since 1997. The first EU Sustainable Development Strategy, adopted in 2001, set out a single, coherent plan on how to meet the challenges of sustainable development in the EU. In June 2010, the European Council adopted the Europe 2020 strategy, the EU's agenda for growth and jobs for the current decade ⁽²²⁾. The Europe 2020 strategy put forward the three mutually reinforcing key



priorities of smart, sustainable and inclusive growth. For each of the three key priorities, the strategy defined one or more targets in five areas: (1) [employment](#), (2) [research and development](#) (R&D) and [innovation](#), (3) [climate change](#) and energy, (4) [education](#), and (5) poverty and social exclusion ⁽²³⁾.

The work leading up to the adoption of the UN 2030 Agenda for Sustainable Development in 2015 spurred new momentum for policy action on this topic, both globally and in the EU and its Member States. In response to the 2030 Agenda, the European Commission adopted its Communication '[Next steps for a sustainable European future: European action for sustainability](#)' ⁽²⁴⁾ in November 2016, announcing a two-step approach towards the implementation of the SDGs. The first work stream is to fully integrate the SDGs into the European policy framework and Commission priorities. The second work stream is a reflection on further developing the EU's longer-term vision after 2020. In this respect, on 30 January 2019 the Commission presented a reflection paper 'Towards a Sustainable Europe by 2030' ⁽²⁵⁾.

The Communication from 2016 also announced a detailed regular monitoring of the SDGs in an EU context from 2017 onwards, which led to the establishment of the EU SDG indicator set (see section 3.1) and the launch of annual EU SDG monitoring reports in November 2017. The reflection paper 'Towards a Sustainable Europe by 2030' builds its assessment of current EU performance on the SDGs ⁽²⁶⁾ on the Eurostat SDG monitoring report from 2018, among other sources.

In its reflection paper, the European Commission identifies competitive advantages of the EU that give the Union the opportunity to show leadership and highlight the path for others to follow. These advantages include strong welfare systems, considerable investment in research and innovation, and very high social, health and environmental standards. The paper also highlights the complex and interlinked challenges the EU is facing, in particular relating to climate change and ecological debt, technological and

demographic change, inequality and lack of social cohesion.

The focus of the reflection paper is on the policy foundations for the sustainability transition. It includes moving from a linear to a circular economy, focusing on sustainable agriculture and food industries, and on clean energy. The paper also envisions ensuring a socially fair transition to ecologically sustainable economic growth while leaving no-one behind. It also names enabling factors of the sustainability transition, such as education, science, R&D, innovation and digitalisation; finance, pricing, taxation and competition; responsible business conduct, corporate social responsibility and new business models; open and rules-based trade; and governance and policy coherence at all levels.



The reflection paper also recalls that the EU's internal work on the SDGs and its external projection are two sides of the same coin. It is in the EU's interest to also play a leading role in the implementation of the United Nations 2030 Agenda globally through its external action. Active

engagement with partner countries will continue through policy dialogues based on the SDGs, accompanied by the EU's financial assistance and development cooperation.

Reaffirming the EU's commitment to delivering the 2030 Agenda, the reflection paper put forward three different scenarios for implementing the SDGs across the EU. The three scenarios outline different options for how the roles in SDG implementation could be divided between the EU and its Member States, but all are based on the notion that the EU has great competitive advantages to lead globally and be a successful first mover. The three scenarios are: (1) an overarching EU SDG strategy to guide the actions of the EU and its Member States; (2) a continued mainstreaming of the SDGs in all

relevant EU policies by the Commission, but not enforcing Member States' action; and (3) putting an enhanced focus on external action while consolidating current sustainability ambition at the EU level.

The reflection paper also includes three annexes: the Juncker Commission's contribution to the SDGs, the EU's performance on the SDGs (among others based on the Eurostat SDG monitoring

report from 2018), and a summary of the contribution of the SDG Multi-Stakeholder Platform to the reflection paper.

In spring 2019, the European Parliament ⁽²⁷⁾ and the Council ⁽²⁸⁾ welcomed the European Commission's reflection paper 'as an urgently needed contribution to the debate on a more sustainable future of Europe and the strategic priority setting for the next European Commission' ⁽²⁹⁾.

3. Monitoring sustainable development in the EU

3.1 The EU SDG indicator set

The European Commission is committed to monitoring progress towards the SDGs in an EU context. Eurostat has led the development of a reference indicator framework for this purpose in close cooperation with other Commission services and Member States organisations in the European Statistical System (ESS). Work on the selection of an EU SDG indicator list has been carried out in an open and inclusive way, involving Council Committees (Employment Committee, Social Protection Committee and Economic and Financial Committee), the European Statistical Advisory Committee (ESAC), EU agencies such as the European Environment Agency (EEA), non-governmental organisations, academia and other international organisations. Many proposals have been screened in the light of pre-established principles and criteria for policy relevance and quality requirements. The ESS Committee adopted the EU SDG indicator set in May 2017.

The indicators have been selected taking into account their policy relevance from an EU perspective, availability, country coverage, data freshness and quality. Many of the selected indicators were already used to monitor existing policies, such as the Europe 2020 headline indicators ⁽³⁰⁾, the set of impact indicators for the Strategic Plan 2016-2020 (10 Commission priorities) ⁽³¹⁾, and the main indicators of the Social Scoreboard for the European Pillar of Social

Rights ⁽³²⁾. A list of the policies and initiatives that were considered can be found in the staff working document 'Key European action supporting the 2030 Agenda and the Sustainable Development' ⁽³³⁾, accompanying the Communication COM (2016) 739 'Next steps for a sustainable European future: European action for sustainability' ⁽³⁴⁾. Elements of the 2030 Agenda that are less relevant for the EU because they focus on other parts of the world (for instance where targets specifically refer to developing countries) are not considered.

The set is structured along the 17 SDGs and covers the social, economic, environmental and institutional dimensions of sustainability as represented by the Agenda 2030. Each SDG is covered by five or six main indicators, which have been selected to reflect the SDGs' broad objectives and ambitions. Of the 99 indicators in the 2019 EU SDG indicator set, 37 indicators are 'multi-purpose', meaning they are used to monitor more than one goal. This allows the link between different goals to be highlighted and enhances the narrative of this monitoring report. Of the current EU SDG indicators, 55 are aligned with the UN SDG indicators.

The EU SDG indicator set is open to regular reviews to consider new policy developments and include new indicators as methodologies, technologies and data sources evolve over time. The reviews involve other Commission services, European agencies, Member States organisations in the ESS and external stakeholders.

The reviews also lead to a list of indicators ‘on hold’ for possible future updates of the set. In this regard, Eurostat is working with other services of the European Commission and the EEA on the use of new data sources, such as the integration of Earth observation data and information from Copernicus, the European Earth Observation and Monitoring Programme, whenever they contribute to the increased availability, quality, timeliness and disaggregation of data ⁽³⁵⁾. This information could, for example, improve the understanding of sustainable forest management or capturing sustainable cropland management.

3.2 Data coverage and sources

Data in this report are mainly presented for the aggregated EU-28 level. In the cases when EU-28 aggregated data are not available, data for the EU without Croatia are presented instead, referring to the 27 EU Member States before the accession of Croatia to the EU in July 2013. In addition, whenever EU-28 data are only available for a very short time period, data for the EU without Croatia are presented in addition to the EU-28 ⁽³⁶⁾. In addition to the EU Member States, data for EU [candidate countries](#) and the countries of the [European Free Trade Association](#) (EFTA) are included in the country-level comparisons throughout the report when available, complementing the EU-level analysis. When data availability allows, global comparisons of the EU with other large economies in the world (such as the United States, Japan and China) are also presented.

In order to reflect the 15-year scope of the 2030 Agenda, the analysis of trends is, as far as possible, based on data for the past 15 years. For a number of indicators, in particular those based on the EU Statistics on Income and Living Conditions (EU-SILC), data are available only for shorter periods.

The data presented in this report were extracted in mid-May 2019. Most of the data used to compile the indicators stem from the standard Eurostat collection of statistics through the ESS, but a number of other data sources have also been used, including other European Commission services, the EEA, the European Institute for

Gender Equality, the [Organisation for Economic Co-operation and Development](#) (OECD) and the [World Bank](#).

Eurostat’s website contains a section dedicated to the EU SDG indicator set. Eurostat online data codes, such as [sdg_01_10](#), allow easy access to the most recent data ⁽³⁷⁾. The website also includes a section called ‘Statistics Explained’ ⁽³⁸⁾, presenting the full range of statistical subjects covered by Eurostat in an easy-to-understand way. It works in a similar way to Wikipedia, offering an encyclopaedia of European statistics for everyone, complemented by a statistical glossary clarifying all terms used and numerous links to further information and the latest data and metadata.

3.2.1 Treatment of breaks in time series

Breaks in time series occur when the data collected in a specific year are not comparable with the data from previous years. This could be caused by a change in the classification used, the definition of the variable, the data coverage and/or other reasons. Breaks in time series could affect the continuity and consistency of data over time. However, it should be noted that such breaks do not undermine the reliability of the data.

In the course of preparing this monitoring report, a case-by-case assessment of breaks in time series has been conducted to determine the extent to which a break would affect the assessment of an indicator. In cases where a break was considered significant enough to affect the assessment of an indicator trend or the comparability between countries, the analysis of the indicator was adjusted accordingly.

Breaks in time series are indicated throughout the report in footnotes below the graphs.

3.3 Assessment of indicator trends

3.3.1 How are trends assessed?

This publication provides an assessment of indicator trends against SDG-related EU objectives and targets. The assessment method considers whether an indicator has moved towards or away from the sustainable development objective, as

well as the speed of this movement. The method focuses on developments over time and not on the 'sustainability' ⁽³⁹⁾ of the status.

Ideally, the trends observed for each indicator would be compared against theoretical trends necessary to reach either a quantitative target set within the political process or a scientifically established threshold. However, this approach is only possible for a limited number of indicators, where an explicit quantified and measurable target exists for the EU. In the remaining cases, a transparent and simple approach across these indicators is applied to avoid ad hoc value judgments. The two approaches are explained in more detail in section 3.3.3 (indicators with quantitative targets) and 3.3.4 (indicators without quantitative targets).

The assessment is generally based on the 'compound annual growth rate' (CAGR) formula, which assesses the pace and direction of the evolution of an indicator. This formula uses the data from the first and the last years of the analysed time span and is used to calculate the average annual rate of change of the indicator (in %) between these two data points. For a detailed description of the calculation method, see Annex III (page 364).

3.3.2 How are the assessment results presented?

The assessment of indicator trends is visualised in the form of arrows (see Table 0.1). The direction of the arrows shows whether or not the indicators are moving in a sustainable direction. This direction

does not necessarily correspond to the direction in which an indicator is moving. For example, a reduction of the unemployment rate, or of greenhouse gas emissions, would be represented with an upward arrow, as reductions in these areas mean progress towards the sustainable development objectives.

Depending on whether or not there is a quantitative EU policy target, two cases are distinguished, as shown in Table 0.1. For indicators with a quantitative target, the arrows show if, based on past progress, the EU is on track to reaching the target. For indicators without a quantitative target, the arrows show if the indicator has moved towards or away from the sustainable development objective, and the speed of this movement. The assessment method therefore differs slightly for these two types of indicators, as explained further below.

As far as possible, indicator trends are assessed over two periods:

- The **long-term trend**, which is based on the evolution of the indicator over the past 15-year period (usually 2002 to 2017 or 2003 to 2018). The long-term trend is also calculated for shorter time series if data are available for at least 10 years.
- The **short-term trend**, which is based on the evolution of the indicator during the past five-year period (usually 2012 to 2017 or 2013 to 2018). In a few exceptional cases, the short-term trend is calculated for shorter time periods, as long as data are available for at least three years.

Table 0.1: Assessment categories and associated symbols





Symbol	With quantitative target	Without quantitative target
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Table 0.2: Example growth rate table for an indicator assessed against a policy target

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2003–2018	– 2.9% per year	– 2.9% per year
EU-28	2013–2018	– 2.3% per year	– 2.5% per year

Two arrows — for the assessment of the long-term and short-term trends — are therefore usually shown for each indicator, providing an indication of whether a trend has been persistent or has shown a turnaround at a certain point in time.

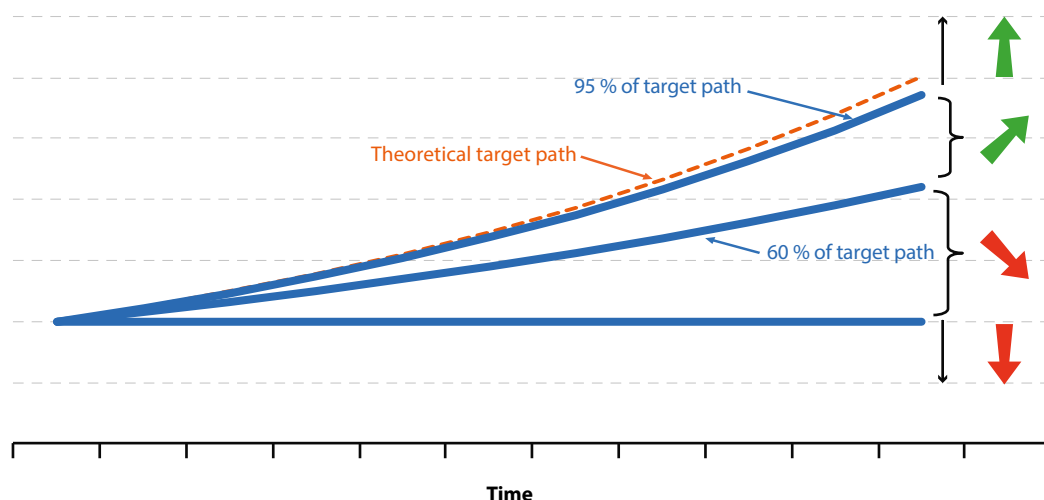
The growth rates (CAGR) upon which the arrow symbols are based are now provided in tables for all main indicators of a chapter. Table 0.2 shows an example of this presentation for the indicator ‘early leavers from education and training’. It shows the average annual growth rates observed for the two assessment periods as well as the growth rates that would be required to meet the target in the target year. For indicators without quantitative targets, only the observed growth rates are shown.

3.3.3 Indicators with quantitative targets

Whenever possible, the assessment of indicator trends takes into account concrete targets set in relevant EU policies and strategies. The main point of reference for identifying relevant policy targets

is the Commission Staff Working Document (SWD) ‘[Key European action supporting the 2030 Agenda and the Sustainable Development Goals](#)’ accompanying the Commission Communication COM (2016) 739 ‘[Next steps for a sustainable European future: European Union action for sustainability](#)’ from 22 November 2016.

In the presence of a quantified political target (for example, the Europe 2020 targets), the actual rate of change of the indicator (based on the CAGR as described in Annex III) is compared with the theoretical rate of change that would be required to meet the target in the target year. If the actual rate is 95 % or more of the required rate, the indicator shows significant progress towards the EU target. If that ratio is at least 60 %, but less than 95 %, the trend shows moderate progress towards the EU target, and if the ratio is at least 0 %, but less than 60 %, progress towards the EU target is insufficient. Negative ratios mean that the trend is moving away from the EU target. Figure 0.3 shows the thresholds for assessing an indicator’s trend

Figure 0.3: Thresholds for assessing indicators against a quantitative target (example of a target that requires the indicator to increase)

against a quantitative target that would require the indicator values to increase (as, for example, in the case of the Europe 2020 target of raising the EU employment rate to 75 %). For targets that require indicators to decline (for example, the target of reducing the EU's greenhouse gas emissions by 20 %), analogous decreasing target paths are used instead.

3.3.4 Indicators without quantitative targets

In the absence of a quantified target, it is only possible to compare the indicator trend with the desired direction. An indicator is making progress towards the sustainable development (SD) objectives if it moves in the desired direction and is moving away from the SD objectives if it develops in the wrong direction. The observed rate of change of the indicator, calculated based on the CAGR as described in Annex III, is then compared to the following thresholds: a change of 1 % per year or more is considered 'significant'. If this change is in the desired direction, this means 'significant progress towards SD objectives'. If the change is in the wrong direction, this means 'significant movement away from SD objectives'. A change in the desired direction that is less than 1 % (including 0 %) per year is considered

'moderate progress towards SD objectives', and a change in the wrong direction that is less than 1 % per year is considered 'moderate movement away from SD objectives'. See Table 0.1 for reference.

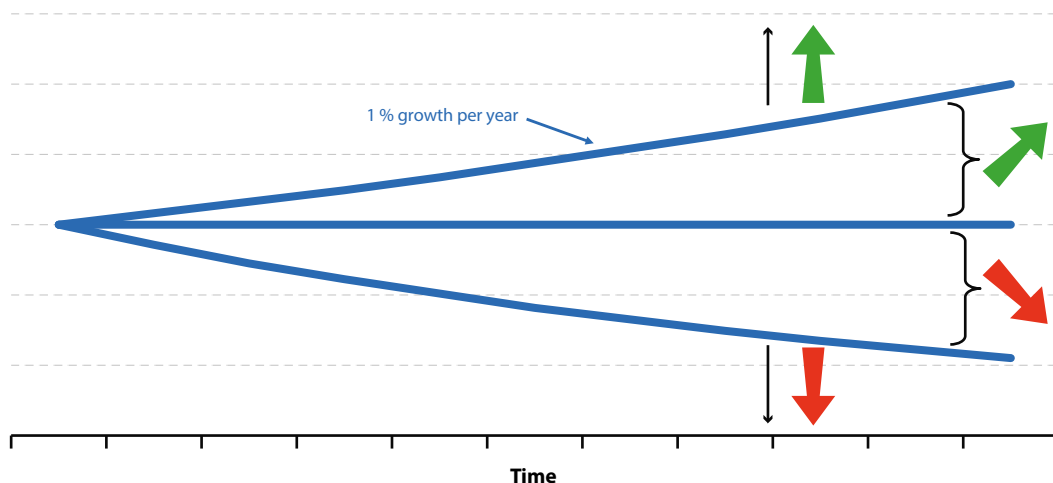
The 1 % threshold is easy to communicate, and Eurostat has used it in its monitoring reports for more than 10 years. It is discerning enough to ensure that there is a significant movement in the desired direction. Furthermore, it allows presenting a nuanced picture, with a sufficient number of indicators falling in all four categories ⁽⁴⁰⁾. The threshold should not be confused with the level of EU ambition on a given topic.

Figure 0.4 shows the thresholds for assessing an indicator for which the desired direction would be an increase (for example, life expectancy at birth). For indicators where the desired direction is a decrease (such as the unemployment rate), the categories are reversed.

3.3.5 Summary of progress at goal level

In the synopsis chapter of this report, average scores of the indicators are used to rank the SDGs according to their level of progress at goal level. To calculate these averages, a score is first calculated for each indicator, reflecting its short-term (past five years) assessment (see Annex III for details

Figure 0.4: Thresholds for assessing indicators without quantitative targets (example of an indicator where the desired direction is an increase)



on the scoring method). For each goal, a simple average of the scores of the individual indicators (including the multi-purpose indicators) is then calculated. Indicators for which trends cannot be assessed (for example due to insufficient time series) are not taken into account for the average score on the goal level. The share of assessed

indicators (those accompanied by an 'arrow' symbol) has to be at least 75 % to compute the summary result; below this threshold, the available indicators are considered insufficient to calculate a meaningful average score at goal level. This is currently the case for three goals (SDG 6, SDG 14 and SDG 16).

4. The interlinked nature of the SDGs

The 2030 Agenda for Sustainable Development represents a complex holistic challenge. Understanding the scope of interlinkages among SDGs is key to unlocking their full potential, as well as ensuring that progress in one area is not made at the expense of another one. Hence, investigating trade-offs, synergies and unintended consequences emerging from relationships between those goals is crucial for achieving long-lasting sustainable development outcomes. For the purpose of illustrating the interlinked nature of the SDGs, the 2019 EU SDG monitoring report makes use of the multi-purpose indicators of the EU SDG indicator set.

Spillover effects occur when an EU activity has unintended consequences for other regions. For example, EU companies might produce toxic chemicals outside the EU's borders, and the harmful effects of this production are not taken into account. Trade-offs are negative interactions between different SDGs and targets when improvements in one dimension can constrain progress in another dimension. If achieving economic growth requires higher resource and energy consumption, it can create a trade-off between SDG 8 and SDGs 12 and 7. In contrast, synergies are positive interactions between goals and targets, when achieving one target, such as 20 % share of renewable energy in the EU, can also help to achieve other targets, such as lessening energy dependence.

Several attempts have been made to capture interlinkages, synergies and trade-offs by international organisations and academics. A recent study by the European Commission's Joint Research Centre (JRC) focused on 'Interlinkages

and policy coherence for the Sustainable Development Goals implementation' by applying an operational method to identify trade-offs and co-benefits in a systemic way ⁽⁴¹⁾. The International Council for Science published 'A Guide to SDG interactions', which explores the nature of interlinkages between the SDGs and finds more synergies than trade-offs between the goals ⁽⁴²⁾. Furthermore, the Interlinkages Working Group of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) also conducted a study that identifies positive interlinkages between goals and targets in order to help countries to focus on those targets with the greatest potential for positive externalities ⁽⁴³⁾. Additionally, a study by E. Barbier and J. Burgess identifies trade-offs among the SDGs, using an economic model ⁽⁴⁴⁾. It would go beyond the scope of a statistical report such as the EU SDG monitoring report to apply similar approaches for identifying interlinkages between the SDGs as used in the studies mentioned above.

About one-third of the indicators in the EU SDG set are used to monitor more than one goal, which demonstrates the interconnectedness of the SDGs and sheds light on overlapping areas. In addition to that, several other indicators of the EU SDG indicator set are not marked as 'multi-purpose' but are nevertheless related to each other because they are based on the same dataset, such as protected marine (SDG 14) and terrestrial (SDG 15) areas under Natura 2000. Connecting the SDGs based on the multi-purpose indicators and the additional related indicators yields a picture as shown in Figure 0.5. Although these connections do not necessarily cover the full complexity of

Figure 0.5: Multi-purpose indicators within the EU SDG indicator set

Note: The connections shown are based on the multi-purpose indicators (indicators allocated to two or more SDGs), as well as on other related indicators (that are not marked as 'multi-purpose' but, for example, stem from the same dataset). The more links there are between the two goals, the thicker is the line that connects them.

interlinkages between the 17 goals, they illustrate the interconnected nature of the SDGs.

Not surprisingly, the network of Figure 0.5 reveals that the way we live, produce and consume — mainly referring to SDG 11 'Sustainable cities and communities', SDG 12 'Responsible consumption and production' and SDG 7 'Affordable and clean energy' — is strongly interconnected with many other areas, both acting as a driving force for, as well as being impacted by, other developments. In particular, SDG 11 'Sustainable cities and communities' is at the heart of the network of

multi-purpose indicators, as it is connecting several areas throughout the 2030 Agenda. Cities and human settlements are essential for Europeans' well-being and quality of life as they are a source of economic, environmental and social development. Despite the potential to be incubators of innovation and sustainable development, urban areas are a focal point of environmental change at multiple scales, among others due to land take (soil sealing), transport and mobility issues, and waste generation. Safe collection, removal, treatment and disposal of

solid waste are important services for limiting the environmental impacts of human activity. At the same time, consumption and production patterns (SDG 12) have a large impact on resource ⁽⁴⁵⁾ and energy efficiency ⁽⁴⁶⁾ and thus have a direct impact on a number of energy-related aspects (SDG 7). In turn, reliable and sustainable energy systems relate to the transition towards a more sustainable and resilient low-carbon society, thus having considerable influence on our climate (SDG 13) and hence the viability of social, environmental and economic systems. Clearly, climate action is linked to the delivery of affordable and clean energy. This interconnectedness is especially highlighted by the rate of greenhouse gas intensity of energy consumption as one of the key indicators for both climate action (SDG 13) and energy consumption (SDG 7). In addition, cities also act as hubs of economic growth (SDG 8), which is also closely related to other areas of sustainable development. Economic growth can boost employment, which, in turn, can help to alleviate poverty (SDG 1) and reduce gender inequality (SDG 5).

Not only does pressure from urbanisation (SDG 11) have an impact on resource and material consumption (SDG 7, SDG 12) as well as on climate (SDG 13), there are also essential interlinkages to ecosystems and biodiversity (SDG 15). Healthy ecosystems in the sense of forests, wetlands, mountains and drylands are able to provide countless environmental goods and services, such as biodiversity conservation, climate change mitigation and clean air and water. Thus, pressure resulting from urbanisation can exacerbate pollution from industry and agriculture and thus influence climate change, as well as water quality and availability (SDG 6). This overlap is recognised, for example, by the indicator on the population connected to wastewater treatment, linking SDG 6 and SDG 11. Water quality (SDG 6) measured by

pollutants in rivers and groundwater is also closely linked to overall ecosystem status (SDG 15).

As indicated above, the way we live is not only a driving force for other (potentially negative) developments; people's quality of life is, in turn, influenced by many other aspects. This is evidenced by the strong overlaps between SDG 11 and SDG 3 on 'Good health and well-being'. Stressors such as noise or air pollution are important health determinants that have a direct impact on quality of life. However, health does not only affect people's well-being and social participation, it is also a prerequisite for development, thus linking it with SDG 8 on 'Decent work and economic growth'. Decent employment opportunities in turn allow people to afford certain living standards and achieve life goals, thus preventing them from falling into the risk of poverty or social exclusion (SDG 1). Poorer people, on the other hand, face problems in accessing essential services such as healthcare and in their ability to participate fully in society, which shows that trends in SDG 1, SDG 3, SDG 8 and SDG 11 are strongly intertwined. Not surprisingly, cities and human settlements are at the centre of this network, by offering (affordable) transport systems that connect housing to employment and education opportunities, medical services and other facilities related to quality of life ⁽⁴⁷⁾.

Although this concise outline does not cover all the SDGs, it is able to demonstrate the immense and complex effects of the interlinked nature of the SDGs. In addition, it has to be noted that interlinkages are always context dependent and can differ greatly among countries, in particular keeping in mind the amount of variation between EU Member States. Nevertheless, the interlinkages show that for a transition towards more sustainable and resilient societies, all stakeholders and the different policy areas, sectors and levels of decision-making need to be considered.

Notes

- (¹) Articles 3 (5) and 21 (2) of the Treaty on European Union (TEU).
- (²) World Commission on Environment and Development (1987), *Our Common Future*.
- (³) Named after the former Norwegian prime minister Gro Harlem Brundtland, who acted as chair of the WCED.
- (⁴) The 2005 World Summit was a follow-up to the Millennium Summit; see '*Resolution adopted by the General Assembly on 16 September 2015: 2005 World Summit Outcome*'.
- (⁵) United Nations General Assembly (2015), '*Resolution adopted by the General Assembly on 25 September 2015: Transforming our world: the 2030 agenda for sustainable development*', A/RES/70/1, paragraphs 10 and 11.
- (⁶) United Nations General Assembly (2015), '*Resolution adopted by the General Assembly on 25 September 2015: Transforming our world: the 2030 agenda for sustainable development*', A/RES/70/1.
- (⁷) 'Conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven' (paragraph 79) of '*Transforming our world: the 2030 Agenda for Sustainable Development*'. The UN Department of Economic and Social Affairs (DESA) has established an online platform to compile inputs from countries participating in the national voluntary reviews of the annual session of the HLPF. See: <https://sustainabledevelopment.un.org/hlpf>
- (⁸) United Nations General Assembly (2015), '*Resolution adopted by the General Assembly on 25 September 2015: Transforming our world: the 2030 agenda for sustainable development*', A/RES/70/1, paragraph 84.
- (⁹) Information about the national sustainable development strategies of European countries can be found on the European Sustainable Development Network (ESDN) website: http://www.sd-network.eu/?k=country_profiles
- (¹⁰) European Commission (2019), *Reflection Paper 'Towards a Sustainable Europe by 2030'*, COM(2019)22, Brussels.
- (¹¹) European Commission (2019), *Supporting the Sustainable Development Goals across the world: The 2019 Joint Synthesis Report of the European Union and its Member States*, COM(2019) 232 final, Brussels.
- (¹²) European Commission (2019), *2019 EU report on Policy Coherence for Development*, SWD(2019) 20 final, Brussels.
- (¹³) The United Nations Statistical Commission, established in 1947, is the highest body of the global statistical system. It brings together the Chief Statisticians from Member States from around the world. It is the highest decision making body for international statistical activities especially the setting of statistical standards, the development of concepts and methods and their implementation at the national and international level.
- (¹⁴) United Nations General Assembly (2017), '*Resolution adopted by the General Assembly on 6 July 2017: Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development*', A/RES/71/313.
- (¹⁵) United Nations Economic and Social Council (2019), *Special Edition: Progress towards the Sustainable Development Goals*, Report of the Secretary-General; United Nations (2018), *The Sustainable Development Goals Report 2018*.
- (¹⁶) See: United Nations (2015), *Outcome document of the Third International Conference on Financing for Development: Addis Ababa Action Agenda*, A/CONF.227/L.1.
- (¹⁷) United Nations, Asian Development Bank, and United Nations Development Programme (2017), *Asia-Pacific Sustainable Development Goals Outlook*, United Nations, Bangkok.
- (¹⁸) African Union Economic Commission for Africa, African Development Bank, and United Nations Development Programme (2017), *2017 Africa Sustainable Development Report: Tracking Progress on Agenda 2063 and the Sustainable Development Goals*, Economic Commission for Africa, Addis Ababa.
- (¹⁹) Nicolai, S., Bhatkal, T., Hoy, C., and Aedy, T. (2016), *Projecting progress: the SDGs in Latin America and the Caribbean*, Overseas Development Institute, London.
- (²⁰) The Road map was developed by a Conference of European Statisticians Steering Group on Statistics for SDGs, coordinated by the UN ECE and to which Eurostat participates. See United Nations Economic and Social Council (2017), *Conference of European Statisticians' Road Map on Statistics for Sustainable Development Goals*, First Edition.
- (²¹) United Nations Economic and Social Council (2017), *Conference of European Statisticians' Road Map on Statistics for Sustainable Development Goals*, First Edition.
- (²²) European Commission (2010), *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM (2010)2020 final, Brussels.
- (²³) For more information on the Europe 2020 targets please see https://ec.europa.eu/info/strategy/european-semester/framework/europe-2020-strategy_en
- (²⁴) European Commission (2016), *Next steps for a sustainable European future: European action for sustainability*, COM(2016) 739, Brussels.
- (²⁵) European Commission (2019), *Reflection Paper 'Towards a Sustainable Europe by 2030'*, COM(2019)22, Brussels.
- (²⁶) Annex II of the Reflection Paper (see reference in footnote 25 above).
- (²⁷) European Parliament (2019), *Annual strategic report on the implementation and delivery of the Sustainable Development Goals (SDGs)*, (2018/2279(INI)).
- (²⁸) Council of the European Union (2019), *Towards an ever more sustainable Union by 2030 — Council conclusions (9 April 2019)*.
- (²⁹) Id., Article 6.
- (³⁰) See <https://ec.europa.eu/eurostat/web/europe-2020-indicators/europe-2020-strategy/headline-indicators-scoreboard>
- (³¹) See https://ec.europa.eu/commission/priorities_en
- (³²) See <https://composite-indicators.jrc.ec.europa.eu/social-scoreboard>
- (³³) Commission Staff Working Document (2016), *Key European action supporting the 2030 Agenda and the Sustainable Development Goals*, SWD(2016) 390 final, 2016.

- ⁽³⁴⁾ European Commission (2016), *Next steps for a sustainable European future: European action for sustainability*, COM(2016) 739, Brussels.
- ⁽³⁵⁾ For example, the handbook *'Satellite Earth Observations in support of the Sustainable Development Goals'* by the Committee on Earth Observation Satellites (CEOS) and the European Space Agency (ESA) was officially released at the 49th session of the UN Statistical Commission. This handbook promotes and highlights the contribution of Earth observations to the realisation of the 2030 Agenda for Sustainable Development, its goals and targets, and to the SDG Global Indicator Framework.
- ⁽³⁶⁾ EU aggregates are back-calculated when sufficient information is available. For example, the EU-28 aggregate is often presented for periods prior to the accession of Croatia in 2014 and the accession of Bulgaria and Romania in 2007, as if all 28 Member States had always been members of the EU. The label is changed if the data refer to another aggregate (EU-27 or EU-25) or a note is added if the data refer to a partial aggregate created from an incomplete set of country information (no data for certain Member States or reference years).
- ⁽³⁷⁾ In this report, online data codes are given as part of the source below each table and figure. When clicking on the online data code, the reader is directly led to the indicator table showing the most recent data. Alternatively, the data can be accessed by entering the data code in the search field on the Eurostat website. The indicator table also contains a link to the source dataset, which generally presents more dimensions and longer time series than the indicator table. The complete set of indicators is presented in Annex II of this publication.
- ⁽³⁸⁾ Eurostat, *Statistics explained*.
- ⁽³⁹⁾ The concept of sustainable development should be distinguished from that of sustainability. 'Sustainability' is a property of a system, whereby it is maintained in a particular state through time. The concept of sustainable development refers to a process involving change or development. The strategy aims to 'achieve continuous improvement of quality of life', and the focus is therefore on sustaining the process of improving human well-being. Rather than seeking a stable equilibrium, sustainable development is a dynamic concept, recognising that changes are inherent to human societies.
- ⁽⁴⁰⁾ Higher thresholds (for example, 2%) have been tested and finally rejected, since they make the overall picture less interesting, as a vast majority of indicators would fall in the two 'moderate' categories.
- ⁽⁴¹⁾ Miola A, Borchardt S, Neher F, Buscaglia D (2019), *Interlinkages and policy coherence for the Sustainable Development Goals implementation: An operational method to identify trade-offs and co-benefits in a systemic way*, Publications Office of the European Union, Luxembourg.
- ⁽⁴²⁾ International Council for Science (2017), *A Guide to SDG Interactions: from Science to Implementation* [D.J. Griggs, M. Nilsson, A. Stevance, D. McCollum (eds)], International Council for Science, Paris.
- ⁽⁴³⁾ IAEG-SDGs (2019), *Interlinkages of the 2030 Agenda for Sustainable Development*, Background document.
- ⁽⁴⁴⁾ Barbier, Edward B. and Burgess, Joanne C. (2017), *The Sustainable Development Goals and the systems approach to sustainability*, Economics: The Open-Access, Open-Assessment E-Journal, 11 (2017–28): 1–22.
- ⁽⁴⁵⁾ O'Neill, Daniel W., et al. (2018), *A good life for all within planetary boundaries*, Nature Sustainability 1.2: 88.
- ⁽⁴⁶⁾ von Stechow, Christoph, et al. (2016), *2°C and SDGs: united they stand, divided they fall?*, Environmental Research Letters 11.3: 034022.
- ⁽⁴⁷⁾ International Council for Science (2017), *A Guide to SDG Interactions: from Science to Implementation*, [D.J. Griggs, M. Nilsson, A. Stevance, D. McCollum (eds)], International Council for Science, Paris, p. 110.

1

End poverty in all its forms everywhere

Goal 1 calls for the eradication of poverty in all its manifestations. It envisions shared prosperity, a basic standard of living and social protection benefits for people everywhere, including the poorest and most vulnerable. The goal seeks to ensure equal rights and access to economic and natural resources.























eurostat  supports the SDGs

Poverty harms people's lives and hampers social cohesion and economic growth. It limits their opportunities to achieve their full potential, active participation in society and access to quality services. It is usually associated with poor health, low salaries, unemployment and low educational outcomes. Poverty is a multidimensional phenomenon and tends to persist over time and be transmitted across generations, meaning children born into poverty bear a higher risk of poverty in adult life than the average population ⁽¹⁾. Coordinated policy interventions — such as effective redistribution, education, health, active labour market inclusion and access to integrated social services of high quality — can prevent the long-term loss of economic productivity from whole groups of society and encourage inclusive and sustainable growth ⁽²⁾. Poverty can take on various forms, including, but not limited to, income poverty, material deprivation, very low work intensity and in-work poverty. Meeting its citizen's basic needs and eradicating all forms of poverty has been a








priority of the EU. This objective is reflected in the [Europe 2020](#) strategy, which sets an EU target to lift at least 20 million people out of the risk of poverty and social exclusion by 2020 compared to the year 2008 ⁽³⁾.

Table 1.1: Indicators measuring progress towards SDG 1, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Multidimensional poverty			
 People at risk of poverty or social exclusion	 ⁽¹⁾	 ⁽²⁾	page 44
People at risk of income poverty after social transfers	 ⁽¹⁾		page 47
Severely materially deprived people	 ⁽¹⁾		page 48
People living in households with very low work intensity	 ⁽¹⁾		page 49
In work at-risk-of-poverty rate	 ⁽¹⁾		page 50
Basic needs			
Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor	 ⁽³⁾		page 51
Self-reported unmet need for medical care (*)	:		SDG 3, page 89
Population having neither a bath, nor a shower, nor indoor flushing toilet in their household (*)	 ⁽³⁾		SDG 6, page 137
Population unable to keep home adequately warm (*)	 ⁽³⁾		SDG 7, page 161
Overcrowding rate (*)	 ⁽¹⁾		SDG 11, page 224

(*) Multi-purpose indicator.

⁽¹⁾ Past 12-year period, trend refers to EU without Croatia.⁽²⁾ Trend refers to EU without Croatia.⁽³⁾ Past 10-year period, trend refers to EU without Croatia.**Table 1.2:** Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

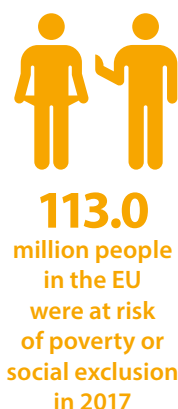
No poverty in the EU: overview and key trends

Monitoring SDG 1 in an EU context involves tracking aspects related to multidimensional poverty and basic needs. Overall, in recent years the EU has made progress in most aspects of poverty, although more needs to be done to reach its poverty and social exclusion 2020 target. As a result, progress is visible for most forms of poverty tracked in this chapter, except for in-work poverty and income poverty, as shown in Table 1.1.

Multidimensional poverty

SDG 1 calls for the eradication of extreme poverty, which the UN defines as the share of people living on less than USD 1.90 a day. While this definition is less relevant in the EU context, SDG 1 also calls for poverty in all its dimensions to be halved by 2030. This universal approach to reducing poverty is directly relevant for the EU, which already employs a multidimensional measure of poverty in its Europe 2020 strategy, with the aim to 'lift at least 20 million people out of the risk of poverty or social exclusion' by 2020 compared with the year 2008.

The headline indicator on poverty within the Europe 2020 strategy is based on three sub-dimensions: income poverty, low work intensity and material deprivation. By using this multidimensional approach, the indicator highlights other issues in addition to relatively low income that can also put people at a disadvantage to the rest of society. It also underlines that these issues are closely interlinked. Combined, they reflect the extent to which parts of the population are at risk of exclusion and marginalisation from economic, social and cultural activities.



Despite recent improvements, the EU remains far from its 2020 poverty target

In 2017, 113.0 million people, or 22.4% of the EU population, were **at risk of poverty or social exclusion**. This means that despite recent improvements, nearly one in four people in the EU experienced at least one of the following three forms of poverty: income poverty, severe material deprivation, or very low work intensity. Compared to 2005, the share of people affected has declined, although not steadily, while cross-country differences persist ⁽⁴⁾. Over the past decade, the risk of poverty or social exclusion rate in the EU has been marked by two turning points: a low point of 23.3% in 2009, after which the number of people at risk started to rise because of the delayed social effects of the economic crisis ⁽⁵⁾ and a peak of 24.7% in 2012, when this upward trend reversed. By 2017, the number of people affected had even fallen below 2008 levels. However, while this recent improvement means the EU is finally advancing towards the Europe 2020 strategy's target of having no more than 96.1 million people at risk of poverty or social exclusion ⁽⁶⁾, additional efforts will be necessary to reach it.



85.3
million people
in the EU
were at risk of
income poverty
in 2017

Income poverty was the most widespread form of poverty in the EU in 2017

The three aspects of poverty covered by the multidimensional poverty indicator tend to overlap and some people are affected by two or even all three forms of poverty. At 85.3 million, or 16.9% of EU citizens, **income poverty** was the most prevalent form

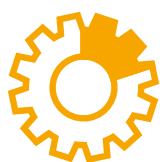


33.1
million people
were affected by
severe material
deprivation in
the EU in 2017

of poverty in the EU in 2017. This means that after [social transfers](#) these people had an [equivalised disposable income](#) of less than 60 % of the national median. The second most frequent form of poverty was [very low work intensity](#), affecting 35.3 million people or 9.5 % of the EU population aged 18 to 59 ⁽⁷⁾. At the same time, 6.6 % of the EU population, or 33.1 million people, were affected by [severe material deprivation](#), meaning they were unable to afford four or more items out of a list of nine considered by most people to be desirable or even necessary for an adequate life (see page 48 for the full list).

The European Commission, the European Council and the European Parliament jointly proclaimed the [European Pillar of Social Rights](#) ⁽⁸⁾ in November 2017 at the Social Summit for Fair Jobs and Growth in Gothenburg, Sweden. The Pillar promotes upward convergence towards better living and working conditions in Europe. It sets out 20 principles that help tackle poverty in all its dimensions and ensure fair, adequate and sustainable welfare systems. It supports equal opportunities and access to the labour market, including gender equality and fair working conditions, and promotes social inclusion and protection.

Between 2005 and 2017, the share of people affected by severe material deprivation and the share of people living in households with very low work intensity roughly followed the same path as the overall 'risk of poverty or social exclusion' indicator. After initially declining between 2005 and 2009, the share of people in these categories increased again in the aftermath of the economic crisis, peaking in 2012 and 2014, respectively. Since then, the shares have fallen considerably, reaching new lows in 2017. Conversely, income



35.3
million people
in the EU
were living in
households
with very low
work intensity
in 2017

poverty increased more or less continuously between 2005 and 2016, only dropping in 2017 (from 17.3 % in 2016 to 16.9 % in 2017) ⁽⁹⁾.

Such diverging trends among the three sub-indicators can arise because of their different nature and the three related but distinct concepts of poverty they represent. Income poverty is a relative measure and reflects whether someone's living standard and income is much lower than that of the entire society he or she lives in. In other words, the at-risk rate also depends on the income level enjoyed by most people in a country or region. This means that even in times of increasing average or median income, the relative poverty rate could remain stable (or even increase), depending on changes in the distribution of income of the overall population. Severe material deprivation measures poverty from a different angle and indicates a lack of resources to cover certain material needs. It is likely to decrease during economic recoveries when people are generally financially better off.

Almost 34 million people, or nearly a third (29.8 %) of all people at risk of poverty or social exclusion, were affected by more than one dimension of poverty in 2017. Out of these, 7.1 million people, or one in 16 of those at risk of poverty or social exclusion (6.3 %), were affected by all three forms ⁽¹⁰⁾. Although the percentage of the EU population affected by all three forms of poverty fluctuated between 2008 and 2017, it ended the decade in 2017 at the same level as in 2008. Simultaneously, the share of those affected by only one dimension of poverty decreased from 81.6 million people in 2008 to 79.3 million people in 2017. Thus, despite the favourable decrease in the overall share of people at risk of poverty or social exclusion, the depth of hardship for those affected has increased slightly.

Considerable differences in the share of poverty exist within the EU and across the world

The aggregated EU figure for the risk of poverty or social exclusion masks considerable differences between Member States, whose national risk of poverty and social exclusion rates ranged from

12.2 % to 38.9 % in 2017. Among the three sub-indicators, the largest differences within the EU were observed for severe material deprivation, which is practically non-existent in some Member States and affects around a third of the population in others. Income poverty varies considerably less across Member States, ranging from 9.1 % to 23.6 %. The third sub-indicator, the share of people under 60 living in households with very low work intensity showed the least variation across the EU, from 5.4 % to 16.2 %.

Overall, the share of EU citizens living in income poverty (16.9 % in 2017) is relatively low when compared to other major economies worldwide. In most non-EU OECD countries, this value was roughly between 20 % and 25 % ⁽¹¹⁾. Commonwealth countries in the OECD outside the EU (Australia, Canada and New Zealand) as well as Japan were at the bottom end of this range, while income poverty was more prevalent in the Latin American OECD countries (Chile and Mexico) as well as Korea, Israel, the United States and Turkey.

The implementation of the European Pillar of Social Rights ⁽¹²⁾ will be monitored by the Social Scoreboard in the context of the European Semester. The country-specific recommendations aim to encourage fiscal and structural reforms (including social policies) to reduce both poverty and inequality ⁽¹³⁾.

To reduce poverty, governments provide a range of social transfers, such as unemployment benefits, sickness and invalidity benefits and minimum income benefits. The impact of these transfers can be assessed by comparing the at-risk-of-poverty rate before and after social transfers. In the EU, social transfers reduced the share of people at risk of poverty by 8.7 percentage points in 2017, from 25.6 % ⁽¹⁴⁾ to 16.9 %. However, the extent to which Member States were able to reduce their national at-risk-of-poverty rates through social transfers varied greatly, between 3.8 and 17.3 percentage points. Note that pensions are excluded from this comparison.

Single households, migrants and people with lower education as well as their children face high risks of poverty or social exclusion

To focus only on the overall rate of people at risk of poverty or social exclusion would mean ignoring several other groups of society that face considerably larger risks. For instance, about two-thirds of children of parents with at most lower secondary education were at risk in 2017. Similarly, more than half of the population born outside the EU-28 were at risk of poverty or social exclusion, while the risk faced by locally born people is below the EU average. Households with only one adult and one or more dependent children also faced a much higher risk than households with two adults (with or without children). Identifying especially vulnerable groups is an important key to creating sound policies to fight poverty. Several factors influence poverty rates, as described in more detail in the following paragraphs.

Differences by sex: In 2017, more women were at risk of poverty or social exclusion than men (the rate for women was 23.3 %, while for men it was 21.6 %). Because women are more likely to experience the long-term effects of reduced labour market participation than men, the gender poverty gap — the difference in the risk of poverty rate between men and women — is highest in the oldest age group (65 or over). The gap is visible in all three sub-indicators, although the overall gender poverty gap decreased between 2008 and 2017.

Differences by age group: Young people aged 18 to 24 were the age group most at risk of poverty or social exclusion — around three out of ten were at risk in 2017 (29.2 %). This pattern was also present in all three sub-indicators. Moreover, this group's risk of poverty or social exclusion increased slightly over the past decade, while the poverty risk remained stable or decreased in all other age groups. In 2017, only 18.2 % of older people aged 65 or over were at risk of poverty or social exclusion, the lowest share of all age groups ⁽¹⁵⁾.

The Youth Guarantee Programme ⁽¹⁶⁾ was set up to tackle youth unemployment. Its specific actions aim to reduce poverty and social exclusion among young people and help EU countries boost youth employment. Each year, more than 3.5 million young people registered in the Youth Guarantee receive an offer of employment, continued education, traineeship or apprenticeship.

Differences by household type: 47.0% of single-parent households with one or more dependent children were at risk of poverty or social exclusion in 2017. This was more than twice the average rate and higher than for any other household type. However, this group experienced the largest decline in the percentage at risk since 2010, when the rate was at 52.2%. In general, households with only one adult — both with children and without — and households with three or more children are more often at risk of poverty or social exclusion. In single-adult households, there is limited support to cushion temporary disruptions such as unemployment or sickness. Single parents also face the challenge of being both the primary breadwinner and caregiver for the family. Both of these roles are time-consuming and often not easily compatible, especially when affordable and high-quality child care is not available to the family.

Differences by educational level: In 2017, 34.3% of people with at most lower secondary educational attainment were at risk of poverty or social exclusion — a rate around three times higher than for people with tertiary education (11.0%). An increased risk for people with this educational background is also evident in all three sub-indicators. Moreover, children of parents with at most pre-primary or lower secondary education are especially disadvantaged, as two-thirds of these children are at risk of poverty or social exclusion. Their risk-of-poverty rate was almost eight times higher than for children of parents with first- or second-stage tertiary education.

Differences by disability status: In 2017, 36.0% of people with severe disabilities were at risk of

poverty or social exclusion. Likewise, this risk was higher for people with some activity limitation (26.3%) compared to people without any handicap (19.9%) ⁽¹⁷⁾.

Differences by degree of urbanisation:

A slightly higher share of EU citizens in rural areas were at risk of poverty or social exclusion than those in urban areas (23.9% in rural areas compared with 22.6% in urban areas) in 2017. Despite these overall results, in many northern, central and western Member States the pattern was reversed, with people residing in urban areas more likely to be affected.

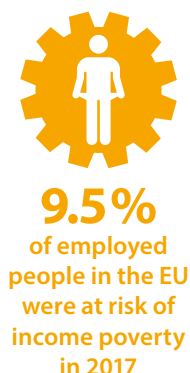
Differences by country of birth: In 2017, 38.3% of people who were living in the EU but born in a non-EU country were at risk of poverty or social exclusion. The rate was lower for people born in an EU country other than the one they were living in, at 22.7%. Among people living in their country of birth, 20.7% were at risk of poverty or social exclusion. Thus, the share of EU residents born outside the EU who were at risk of poverty or social exclusion was almost twice that of those born in the reporting country, while mobility within the EU does not lead to a comparable increase in the risk of poverty or social exclusion.

The European Commission has proposed several legislative initiatives that should significantly contribute towards reducing poverty and social exclusion in Europe. For instance, a proposal contributing to SDG 1 is the European Accessibility Act. This aims to set common accessibility requirements at EU level for certain key products and services that will help people with disabilities to participate fully in society.

Having a job is not a guarantee against poverty or social exclusion

Of all the different groups based on employment status in the EU, the share of **unemployed** people at risk of poverty or social exclusion was highest, with about two-thirds at risk overall and 48.1%

at risk of income poverty in 2017. However, poverty or social exclusion can also affect employed people. After remaining relatively stable between 2005 and 2010, the share of people unable to escape the risk of poverty despite being employed — the so-called working poor — has increased over the past seven years, from 8.3 % in 2010 to 9.4 % in 2017.



The share of working poor varies across different groups of society. In general, the groups with a higher share of people at risk of poverty or social exclusion are also the groups more often affected by in-work poverty or social exclusion. Thus, compared to the 9.4 % of employed people who were at risk of poverty in 2017, the share was considerably larger among people born outside the EU (at 21.4 %) ⁽¹⁸⁾, households headed by only one adult with dependent children (21.9 %) ⁽¹⁹⁾, and people with at most pre-primary or lower secondary education (20.2 %) ⁽²⁰⁾. Interestingly, except for those aged between 18 and 24 and people at retirement age, men were more often among the working poor than women, although these differences were smaller than between the other sub-groups mentioned. This is because women are more often secondary earners in their families, meaning the household income does not depend solely on them ⁽²¹⁾.

The extent to which someone is affected by in-work poverty strongly depends on the terms and conditions of their employment. Employees working under a [temporary contract](#) were around three times more often at risk of poverty or social exclusion than people with a permanent position (rates of 16.2 % and 5.8 %, respectively) in 2017 ⁽²²⁾. In addition, whether people are employed full- or part-time also influences the risk of poverty or social exclusion rate. In 2017, the share of people working part-time who were at risk of poverty or social exclusion (15.6 %) was twice that of people working full-time (7.7 %) ⁽²³⁾.

The European Social Fund (ESF) ⁽²⁴⁾ is Europe's main funding tool for promoting employment and social inclusion. It aims to: help people gain access to training or secure a job (or a better job), integrate disadvantaged people into society, and to ensure fairer life and job opportunities for all. With an EU budget allocation for 2014 to 2020 of EUR 88 billion, the ESF works by investing in Europe's human capital — its workers, young people, vulnerable people and all those seeking a job. More than 20 % of the fund's budget helps to directly tackle poverty by financing actions to improve social inclusion.

Basic needs

Being at risk of poverty can have a severe impact on a person's ability to meet their basic needs such as being able to afford adequate housing, keeping their home adequately warm or receiving medical treatment when needed.

Poor people often suffer from inadequate housing conditions

An adequate living situation, defined by the United Nations as a safe and secure home and community in which to live in peace and dignity ⁽²⁵⁾, is necessary for active inclusion in society. For example, in many cases having an address is a precondition to getting a job or even to getting identification documents. In addition, the costs of housing determine what is left of household budgets for other expenses, such as for education and culture, or even food. Furthermore, the local neighbourhood is particularly relevant because of the social networks and services provided close by ⁽²⁶⁾. At the same time, people suffering



13.3%
of the EU
population lived
in poor dwelling
conditions in
2017

from poverty are far more often restricted to sub-optimal housing than the overall population.

Inadequate housing — marked by a leaking roof, damp walls, floors or foundation, or rot in window frames or floors — affected 13.3 % of the EU population in 2017. This share was considerably lower than in 2012, when 15.1 % of the EU population lived in meagre housing facilities. The biggest drop took place in 2017 and was mainly due to improvements in southern European countries. Among people living in income poverty, more than a fifth were affected by inadequate housing.

Regarding basic sanitary facilities, living conditions in European countries have improved. In 2017, 1.8 % of the overall EU population lived in a house or apartment equipped with neither a bath, nor with a shower, nor with an indoor flushing toilet. This marks a 0.5-percentage-point improvement since 2012. Nevertheless, 6.1 % of people living below the income poverty threshold were still exposed to these housing deficiencies in 2017.



1.8%
of the EU
population
lacked sanitary
facilities at
home in 2017

The Fund for European Aid to the Most Deprived (FEAD) supports EU countries' actions in providing food, clothing and other essential goods as well as non-material social inclusion measures to the poorest in society. With an EU budget of EUR 3.8 billion earmarked for the period 2014 to 2020, the fund delivers assistance to the most disadvantaged people in the EU, with the aim of alleviating the worst forms of poverty, such as food deprivation, homelessness and child poverty.

Another important aspect when considering adequate housing is the ability to keep one's home warm. In 2017, 18.4 % of people afflicted by income poverty were unable to keep their home adequately warm, compared with 7.8 % for the overall population. However, the rate decreased among both groups since 2012.



7.8%
of the EU
population
were unable to
keep their home
adequately
warm in 2017

Furthermore, many EU citizens also share a dwelling with more people than there is space for and thus face **overcrowding** ⁽²⁷⁾ within their household. Such living conditions can significantly affect quality of life by restricting opportunities for movement, rest, sleep, privacy and hygiene. In 2017, 15.7 % of the EU population lived in an overcrowded household, which is a continuation of the downward trend experienced since 2012, when the rate was 16.9 %. For people with an income below the poverty threshold, the incidence of overcrowding was almost twice as high at 26.5 %.



15.7%
of the EU
population
lived in an
overcrowded
household in
2017

One of the most extreme consequences of poverty and social exclusion is homelessness. However, there are currently few official statistics on homelessness, and those that do exist are rarely comparable between countries ⁽²⁸⁾. Nonetheless, for some selected countries ⁽²⁹⁾ the OECD has estimated the number of homeless people as a share of the population. Among EU Member States for which data were available (22 countries, excluding Belgium, Bulgaria, Cyprus, Malta, Romania and Slovakia), the estimated share of homeless people ranged from 0.01 % of the population (Croatia) to 0.65 % (Czechia), with the share being below 0.25 % in most cases. These estimates refer to the period 2006 to 2015.

People who self-report unmet needs for medical care most commonly cite costs as the reason

As with access to adequate housing, access to health care services may help break the spiral of poor health that contributes to, and results from, poverty and exclusion. In turn, this may contribute to increased productivity, improved quality of life and reduced costs associated with social protection systems. Barriers to accessing health services include costs, distance and waiting time. In 2017, 1.7% of the EU population aged 16 and above reported unmet needs for medical care, a distinct improvement of 1.8 percentage

points compared with 2012. Cost was the main reason given, indicated by 1.0% of the EU population. People with lower incomes face a much higher share of unmet needs for medical care. While only 0.2% of the richest 20% of the population reported unmet care needs due to financial constraints, 2.3% of people in the poorest population quintile reported that this was the case ⁽³⁰⁾.



1.7%
of the EU
population
reported unmet
needs for
medical care in
2017

Presentation of the main indicators



LONG TERM
2005–2017

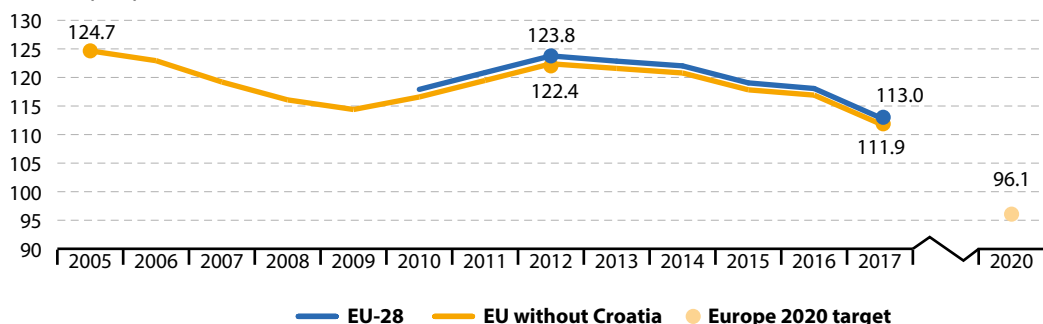


SHORT TERM
2012–2017

People at risk of poverty or social exclusion

While a household's income is a key determinant of its standard of living, other aspects can prevent people from fully participating in society such as an impeded access to labour markets or material deprivation. To reflect these different dimensions of poverty, the broad indicator 'at risk of poverty or social exclusion' shows the number of people affected by at least one of the following three forms of poverty: income poverty, severe material deprivation and very low work intensity (see pages 47–49 for a detailed description of these sub-indicators). Data on these sub-indicators are derived from the [EU Statistics on Income and Living Conditions](#) (EU-SILC).

Figure 1.1: People at risk of poverty or social exclusion, EU, 2005–2017
(million people)



Note: Data for 2005 and 2006 are estimates.

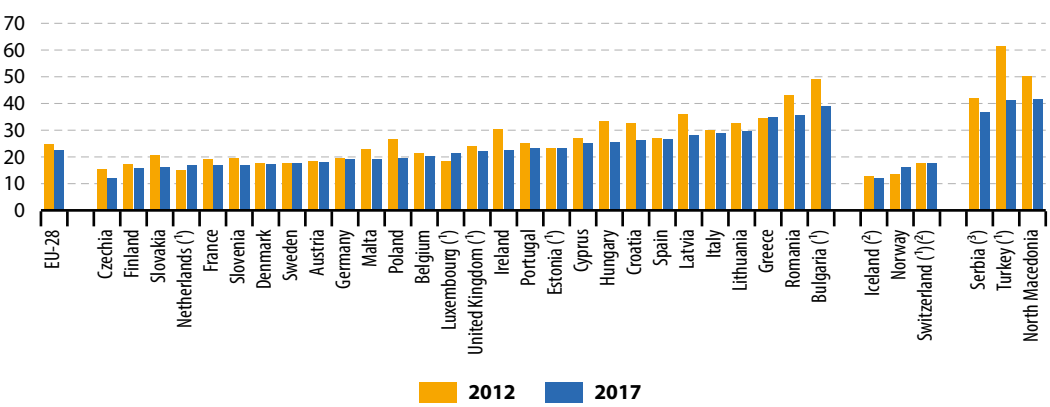
Source: Eurostat (online data code: [sdg_01_10](#))

Table 1.3: Compound annual growth rate (CAGR) of the number of people at risk of poverty or social exclusion, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU without Croatia	2005–2017	– 0.9% per year	– 1.7% per year
EU without Croatia	2012–2017	– 1.8% per year	– 3.0% per year

Source: Eurostat (online data code: [sdg_01_10](#))

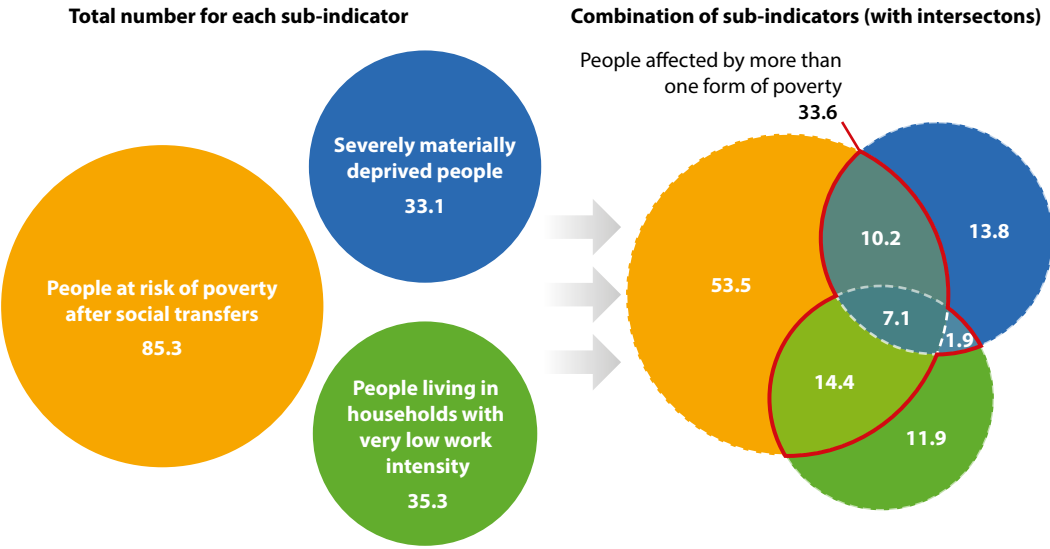
Figure 1.2: People at risk of poverty or social exclusion, by country, 2012 and 2017
(% of population)



(*) Break(s) in time series between the two years shown.
(*) 2016 data (instead of 2017).
(*) 2013 data (instead of 2012).

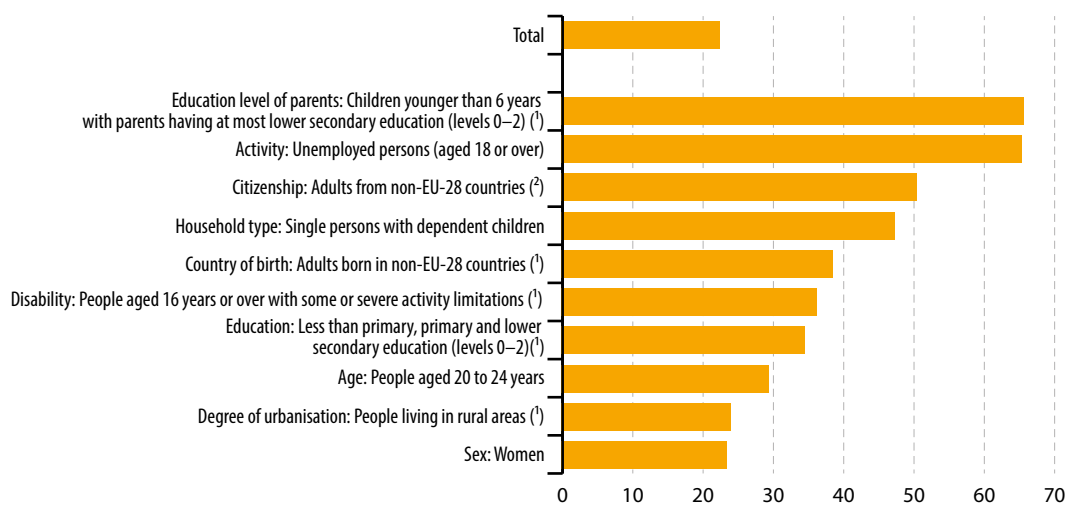
Source: Eurostat (online data code: [sdg_01_10](#))

Figure 1.3: Aggregation of sub-indicators of ‘People at risk of poverty or social exclusion’, EU-28, 2017
(million people)



Source: Eurostat (online data code: [ilc_pees01](#))

Figure 1.4: People most at risk of poverty or social exclusion, by sub-group, EU-28, 2017
(% of population)



⁽¹⁾ Estimated data.

⁽²⁾ Data with low reliability.

Source: Eurostat (online data code: [ilc_peps01](#), [ilc_peps02](#), [ilc_peps03](#), [ilc_peps04](#), [ilc_peps06](#), [ilc_peps13](#), [ilc_peps60](#), [hlth_dpe010](#))

People at risk of income poverty after social transfers

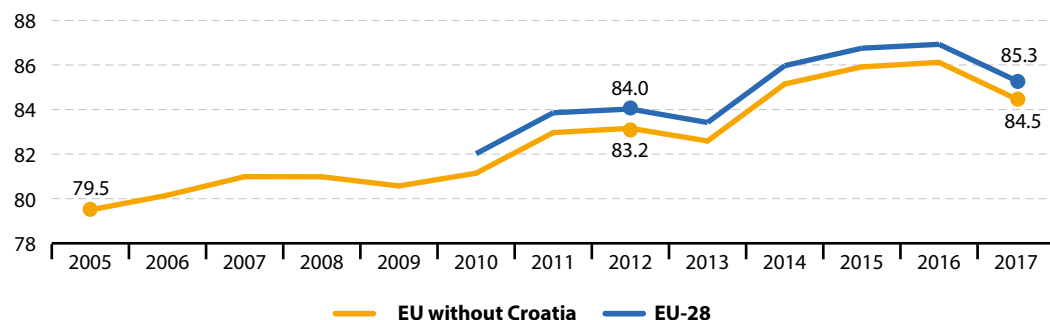
This indicator measures the number of people with an equivalised disposable income below the [risk-of-poverty threshold](#). This is set at 60% of the national median equivalised ⁽¹⁾ disposable income after social transfers. The data stem from the [EU Statistics on Income and Living Conditions \(EU-SILC\)](#).

LONG TERM
2005–2017

SHORT TERM
2012–2017

Figure 1.5: People at risk of income poverty after social transfers, EU, 2005–2017

(million people)



Note: 2005 and 2006 data are estimates.

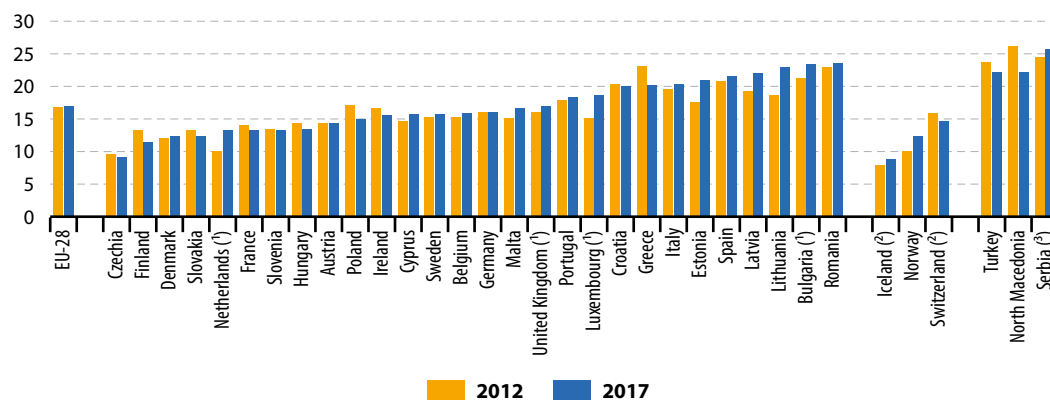
Source: Eurostat (online data code: [sdg_01_20](#))

Table 1.4: Compound annual growth rate (CAGR) of the number of people at risk of income poverty after social transfers, EU

EU aggregate	Period	Growth rate
EU without Croatia	2005–2017	0.5 % per year
EU-28	2012–2017	0.3 % per year

Source: Eurostat (online data code: [sdg_01_20](#))

Figure 1.6: People at risk of income poverty after social transfers, by country, 2012 and 2017 (% of population)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_01_20](#))



LONG TERM
2005–2017

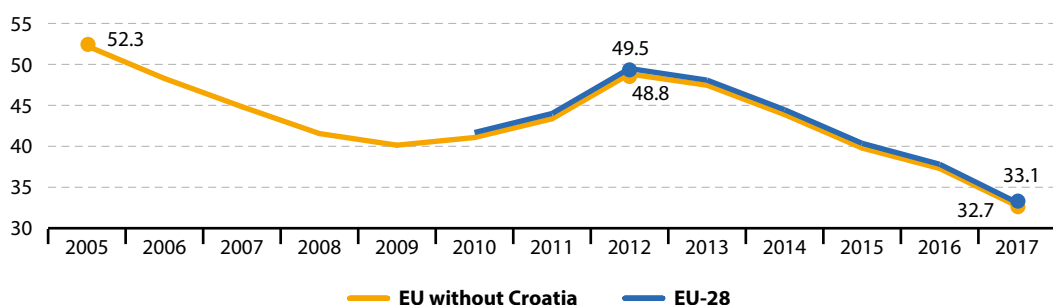


SHORT TERM
2012–2017

Severely materially deprived people

This indicator covers issues relating to economic strain, durables, housing and the environment of dwellings. Severely materially deprived people have living conditions that are greatly constrained by a lack of resources, meaning they cannot afford at least four of the following items: to pay their rent or utility bills, to keep their home warm, to pay unexpected expenses, to eat meat, fish or a vegetarian equivalent every second day, a week holiday away from home, a car, a washing machine, a colour TV or a telephone. Data for this indicator stem from the [EU Statistics on Income and Living Conditions \(EU-SILC\)](#).

Figure 1.7: Severely materially deprived people, EU, 2005–2017
(million people)



Note: 2005, 2006 and 2009 data are estimates.

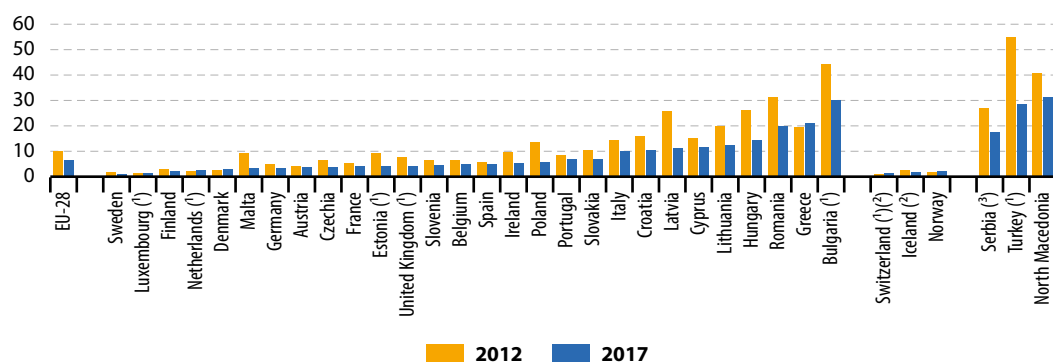
Source: Eurostat (online data code: [sdg_01_30](#))

Table 1.5: Compound annual growth rate (CAGR) of the number of severely materially deprived people, EU

EU aggregate	Period	Growth rate
EU without Croatia	2005–2017	– 3.8 % per year
EU-28	2012–2017	– 7.7 % per year

Source: Eurostat (online data code: [sdg_01_30](#))

Figure 1.8: Severely materially deprived people, by country, 2012 and 2017
(% of population)



(¹) Break(s) in time series between the two years shown. (²) 2016 data (instead of 2017). (³) 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_01_30](#))

People living in households with very low work intensity

This indicator describes the number of people aged 0 to 59 living in households where the adults worked no more than 20% of their work potential during the past year. The [EU Statistics on Income and Living Conditions](#) (EU-SILC) are the data source for this indicator.

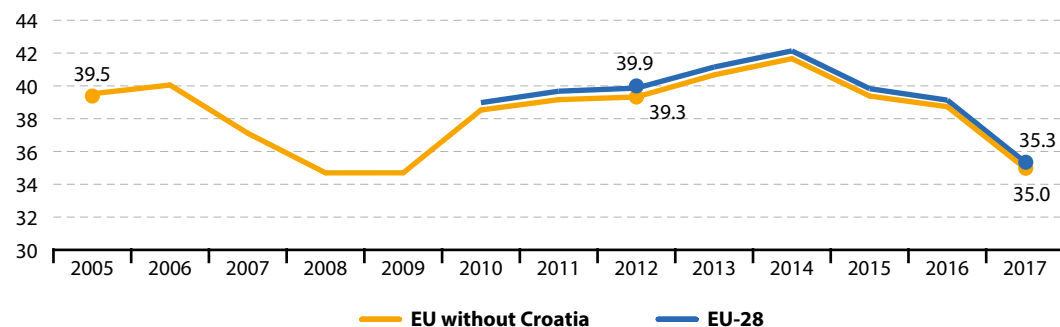


LONG TERM
2005–2017



SHORT TERM
2012–2017

Figure 1.9: People living in households with very low work intensity, EU, 2005–2017
(million people aged 0 to 59)



Note: 2005 and 2006 data are estimates.

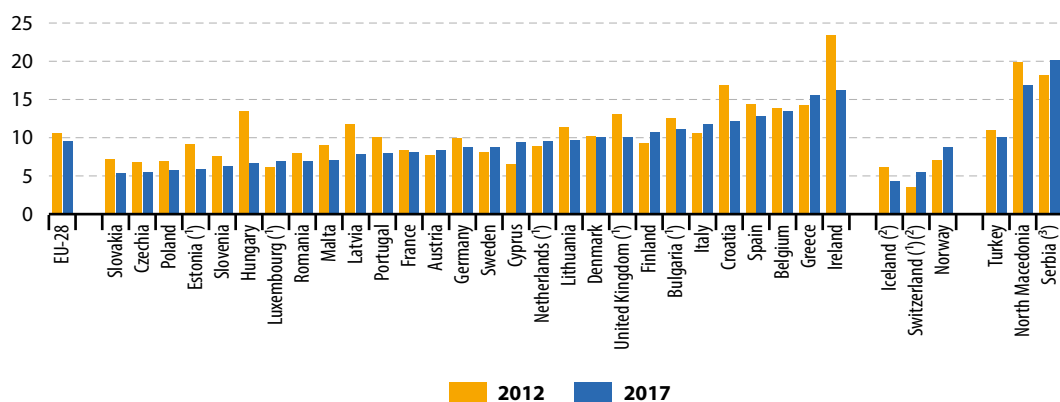
Source: Eurostat (online data code: [sdg_01_40](#))

Table 1.6: Compound annual growth rate (CAGR) of the number of people living in households with very low work intensity, EU

EU aggregate	Period	Growth rate
EU without Croatia	2005–2017	– 1.0% per year
EU-28	2012–2017	– 2.4% per year

Source: Eurostat (online data code: [sdg_01_40](#))

Figure 1.10: People living in households with very low work intensity, by country, 2012 and 2017
(% of population aged 0 to 59)



⁽¹⁾ Break(s) in time series between the two years shown. ⁽²⁾ 2016 data (instead of 2017). ⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_01_40](#))



LONG TERM
2005–2017



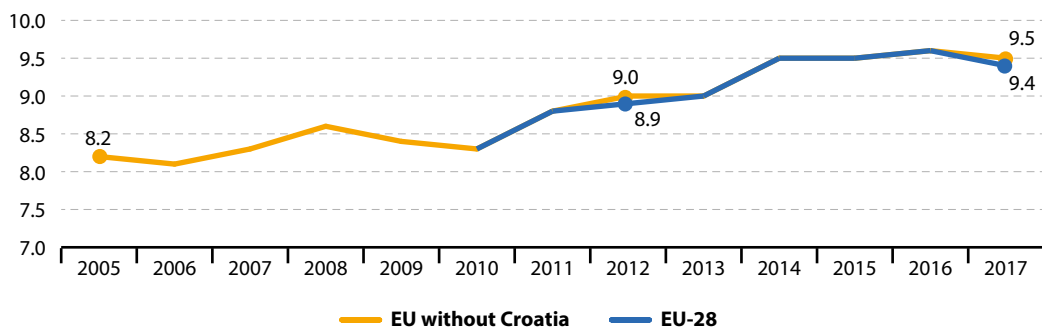
SHORT TERM
2012–2017

In work at-risk-of-poverty rate

This indicator refers to the share of employed people aged 18 years or over at risk of income poverty (see the definition on page 47). People are considered 'employed' if they held a job for more than half of the reference year. Data for this indicator are taken from the [EU Statistics on Income and Living Conditions](#) (EU-SILC).

Figure 1.11: In work at-risk-of-poverty rate, EU, 2005–2017

(% of population aged 18 or over)



Note: 2005 and 2006 data are estimates.

Source: Eurostat (online data code: [sdg_01_41](#))

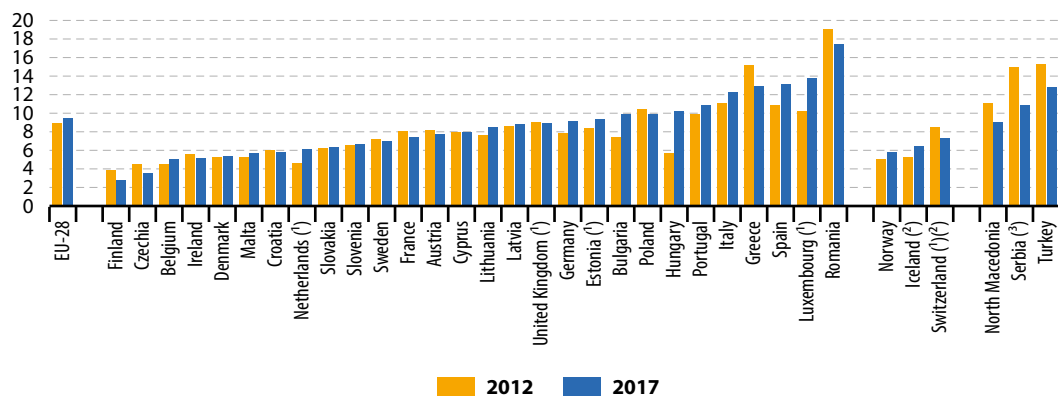
Table 1.7: Compound annual growth rate (CAGR) of the in work at-risk-of-poverty rate, EU

EU aggregate	Period	Growth rate
EU without Croatia	2005–2017	1.2 % per year
EU-28	2012–2017	1.1 % per year

Source: Eurostat (online data code: [sdg_01_41](#))

Figure 1.12: In work at-risk-of-poverty rate, by country, 2012 and 2017

(% of population aged 18 or over)



⁽¹⁾ Break(s) in time series between the two years shown. ⁽²⁾ 2016 data (instead of 2017). ⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_01_41](#))

Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor

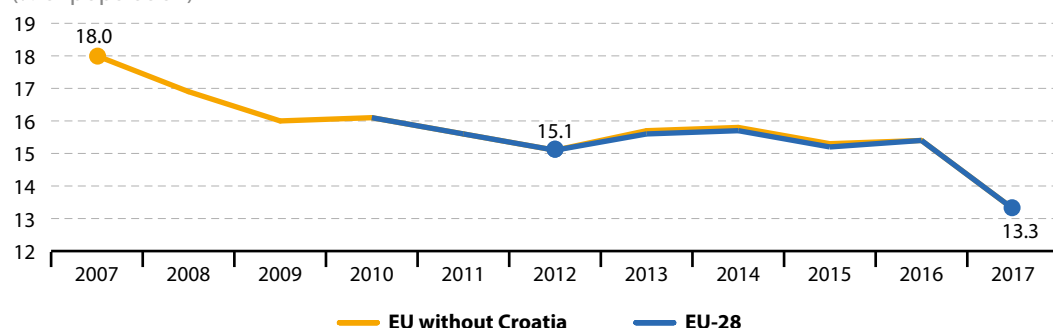
The indicator reflects the share of the population with at least one of the following deficits in their home: a leaking roof, damp walls, floors or foundation, or rot in window frames or floor. This indicator is derived from the [EU Statistics on Income and Living Conditions](#) (EU-SILC).

↑ LONG TERM
2007–2017

↑ SHORT TERM
2012–2017

Figure 1.13: Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor, EU, 2007–2017

(% of population)



Source: Eurostat (online data code: (online data code: [sdg_01_60](#))

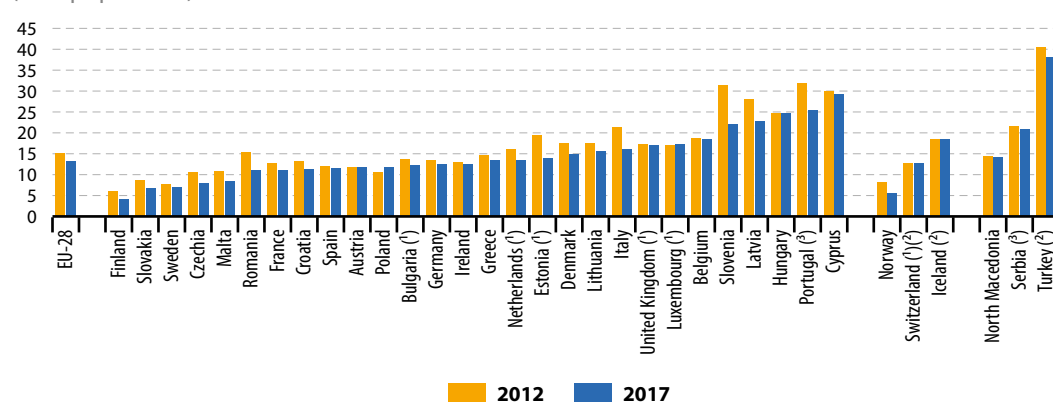
Table 1.8: Compound annual growth rate (CAGR) of the share of population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor, EU

EU aggregate	Period	Growth rate
EU without Croatia	2007–2017	– 3.0% per year
EU-28	2012–2017	– 2.5% per year

Source: Eurostat (online data code: (online data code: [sdg_01_60](#))

Figure 1.14: Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor, by country, 2012 and 2017

(% of population)



⁽¹⁾ Break(s) in time series between the two years shown. ⁽²⁾ 2016 data (instead of 2017). ⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: (online data code: [sdg_01_60](#))

Further reading on poverty

European Commission (2018), *Employment and Social Developments in Europe*, Annual Review 2018, Publications Office of the European Union, Luxembourg.

European Commission (2019), *Joint Employment Report 2019*, Directorate-General for Employment, Social Affairs and Inclusion, Brussels.

European Commission (2017), *European Semester Thematic Factsheet, Social Inclusion*.

European Union (2018), *Social Protection Committee Annual Report 2018*, Publications Office of the European Union, Luxembourg.

European Union (2017), *Monitoring social inclusion in Europe*, 2017 edition, Publications Office of the European Union, Luxembourg.

United Nation (2018), *The Sustainable Development Goals Report*, United Nations Publications, New York.

Further data sources on poverty

OECD, *Income Distribution Database (IDD): Gini, poverty, income, methods and concepts*.

OECD, *Affordable Housing Database*.

The World Bank, *Poverty and Equity Data Portal*.

Notes

- (¹) For more information, see Eurostat (2013), *Statistics Explained, Intergenerational transmission of disadvantage statistics*.
- (²) European Commission (2017), *European Semester Thematic Factsheet, Addressing Inequalities*.
- (³) European Commission (2010), *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.
- (⁴) Data refer to EU without Croatia (from 2005 to 2009) and EU-28 (from 2010 onwards).
- (⁵) For the development following 2009, see European Commission's Directorate General for Economic and Financial Affairs (2014), *Poverty developments in the EU after the crisis: a look at main drivers*, ECFIN Economic Brief.
- (⁶) Due to the structure of the survey on which most of the key social data is based (EU Statistics on Income and Living Conditions), a large part of the main social indicators available in 2010, when the *Europe 2020 strategy* was adopted, referred to 2008 as the most recent year of data available. This is why 2008 data for the EU (without Croatia) are used as the baseline year for monitoring progress towards the Europe 2020 strategy's poverty target. For the same reason, the country breakdowns in this chapter use the year 2008 for comparison. Because 116.1 million people were at risk of poverty or social exclusion in the EU (without Croatia) in 2008, the target value to be reached is 96.1 million by 2020.
- (⁷) The dimension 'very low work intensity' is only measured among those aged 0–59. Therefore, people over the age of 59 are considered at risk of poverty or social exclusion only if the criteria of one of the two dimensions 'income poverty' or 'severe material deprivation' are met.
- (⁸) European Commission (2017), *Establishing a European Pillar of Social Rights*, COM(2017) 250 final, Brussels.
- (⁹) Data mentioned in this paragraph refer to EU without Croatia (from 2005 to 2009) and EU-28 (from 2010 onwards).
- (¹⁰) The year of reference differs for the three sub-indicators. Data for the risk of poverty after social transfers and for whether or not someone lives in a household with very low work intensity are based on data from the previous year. The extent to which an individual is severely materially deprived is determined based on information from the year of the survey.
- (¹¹) These values are taken from the *OECD dataset on Income Distribution and Poverty* and correspond to the newest data available in this set (2016: the USA and Israel, 2015: Chile, Korea, Canada, Israel and Turkey, 2014: New Zealand, Australia and Mexico, 2012: Japan). All data are based on the OECD's new income definition, which includes the value of goods produced for own consumption as a component of self-employed income, an element not considered in the SILC income definition.
- (¹²) European Commission (2017), *Establishing a European Pillar of Social Rights*, COM(2017) 250 final, Brussels.
- (¹³) For more information see: European Commission (2017), *Council Recommendation on the economic policy of the euro area*, SWD(2017) 660 final.
- (¹⁴) Source: Eurostat (online data code: *ilc_li10*).
- (¹⁵) Reasons for this could include that many elderly people receive regular pensions, have accrued some wealth and have often paid off their housing situation.
- (¹⁶) European Council (2013), *Council Recommendation of 22 April 2013 on establishing a Youth Guarantee*, 2013/C 120/01.
- (¹⁷) In EU-SILC, disability is approximated according to the concept of global activity limitation, which is defined as a 'limitation in activities people usually do because of health problems for at least the past six months'. This is considered to be an adequate proxy for disability, both by the scientific community as well as disabled persons' organisations.
- (¹⁸) Source: Eurostat (online data code: *ilc_iw16*).
- (¹⁹) Source: Eurostat (online data code: *ilc_iw02*).
- (²⁰) Source: Eurostat (online data code: *ilc_iw04*).
- (²¹) For more insights, see European Institute for Gender Equality (2016), *Poverty, gender and intersecting inequalities in the EU: Report*, Publications Office of the European Union, Luxembourg.
- (²²) Source: Eurostat (online data code: *ilc_iw05*).
- (²³) Source: Eurostat (online data code: *ilc_iw07*).
- (²⁴) Regulation (EU) No 1304/2013 of the European Parliament and of the Council of 17 December 2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006.
- (²⁵) For more information on the definition of adequate housing, see the United Nations (2014), *The Right to Adequate Housing: Fact Sheet No. 21/Rev.1*.
- (²⁶) Eurocities Network of Local Authority Observatories on Active Inclusion (2010), *Supporting Active Inclusion Through Housing — A Response From Five European Cities*.
- (²⁷) A household is considered overcrowded if it does not have at least one room for the entire household as well as a room for a couple, for each single person above 18, for a pair of teenagers (12 to 17 years of age) of the same sex, for each teenager of different sex and for a pair of children (under 12 years of age).
- (²⁸) For more information see FEANTSA and Abbé Pierre Foundation (2018), *Third overview of housing exclusion in Europe*, as well as European Commission (2007), *Measurement of homelessness at EU level*.
- (²⁹) Refer to the OECD's *Affordable Housing Database* for more information.
- (³⁰) Source: Eurostat (online data code: *hlth_silc_08*).
- (³¹) The equalised disposable income is the total income of a household, after tax and other deductions, that is available for spending or saving, divided by the number of household members converted into equalised adults; household members are equalised or made equivalent by weighting each according to their age, using the so-called modified OECD equivalence scale.

2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 2 seeks to end hunger and malnutrition and ensure access to safe, nutritious and sufficient food. Realising this goal largely depends on promoting sustainable production systems, as well as increasing investment in rural infrastructure and agricultural research and development.



eurostat 
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Achieving healthy diets and ensuring agricultural systems remain productive and sustainable in the future are the key challenges associated with SDG 2 in the EU. Unlike many areas of the world, which face hunger, the EU's central nutritional issue is obesity. This condition can harm health and well-being and have adverse impacts on health and social systems, governmental budgets and the productivity and growth of the economy. Furthermore, sustainable and productive agricultural systems are essential for ensuring a reliable supply of nutritious food now and in the future, especially in the face of challenges such as climate change and a rising population. However, although Europe's agricultural productivity has increased in recent decades, certain ongoing negative environmental impacts of farming could threaten long-term sustainability of agricultural production and the ability to provide healthy and sustainable food.



Table 2.1: Indicators measuring progress towards SDG 2, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Malnutrition			
Obesity rate	:	↑ ⁽¹⁾	page 64
Sustainable agricultural production			
Agricultural factor income per annual work unit (AWU)	↑ ⁽²⁾	↑	page 65
Government support to agricultural research and development	↗ ⁽³⁾	↑	page 66
Area under organic farming	↑ ⁽⁴⁾⁽⁵⁾	↑	page 67
Gross nitrogen balance on agricultural land	↗ ⁽⁶⁾	↘	page 68
Environmental impacts of agricultural production			
Ammonia emissions from agriculture	↗	↘	page 69
Nitrate in groundwater (*)	↗ ⁽⁷⁾	↗ ⁽⁷⁾	SDG 6, page 140
Estimated soil erosion by water (*)	↑ ⁽⁴⁾	:	SDG 15, page 304
Common farmland bird index (*)	↓	↘	SDG 15, page 306

(*) Multi-purpose indicator.

(*) Past 12-year period.

(1) Past 3-year period.

(3) Data refer to EU without Croatia (until 2011) and EU-28 (2012 onwards).

(2) Past 13-year period.

(5) Past 11-year period.

(4) Past 10-year period.

(7) Data refer to an EU aggregate based on 17 Member States.

Table 2.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↘	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Zero hunger in the EU: overview and key trends

Monitoring SDG 2 in an EU context focuses on the topics of malnutrition, sustainable agricultural production and the environmental impacts of agricultural production. As Table 2.1 shows, the EU has made some progress in areas of sustainable agricultural production over the past few years. However, there is still room for improvement in terms of agriculture's environmental impacts, where the picture is mixed — the farmland bird index shows a loss in biodiversity, while progress can be seen in other areas, especially when viewed over the long term. Data availability for the topic of malnutrition has improved and for the first time allows an assessment of recent EU trends in obesity, which show favourable developments.

Malnutrition

Nutrition is the intake of food, considered in relation to the body's dietary needs. Good nutrition — an adequate, well-balanced diet combined with regular physical activity and the avoidance of excessive alcohol consumption and tobacco use — is a cornerstone of good health. Whereas in many other parts of the world hunger is the main challenge related to malnutrition, in Europe [obesity](#) presents the most serious nutrition-related health issue.

Obesity levels have fallen in the EU since 2014, but disparities between age and educational groups remain

Obesity is a malnutrition problem, especially in an age of globalisation and mechanisation when consumption and activity habits are changing. Supporting a balanced nutritional diet with an adequately active lifestyle is a challenge for many. While the causes of obesity vary for each person, the problem is generally attributed to poor diets of foods high in fat, salt and sugar, lifestyle choices characterised by low physical activity and high caloric consumption, and sociological and hereditary factors.

Obesity is a significant health issue in the EU, affecting 15.2 % of the total adult population in 2017. It also disproportionately affects people with lower levels of education: 17.3 % and 16.2 % of adults with low and medium levels of education, respectively, were obese in 2017, whereas only 11.7 % of people with high education levels fell into this category. Because lower educational levels tend to be associated with economic and social disadvantages, obesity is a bigger issue among socially disadvantaged groups. To tackle this trend, some EU countries have implemented policies to target vulnerable populations with obesity campaigns and interventions (¹). Obesity also generally tends to increase with age until late in life. In 2017, the obesity rate peaked among older Europeans aged 65 to 74 and fell again after the age of 75.



15.2 %
of the EU's adult
population were
obese in 2017

When considered together with pre-obesity, the situation looks more severe, affecting more than 50 % of the total EU population. Patterns in the pre-obesity rate follow patterns in the obesity rate, though pre-obesity affected more than twice as many Europeans as obesity (36.8 % of the total adult population) in 2017.

Between 2014 and 2017, the share of obese people declined by 0.7 percentage points in the EU, from 15.9 % to 15.2 %, while the share of the pre-obese population grew slightly, from 35.7 % to 36.8 %. The overall share of overweight people consequently grew slightly over this period, from 51.6 % in 2014 to 52.0 % in 2017. At the Member State level, 12 of the 23 EU countries for which data for 2014 and 2017 are available show a rise in the obesity rate.

The Commission supports the Member States in the implementation of the 2007 [Strategy on Nutrition, Overweight and Obesity-related Health Issues](#) ⁽²⁾ through the High Level Group on Nutrition and Physical Activity and the EU Platform for Action on Diet, Physical Activity and Health.

The [High Level Group on Nutrition and Physical Activity](#) ⁽³⁾ consists of government representatives who work on improving food product recipes; reducing children's exposure to the marketing of foods high in fat, salt and sugars; promoting physical activity; consumer information (labelling); and public procurement of food. The Group agreed in 2011 on an EU Framework for National Initiatives on Selected Nutrients, such as saturated fat and added sugars. A 2008 reformulation framework had been agreed to reduce salt in food.

The [EU Action Plan on Childhood Obesity 2014–2020](#) ⁽⁴⁾ aims to contribute to halting the rise in childhood obesity by 2020. Actions under the plan include measures to promote healthy diets, increase access

to healthy foods, address changing family eating patterns, and restrict marketing and advertising that contributes to the formation of unhealthy dietary preferences at a young age.

The [EU Platform for Action on Diet, Physical Activity and Health](#) ⁽⁵⁾ was launched in March 2005, bringing together the key European-level organisations working in the field of nutrition and physical activity. It is a forum for the food industry, public health NGOs, consumer organisations and health professionals who aim to halt the worrying rise in the number of overweight and obese people in Europe, and to support the EU Member States in reaching the UN Sustainable Development Goals and the WHO targets on non-communicable diseases. To date, the platform has developed more than 300 commitments covering a variety of actions, from reformulation of food products and reduction of offered portion sizes, to advocacy and consumer information, to promoting physical activity.

Sustainable agricultural production

Sustainable agricultural production is a key element in the fight against hunger and malnutrition. A concerted effort is therefore needed to create a food production system that is based on sustainable agricultural practices and produces an adequate supply of food in line with national and international governmental dietary guidelines. Ensuring a healthy, sustainable supply of food, both now and in the long term, is especially important in the face of challenges such as climate change and a rising population.

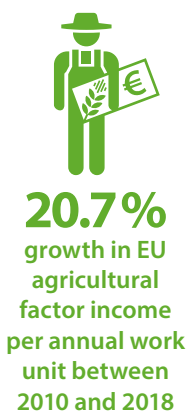
Agriculture is a complex field. To provide a complete picture of agricultural production, indicators must cover the social, economic and ecological aspects of sustainability by addressing a variety of topics, ranging from monetary aspects (income, government support) to specific farming practices ([organic farming](#), nutrient management). The overall picture painted by these indicators regarding progress towards SDG 2 in an EU context is uneven. While some progress has been achieved over the long term, the situation for biodiversity is worsening.

The EU's Common Agricultural Policy (CAP), first launched in 1962, provides income support, market measures and rural development measures to safeguard farmers and increase agricultural productivity while protecting rural landscapes and the environment. In June 2018, the European Commission presented legislative proposals for the future CAP, covering the period 2021–2027. Of the nine future CAP objectives, three centre on addressing environmental challenges: climate change action; environmental care; and preservation of landscape and biodiversity.

Labour productivity in European agriculture has increased, but investment in the future of farming lags behind

Economic sustainability needs to be achieved in the European agricultural sector to ensure its long-term viability. Agricultural factor income per [annual work unit](#) (AWU) is an indicator of [labour productivity](#). Following a dip during the economic crisis in the late 2000s, agricultural factor income per AWU has been rising in Europe, and in 2018 was 20.7% above 2010 levels. This is mainly due to strong growth between 2010 and 2011 (by 8.8%) and again between 2016 and 2017 (by 11.3%), driven partly by increased output values (prices and/or yields) and partly by a reduced [labour force](#).

Agricultural factor income per AWU varies considerably between Member States and farm types. It tends to be higher in countries with more mechanised, input-intensive production systems than in countries using more traditional, labour-intensive methods. Differences in wage levels and employment opportunities outside agriculture



may also play a role, as they can provide alternative sources of work for labourers.

Additional data from the economic accounts for agriculture confirm that the economic viability of the EU's agricultural sector appears to be increasing, with entrepreneurial income growing ⁽⁶⁾. From 2010 to 2018, real net agricultural entrepreneurial income per unpaid AWU rose by 30.4% and net entrepreneurial income of agriculture grew by 10.9%. Similar to agricultural factor income, a number of reasons may account for these trends, such as ever fewer small farms, rising agricultural prices and a decline in the amount of human labour associated with industrialised agricultural systems.

The sustainability of the agricultural sector depends to a large extent on investment that decouples agricultural productivity from environmental impacts. A

crucial part of this is investment in research and innovation, which helps to keep farmers competitive and able to adapt to challenges. Overall in the EU, national government support to agricultural research and development has risen over the short term, growing by 9.5% between 2012 and 2017, reaching EUR 3.2 billion in 2017. The trend varies across Member States according to national resources and funding priorities, with

some increasing in recent years, while others have decreased. In relation to other sectors, government spending data from 2017 indicate agricultural R&D is a medium priority for Member States. Research in this sector received more government investment than, for example, education (EUR 1.4 billion), about the same amount as transport, telecommunication and other infrastructures (EUR 3.2 billion), and less than industrial production and technology (EUR 9.7 billion) and health (EUR 8.5 billion) ⁽⁷⁾.



Several EU initiatives contribute to innovation for sustainable agriculture. In 2012, the **agricultural European Innovation Partnership (EIP-AGRI)** ⁽⁸⁾ was launched to foster competitive and sustainable farming and forestry. At the 2015 Milan Expo, the European Commission made a commitment to consult and debate how the EU could future-proof food systems through innovation and investment. In autumn 2016, the Commission launched the **FOOD 2030 initiative** ⁽⁹⁾. The initiative seeks to develop a coherent research and innovation agenda for sustainable food and nutrition

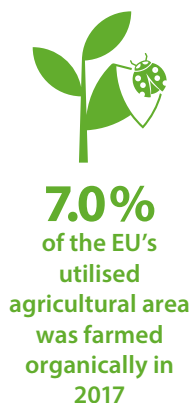
systems. It highlights the need for new business models and investment to provide enough sustainable and safe high-quality food, citizen involvement, and capacity and skills raising. It also supports future research framework programming to promote a 'food systems approach'. Outcomes will feed into a number of European policy processes, such as the development of the 2021–2027 Multiannual Financial Framework (MFF), the 9th Framework Programme (FP), the next generation of the Common Agricultural Policy and the review of the Bioeconomy Strategy ⁽¹⁰⁾.

Organic farming is on the rise across Europe, but nutrient use could be more efficient

Organic farming is a specific example of a sustainable agricultural management system that seeks to limit environmental impacts by using agricultural practices that encourage responsible use of energy and natural resources, maintain or enhance biodiversity, preserve regional ecological balances, increase soil fertility and water quality, encourage high animal welfare standards, and enhance the capacity to adapt to climate change.

Organic farming is on the rise across the EU. The share of organic agriculture in total agricultural area nearly doubled between 2005 and 2017, rising from 3.8% to 7.0%. Austria leads the EU with more than 23% of its agricultural area farmed organically in 2017, followed by Estonia and Sweden with slightly below 20%. In all other Member States, organic farming was practised on less than 15% of agricultural land.

Several statistics indicate that organic farming is well set to continue growing in Europe. Demand for organic food, for example, has been rising



steadily ⁽¹¹⁾. The value of the organic retail market in the EU was EUR 34.2 billion in 2017, with retail sales growth of 10.8% between 2016 and 2017 ⁽¹²⁾. The number of organic producers has also been increasing in Europe, reaching 295 577 in 2016 ⁽¹³⁾. In 2017, the area under conversion to organic agriculture was between 10% and 20% of the total organic area in 11 Member States, and over 20% in a further 11 Member States ⁽¹⁴⁾. This suggests that the organic sector's production and economic importance can be expected to continue growing across the EU.

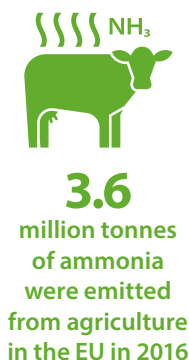
The **gross nitrogen balance** on agricultural land gives information about the possible environmental impacts of nutrient use and management on farms. This measure represents the balance of nitrogen inputs (for example, **mineral fertiliser**, manure, crop residue, nitrogen-fixing from legume crops) and outputs (such as via removal from harvested crops) from agricultural production. While low nitrogen levels may indicate poor soil fertility, persistently high levels can cause nitrate leaching (water pollution), **ammonia** emissions and ecosystem disruptions



(see next section on environmental impacts of agricultural production). The EU has seen a slight decline in its nitrogen balance on agricultural land. From a surplus of 52 kilograms (kg) per hectare in 2004 and after reaching a low of 46 kg per hectare in 2009, the surplus reached 51 kg per hectare in 2015. A return to the downward trend is needed to make progress towards SDG 2.

Environmental impacts of agricultural production

Agriculture provides environmental benefits such as maintaining specific farmland ecosystems and diverse landscapes, as well as providing carbon sinks. However, considerable increases in agricultural productivity and a move towards industrial agriculture practices in Europe since 1950 have contributed to the degradation of environmental and climate conditions and have led to animal welfare concerns. Several indicators illustrate the environmental impact of agricultural activities and can help determine the overall progress towards more sustainable agricultural production. They show some positive trends, but also a number of worrisome developments over the past few years, including growing ammonia emissions from agriculture and declines in the variety of farmland birds.



Excessive nutrient inputs are threatening the environment and water quality

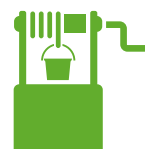
Ammonia emissions and nitrates in groundwater are linked to excessive inputs of nitrogen from agricultural sources such as mineral fertiliser and livestock manure. When released into the atmosphere, ammonia pollutes the air and can harm sensitive vegetation systems, biodiversity and water quality through [eutrophication](#) and acidification. Airborne ammonia also contributes to the formation of particulate matter, which has significant human health effects (also see the chapters on SDG 3 'Good

health and well-being' and SDG 11 'Sustainable cities and communities' on pages 73 and 215).

Since the 1990s, Europe has seen significant decreases in its ammonia emissions from agriculture due to reductions in livestock density and nitrogen fertiliser use as well as changes in agricultural practices. In recent years, however, this trend has reversed. After reaching a low of 3.50 million tonnes in 2013, emissions started to increase again, reaching 3.61 million tonnes in 2016. Note that the national and EU totals might mask considerable variations in fertiliser application and livestock densities at regional and local levels.

The agricultural sector is also responsible for considerable quantities of [greenhouse gas](#) (GHG) emissions ⁽¹⁵⁾, accounting for almost 10% of total GHG emissions in the EU in 2016. While total emissions have been falling steadily in the EU (see the chapter on SDG 13 'Climate action' on page 253), GHG emissions from the agricultural sector had been falling for many years but started slowing rising again in 2013. They exceeded 430 million tonnes of [CO₂ equivalent](#) in 2016, although this figure is still far below 1990 levels ⁽¹⁶⁾.

Nitrates (NO₃) can end up in groundwater when more fertiliser is applied than the plants need. This can lead to eutrophication and reduce groundwater quality. After peaking at 19.2 milligrams (mg) NO₃ per litre in 2007, the overall concentration of nitrates in EU groundwater has returned to levels observed in the early 2000s. Between 2011 and 2015 levels returned to below 18.6 mg NO₃ per litre (see the chapter on SDG 6 'Clean water and sanitation' on page 129). However, for the period 2012 to 2015, Member States reported that 13.2 % of groundwater stations recorded excessive nitrate levels according to the Nitrates Directive (their average annual nitrate concentration exceeded 50 mg NO₃ per litre), and during this period there were still important unresolved regional pressures and pollution hotspots ⁽¹⁷⁾.



18.3
milligrams of
nitrates were
in each litre of
groundwater on
average in the
EU in 2015

There are also vast differences in the performance of Member States regarding nitrogen-related emissions. Countries such as Malta, Cyprus, Belgium, Luxembourg and the Netherlands have the highest rates of ammonia emissions and nitrates in groundwater. Romania, Estonia, Lithuania, Bulgaria and Latvia — all countries with relatively low-intensity agriculture — have the lowest ammonia emissions.

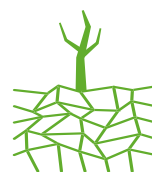
The Nitrates Directive ⁽¹⁸⁾ was introduced in 1991 to reduce fertiliser use. It aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices. It has contributed to decreases in the nitrogen balance, but major efforts are still needed to restore optimal water quality across the EU.

Soil erosion: a major threat, but there are signs of improvement across Europe

Healthy soils are essential for sustainable and productive agricultural systems. Because soils take years to form, they can be considered a non-renewable resource for food production. One of the biggest threats to soil health in

Europe is soil erosion, which can be caused by both wind and water. Though erosion is a natural process, inappropriate land management and other human activities can cause it to accelerate to such an extent that soil can be irreversibly lost. The indicator on estimated soil erosion by water provides a measure of the area at risk of severe soil erosion (leading to the loss of more than 10 tonnes per hectare per year). The Mediterranean region is especially affected because it experiences long, dry periods and sudden rainfall events on steep slopes with fragile soils ⁽¹⁹⁾. Water erosion can also harm the environment by washing nutrients out of soils and into water bodies, leading to water quality problems such as toxic algal blooms ⁽²⁰⁾.

In the EU, 201 885 km² of land was at risk of severe soil loss from water erosion in 2012 — an area equal to about 1.5 times Greece's total land area. Yet the risk of severe soil erosion has been declining in the EU, in part due to mandatory cross-compliance measures in the EU [Common Agricultural Policy](#) (CAP). The share of non-artificial erosive area estimated to be at risk of severe soil erosion by water fell from 6.0 % to 5.2 % between 2000 and 2012.



5.2 %
of EU land was
estimated to be
at risk of severe
soil erosion by
water in 2012

The **Soil Thematic Strategy** ⁽²¹⁾ is the main EU policy strategy directed at soil protection. The EU and most EU Member States do not have specific legislation targeting soils, but instead aspects of soil protection are determined by other sectoral policies such as agriculture, forestry, water, waste and land use planning. The Soil Thematic Strategy sought to change this by establishing four pillars for action at EU level: dedicated legislation in the form of a Soil Framework Directive, integration of soil protection aspects in other sectoral policies, development of the knowledge-base through studies and research projects, and raising public awareness about the role that soil plays in the economy and in

ecosystems ⁽²²⁾. Though the proposal for a Soil Framework Directive was dropped in 2014, progress has been made towards other objectives. The EU has funded research and improved soil monitoring through projects such as **LUCAS**, a survey on land cover, land use and agri-environmental indicators run by Eurostat, and **Copernicus**, the EU's Earth Observation and Monitoring Programme, which provides, for example Corine Land Cover and High Resolution Layers on imperviousness, grasslands, forests, water and wetness. The Commission has worked to integrate soil concerns into other sectoral policies ⁽²³⁾, and rehabilitation projects have been funded, for example, through the Cohesion Policy.

High agricultural productivity can harm biodiversity

Some agricultural landscapes provide valuable and unique habitats for a host of species, both common and threatened. However, unless the features that support biodiversity also generate income for farmers and/or receive appropriate regulatory protection, they will come under growing pressure in the race to increase productivity. Species related to agroecosystems would have fared worse without the agri-environmental measures in EU policies, primarily the Common Agriculture Policy, but measures have not yet been effective enough to halt overall biodiversity loss in agricultural habitats ⁽²⁴⁾.

Farmland bird species depend on agricultural habitats.

Their relative visibility make them good indicator species for monitoring biodiversity.

The common farmland bird index measures the relative abundance and diversity compared to the base year of 2000 for 39 farmland bird species. Between 2001 and 2016, the EU saw a considerable decline of 14.8% for common farmland birds, which is a continuation of the trend that has been observed since 1990.



Between 2001
and 2016,
common
farmland
birds in the EU
declined by
14.8%

Presentation of the main indicators

X **LONG TERM**
Insufficient data
to calculate trend

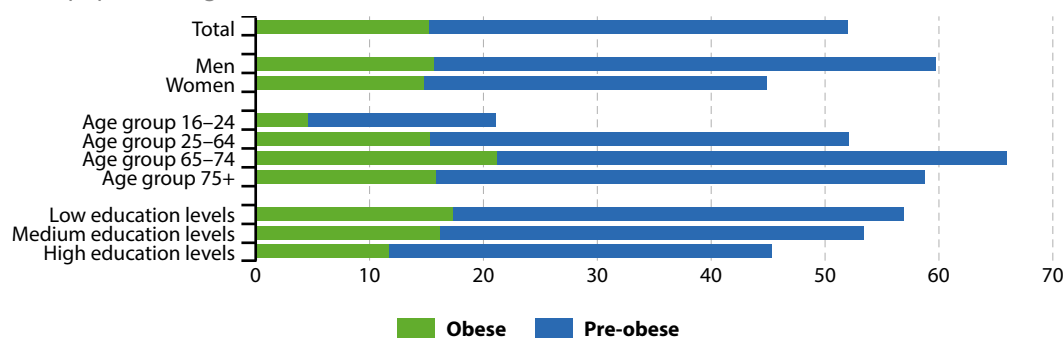
↑ **SHORT TERM**
2014–2017

Obesity rate

The obesity indicator is derived from the **body mass index** (BMI), which is defined as the weight in kilograms divided by the square of the height in metres. People aged 18 years or over are considered obese if their BMI is equal to or greater than 30. The category pre-obese refers to people with a BMI between 25 and less than 30. The category overweight (BMI equal or greater than 25) combines the two categories. The data presented in this section stem from the **European Health Interview Survey** (EHIS) and the **EU Statistics on Income and Living Conditions** (EU-SILC).

Figure 2.1: Obesity and pre-obesity rate, by sex, age group and educational attainment, EU-28, 2017

(% of population aged 18 or over)



Source: Eurostat (online data code: [ilc_hch10](#))

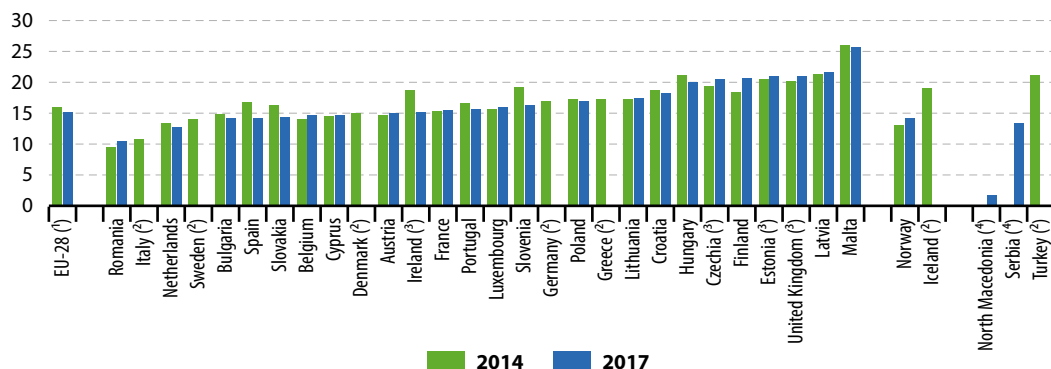
Table 2.3: Compound annual growth rate (CAGR) of the obesity rate, EU

EU aggregate	Period	Growth rate
EU-28	2014–2017	– 1.5 % per year

Source: Eurostat (online data code: [sdg_02_10](#))

Figure 2.2: Obesity rate, by country, 2014 and 2017

(% of population aged 18 or over)



⁽¹⁾ 2017 data are estimated.

⁽²⁾ No data for 2017.

⁽³⁾ 2017 data have low reliability.

⁽⁴⁾ No data for 2014.

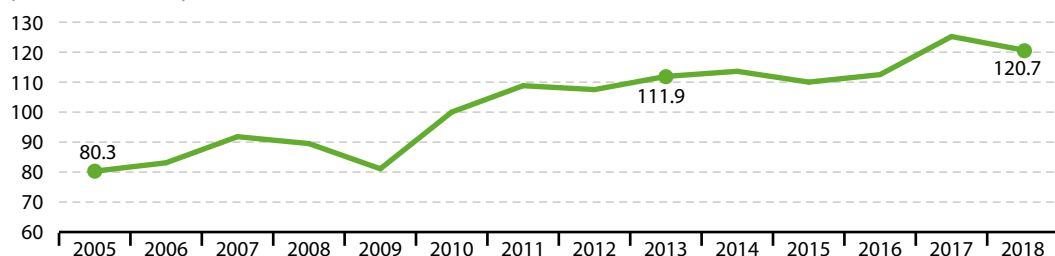
Source: Eurostat (online data code: [sdg_02_10](#))

Agricultural factor income per annual work unit (AWU)

Agricultural factor income measures the income generated by farming, which is used to remunerate borrowed or rented factors of production (capital, wages and land rents) as well as own production factors (own labour, capital and land). **Annual work units (AWUs)** are defined as **full-time equivalent** employment (corresponding to the number of full-time equivalent jobs), which is calculated by dividing total hours worked by the average annual number of hours worked in full-time jobs within the economic territory. This can be interpreted as a measure of labour productivity in the agricultural sector. The data stem from the **Economic Accounts for Agriculture (EAA)**, which provide detailed information on agricultural sector income.



Figure 2.3: Agricultural factor income per annual work unit (AWU), EU-28, 2005–2018
(index 2010=100)



Note: 2018 data are estimated.

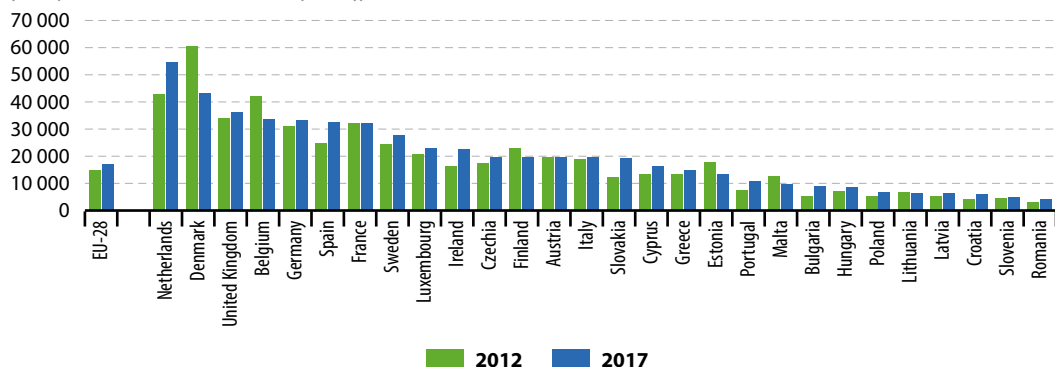
Source: Eurostat (online data code: [sdg_02_20](#))

Table 2.4: Compound annual growth rate (CAGR) of the agricultural factor income per annual work unit (AWU), EU

EU aggregate	Period	Growth rate
EU-28	2005–2018	3.2 % per year
EU-28	2013–2018	1.5 % per year

Source: Eurostat (online data code: [sdg_02_20](#))

Figure 2.4: Agricultural factor income per annual work unit (AWU), by country, 2012 and 2017
(EUR, chain linked volumes (2010))



Note: Caution should be exercised when comparing absolute levels of agricultural factor income per AWU as they are influenced by different calculations depending on national rules and as they are not specifically designed to be comparable across countries.

Source: Calculations made by the Directorate-General for Agriculture and Rural Development (DG AGRI) based on Eurostat data (online data code: [sdg_02_20](#))

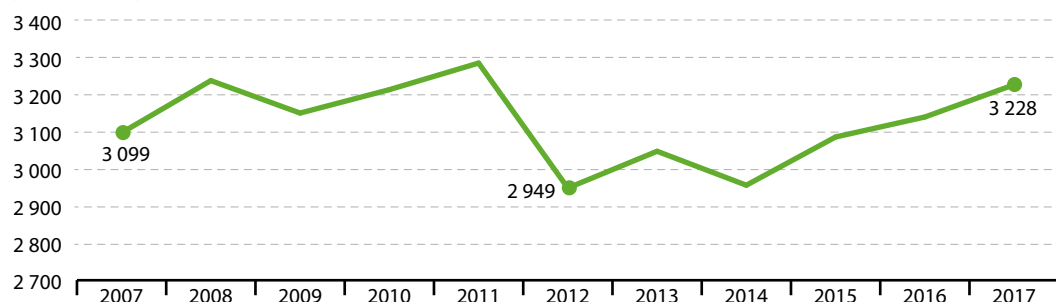
LONG TERM
2007–2017

SHORT TERM
2012–2017

Government support to agricultural research and development

This indicator refers to [Government Budget Appropriations or Outlays on R&D](#) (GBAORD). GBAORD data measure government support to research and development (R&D) activities or, in other words, how much priority governments place on the public funding of R&D. GBAORD data are built up using the guidelines laid out in the proposed standard practice for surveys of research and experimental development, the [OECD's Frascati Manual from 2015](#).

Figure 2.5: Government support to agricultural research and development, EU-28, 2007–2017
(million EUR)



Note: Data for 2007 and for 2009–2011 are estimated.

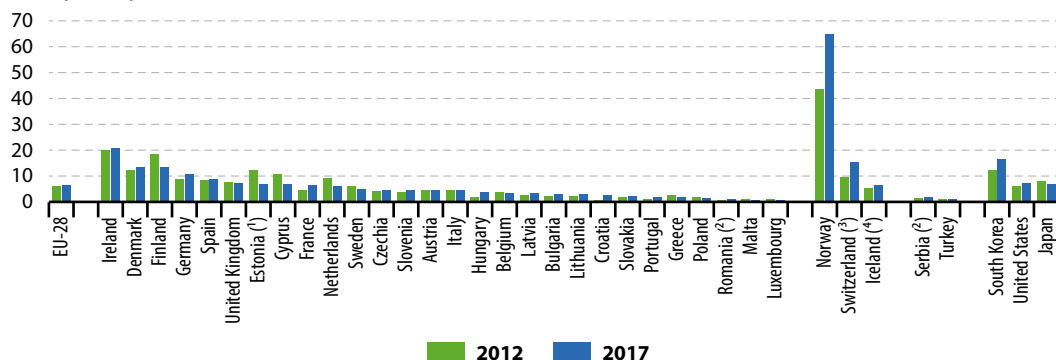
Source: Eurostat (online data code: [sdg_02_30](#))

Table 2.5: Compound annual growth rate (CAGR) of the government support to agricultural research and development, EU

EU aggregate	Period	Growth rate
EU-28	2007–2017	0.4 % per year
EU-28	2012–2017	1.8 % per year

Source: Eurostat (online data code: [sdg_02_30](#))

Figure 2.6: Government support to agricultural research and development, by country, 2012 and 2017
(EUR per capita)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽³⁾ 2015 data (instead of 2017).

⁽²⁾ 2013 data (instead of 2012).

⁽⁴⁾ 2014 data (instead of 2012).

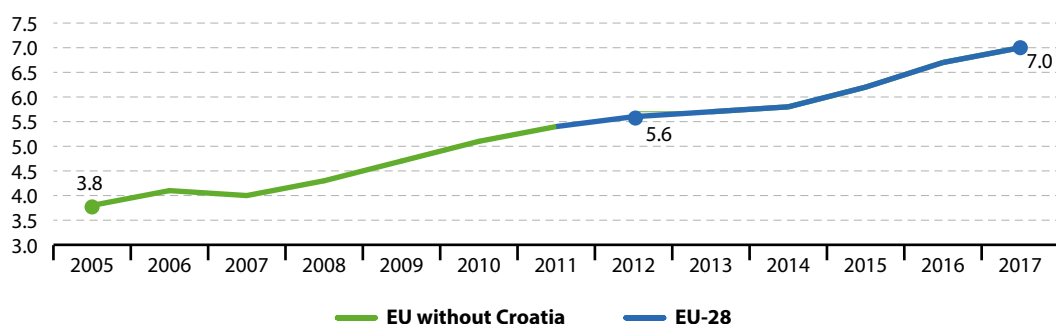
Source: Eurostat (online data code: [sdg_02_30](#))

Area under organic farming

This indicator is defined as the share of total **utilised agricultural area (UAA)** occupied by **organic farming** (existing organically farmed areas and areas in the process of conversion). Organic farming is a production method that puts the highest emphasis on environmental protection and animal welfare considerations. It avoids or largely reduces the use of synthetic chemical inputs such as fertilisers, pesticides, additives and medical products.



Figure 2.7: Area under organic farming, EU, 2005–2017
(% of utilised agricultural area)



Note: Data for 2005–2011 and 2017 are estimated.

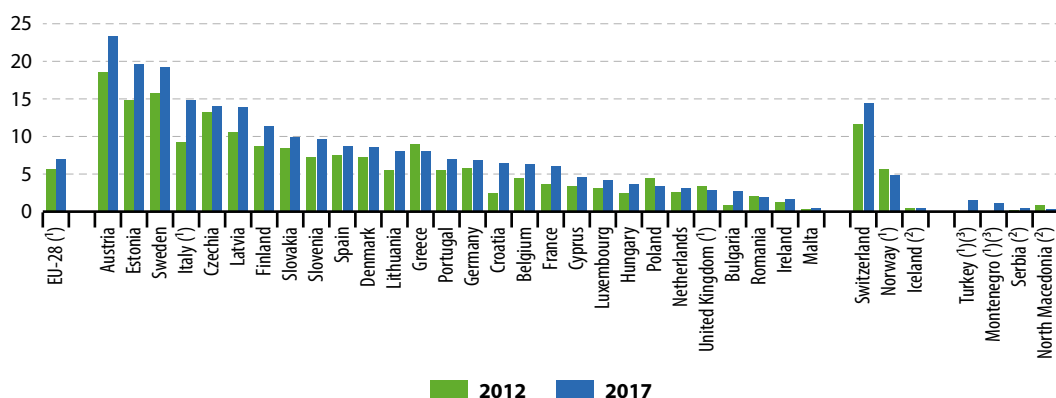
Source: Eurostat (online data code: [sdg_02_40](#))

Table 2.6: Compound annual growth rate (CAGR) of the share of area under organic farming, EU

EU aggregate	Period	Growth rate
EU without Croatia and EU-28	2005–2017	5.3 % per year
EU-28	2012–2017	4.5 % per year

Source: Eurostat (online data code: [sdg_02_40](#))

Figure 2.8: Area under organic farming, by country, 2012 and 2017
(% of utilised agricultural area)



(¹) 2017 data are estimated or provisional. (²) 2013 data (instead of 2012). (³) No data for 2012.

Source: Eurostat (online data code: [sdg_02_40](#))

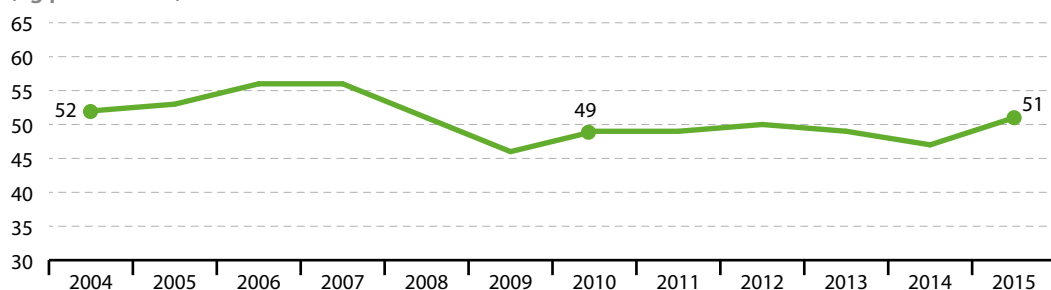
 **LONG TERM**
2004–2015

 **SHORT TERM**
2010–2015

Gross nitrogen balance on agricultural land

This indicator measures the potential surplus or deficit of nitrogen in agricultural soils. A lack of nitrogen may lead to degradation in soil fertility, while an excess may cause surface and groundwater (including drinking water) pollution and eutrophication. Ideally, the ratio of nitrogen input and output to the soil should be balanced. Inputs consist of the amount of nitrogen applied via mineral fertilisers and animal manure as well as nitrogen fixation by legumes, deposition from the air, and some other minor sources. Nitrogen output is contained in harvested crops, or grass and crops eaten by livestock (escape of nitrogen to the atmosphere, for example, as N_2O , is difficult to estimate and therefore not taken into account).

Figure 2.9: Gross nitrogen balance on agricultural land, EU-28, 2004–2015 (kg per hectare)



Note: Estimated data.

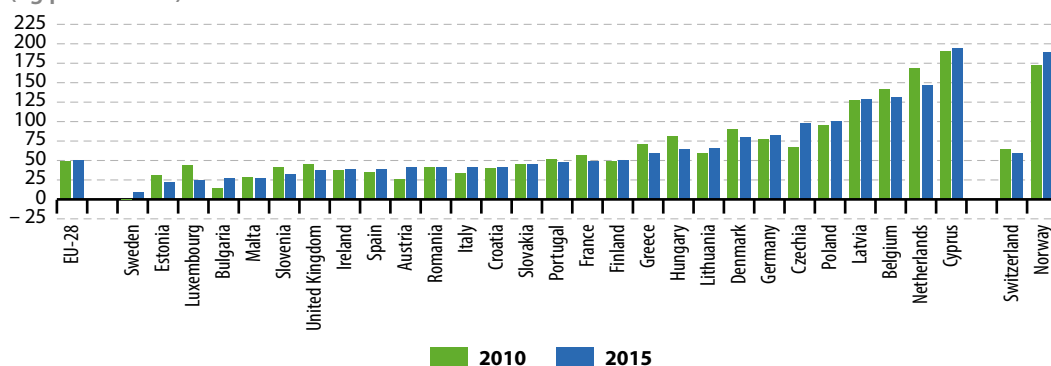
Source: Eurostat (online data code: [sdg_02_50](#))

Table 2.7: Compound annual growth rate (CAGR) of the gross nitrogen balance on agricultural land, EU

EU aggregate	Period	Growth rate
EU-28	2004–2015	– 0.2% per year
EU-28	2010–2015	0.8% per year

Source: Eurostat (online data code: [sdg_02_50](#))

Figure 2.10: Gross nitrogen balance on agricultural land, by country, 2010 and 2015 (kg per hectare)



Note: Estimated or provisional data for many countries.

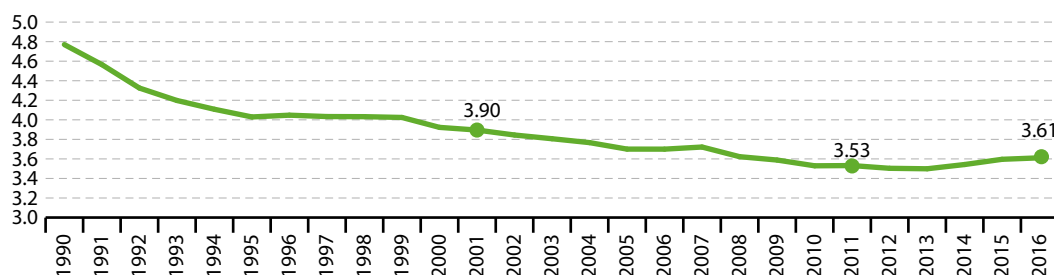
Source: Eurostat (online data code: [sdg_02_50](#))

Ammonia emissions from agriculture

The indicator measures the amount of ammonia (NH₃) emissions as a result of agricultural production. Ammonia is a colourless, pungent-smelling and corrosive gas that is produced by decaying organic vegetable matter and from the excrement of humans and animals. When released into the atmosphere, it contributes to air pollution. Once deposited in water and soils, it can cause two major types of environmental damage: acidification and eutrophication. Data for this indicator come from the EU inventory on air pollution compiled by the European Environment Agency (EEA) under the Convention on Long-range Transboundary Air Pollution (LRTAP) and are fully consistent with national air pollution inventories compiled by EU Member States.



Figure 2.11: Ammonia emissions from agriculture, EU-28, 1990–2016
(million tonnes)



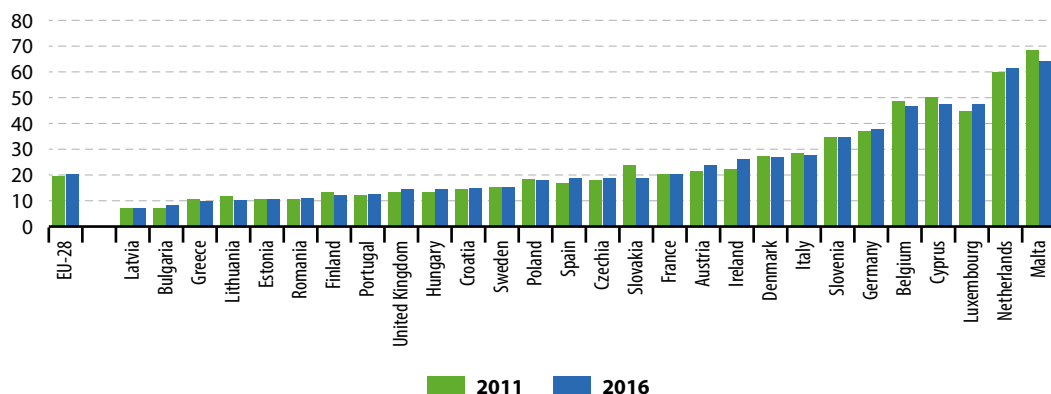
Source: EEA (Eurostat online data code: [sdg_02_60](#))

Table 2.8: Compound annual growth rate (CAGR) of the ammonia emissions from agriculture, EU

EU aggregate	Period	Growth rate
EU-28	2001–2016	– 0.5 % per year
EU-28	2011–2016	0.4 % per year

Source: EEA (Eurostat online data code: [sdg_02_60](#))

Figure 2.12: Ammonia emissions from agriculture, by country, 2011 and 2016
(kg per ha of utilised agricultural area)



Source: EEA, Eurostat (online data code: [sdg_02_60](#))

Further reading on zero hunger

European Commission (2018), *Initiatives on Nutrition and Physical Activity*.

EEA (2017), *Food in a green light — A systems approach to sustainable food*, European Environment Agency, Copenhagen.

EEA (2016), *State of the Environment 2015: Agriculture*, European Environment Agency, Copenhagen.

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3

Ensure healthy lives and promote well-being for all at all ages

Goal 3 aims to ensure health and promote well-being for all at all ages by improving reproductive, maternal and child health; ending epidemics of major communicable diseases; and reducing non-communicable and mental diseases. It also calls for reducing behavioural and environmental health-risk factors



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supports the SDGs

The World Health Organization (WHO) defines health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (1). Good health is not only of value to the individual as a major determinant of quality of life, well-being and social participation, it also contributes to general social and economic growth. Besides the general availability of health care, health can be determined by individual characteristics and behaviour, such as smoking, and by external socio-economic and environmental factors, such as living conditions, air quality and noise. Research is also essential to ensuring good health as well as preventing and tackling diseases. Thus, the ability to achieve the targets of the SDG on good health and well-being is strongly linked to other areas related to sustainable development. And ensuring that people live long and healthy lives also means reducing the causes of premature deaths, such as unhealthy lifestyles or accidents, improving the external health determinants and ensuring access to health care for all.



Table 3.1: Indicators measuring progress towards SDG 3, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Healthy lives			
Life expectancy at birth	↗	↗	page 84
Share of people with good or very good perceived health	↗ ⁽¹⁾⁽²⁾	↗	page 85
Health determinants			
Smoking prevalence	↑ ⁽¹⁾⁽²⁾	↑ ⁽¹⁾	page 86
Obesity rate (*)	:	↑ ⁽⁴⁾	SDG 2, page 64
Population living in households considering that they suffer from noise (*)	↑ ⁽²⁾	↑	SDG 11, page 225
Exposure to air pollution by particulate matter (*)	↗	↑	SDG 11, page 226
Causes of death			
Death rate due to chronic diseases	↑ ⁽⁶⁾	↑	page 87
Death rate due to tuberculosis, HIV and hepatitis	↑ ⁽⁶⁾	↑	page 88
People killed in accidents at work (*)	:	↑	SDG 8, page 179
🎯 People killed in road accidents (*)	↗	↘	SDG 11, page 227
Access to health care			
Self-reported unmet need for medical care	:	↑	page 89

(*) Multi-purpose indicator.

(1) Data refer to an EU aggregate that changes over time.

(2) Past 12-year period.

(3) Past 11-year period.

(4) Past 3-year period.

(5) Past 10-year period; data refer to EU without Croatia.

(6) Past 13-year period.

Table 3.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
🎯	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↘	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Good health and well-being in the EU: overview and key trends

Monitoring SDG 3 in an EU context focuses on the topics of healthy lives, determinants of health, causes of death and access to health care. As shown in Table 3.1, the EU has made significant progress in almost all health-related spheres analysed in this chapter over the past few years. However, the short-term decline in road transport deaths does not appear to be enough to meet the respective EU target.

The European Commission conducts the [State of Health in the EU](#) ⁽²⁾ initiative in close collaboration with the OECD and the European Observatory on Health Systems and Policies. The recurring two-year cycle of monitoring comprises the Health at a Glance: Europe series, Country Health Profiles for each EU Member State and a Companion Report with the European Commission's own assessment of policy levers and priorities.

Healthy lives

Over the past century, people around the world have generally been living longer. This surge in [life expectancy](#) is a result of various factors, including reductions in [infant mortality](#), rising living standards, improved lifestyles and better education, as well as advances in [health care](#) and medicine ⁽³⁾. Rising life expectancy is an indicator of a population's improved general health and lower [mortality rates](#).

EU countries have some of the highest life expectancy rates in the world. While life expectancy gives an objective assessment of how long people can expect to live, it does not show whether people live their lives in good health. Thus, indicators providing insights into individuals' subjective view of their own well-being are used to complement the information on life expectancy.

Life expectancy at birth and perceived health have increased in both the short and the long term

A child born in 2017 could on average expect to live 80.9 years, which is 3.2 years longer than in 2002. Life expectancy increased by 0.6 years in the short-term period between 2012 and 2017. While it increased in all Member States during this period, it varied by 8.6 years between countries in 2017.

Life expectancy improvements have slowed in recent years. This can be attributed to a slowdown in mortality improvements, according to one recent publication ⁽⁴⁾. While there are several reasons for this trend, a slowdown in improvements regarding cardiovascular diseases and an increase in mortality from dementia and Alzheimer have particularly contributed. In addition, mortality changes have been erratic in some years, for example in winter 2015, because of influenza, pneumonia and other respiratory diseases.

The share of people perceiving themselves to be in good or very good health has also increased during both the short and the long terms. In 2017, 69.7 % of people in the EU judged their health as being either good or very good. This was a considerable increase of 5.6 percentage points



A child born in 2017 could on average expect to live

80.9 years



69.7 % of the EU population perceived themselves to be in good or very good health in 2017

since 2005 (64.1 %). Over the short-term period since 2012, the share of people with good and very good self-perceived health has increased by 1.4 percentage points.

Across Member States, the share of people who perceive themselves to be in good or very good health varied strongly between 83.3 % and 43.9 % in 2017. However, caution is needed when making cross-country comparisons of perceived general health because of the subjective nature of this assessment, which can be affected by social and cultural backgrounds ⁽⁵⁾. In addition, older people report poor health more often than younger people. Thus, countries with a larger proportion of elderly people may have a lower proportion of people reporting good or very good health ⁽⁶⁾.

Member States hold the main responsibility for their health care policies and for organising their health care systems. However, EU cohesion policy ⁽⁷⁾ aims to reduce disparities between EU regions, including in terms of endowment of health services. In addition, the actions under the EU climate and environmental policy ⁽⁸⁾ contribute to increasing health and well-being.

Although each Member State is different, their health systems all share the ultimate aim of contributing to the good health and well-being of their population. The Commission's main role is to support Member States in this aim. Further information can be found in the 2014 Commission communication 'On effective, accessible and resilient health systems' ⁽⁹⁾.

Women have higher life expectancies than men, but they are less likely to assess their health as being good or very good

Between 2002 and 2017, the life expectancy of women increased by 2.6 years, from 80.9 years to 83.5 years. During the same period, the figure for men went up by 3.8 years, from 74.5 years to

78.3 years. This stronger improvement by men indicates a closing of the life expectancy **gender gap**, which stood at 5.2 years in 2017. This can at least be partly attributed to women adopting similar risk-increasing lifestyles as men, such as smoking, and to a sharp reduction in deaths from cardiovascular diseases among men ⁽¹⁰⁾.

Although women are expected to live longer than men, they are less likely to rate their health as being good or very good. In 2017, 67.3 % of women and 72.3 % of men considered their health to be good or very good (a gender gap of 5.0 percentage points). In all Member States except Ireland, men gave a more favourable assessment in 2017 ⁽¹¹⁾.

Self-perceived health also shows a distinct age pattern, with fewer people in the older age groups tending to rate their health as being very good or good. Furthermore, the gender gap increases with age, peaking among people aged 75 to 84. In 2017, the gender gap was 7.3 percentage points in favour of men for people aged 75 to 84, while it only amounted to 1.7 percentage points for 16- to 44-year-olds.

Finally, there are also large disparities in self-reported health between people with different incomes. In 2017, on average, 80.4 % of people in the highest income group reported good or very good health, while only 61.2 % of people in the lowest income group did so ⁽¹²⁾. The disparities may be explained by differences in living and working conditions, as well as in lifestyles ⁽¹³⁾. In addition, people on low incomes have less access to health services for financial or other reasons, as discussed further below.

The number of healthy life years increased for people at age 65

The **healthy life years** (HLY) indicator is a health-expectancy indicator that combines information on **mortality** and **morbidity**. The information on health condition is collected through survey questions on self-perceived disability. The indicator provides useful information on the health of people as they age and whether the increase in life expectancy leads to people living longer, healthier lives or whether people gain

extra years only to live them in poor health. Life expectancy at age 65 is defined as the mean number of years that a 65-year-old person can be expected to live if subjected to the current mortality conditions throughout the rest of his or her life. The HLY indicator at age 65 consequently measures the number of years that a person at age 65 is still expected to live in a healthy condition ⁽¹⁴⁾.

In 2017, life expectancy at age 65 was estimated to be on average 21.4 years for women and 18.1 years for men in the EU. In the same year, HLY at age 65 was on average 9.4 years for women and 9.6 years for men in the EU. Given that healthy life expectancy does not differ much between men and women aged 65, but women's overall life expectancy considerably exceeds that of men, 65-year-old women can on average be assumed to spend a greater share of their remaining lives with a disability or a disease. More precisely, women at the age of 65 were expected to spend 43.9% of their remaining lives free from any limitations in 2016, compared with 53.2% for men. There are also considerable differences between EU Member States. Depending on the country, in 2017 women at age 65 could expect to live between 73.6% and 21.6% of their remaining lives free from any limitation and men between 80.0% and 24.9% ⁽¹⁵⁾.

Health determinants

Many factors affect the health of individuals and populations. These include socio-economic aspects, the state of the environment, the design of cities, opportunities to access and use health services, and a person's individual characteristics and behaviour ⁽¹⁶⁾. Lifestyle-related risk factors such as unhealthy diet, physical inactivity, alcohol consumption and smoking directly affect the quality of life and life expectancy of citizens. They also have a negative impact on national health and social systems, government budgets and economic productivity and growth. The health determinants discussed in the following sections are [obesity rate](#), smoking prevalence, noise and air pollution. Roughly speaking, the first two of these determinants focus on a person's

individual characteristics and behaviours and the other two look at external factors. However, multi-dimensional aspects such as consumption patterns or mobility influence all the considered determinants.

More than half of the adult EU population was overweight in 2017

Obesity is a serious public health problem, as it significantly increases the risk of chronic diseases, such as cardiovascular disease, type-2 diabetes, hypertension and certain types of cancer. For specific individuals, obesity may further be linked to a wide range of psychological problems. For society as a whole, it has substantial direct and indirect costs that put a considerable strain on health care and social resources.



In 2017, 15.2% of people over the age of 18 in the EU were obese ⁽¹⁷⁾, and another 36.8% were pre-obese. This means more than half of the population above the age of 18 in the EU were overweight. Between 2014 and 2017, the share of obese people fell by 0.7 percentage points, while it grew by 1.1 percentage points for pre-obesity. The total share of overweight people therefore grew slightly over this period, from 51.6% in 2014 to 52.0% in 2017.

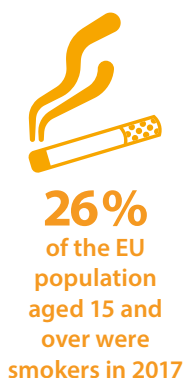
The share of the population that is obese generally increases with age, peaking at age 65 to 74 in 2017 and decreasing again for people at age 75 and older. While for women obesity seems to be negatively correlated with educational attainment (for example, highly-educated women tend to be less obese), there was no such clear-cut pattern for men. In 2017, the obesity rate of EU countries ranged from 10.4% to 25.7% for people over the age of 18. According to the World Health Organisation (WHO), Europe had the second highest proportion of [overweight](#) or obese people in 2014, behind the Americas ⁽¹⁸⁾.

Smoking prevalence among the population aged 15 or over has decreased since 2006

Tobacco consumption is considered to be 'the single largest avoidable health risk in the European Union' ⁽¹⁹⁾. Many types of cancer, cardiovascular and respiratory diseases are linked to tobacco use. Around half of all smokers die prematurely, depriving their families of income and raising the burden of health care.

Smoking prevalence among the population aged 15 or over fell between 2006 and 2017, from 32 % to 26 %. Nevertheless, this means more than a quarter of adults in the EU were smoking in 2017. More men were smoking than women in 2017 (30 % versus 22 %). However, the gender gap has reduced slightly over time, from 10 percentage points in 2006 to 8 percentage points in 2017. This development can partially explain the decreasing gender gap in life expectancy ⁽²⁰⁾.

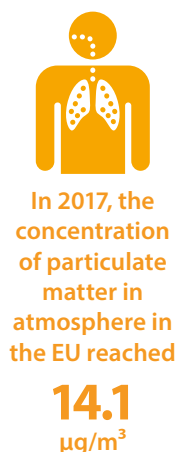
The prevalence of smoking has decreased in most EU countries over the past five years. However, mixed trends were observed among young people (15 to 24 years). The proportion of people who smoked also varied greatly across Member States in 2017, between 7 % and 37 %. The reasons for the differences between EU countries are complex. A research paper from 2016 found an association between tobacco-control policies, which include restrictions on smoking in public places or public information campaigns, and smoking cessation mostly among higher socio-economic groups ⁽²¹⁾.



External factors affecting health, such as air pollution and exposure to noise, have on average been declining, but hotspots remain

According to European Environment Agency (EEA) estimates, air pollution is the number-one environmental cause of death in Europe, responsible for more than 400 000 premature deaths per year ⁽²³⁾. It can lead to or aggravate many chronic and acute respiratory and cardiovascular diseases. In addition, it reduces life satisfaction and perception of well-being. Air pollution has been one of Europe's main environmental policy concerns since the late 1970s. Air pollutants are emitted both naturally and as a result of human activities, mainly fuel combustion. Urban populations are particularly exposed to air pollution because of the high concentration of human activities and industry in EU cities and the daily flow of commuters. In addition, the most vulnerable citizens remain disproportionately affected by air pollution ⁽²⁴⁾.

In the EU, exposure to air pollution by fine **particulate matter** (PM_{2.5}) — one of the most harmful components of air pollution for human health ⁽²⁵⁾ — had been increasing in urban areas until 2011. This upward trend has reversed in the short term, falling by more than 16 % from 16.8 µg/m³ in 2012 to 14.1 µg/m³ in 2017. Nevertheless, substantial air pollution hotspots remain. While



The Tobacco Products Directive ⁽²²⁾, adopted in February 2014, lays down rules governing the manufacture, presentation and sale of tobacco and related products. The Directive, which became applicable in EU countries on 20 May 2016, requires large mandatory combined health warnings on cigarette packages, bans all promotional and

misleading elements on tobacco products and prohibits cigarettes with characterising flavours, such as fruit or candy. From a public-health perspective, the Directive aims to protect citizens from the hazardous effects of smoking and other forms of tobacco consumption by helping them to quit or to not start smoking in the first place.

the annual mean for PM_{2.5} is below the EU target value (25 µg/m³ annual mean), it continues to be above the level recommended by the WHO (10 µg/m³ annual mean).

In 2013, the European Commission adopted the [Clean Air Policy Package](#) ⁽²⁶⁾ (air quality standards; national emission reduction targets; and emission standards for key sources of pollution) with a view to reducing the number of premature deaths linked to air pollution by more than half in 2030 compared with 2005. When the [Directive on emissions of atmospheric pollutants](#) ⁽²⁷⁾, which came into force on 31 December 2016, is fully implemented it is estimated that 13 % of EU citizens will be exposed to PM_{2.5} concentrations above the World Health Organization's guideline value in 2030, instead of the 88 % who were affected in 2005 ⁽²⁸⁾.

The WHO ⁽²⁹⁾ identified noise as the second most significant environmental cause of ill health in Western Europe after air pollution ⁽³⁰⁾. The most harmful effects, such as those on the heart and circulatory system, are thought to arise due to stress reactions in the human body as well as a decrease in sleep quality, among other interrelated mechanisms. These can lead to premature mortality ⁽³¹⁾. In Europe, environmental noise is estimated to cause more than 10 000 premature deaths per year ⁽³²⁾. Road traffic is the dominant source of environmental noise, but railways, airports and industry are also important sources ⁽³³⁾.

The EU has made substantial progress towards reducing noise pollution, with the share of population feeling affected by noise from neighbours or from the street falling from 23.0 % in 2007 to 17.5 % in 2017. However, because the assessment of noise pollution is a subjective measure, a fall in the value of the indicator may not necessarily indicate a similar reduction in actual noise-pollution levels ⁽³⁴⁾. For example, the estimated number of people exposed to levels of

environmental noise in Europe that are above the noise indicator levels set by the EU Environmental Noise Directive (2002/49/EC) provides a more objective view. Based on modelling calculations from 2018, 75.5 million people in urban areas in the EU were estimated as being exposed to noise from road traffic of 55 decibel (dB) or higher on an annual average for day, evening and night. In addition, 9.7 million people were estimated to be subjected to excessive noise from railways, 2.8 million from airports and 0.8 million from industry ⁽³⁵⁾.

A recent report shows that the health of Europe's most vulnerable citizens remains disproportionately affected by environmental hazards such as air and noise pollution ⁽³⁶⁾. For example, groups of lower socio-economic status tend to be disproportionately affected by noise pollution, because they often live closest to the source. Another group is children, who are more vulnerable to the health effects of air pollution.



17.5%
of the EU
population
were affected
by noise from
neighbours or
from the street
in 2017

In addition to these two major environmental factors, the exposure to and possible health impact of toxic chemicals found in the environment and food are under increasing scrutiny by the scientific and regulatory communities worldwide (see the chapter on SDG 12 'Responsible consumption and production' on page 233 and the further reading section on page 90).

Causes of death

[Causes of death](#) are among the oldest medical statistics available and play a key role in the general assessment of health in the EU. The data can be used to determine which preventive and medical curative measures or investments in research might increase a population's life expectancy. The indicators selected for this sub-theme look at deaths due to chronic and communicable diseases, as well as at fatal accidents on roads and at work. The overall trends in these areas are quite

favourable, with fewer people in the EU dying due to monitored diseases and accidents.

Trends for chronic diseases and selected communicable diseases are positive, but gender gaps remain

Chronic diseases, specifically circulatory diseases, cancer and respiratory diseases, are the leading cause of mortality in the EU ⁽³⁷⁾. They are evoked or worsened by a number of risk factors, including smoking, obesity, lack of physical activity, poor diet and high alcohol consumption. In addition, air pollution and noise are also associated with premature mortality from certain chronic diseases ⁽³⁸⁾. High mortality due to chronic diseases, combined with the fact that many cases are preventable, has led to increasing efforts to avoid lifestyle-related risk factors. Awareness initiatives on health promotion and disease prevention have been carried out at national and EU-levels. Chronic-disease management programmes in primary care have also been implemented.

In the EU, deaths due to chronic diseases before the age of 65 fell steadily between 2002 and 2015. While there were 164.4 deaths per 100 000 people



under the age of 65 due to chronic diseases in 2002, this rate had fallen by more than 25 % to 122.1 in 2015.

Communicable diseases such as HIV, tuberculosis and hepatitis are highlighted as targets in the Sustainable Development Goals. The EU has also committed to help Member States achieve the objectives to end HIV/AIDS and tuberculosis by 2030 and to reduce hepatitis ⁽⁴¹⁾. In the EU, deaths due to these three diseases fell steadily between 2002 and 2015: while 4.8 out of 100 000 people died as a result of one of them in 2002, this had fallen to 2.9 per 100 000 people by 2015. The trends were also positive for the three diseases individually: between 2011 and 2015 deaths per 100 000 people fell from 1.50 to 1.41 for hepatitis, from 1.07 to 0.85 for tuberculosis and from 0.80 to 0.65 for HIV/AIDS.



2.9
per 100 000 people died because of HIV, tuberculosis and hepatitis in the EU in 2015

However, while the number of deaths due to the three communicable diseases monitored here decreased, deaths due to other infectious and parasitic diseases rose in the EU, both in the short and the long term. In 2002, 13.8 out of 100 000 people died because of certain infectious and parasitic diseases. This number went up to 15.0 in 2010 and reached 17.4 in 2015 ⁽⁴²⁾.

Supporting cooperation and networking in the EU in relation to preventing and improving the response to chronic diseases is one of the priorities of the EU's Third Health Programme ⁽³⁹⁾. The European Commission has set up an expert group, the Steering Group on Health Promotion, Disease Prevention and Management

of Non-Communicable Diseases ⁽⁴⁰⁾, which is the central element of the new EU approach to maximise joint efforts with the Member States on reaching the Sustainable Development Goal targets by 2030 and World Health Organization targets by 2025 on non-communicable diseases.

The Commission supports Member States and civil-society organisations in combatting communicable diseases through existing policies and instruments, such as the EU Health programme or the research and innovation programme Horizon 2020. Decision No 1082/2013/EU ⁽⁴³⁾ on serious cross-border threats to health lays down rules on the data and information that national competent authorities should communicate and provides for continued coordination of the network by the European Centre for Disease Prevention and Control (ECDC). An overview of the current situation, policy instruments and good practices on combatting HIV/AIDS, viral hepatitis and tuberculosis in the European Union and neighbouring countries is compiled in a 2018 Commission Staff Working Document ⁽⁴⁴⁾.

When comparing [death rates](#) for men and women, a gender gap can be seen for both chronic and communicable diseases. Death rates were higher for men than for women, both in the EU overall and in almost all Member States. This can partially explain the gender gap in the life expectancy indicator.

With regard to communicable diseases, differences in the immune responses of the two sexes contribute to the gender gap ⁽⁴⁵⁾. Exposure and behaviour may also explain certain gender differences. For example, men are about three times more likely to be diagnosed with HIV than women ⁽⁴⁶⁾. The predominant mode of transmission of HIV was through men having sex with men, followed by heterosexual intercourse ⁽⁴⁷⁾.

With regard to the gender difference in chronic diseases, there are a number of explanations. First, death rates for ischemic heart diseases (IHD) are more than 80 % higher for men than for women across EU countries, because of greater prevalence of risk factors among men, such as smoking, hypertension and high cholesterol ⁽⁴⁸⁾. The IHD

mortality rates have declined in all countries since 2000, due to reductions in tobacco use and improved medical care ⁽⁴⁹⁾. Second, aged-standardised cancer mortality rates were also 70 % higher for men than for women in the EU ⁽⁵⁰⁾. This gap can be explained partly by men being more exposed to risk factors, as well as the reduced availability or use of screening programmes for cancers affecting men ⁽⁵¹⁾. Finally, death rates from respiratory diseases are on average 85 % higher among men than among women in the EU, which is partly due to higher smoking rates among men ⁽⁵²⁾.

Fewer people are killed in accidents at work or on roads, but progress has stalled in the past few years

Accidents were one of the most common causes of death within the EU, leading to almost 162 000 deaths or 3.1 % of all deaths in 2015 ⁽⁵³⁾. These accidents may happen at different places such as homes, leisure venues, on transport or at work. Improving the working environment to protect workers' health and safety is recognised as an important objective by the EU and its Member States in the Treaty on the Functioning of the European Union ⁽⁵⁴⁾.

Halving the number of deaths from road-traffic accidents is not only a global goal, but also a goal of EU policies ⁽⁵⁵⁾. Road safety was made a priority of the EU common transport policy in 2001, in response to the growing concern shown by European citizens ⁽⁵⁶⁾. In 2017, 25 309 people were killed in road accidents (equalling 4.9 per 100 000 people), which is 53.1 % fewer than in 2002 and 10.4 % down from 2012. Nevertheless, the stagnation in road casualties since 2013 means the EU is no longer on track to reaching its target to halve the number of people killed in road accidents by 2020 compared with 2010.

Fatal accidents, leading to the death of the victim within one year, also occur at work. The



4.9
per 100 000
people were
killed in road
accidents in the
EU in 2017

EU made progress between 2011 and 2016, reducing the number of **fatal accidents at work** per 100 000 employed persons from 2.05 to 1.71. Non-fatal accidents can also cause considerable harm, for example by forcing people to live with a permanent **disability**, leave the labour market or change job. These happen more often than fatal accidents, with an incidence rate of 1 585.66 per 100 000 employed persons in 2016 ⁽⁵⁷⁾.



Access to health care

Access to health care — the timely access to affordable, preventive and curative health care — is high on the political agenda. It is defined as a right in the Charter of Fundamental Rights and is one of the 20 principles of the **European Pillar of Social Rights** ⁽⁵⁸⁾. Limited access for some population groups may result in poorer health outcomes for that group and greater health inequalities ⁽⁵⁹⁾. Reducing health inequalities is not only important for equality reasons, but also because it contributes to higher economic and social cohesion ⁽⁶⁰⁾.

Only a few people report unmet need for medical care, and the share is falling

In 2017, 1.7% of the EU population reported an unmet need for medical care because of financial reasons, long waiting lists or the distance to travel. This share was lower than five years earlier, when it was 3.5%. However, in six countries the proportion of the population facing unmet needs for medical care increased between 2012 and 2017, indicating that access to health care remains a challenge, particularly for low-income households.



The trend in reported unmet needs was not uniform over time, with unmet needs for medical care actually increasing between 2008 and 2014. This might have been caused by reduced financial resources for the health-care system due to the economic crisis ⁽⁶¹⁾. While there are still unanswered questions about the mechanism leading to a rise in unmet needs, several studies suggest that reasons include changes in entitlement to free health-care coverage, higher user charges, the de-listing of some publicly financed benefits, large and sustained cuts in public spending on health, the closure of facilities and reduced opening hours ⁽⁶²⁾. In addition, non-health system factors such as rising unemployment and reduced incomes are also highly likely to have played a part ⁽⁶³⁾.

Access to health care is one of the 20 principles of the European Pillar of Social Rights and one of the three interconnected priorities in the European Semester. Access to health care has also been a key element of health systems analyses since the Commission's policy has been defined in 2014. The **Commission Communication 'On effective, accessible and resilient health systems'** ⁽⁶⁴⁾ sets the triple objective of effectiveness, accessibility and resilience, and has the goal to transform health systems across Europe to make them fit for the future.

The **Directive 2011/24/EU** on the application of patient rights in cross-border health care gives EU citizens the right to access health care in the EU and to be reimbursed for it.

Finally, the Commission is co-funding a three-year **joint action on health inequalities (JAHEE)** with Member States, launched in 2018. One work package is dedicated to access to health care to those left behind.

Financial constraints is the most common reason why people report unmet needs for medical examination. For 1.0% of the total EU population in 2017, 'too expensive' was the most prominent reason for reporting unmet medical examination. A further 0.7% reported unmet medical examination because of 'waiting lists' and another 0.1% because it was 'too far to travel'. It is worth noting that costs were not the main issue across all Member States; in 12 countries, the majority of people reporting unmet medical examination named long waiting lists as the main reason.

With costs being on average the most important reason for unmet needs, people's income obviously has a distinct impact on the accessibility of medical care. In 2017, only 0.8% of people from the highest income group ⁽⁶⁵⁾ in the EU reported unmet needs for medical examination due to one of the three reasons mentioned above. In

contrast, more than four times as many people (3.3%) from the lowest income group ⁽⁶⁶⁾ reported unmet needs for medical examination. Differences between other disadvantaged groups also exist. For example, women consistently report higher unmet needs for medical examination than men. In 2017, the difference was 0.6 percentage points (2.0% women, 1.4% men).

Most European countries have achieved universal coverage for a core set of services, which usually include consultations with doctors, tests, examinations and hospital care. Yet in some countries, coverage of these services might not be universal. Furthermore, across the EU, around a fifth of all health spending is borne directly by households. These out-of-pocket payments can become 'catastrophic' for some households (ranging from fewer than 2% to more than 8% of households depending on the Member States).

Presentation of the main indicators

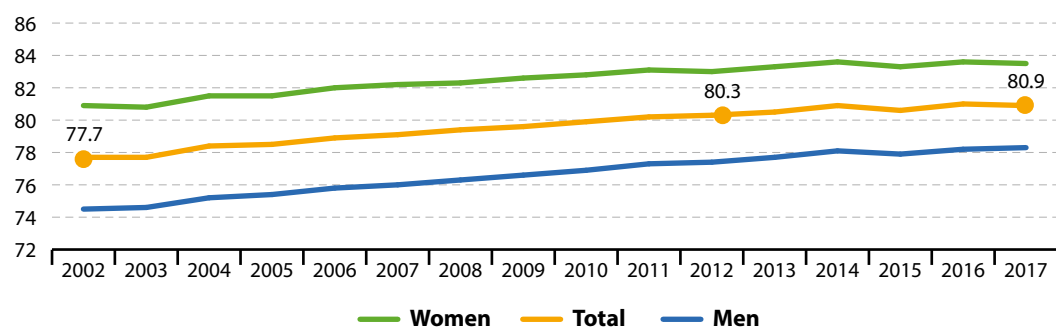


Life expectancy at birth

Life expectancy at birth is defined as the mean number of years that a newborn child can expect to live if subjected throughout his or her life to the current mortality conditions (age-specific probabilities of dying). It is a conventional measure of a population's general health and overall mortality level.

Figure 3.1: Life expectancy at birth, by sex, EU-28, 2002–2017

(years)



Note: Breaks in time series in 2010, 2011, 2012, 2014, 2015 and 2017; 2013–2014 data are provisional and/or estimates.

Source: Eurostat (online data code: [sdg_03_10](#))

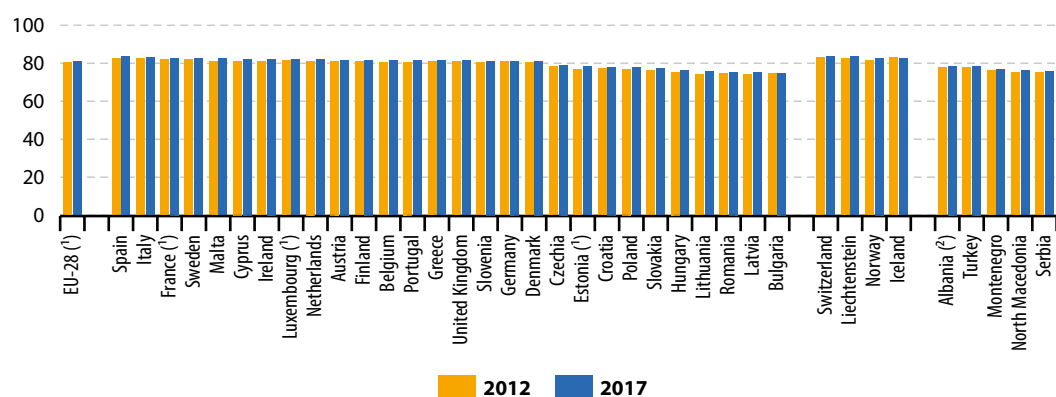
Table 3.3: Compound annual growth rate (CAGR) of the life expectancy at birth, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	0.3 % per year
EU-28	2012–2017	0.1 % per year

Source: Eurostat (online data code: [sdg_03_10](#))

Figure 3.2: Life expectancy at birth, by country, 2012 and 2017

(years)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2013 data (instead of 2012).

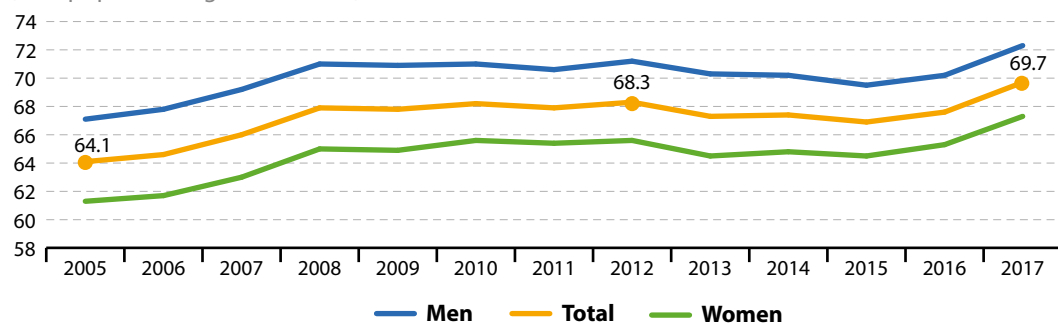
Source: Eurostat (online data code: [sdg_03_10](#))

Share of people with good or very good perceived health

This indicator is a subjective measure of how people judge their health in general on a scale from 'very good' to 'very bad'. The data stem from the [EU Statistics on Income and Living Conditions](#) (EU-SILC). Indicators of perceived general health have been found to be a good predictor of people's future health-care use and mortality.



Figure 3.3: Share of people with good or very good perceived health, by sex, EU-28, 2005–2017 (% of population aged 16 or over)



Note: EU aggregate changes over time: 2005 and 2006 data refer to EU without Bulgaria, Croatia and Romania; 2007 to 2009 data refer to EU without Croatia; data from 2010 onwards refer to EU-28.

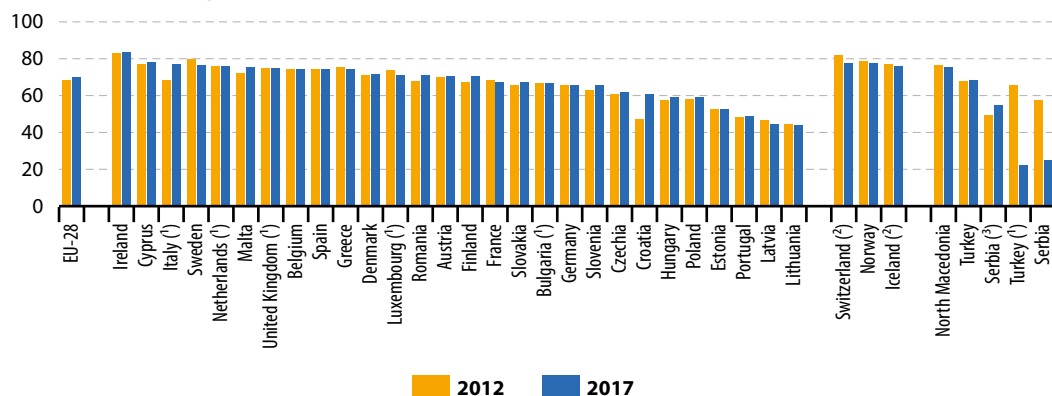
Source: Eurostat (online data code: [sdg_03_20](#))

Table 3.4: Compound annual growth rate (CAGR) of the share of people with good or very good perceived health, EU

EU aggregate	Period	Growth rate
EU (changing composition)	2005–2017	0.7 % per year
EU-28	2012–2017	0.4 % per year

Source: Eurostat (online data code: [sdg_03_20](#))

Figure 3.4: Share of people with good or very good perceived health, by country, 2012 and 2017 (% of population aged 16 or over)



⁽¹⁾ Break(s) in time series between the two years shown. ⁽²⁾ 2016 data (instead of 2017). ⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_03_20](#))



LONG TERM
2006–2017



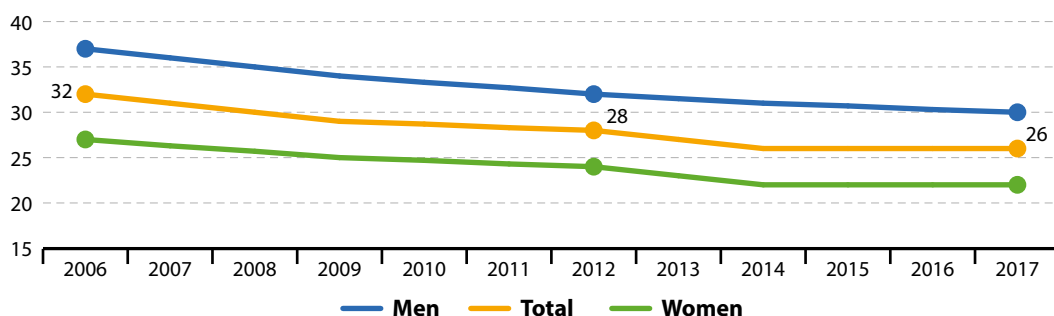
SHORT TERM
2012–2017

Smoking prevalence

This indicator measures the percentage of the population aged 15 years and over who report that they currently smoke boxed cigarettes, cigars, cigarillos or a pipe ⁽⁶⁷⁾. It does not include the use of other tobacco products such as electronic cigarettes and snuff. The data are collected through a [Eurobarometer survey](#) and are based on self-reported use during face-to-face interviews in people's homes.

Figure 3.5: Smoking prevalence, by sex, EU-28, 2006–2017

(% of population aged 15 or over)



Note: Data were collected in 2006, 2009, 2012, 2014 and 2017 only; values for 2007, 2008, 2010, 2011, 2013, 2015 and 2016 are interpolated; 2012 data excluding Croatia.

Source: European Commission services (Eurostat online data code: [sdg_03_30](#))

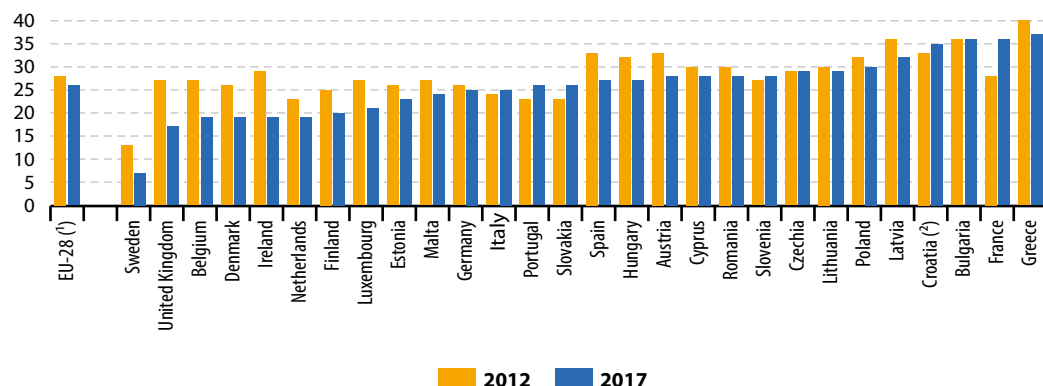
Table 3.5: Compound annual growth rate (CAGR) of the smoking prevalence, EU

EU aggregate	Period	Growth rate
EU-28	2006–2017	– 1.9% per year
EU-28	2012–2017	– 1.5% per year

Source: European Commission services (Eurostat online data code: [sdg_03_30](#))

Figure 3.6: Smoking prevalence, by country, 2012 and 2017

(% of population aged 15 or over)



⁽¹⁾ 2012 data refer to EU without Croatia.

⁽²⁾ 2014 data (instead of 2012).

Source: European Commission services (Eurostat online data code: [sdg_03_30](#))

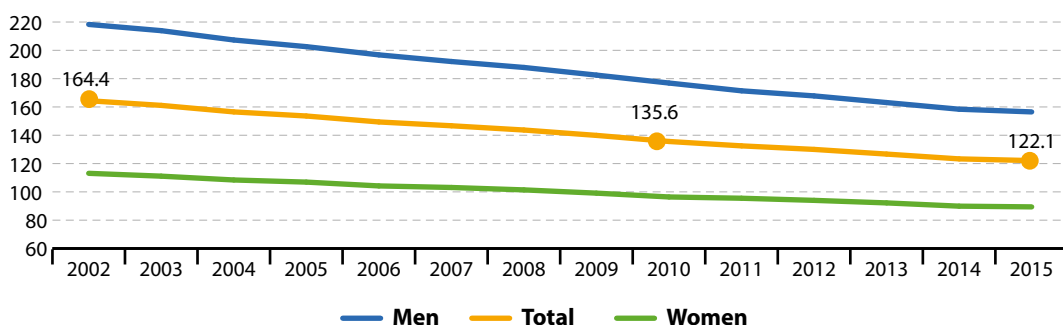
Death rate due to chronic diseases

This indicator measures the [standardised death rate](#) of chronic diseases. Deaths due to chronic diseases are considered premature if they occur before the age of 65. The rate is calculated by dividing the number of people under 65 dying due to a chronic disease by the total population under 65. This value is then weighted with the European Standard Population ⁽⁶⁸⁾. Chronic diseases included in the indicator are malignant neoplasms, diabetes mellitus, ischemic heart diseases, cerebrovascular diseases, chronic lower respiratory diseases and chronic liver diseases.

↑ **LONG TERM**
2002–2015

↑ **SHORT TERM**
2010–2015

Figure 3.7: Death rate due to chronic diseases, by sex, EU-28, 2002–2015
(number per 100 000 persons aged less than 65)



Note: Data for 2002–2010 are estimated.

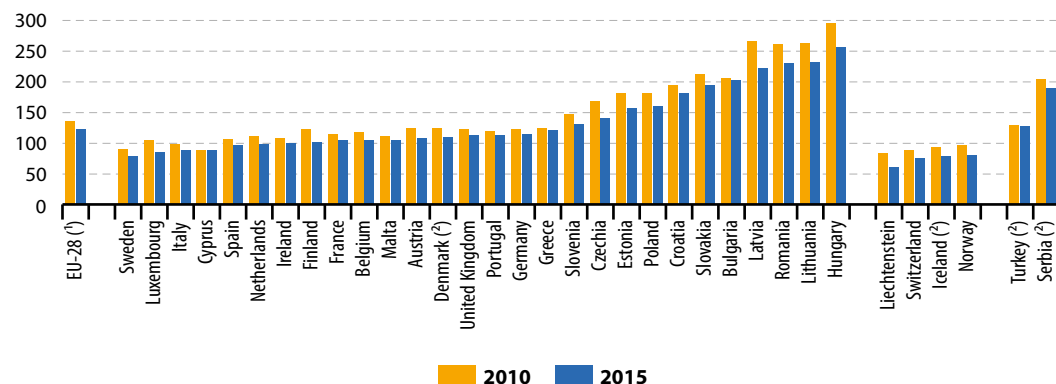
Source: Eurostat (online data code: [sdg_03_40](#))

Table 3.6: Compound annual growth rate (CAGR) of the death rate due to chronic diseases, EU

EU aggregate	Period	Growth rate
EU-28	2002–2015	– 2.3 % per year
EU-28	2010–2015	– 2.1 % per year

Source: Eurostat (online data code: [sdg_03_40](#))

Figure 3.8: Death rate due to chronic diseases, by country, 2010 and 2015
(number per 100 000 persons aged less than 65)



⁽¹⁾ 2010 data are estimated.

⁽²⁾ 2011 data (instead of 2010).

Source: Eurostat (online data code: [sdg_03_40](#))



LONG TERM
2002–2015

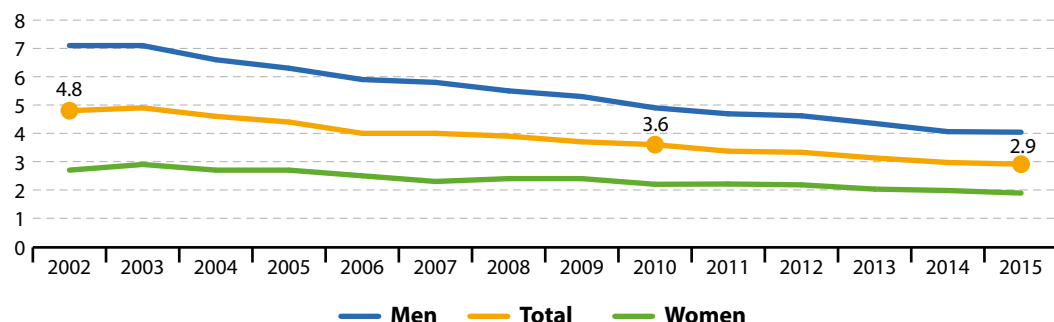


SHORT TERM
2010–2015

Death rate due to tuberculosis, HIV and hepatitis

This indicator measures the **standardised death rate** of selected communicable diseases. The rate is calculated by dividing the number of people dying due to tuberculosis, HIV and hepatitis by the total population. This value is then weighted with the European Standard Population ⁽⁶⁹⁾.

Figure 3.9: Death rate due to tuberculosis, HIV and hepatitis, by sex, EU-28, 2002–2015
(number per 100 000 persons)



Note: Data for 2002–2010 are estimated.

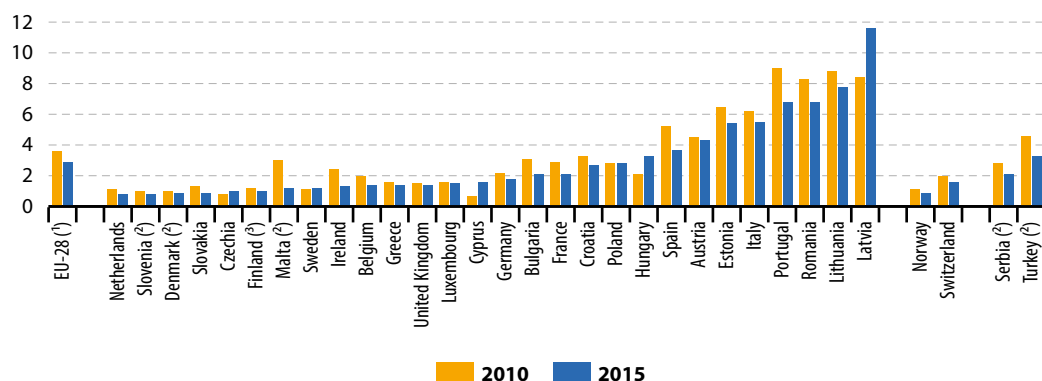
Source: Eurostat (online data code: [sdg_03_41](#))

Table 3.7: Compound annual growth rate (CAGR) of the death rate due to tuberculosis, HIV and hepatitis, EU

EU aggregate	Period	Growth rate
EU-28	2002–2015	– 3.8% per year
EU-28	2010–2015	– 4.2% per year

Source: Eurostat (online data code: [sdg_03_41](#))

Figure 3.10: Death rate due to tuberculosis, HIV and hepatitis, by country, 2010 and 2015
(number per 100 000 persons)



⁽¹⁾ 2010 data are provisional.

⁽²⁾ 2011 data (instead of 2010).

⁽³⁾ 2014 data (instead of 2015).

Source: Eurostat (online data code: [sdg_03_41](#))

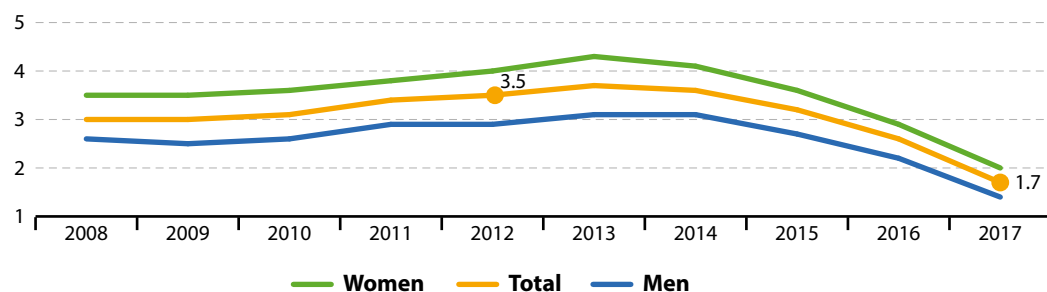
Self-reported unmet need for medical care

This indicator measures the share of the population aged 16 and over reporting unmet needs for medical care due to one of the following reasons: 'financial reasons', 'waiting list' and 'too far to travel'. Self-reported unmet needs concern a person's own assessment of whether he or she needed medical examination or treatment (dental care excluded), but did not have it or did not seek it. The data stem from the [EU Statistics on Income and Living Conditions](#) (EU-SILC). Since social norms and expectations may affect responses to questions about unmet care needs, caution is required when comparing differences in the reporting of unmet medical examination across countries ⁽⁷⁰⁾. In addition, the different organisation of health-care services is another factor to consider when analysing the data. Finally, there are also some variations in the survey question across countries and across time ⁽⁷¹⁾.

X LONG TERM
Insufficient data
to calculate
trend

↑ SHORT TERM
2012–2017

Figure 3.11: Self-reported unmet need for medical care, by sex, EU-28, 2008–2017
(% of population aged 16 or over)



Note: 2008 and 2009 data refer to the EU without Croatia.

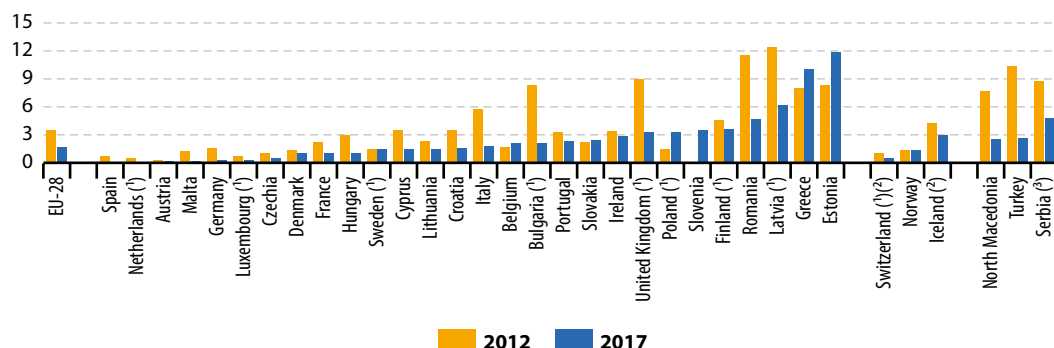
Source: Eurostat (online data code: [sdg_03_60](#))

Table 3.8: Compound annual growth rate (CAGR) of the self-reported unmet need for medical care, EU

EU aggregate	Period	Growth rate
EU-28	2012–2017	– 13.4 % per year

Source: Eurostat (online data code: [sdg_03_60](#))

Figure 3.12: Self-reported unmet need for medical care, by country, 2012 and 2017
(% of population aged 16 or over)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_03_60](#))

Further reading on good health and well-being

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EEA, *Environmental noise and Population exposure to environmental noise*.

European Centre for Disease Prevention and Control, *Surveillance and disease data*.

Eurostat, *Healthy life years and life expectancy at age 65 by sex*.

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Notes

- (¹) World Health Organization (1946), *Constitution of the World Health Organization*.
- (²) European Commission, *State of Health in the EU*.
- (³) Eurostat (2018), *Statistics explained: Mortality and life expectancy statistics*.
- (⁴) Raleigh, Veena S. (2019), *Trends in life expectancy in EU and other OECD countries: Why are improvement slowing?*, OECD Health Working Papers No. 108, p. 45.
- (⁵) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 88.
- (⁶) Ibid.
- (⁷) European Commission, *EU Regional Policy*.
- (⁸) European Commission, *Energy, Climate change, Environment*.
- (⁹) European Commission (2014), *Communication from the Commission on effective, accessible and resilient health systems*, COM(2014) 215 final, Brussels.
- (¹⁰) OECD/EU (2014), *Health at a Glance: Europe 2014*, OECD Publishing, Paris, p. 16.
- (¹¹) A study on Spain shows that being a woman who only performs domestic work is associated with a worse state of self-perceived health. See: Pino-Domínguez, Lara, Patricia Navarro-Gil, Abel E. González-Vélez, María Eugenia Prieto-Flores, Alba Ayala, Fermina Rojo-Pérez, Gloria Fernández-Mayoralas, Pablo Martínez-Martín & Maria João Forjaz (2016), *Self-perceived health status, gender, and work status*, *Journal of Women & Aging*, 28:5, p. 386–394. In addition, another study on Spain shows that the gender difference is only statistically significant in the group of people with lower educational level. See: Pinillos-Franco S, García-Prieto C (2017), *The gender gap in self-rated health and education in Spain, A multilevel analysis*, *PLoS ONE* 12(12).
- (¹²) For the highest income group, the fifth income quintile is considered (the 20 % of the population with the highest income). For the lowest income group, the first income quintile group is considered (the 20 % of the population with the lowest income).
- (¹³) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 98.
- (¹⁴) The data required for HLY are the age-specific prevalence (proportions) of the population in healthy and unhealthy conditions and age-specific mortality information. A healthy condition is defined by the absence of limitations in functioning/disability. The indicator is calculated separately for males and females. The indicator is also called disability-free life expectancy (DFLE).
- (¹⁵) Source: Eurostat (online data code: *hlth_hlye*).
- (¹⁶) WHO (2017), *The determinants of health, Introduction*.
- (¹⁷) The indicator measures the share of obese people based on their body mass index (BMI). BMI is defined as the weight in kilograms divided by the square of the height in metres. People aged 18 years or over are considered obese with a BMI equal or greater than 30. Other categories are: underweight (BMI less than 18.5), normal weight (BMI between 18.5 and less than 25), and pre-obese (BMI between 25 and less than 30). The category overweight (BMI equal or greater than 25) combines the two categories pre-obese and obese.
- (¹⁸) Eurostat (2014), *Statistics explained: Overweight and obesity — BMI statistics*.
- (¹⁹) European Commission, *Tobacco*.
- (²⁰) OECD/EU (2014), *Health at a Glance: Europe 2014*, OECD Publishing, Paris, p. 16–17.
- (²¹) J. R. Bosdriesz et al. (2016), *Tobacco control policy and socio-economic inequalities in smoking in 27 European countries*, *Drug & Alcohol Dependence*, Vol. 165, p. 79.
- (²²) European Parliament and Council of the European Union (2014), *Directive 2014/40/EU on the approximation of the laws, regulations and administrative provisions of the Member States concerning the manufacture, presentation and sale of tobacco and related products and repealing Directive 2001/37/EC*.
- (²³) European Environment Agency (2018), *Air quality in Europe — 2018 report*, EEA Report No 12/2018, Copenhagen, EEA, p. 8 and p. 11. Estimates of the health impacts attributable to exposure to air pollution indicate that PM_{2.5} concentrations in 2015 were responsible for about 422 000 premature deaths originating from long-term exposure in Europe (over 41 countries), of which around 391 000 were in the 28 EU Member States.
- (²⁴) European Environment Agency (2018), *Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe*, EEA Report No 22/2018, Copenhagen.
- (²⁵) World Health Organization (2016), *World Health Statistics 2016: Monitoring Health for the SDGs*, p. 37.
- (²⁶) European Commission, *Clean Air Programme*.
- (²⁷) European Parliament and Council of the European Union (2016), *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*.
- (²⁸) International Institute for Applied Systems Analysis (2018), *Progress towards the achievement of the EU's air quality and emissions objectives*, December 10, 2018, Laxenburg, Austria.
- (²⁹) World Health Organization (2011), *Burden of disease from environmental noise — Quantification of healthy life years lost in Europe*, World Health Organization Regional Office for Europe, Copenhagen, p. 1.
- (³⁰) European Environment Agency (2018), *Environmental noise*.
- (³¹) European Environment Agency (2018), *Managing exposure to noise in Europe*.

- (³²) D. Houthuijs, W. Swart, E. van Kempen (2018), *Implications of environmental noise on health and wellbeing in Europe*, Based on data from the second (2012) and third (2017) round of noise assessment in the framework of the European Noise Directive, Eionet Report — ETC/ACM 2018/10. The noise exposure data used in this report is based on 32 countries (EU-28, Iceland, Liechtenstein, Norway and Switzerland; Turkey did not provide information).
- (³³) European Environment Agency (2018), *Managing exposure to noise in Europe*.
- (³⁴) Also see: European Environment Agency (2018), *Environmental noise*.
- (³⁵) European Environment Agency (2018), *Population exposure to environmental noise*. Data refers to EU-28.
- (³⁶) European Environment Agency (2018), *Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe*, EEA Report No 22/2018, Copenhagen.
- (³⁷) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris.
- (³⁸) European Environment Agency (2017), *Environmental noise; European Environment Agency (2017), Air quality in Europe — 2017 report*, EEA Report No 13/2017, Copenhagen, p. 50 and 55.
- (³⁹) European Parliament and Council of the European Union (2014), *Regulation (EU) No 282/2014 on the establishment of a third Programme for the Union's action in the field of health (2014–2020) and repealing Decision No 1350/2007/EC*.
- (⁴⁰) European Commission, *Steering Group on Health Promotion, Disease Prevention and Management of Non-Communicable Diseases*.
- (⁴¹) European Commission (2016), *Next steps for a sustainable European future: European action for sustainability*, Communication of 22 November 2016 from the Commission to the European Parliament, the Council, the European and Social Committee and the Committee of the Regions, COM(2016) 739 final, Strasbourg.
- (⁴²) Source: Eurostat (online data codes: hlth_cd_asdr and hlth_cd_asdr2).
- (⁴³) European Parliament and Council of the European Union (2013), *Decision No 1082/2013/EU on serious cross-border threats to health and repealing Decision No 2119/98/EC*.
- (⁴⁴) European Commission (2018), *Commission Staff Working Document on Combatting HIV/AIDS, viral hepatitis and tuberculosis in the European Union and neighbouring countries — State of play, policy instruments and good practices*, SWD(2018) 387 final, Brussels.
- (⁴⁵) J. van Lunzen and M. Altfeld (2014), *Sex Differences in Infectious Diseases — Common but Neglected*, *The Journal of Infectious Diseases*, Volume 209, Issue suppl_3, 15 July 2014, p. 79–80.
- (⁴⁶) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 102.
- (⁴⁷) Ibid.
- (⁴⁸) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 90.
- (⁴⁹) Ibid.
- (⁵⁰) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 92.
- (⁵¹) Ibid.
- (⁵²) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 94.
- (⁵³) Source: Eurostat (online data code: hlth_cd_aro).
- (⁵⁴) *Treaty on the Functioning of the European Union*, Article 153.
- (⁵⁵) European Commission (2010), *Commission outlines measures to halve road deaths by 2020*. Between 2000 and 2010, the total road death number was cut by 44%. The target of halving the 2000 number was reached in 2012. The Commission adopted a follow-up target of cutting road death in Europe by half between 2010 and 2020.
- (⁵⁶) European Commission (2001), *White Paper on European transport policy for 2010: time to decide*, COM(2001) 370 final, p. 64.
- (⁵⁷) Source: Eurostat (online data code: hsw_n2_01).
- (⁵⁸) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 3.
- (⁵⁹) Id., p. 169.
- (⁶⁰) European Council (2014), *Council conclusions on the economic crisis and health care*, 2014/C 217/02.
- (⁶¹) Expert Panel on effective ways of investing in health (EXPH) (2016), *Access to health services in the European Union*, final opinion approved at the 14th plenary meeting of 3 May 2016 after public consultation, p. 18.
- (⁶²) Id., p. 19.
- (⁶³) Ibid.
- (⁶⁴) European Commission (2014), *Communication from the Commission on effective, accessible and resilient health systems*, COM(2014) 215 final, Brussels.
- (⁶⁵) For the highest income group, the fifth income quintile is considered (the 20% of the population with the highest income).
- (⁶⁶) For the lowest income group, the first income quintile group is considered (the 20% of the population with the lowest income).
- (⁶⁷) European Commission (2017), *Attitudes of Europeans towards tobacco and electronic cigarettes*, Special Eurobarometer 458, Annex.
- (⁶⁸) Standardised death rates take into account the fact that countries with larger shares of older inhabitants also have higher death rates. See also: Eurostat (2013), *Revision of the European Standard Population*, Report for Eurostat's Task Force, Publications Office of the European Union, Luxembourg.
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- (⁷⁰) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 170.
- (⁷¹) Ibid.

4

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 4 seeks to ensure access to equitable and quality education through all stages of life, as well as to increase the number of young people and adults having relevant skills for employment, decent jobs and entrepreneurship. The goal also envisages the elimination of gender and income disparities in access to education.























eurostat  supports the SDGs

Education and training are key drivers for growth and jobs as they help to improve employability, productivity, innovation and competitiveness. In the broader sense, education is also a pre-condition for achieving many other Sustainable Development Goals. Receiving quality education enables people to break the cycle of poverty, which in turn helps to reduce inequalities and reach gender equality. Education also empowers people to live healthier lives and helps them to adopt a more sustainable lifestyle. Furthermore, education is crucial for fostering tolerance, which contributes to more peaceful societies. Education and Training 2020 (ET 2020) (1) is the strategic framework for European cooperation in education and training. It takes into consideration the whole spectrum of education and training systems from a lifelong learning perspective, covering all levels, from basic education to tertiary and adult education. ET 2020 defines several benchmarks that guide the analysis in this chapter.



Table 4.1: Indicators measuring progress towards SDG 4, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Basic education			
 Early leavers from education and training			page 104
 Participation in early childhood education			page 105
 Underachievement in reading, maths and science	 ⁽¹⁾	 ⁽²⁾	page 106
Young people neither in employment nor in education and training (*)			SDG 8, page 176
Tertiary education			
 Tertiary educational attainment			page 107
 Employment rate of recent graduates	 ⁽³⁾		page 108
Adult education			
 Adult participation in learning			page 109






(*) Multi-purpose indicator.

(1) Trend for 'reading performance' only.

(2) Past 6-year period.

(3) Past 12-year period.

Table 4.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Quality education in the EU: overview and key trends

Monitoring SDG 4 in an EU context focuses on basic education, tertiary education and adult learning. As Table 4.1 indicates, the EU has made significant progress in increasing participation in basic and tertiary education. However, over the past few years, progress in adult learning has been much slower, and the percentage of underachievers in the PISA test has further deteriorated.

Basic education

Basic education covers the earliest stages in a child's educational pathway, ranging from early childhood education to primary and secondary education. An inclusive and quality education for all that eliminates school segregation is an essential element of sustainable development. Because leaving school early has a big impact on a person's life, SDG 4 calls not only for all girls and boys to have access to primary and secondary education, but also to be able to complete their schooling. People with low levels of education may face greater difficulties in the labour market and are more likely to live in poverty and social exclusion ⁽²⁾.

Furthermore, SDG 4 focuses on granting greater and more equitable access to education and training and ensuring its high quality. An important objective of this goal is that education systems deliver high levels of numeracy and literacy and enable other basic skills to be acquired. The indicators selected for monitoring these topics show that while participation rates in basic education have improved across the EU over the past few years, learning outcomes have developed less favourably.

The European Pillar of Social Rights is about delivering new and more effective rights for citizens in the field of education, particularly via its principle 1 on 'Education, training and life-long learning' and principle 11 on 'Childcare and support to children'.

Education and training 2020 (ET 2020) ⁽³⁾ is the strategic framework for European cooperation in education and training. It is a forum for exchanging best practices, mutual learning, gathering and disseminating information and evidence of what works, as well as advice and support for policy reforms. The framework takes into consideration the whole spectrum of education and training systems from a lifelong perspective, covering all levels and contexts (including non-formal and informal learning). ET 2020 defines several benchmarks that guide the analysis of this chapter.

Participation in early childhood education has reached the ET 2020 benchmark

Early childhood education and care (ECEC) is usually the first step in a child's educational pathway. Quality ECEC provides an essential foundation for future educational achievements and effective adult learning. It also lays the foundations for later success in life in terms of well-being, employability and social integration, especially for children from disadvantaged backgrounds. Investment in pre-primary

education also has a beneficial medium- to long-term impact, as it is more likely to help children from low socio-economic backgrounds than investment at later educational stages ⁽⁴⁾. As a consequence, the ET 2020 framework has set a benchmark at EU level (there are no national targets) to ensure that at least 95 % of children aged between four and the starting age of compulsory education participate in ECEC. In the EU, [participation in early childhood education](#) has steadily increased since 2003, and the ET 2020 benchmark of 95 % had already been reached in 2017, with a rate of 95.4 %, although cross-country differences persist.



95.4 %
of young
children in the
EU participated
in early
childhood
education and
care in 2017

Early leaving from education and training has reduced significantly since 2002, but progress has stagnated over the past few years

In modern society, upper secondary education is considered the necessary minimum for full participation in society, and a condition for lifelong learning and for finding a job with sufficient income ⁽⁵⁾. The ET 2020 framework has consequently set a benchmark for the EU to reduce the share of [early leavers from education and training](#) (ELET) — referring to persons aged 18 to 24 who have completed at most lower secondary education and who are not involved in any further education or training — to below 10 % by 2020. Since 2002, the ELET rate has fallen almost continuously in the EU, albeit more slowly in recent years. The stagnation from 2017 to 2018, however, has put the EU slightly off its path to meeting the ET 2020 benchmark.



10.6 %
of 18- to
24-year-olds
in the EU left
education and
training early in
2018

Across the EU, the [European Social Fund](#) ⁽⁶⁾ is financing initiatives to improve education and training and ensure young people complete their education and gain the skills to make them more competitive in the job market. Reducing early school leaving is a major priority here, along with improving vocational training and tertiary education opportunities.

Despite improved participation rates, education outcomes in reading, maths and science have deteriorated

Besides educational attainment in general, achieving a certain level of proficiency in basic skills is a key objective of all educational systems. Basic skills, such as reading a simple text or performing simple calculations, provide the foundations for learning, gaining specialised skills and personal development. People need these skills to complete basic tasks and to participate fully in and contribute to society. The consequences of underachievement, if it is not tackled successfully, will be costly in the long run, both for individuals and for society as a whole ⁽⁷⁾. Various factors contribute to underachievement, such as an unfavourable school climate, violence in schools, insufficient learning support or poor teacher–pupil relationships.

The indicator on underachievement in reading, maths and science provides key insights into the performance of school systems and pupils' basic skills attainment. The ET 2020 framework acknowledges the increasing importance of these individual skills and has set a target to reduce the share of 15-year-olds achieving low levels of reading, maths and science to less than 15 % by 2020. In 2015, for each of these skills, about every fifth 15-year-old pupil showed insufficient abilities.



19.7 %
of 15-year-old
pupils in the
EU showed
insufficient
reading skills
in 2015

Test results were best for reading, with a 19.7% share of low achievers, followed by science with 20.6% and maths with 22.2%. Compared with 2012, this is a step backward, indicating that the EU is facing significant challenges in all three domains when it comes to reaching the 2020 benchmark.

Young women stay longer in education and training and show better reading skills

The aggregated figures presented above mask considerable gender differences in some of these areas. While there are no differences between boys and girls in ECEC, there is a significant disparity when it comes to ELET. With a rate of 12.2% in 2018, more young men had left education and training early than young women, whose rate was 8.9%. Although this gap narrowed between 2004 and 2016, it widened again in the last two years and remained substantial, at 3.3 percentage points in 2018. Gender differences can also be observed for reading skills, with girls clearly outperforming boys. While 15.9% of 15-year-old girls scored low in this domain in 2015, the share of low-achieving boys was 23.5%. In contrast, gender gaps in maths and science remained negligible.

The New Skills Agenda for Europe⁽⁸⁾, adopted by the Commission on 10 June 2016, launched 10 actions to make the right training, skills and support available to people in the EU. The goals and actions on the Agenda are set out in the Commission Communication: A New Skills Agenda for Europe⁽⁹⁾.

All EU countries have committed to the implementation of the Youth Guarantee⁽¹⁰⁾ in a Council Recommendation of April 2013⁽¹¹⁾. The Youth Guarantee aims to ensure that all young people under the age of 25 years receive a good quality offer of employment, continued education, apprenticeship and traineeship within four months of becoming unemployed or leaving formal education.

Young people with disabilities or from a migrant background show significantly lower educational attainment

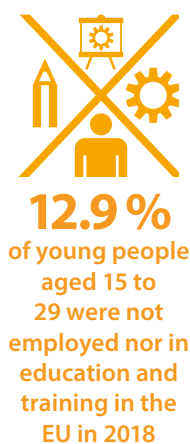
People with **disabilities** — those who are limited in work activity because of a long-standing health problem or a basic activity difficulty (such as sight, hearing, walking or communicating difficulties) (LHPAD) — appear extremely disadvantaged as far as ELET is concerned. In 2016, 23.6% of people with disabilities had left education and training early, compared with 11.0% of young people without disabilities⁽¹²⁾. Also, young people from a migrant background — those either born outside the country or with foreign-born parents — face difficulties in their schooling. As far as ELET is concerned, there is clear evidence that young people from a migrant background tend to find it more difficult to complete their education than the native population. In 2018, the share of early school leavers was twice as high for people born outside the EU than for people studying in their country of birth. Most at risk are foreign-born men, with an ELET rate of 22.8% in 2018⁽¹³⁾. Young people from a migrant background also have a higher risk of underperforming at school. In almost all EU Member States, the difference in the share of low achievers between first-generation immigrant students and their non-immigrant counterparts was substantial in 2015, in some countries amounting to as much as 25 to 33 percentage points⁽¹⁴⁾.

Early leavers and low-educated young people face particularly severe problems in the labour market

In general, young people (aged 15 to 29 years) are among the most vulnerable groups, facing low **employment rates** and being generally less well attached to the labour market (for example, due to temporary contracts). Yet, jobs for young people are not only important for social, economic and political inclusion. A person's lifelong earnings are influenced by his or her first job, and people with poor job prospects risk falling into 'low-pay traps'. **Young people who are neither in employment nor in education and training (NEET)** might lack skills and suffer from erosion of competences.

Therefore, they are at an even higher risk of labour market and social exclusion and are more likely to depend on [social benefits](#). In the EU, the NEET rate for 15- to 29-year-olds improved between 2002 and 2008, falling from 15.6 % to 13.1 %. It went back up due to the economic crisis, to 15.9 % in 2012 and 2013, but has been falling again since 2014, reaching 12.9 % in 2018.

Early leavers and low-educated young people face particularly severe problems in the labour market. About 52.8 % of 18- to 24-year-olds with at most lower secondary education and who were not in any education or training were either [unemployed](#) or [inactive](#) in 2018. Moreover, the situation for early leavers has worsened over time. Between 2008 and 2018, the share of 18- to 24-year-old early leavers who were not employed but wanted to work grew from 30.6 % to 33.0 % ⁽¹⁵⁾.



Tertiary education

Continuing education after the basic level is important because people with higher qualifications are more likely to be employed and less likely to face poverty in a knowledge-based economy. Therefore, investing efficiently in education and training systems that deliver high-quality and up-to-date services lays the foundation for a country's prosperity. Moreover, employment rates are generally higher for highly educated people. Conversely, low levels of tertiary educational attainment (TEA) can hinder competitiveness, innovation and productivity and undermine growth potential. The two indicators selected for this sub-theme show that the EU has already met its



target for tertiary education and is well on track to meet its target for placing recent graduates in the labour market.

The share of the population with tertiary education has reached the ET 2020 benchmark

The Europe 2020 strategy and the ET 2020 framework aim to raise the share of the population aged 30 to 34 that has completed tertiary or equivalent education to at least 40 %. In the EU as a whole, this share has increased considerably since 2002, by 17.1 percentage points. With a rate of 40.7 % in 2018, the EU has already met the target two years in advance. The share of 30- to 34-year-olds with tertiary education has been growing steadily since 2002 in all Member States, which — to some extent — reflects their investment in higher education to meet demand for a more skilled labour force. Moreover, some countries shifted to shorter degree programmes following the implementation of the Bologna ⁽¹⁶⁾ process reforms.

The Europe 2020 strategy ⁽¹⁷⁾ was adopted as a strategy for jobs and smart, sustainable and inclusive growth. Both benchmarks on early school leaving and tertiary educational attainment are included as two of its headline targets.

Employment rates rise with educational attainment

In addition to increasing tertiary education, the ET 2020 framework acknowledges the important role of education and training in raising employability. It has set a benchmark that at least 82 % of recent graduates aged 20- to 34 years should have found employment within three years of leaving education and training. In the EU, the employment rate of recent graduates from at least upper secondary education and not in any education or training has increased steadily since 2013, reaching 81.6 % in 2018. Although the rate has not yet regained the pre-economic crisis

peak of 82.0% in 2008, the EU is well on track to meeting the 2020 target of 82% if the pace of growth recorded since 2013 continues.

Overall, employment rates rise with educational level, indicating that a person with a higher educational attainment has a comparative advantage on the labour market (see the chapter on SDG 8 'Decent work and economic growth' on page 165). In 2018, the employment rate of recent graduates with tertiary education ([International standard classification of education \(ISCED\) 2011 levels 5–8](#)) was 8.7 percentage points higher than for people from the same age group with only medium educational attainment (ISCED 2011 levels 3 and 4). This gap has narrowed since 2011, when it amounted to 11.3 percentage points.

There is also a clear difference between the programme orientation of ISCED level 3 and 4. While the employment rate of recent graduates for the general orientation stood at 66.3% in 2018, it was at 79.5% for the vocational orientation in the same year. Some of the difference between the lower educated cohort and the tertiary graduates may be linked to the latter deciding to take jobs for which they were over-qualified in order to get into the labour market. Thereby, they are boosting the employment rate for tertiary graduates while at the same time lowering the rate for other graduates. This may be especially important in those cases where labour market demand is still subdued due to the economic crisis ⁽¹⁸⁾.

Women achieve higher tertiary education attainment rates, but male graduates are more likely to find employment

Despite the overall positive trend in tertiary educational attainment, the gender gap has widened significantly across the EU. While in 2002 the share of 30- to 34-year-olds who had completed tertiary education was similar for women (24.5%) and men (22.6%), the increase up to 2018 almost doubled for women. In 2018,



81.6 %
of recent
graduates in
the EU were
employed in
2018

women had already clearly exceeded the ET 2020 benchmark, with a rate of 45.8%. In contrast, the share among 30- to 34-year-old men was 10.1 percentage points lower at 35.7%.

On the other hand, men were more likely to find employment within three years after their graduation than their female counterparts. In 2018, the employment rate for recent male graduates (83.3%) was higher than the rate recorded among women (80.0%). This pattern has been apparent since 2006, but its intensity has changed over time. The largest gender gap was recorded in 2007. The gap shrank significantly with the onset of the economic crisis, but widened in 2010 and remained within the 3.3 to 4.7 percentage-point range in favour of male graduates between 2010 and 2018. Some of these gender differences may be explained by the nature of the different fields typically studied by women and men (for example, a higher proportion of science and technology students tend to be male) and by differences in labour market demand for graduates with different skills ⁽¹⁹⁾.

People with disabilities find it harder to complete tertiary education. According to a study using the [EU statistics on income and living conditions survey \(EU-SILC\)](#), 29.7% of people aged 30 to 34 with disabilities had completed tertiary or equivalent education in 2016. This is more than 10 percentage points lower than the rate for people without disabilities ⁽²⁰⁾.

Foreign-born residents achieve lower tertiary attainment rates and lower recent graduate employment rates

For tertiary educational attainment there is not only a significant gender gap, but also a difference related to migrant status. In 2018, the attainment rate was 5.5 percentage points higher for native-born residents than for the foreign-born population. Within the foreign-born group, the rate was considerably lower for people from outside the EU than for those from another Member State. No clear patterns can be observed at individual country level, however. While some Member States showed gaps of more than 30 percentage points between native- and

foreign-born residents, others showed a reverse pattern, with the foreign-born population having higher attainment rates ⁽²¹⁾. This may reflect differences in migration patterns across Europe (both out- and in-flows), with some Member States attracting and retaining people with high skill levels and others attracting a lower-skilled population ⁽²²⁾. The foreign-born population is also disadvantaged as far as the employment status of recent graduates is concerned. In 2018, the proportion of employed recent graduates varied between the native-born and the foreign-born population by 2.6 percentage points ⁽²³⁾.

Adult education

Underpinning the ongoing quest for a high-quality labour force with up-to-date skills is one of the goals of adult learning. **Adult education** and training covers the longest time span in the process of learning throughout a person's life (data refer to people aged 25 to 64). It is crucial for maintaining good health, remaining active in the community and being fully included in all aspects of society. Moreover, it helps to improve and develop skills, adapt to technological developments, advance a career or return to the labour market (upskilling and reskilling).



11.1 %
of 25- to 64-year-old adults
participated in learning in the
EU in 2018

Adult participation in learning remains far from the target set for 2020

The ET 2020 framework includes a target to increase the share of 25- to 64-year-old adults participating in learning to 15 %. In 2018, this rate stood at 11.1 %, having increased only slowly over the preceding five years. Pronounced increases were only observable between 2002

and 2005 and from 2012 to 2013. However, this most recent growth can mainly be attributed to a methodological change in the French Labour Force Survey in 2013 ⁽²⁴⁾. Due to the slow increase in the share of 25- to 64-year-olds participating in learning over the past five years, the EU appears unlikely to meet the 15 % benchmark by 2020. This is particularly worrisome in light of the results of the Programme for the International Assessment of Adult Competencies (PIAAC), which show that a significant number of EU adults struggle with literacy, numeracy and digital skills ⁽²⁵⁾. Available data on people's digital skills support the importance of adult learning by showing a clear relation between age and the level of digital skills. While 82 % of 16- to 24-year-olds had basic or above-basic overall digital skills in 2017, this was only the case for 65 % of 25- to 54-year-olds. In particular older people struggle with the use of digital media, with only 34 % of people aged 55 to 74 having basic or above-basic digital skills ⁽²⁶⁾.

Adult learning is the key subject of The Council Resolution on a renewed European agenda for adult learning ⁽²⁷⁾. The Recommendation 'Upskilling Pathways: new opportunities for adults' ⁽²⁸⁾ aims to improve adult learning provision specifically to address the needs of low-skilled/low-qualified adults.

Moreover, the renewed Council Recommendation on Key Competences for Lifelong Learning, adopted in May 2018, explicitly recommends that Member States should mainstream the ambitions of the UN Sustainable Development Goals (SDG), in particular within the SDG 4.7, into education, training and learning, including by fostering the acquisition of knowledge about limiting the multifaceted nature of climate change and using natural resources in a sustainable way.

Women are more likely to participate in adult learning

In 2018, the share of 25- to 64-year-old women engaged in adult learning was two percentage points higher than that of men (12.1 % compared with 10.1 %). The rate for women was not only clearly above the men's rate, it had also been improving faster, gaining 4.4 percentage points since 2002, compared with 3.5 percentage points for men. Younger people are more likely to participate in adult learning. While the participation rate of 25- to 34-year-olds stood at 17.8 % in 2018, it was much lower for 55- to 64-year-olds, at 6.4 % ⁽²⁹⁾. There is also a difference

in terms of labour status, although this is less pronounced. In 2018, 11.8 % of employed people aged 25 to 64 participated in adult learning, whereas this was only the case for 10.7 % of those who were unemployed ⁽³⁰⁾. This is especially worrisome as older and the unemployed are the two groups who would need adult learning the most in order to upskill/reskill and reintegrate into the labour market.

There is a clear gradient of adult participation in learning in terms of the different educational attainment levels. In 2018, adults (aged 25 to 64) with at most lower secondary education were less engaged in learning (4.3 %) than those with upper secondary (8.8 %) or tertiary education (19.0 %) ⁽³¹⁾.

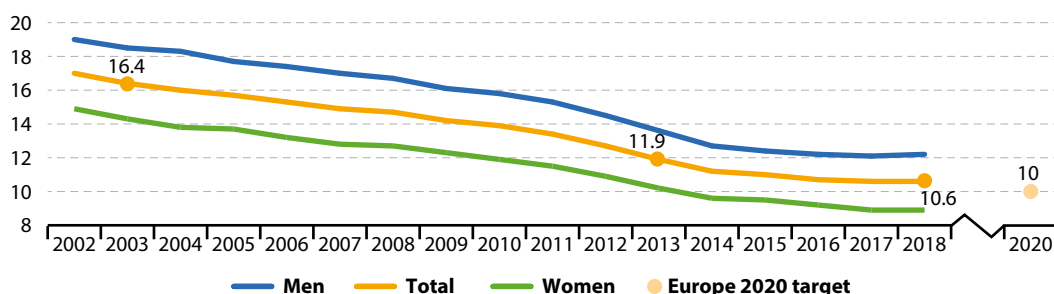
Presentation of the main indicators

↑↑ LONG TERM
2003–2018
* **
↑↑ SHORT TERM
2013–2018
* **
* Total ** Gender gap

Early leavers from education and training

The indicator measures the share of the population aged 18 to 24 with at most lower secondary education who were not involved in any education or training during the four weeks preceding the survey. The data stem from the EU Labour Force Survey (EU-LFS).

Figure 4.1: Early leavers from education and training, by sex, EU-28, 2002–2018
(% of the population aged 18 to 24)



Note: Breaks in time series in 2003, 2006 and 2014.

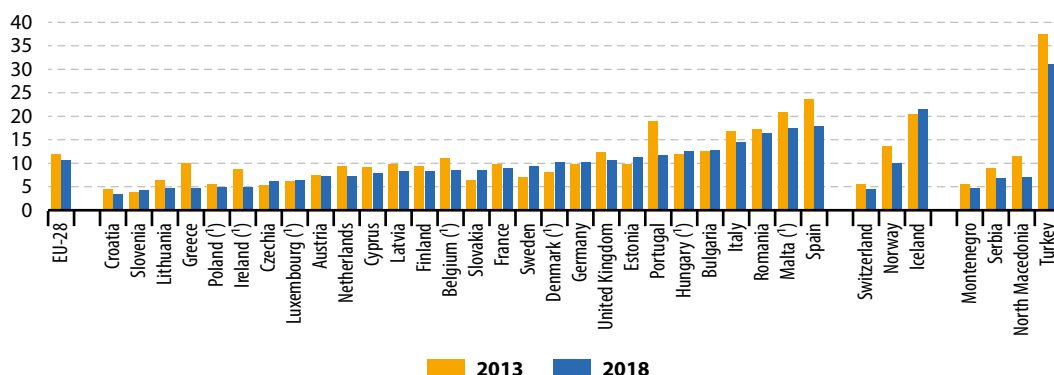
Source: Eurostat (online data code: [sdg_04_10](#))

Table 4.3: Compound annual growth rate (CAGR) of the share of early leavers from education and training, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2003–2018	– 2.9% per year	– 2.9% per year
EU-28	2013–2018	– 2.3% per year	– 2.5% per year

Source: Eurostat (online data code: [sdg_04_10](#))

Figure 4.2: Early leavers from education and training, by country, 2013 and 2018
(% of the population aged 18 to 24)



Note: All countries: break in time series in 2014 (switch from ISCED 1997 to ISCED 2011); the change of ISCED has no impact on the comparability over time of this indicator for all Member States, except Estonia.

(*) Break(s) in time series after 2014.

Source: Eurostat (online data code: [sdg_04_10](#))

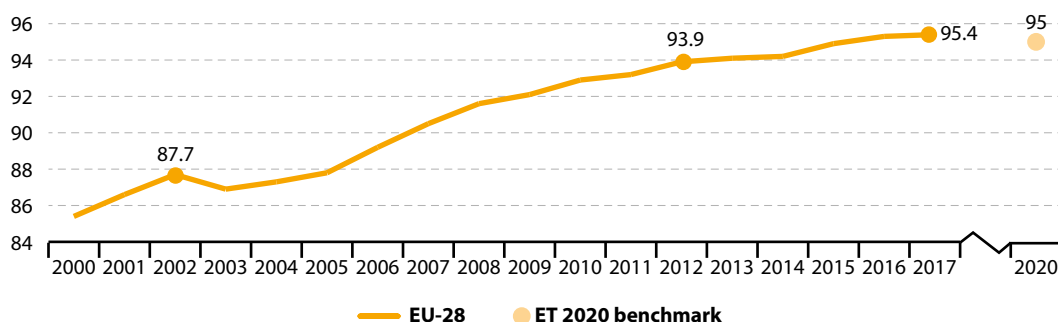
Participation in early childhood education

The indicator measures the share of children between the age of four and the starting age of compulsory primary education who participated in early childhood education. Data presented here stem from the joint UIS (UNESCO Institute of Statistics)/OECD/Eurostat (UOE) questionnaires on education statistics, which constitute the core database on education.



Figure 4.3: Participation in early childhood education, EU-28, 2000–2017

(% of the age group between 4-years-old and the starting age of compulsory education)



Source: Eurostat (online data code: [sdg_04_30](#))

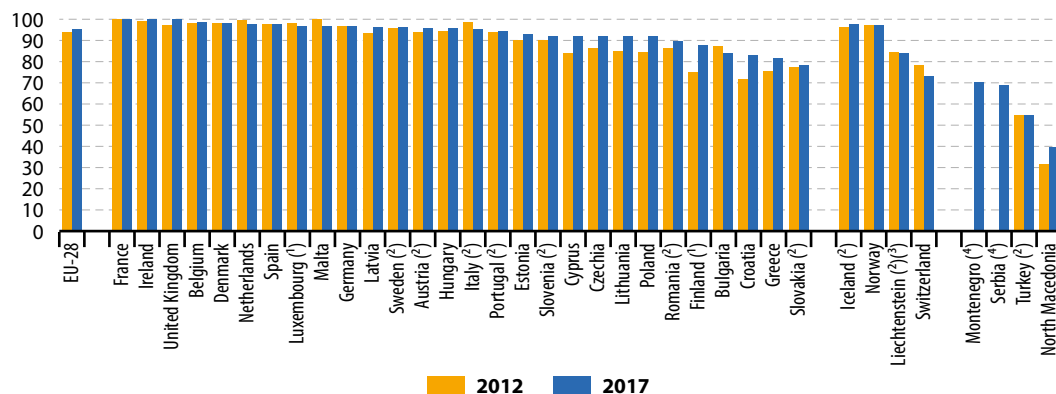
Table 4.4: Compound annual growth rate (CAGR) of the participation rate in early childhood education, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2002–2017	0.6 % per year	0.4 % per year
EU-28	2012–2017	0.3 % per year	0.1 % per year

Source: Eurostat (online data code: [sdg_04_30](#))

Figure 4.4: Participation in early childhood education, by country, 2012 and 2017

(% of the age group between 4-years-old and the starting age of compulsory education)



(1) Break(s) in time series between the two years shown.

(2) 2013 data (instead of 2012).

(3) 2016 data (instead of 2017).

(4) No data for 2012.

Source: Eurostat (online data code: [sdg_04_30](#))



LONG TERM
2000–2015

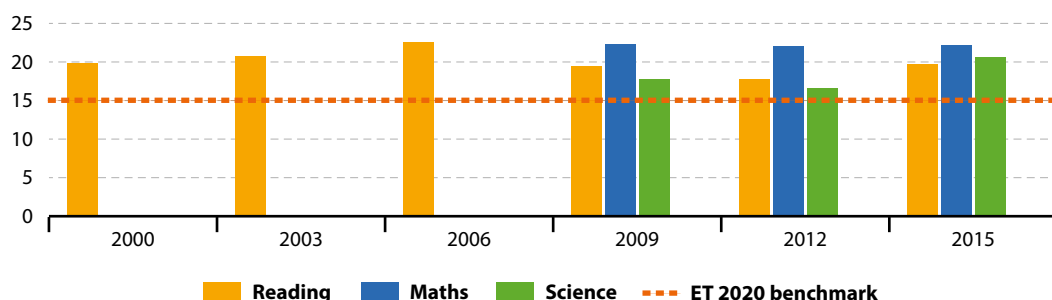


SHORT TERM
2009–2015

Underachievement in reading, maths and science

The indicator measures the share of 15-year-old students failing to reach level 2 ('basic skills level') on the Programme for International Student Assessment (PISA) scale for the three core school subjects of reading, mathematics and science. The data stem from the PISA study, a triennial international survey that aims to evaluate education systems by testing the skills and knowledge of 15-year-old students.

Figure 4.5: Underachievement in reading, maths and science, EU, 2000–2015
(% of 15-year-old students)



Note: Composition of EU aggregate differs for each year; 2015 data refer to EU-28.

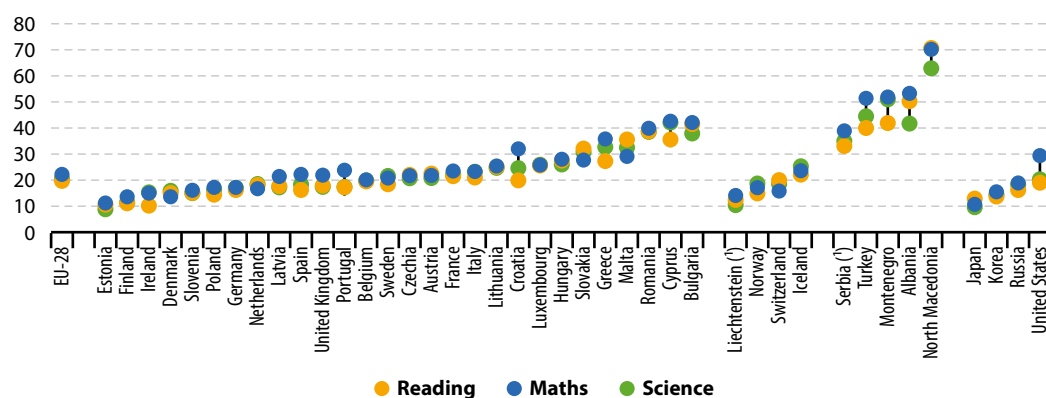
Source: OECD/PISA (Eurostat online data code: [sdg_04_40](#))

Table 4.5: Compound annual growth rate (CAGR) of the underachievement rate in reading, maths and science, EU

Subject	EU aggregate	Period	Growth rate	
			Observed	To meet target
Reading	EU	2000–2015	0.0% per year	– 1.4% per year
	EU	2009–2015	0.2% per year	– 2.4% per year
Maths	EU	2009–2015	– 0.1% per year	– 3.5% per year
Science	EU	2009–2015	2.6% per year	– 1.5% per year

Source: OECD/PISA (Eurostat online data code: [sdg_04_40](#))

Figure 4.6: Underachievement in reading, maths and science, by country, 2015
(% of 15-year-old students)



(¹) 2012 data.

Source: OECD/PISA (Eurostat online data code: [sdg_04_40](#))

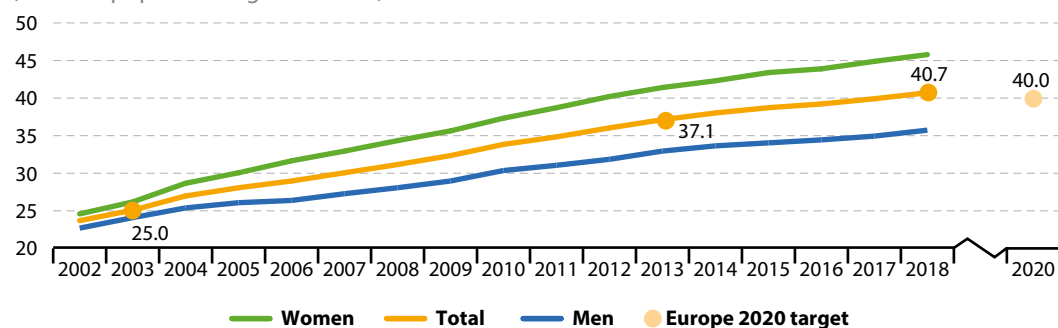
Tertiary educational attainment

The indicator measures the share of the population aged 30 to 34 who have successfully completed tertiary studies (for example, at university or a higher technical institution). Tertiary educational attainment refers to ISCED (International Standard Classification of Education) 2011 levels 5–8 for data from 2014 onwards and to ISCED 1997 levels 5–6 for data up to 2013. The indicator is based on the EU Labour Force Survey (EU-LFS).

↑ * LONG TERM 2003–2018
↓ **
↑ * SHORT TERM 2013–2018
↓ **
* Total ** Gender gap

Figure 4.7: Tertiary educational attainment, by sex, EU-28, 2002–2018

(% of the population aged 30 to 34)



Note: Break in time series in 2014 (switch from ISCED 1997 to ISCED 2011).

Source: Eurostat (online data code: [sdg_04_20](#))

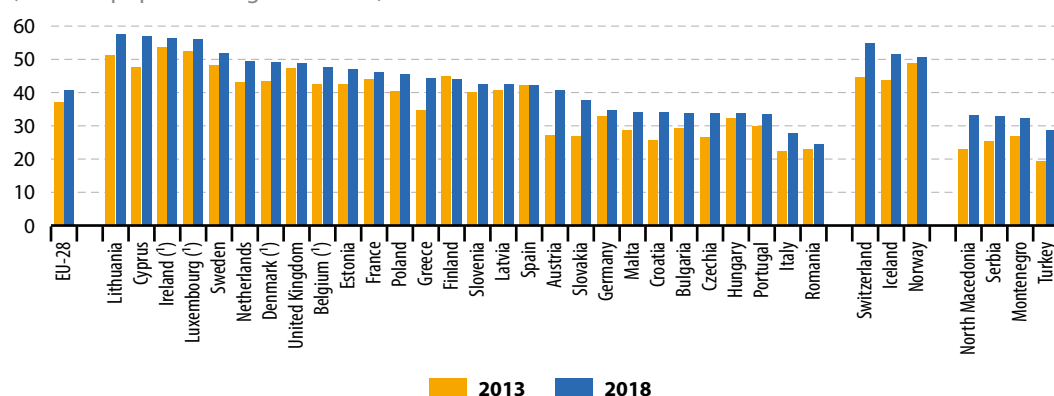
Table 4.6: Compound annual growth rate (CAGR) of the tertiary education attainment rate, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2003–2018	3.3 % per year	2.8 % per year
EU-28	2013–2018	1.9 % per year	1.1 % per year

Source: Eurostat (online data code: [sdg_04_20](#))

Figure 4.8: Tertiary educational attainment, by country, 2013 and 2018

(% of the population aged 30 to 34)



Note: All countries: break in time series in 2014 (switch from ISCED 1997 to ISCED 2011); the change of ISCED has no impact on the comparability over time of this indicator for all Member States, except Austria.

(¹) Break(s) in time series after 2014.

Source: Eurostat (online data code: [sdg_04_20](#))

↑↑ **LONG TERM**
* ** 2006–2018

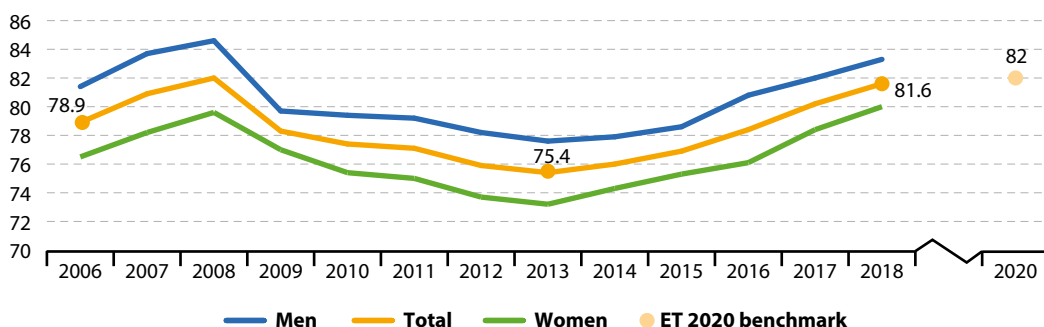
↑↑ **SHORT TERM**
* ** 2013–2018

* Total ** Gender gap

Employment rate of recent graduates

The employment rate of recent graduates is defined as the percentage of the population aged 20 to 34 with at least upper-secondary education (ISCED 2011 levels 3 to 8) who are in employment, not in any education and training, during the four weeks preceding the survey, and who have successfully completed their highest educational attainment level one to three years before the survey. The data stem from the EU Labour Force Survey (EU-LFS).

Figure 4.9: Employment rate of recent graduates, by sex, EU-28, 2006–2018
(% of population aged 20 to 34)



Note: Break in time series in 2014 (switch from ISCED 1997 to ISCED 2011).

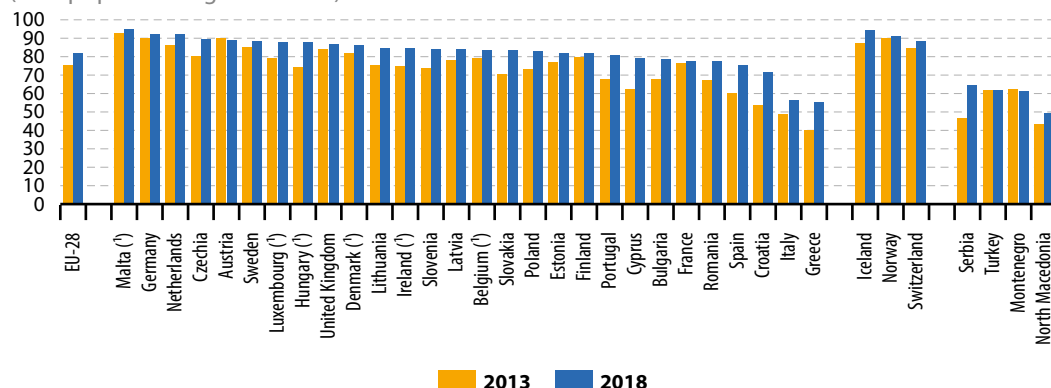
Source: Eurostat (online data code: [sdg_04_50](#))

Table 4.7: Compound annual growth rate (CAGR) of the employment rate of recent graduates, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2006–2018	0.3% per year	0.3% per year
EU-28	2013–2018	1.6% per year	1.2% per year

Source: Eurostat (online data code: [sdg_04_50](#))

Figure 4.10: Employment rate of recent graduates, by country, 2013 and 2018
(% of population aged 20 to 34)



Note: All countries: break in time series in 2014 (switch from ISCED 1997 to ISCED 2011). The change of ISCED has no impact on the comparability over time of this indicator for all Member States, except Estonia.

(*) Break in time series after 2014.

Source: Eurostat (online data code: [sdg_04_50](#))

Adult participation in learning

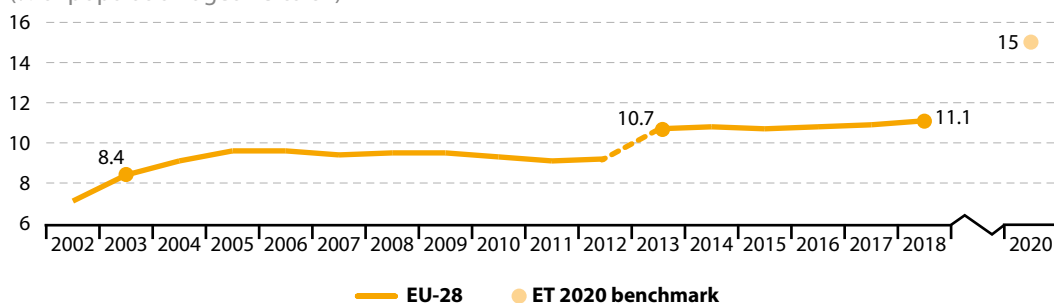
Adult participation in learning refers to people aged 25 to 64 who stated that they received formal or non-formal education and training in the four weeks preceding the survey (numerator). The denominator consists of the total population of the same age group, excluding those who did not answer the question regarding 'participation in education and training'. Adult learning covers formal and non-formal learning activities — both general and vocational — undertaken by adults after leaving initial education and training ⁽³²⁾. Data stem from the EU Labour Force Survey (EU-LFS).

LONG TERM
2003–2018

SHORT TERM
2013–2018

Figure 4.11: Adult participation in learning, EU-28, 2002–2018

(% of population aged 25 to 64)



Note: Breaks in time series in 2003, 2006 and 2013.

Source: Eurostat (online data code: [sdg_04_60](#))

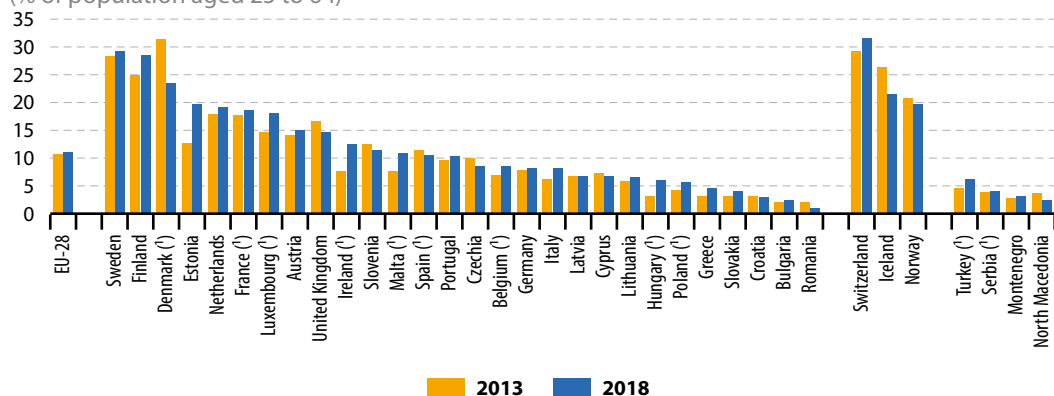
Table 4.8: Compound annual growth rate (CAGR) of the share of adults participating in learning, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2003–2018	1.9% per year	3.5% per year
EU-28	2013–2018	0.7% per year	4.9% per year

Source: Eurostat (online data code: [sdg_04_60](#))

Figure 4.12: Adult participation in learning, by country, 2013 and 2018

(% of population aged 25 to 64)



⁽¹⁾ Break(s) in time series between the two years shown.

Source: Eurostat (online data code: [sdg_04_60](#))

Further reading on education

European Commission/EACEA/Eurydice/Eurostat (2014), *Key Data on Early Childhood Education and Care in Europe*, 2014 Edition, Eurydice and Eurostat Report, Publications Office of the European Union, Luxembourg.

European Commission (2018), *Education and Training Monitor 2018*, Publications Office of the European Union, Luxembourg.

European Commission (2016), *PISA 2015: EU Performance and initial conclusions regarding education policies in Europe*, Publications Office of the European Union, Luxembourg.

OECD (2015), *Education at a Glance interim Report: Update of employment and educational attainment indicators*, OECD Publishing, Paris.

OECD (2016), *Skills Matter: Further Results from the Survey of Adult Skills, OECD Skills Studies*, OECD Publishing, Paris.

OECD (2018), *Education at a Glance 2018: OECD Indicators*, OECD Publishing, Paris.

UNESCO (2014), *Education Strategy 2014–2021*, Paris.

UNESCO (2018), *Handbook on Measuring Equity in Education*, Montreal.

Further data sources on education

OECD, [Data on Education](#).

UNESCO, [Data for the Sustainable Development Goals](#).

Notes

- (¹) European Commission, *Strategic framework for European cooperation in education and training (ET 2020)*.
- (²) European Commission (2018), *Education and Training Monitor 2018*, p. 28.
- (³) European Commission, *Strategic framework for European cooperation in education and training (ET 2020)*.
- (⁴) European Commission/EACEA/Eurydice/Eurostat (2014), *Key Data on Early Childhood Education and Care in Europe*, p. 19.
- (⁵) OECD (2018), *Education at a Glance*, p. 44; and European Commission (2017), *Education and Training Monitor 2017*, p. 56.
- (⁶) European Commission, *European Social Fund, Better Education*.
- (⁷) European Commission (2016), *PISA 2015: EU performance and initial conclusions regarding education policies in Europe*, p. 3.
- (⁸) European Commission, *New Skills Agenda for Europe*.
- (⁹) European Commission (2016), *A new skills agenda for Europe: Working together to strengthen human capital, employability and competitiveness*, COM(2016) 381 final, Brussels.
- (¹⁰) European Commission, *Youth Guarantee*.
- (¹¹) European Commission (2013), *Council recommendation of 22 April 2013 on establishing a Youth Guarantee* (2013/C 120/01).
- (¹²) Academic Network of European Disability Experts (ANED) (2018), *European comparative data on Europe 2020 & People with disabilities*, Brussels.
- (¹³) Source: Eurostat (online data code: edat_lfse_02).
- (¹⁴) European Commission (2016), *PISA 2015: EU performance and initial conclusions regarding education policies in Europe*, p. 20.
- (¹⁵) Source: Eurostat (online data code: edat_lfse_14).
- (¹⁶) The *Bologna process* put in motion a series of reforms to make European higher education more compatible, comparable, competitive and attractive for students. Its main objectives were: the introduction of a three-cycle degree system (bachelor, master and doctorate); quality assurance; and recognition of qualifications and periods of study (source: Eurostat, *Education and training statistics introduced*).
- (¹⁷) European Commission (2010), *Europe 2020 — A strategy for smart, sustainable, and inclusive growth*, COM(2010) 2020 final, Brussels.
- (¹⁸) Eurostat, Statistics Explained, *Employment rates of recent graduates*.
- (¹⁹) Ibid.
- (²⁰) Academic Network of European Disability Experts (ANED) (2018), *European comparative data on Europe 2020 & People with disabilities*, Brussels.
- (²¹) Source: Eurostat (online data code: edat_lfs_9912).
- (²²) European Commission (2018), *Education and Training Monitor 2018*, p. 37.
- (²³) Source: Eurostat (online data code: edat_lfse_32).
- (²⁴) INSEE, the French Statistical Office, carried out an extensive revision of the questionnaire of the Labour Force Survey. The new questionnaire was used from 1 January 2013 onwards. It has a significant effect on the level of various French LFS-indicators.
- (²⁵) OECD (2017), *Survey of Adult Skills (PIAAC)*.
- (²⁶) Source: Eurostat (online data code: isoc_sk_dskl_i).
- (²⁷) Council of the European Union (2011), *Council Resolution on a renewed European agenda for adult learning*, (2011/C 372/01).
- (²⁸) Council of the European Union (2016), *Council Recommendation of 19 December 2016 on Upskilling Pathways: New Opportunities for Adults*, (2016/C 484/01).
- (²⁹) Source: Eurostat (online data code: trng_lfse_01).
- (³⁰) Source: Eurostat (online data code: trng_lfse_02).
- (³¹) Source: Eurostat (online data code: trng_lfse_03).
- (³²) The general definition of adult learning covers formal, non-formal and informal training but the indicator adult participation in learning only covers formal and non-formal education and training. For more information, see: Eurostat, *Participation in education and training*.

5

Achieve gender equality and empower all women and girls

Goal 5 aims to achieve gender equality by ending all forms of discrimination, violence and any harmful practices against women and girls in the public and private spheres. It also calls for the full participation of women and equal opportunities for leadership at all levels of political and economic decision-making.



eurostat 
supports the SDGs

Ending all forms of discrimination against women and girls and empowering women are crucial to accelerating sustainable development. Empowerment of women and the realisation of gender equality depends on the balanced participation of women and men in formal education, in the labour market and in leadership positions. Equal access to quality education, especially tertiary education, helps to improve chances in life for both men and women. Moreover, closing the gender employment gap is an urgent economic and social objective, for the individual as well as for society as a whole. In addition, promoting equality between women and men in decision-making has been a key objective of European policy for many years. Another important aspect is the elimination of physical and sexual violence against women, which is not only a consequence of gender inequality, but reinforces disparities between women and men.



Table 5.1: Indicators measuring progress towards SDG 5, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Gender-based violence			
Physical and sexual violence to women experienced within 12 months prior to the interview	:	:	page 121
Education			
Gender gap for early leavers from education and training (*)	↑	↗	SDG 4, page 104
Gender gap for tertiary educational attainment (*)	↓ ⁽¹⁾	↓ ⁽¹⁾	SDG 4, page 107
Gender gap for employment rate of recent graduates (*)	↑ ⁽²⁾	↑	SDG 4, page 108
Employment			
Gender pay gap in unadjusted form	:	↑	page 122
Gender employment gap	↑	↗	page 123
Inactive population due to caring responsibilities	↓ ⁽²⁾	↓	page 124
Leadership positions			
Seats held by women in national parliaments	↑	↑	page 125
Positions held by women in senior management	↑	↑	page 126

(*) Multi-purpose indicator

(1) Women aged 30–34 have a higher tertiary education attainment rate than men, and the unfavourable assessment is due to the fact that their rate has been increasing faster over time than for men.

(2) Past 12-year period.

Table 5.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↘	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Gender equality in the EU: overview and key trends

Monitoring SDG 5 in an EU context focuses on the topics of gender-based violence, education, employment and leadership positions. As shown in Table 5.1, gender equality in the EU has improved in terms of leadership positions. The participation of women in the labour market has also generally increased over the past few years. However, the share of women who are inactive due to caring responsibilities has grown. In the area of education, progress towards gender equality has been mixed.

Gender-based violence

Gender-based violence is a brutal form of discrimination and a violation of fundamental human rights. It is both a cause and a consequence of inequalities between women and men. Physical and [sexual violence](#) against women by a partner or a non-partner affects their health and well-being. Moreover, it can hamper women's access to employment with negative effects on their financial independence and the economy overall.

One in three women in Europe has experienced physical and/or sexual violence since the age of 15

In 2012, 8% of women in the EU had experienced physical and/or sexual violence by a partner or a non-partner in the 12 months prior to the interview. Younger women were more likely to report having been subject to violence ⁽¹⁾; 13% of women aged between 18 and 29 had experienced physical or sexual violence in the 12 months prior to the interview, whereas only 5% of women aged 50 or above had been affected. Looking at a longer



period of life, every third woman (33%) in the EU reported having experienced physical or sexual violence since the age of 15 ⁽²⁾.

The EU protects women and children from gender-based violence through awareness-raising as well as legislation and practical measures on victims' rights. The [Council Framework Decision on the standing of victims in criminal proceedings](#) ⁽³⁾ from 2001 establishes basic rights for victims of crime within the EU.

The prevalence of violence in the EU varies greatly, both within countries and between countries. Some northern European countries such as Belgium, Denmark, France, Netherlands and Sweden reported the highest rates, with 11% of women reporting they had experienced physical and/or sexual violence in the 12 months prior to the interview. The lowest rates were reported in Slovenia (3%), Spain and Poland (4%). However, caution is needed when comparing prevalence rates between countries, because in some countries there is a stigma associated with disclosing cases of violence against women in certain settings and to certain people, including interviewers ⁽⁴⁾. In addition, Member States that rank highest in terms of gender equality also tend to report a greater prevalence of violence against women. This indicates a greater awareness and willingness of women in these countries to report violence to the police or to an interviewer ⁽⁵⁾.

Education

Equal access to a quality education is an important foundation for gender equality and an essential element of sustainable development. Equipping people with the right skills allows them to find quality jobs and improve their

chances in life. **Early leavers from education and training** may face considerable difficulties in the labour market. For example, they may find it difficult to obtain a secure foothold because employers may be more reluctant to take them on with their limited education. Nowadays, completing compulsory education is often not considered sufficient. Thus, having a degree from a university or other institution of higher education is becoming more important for both men and women. Tertiary education has an essential role in society by fostering innovation, increasing economic development and growth, and improving more generally the well-being of citizens. While women are more likely to be highly educated, the picture is different when it comes to the **employment rates** of young graduates.

The gender gap in early school leavers is narrowing

In the EU, women overall tend to perform better than men when it comes to participation in education. However, the two indicators on participation in basic and tertiary education show divergent trends in the development of these gender gaps: while the gap is closing for early school leaving, it is widening for tertiary education.

In the EU, men are more likely to leave education and training early. In 2018, 12.2 % of men and 8.9 % of women aged 18 to 24 had left education and training with at most lower secondary education. Between 2002 and 2017, these shares have fallen steadily, with a turnaround in 2018. Progress was stronger for men, resulting in the gender gap narrowing from 4.1 percentage points in 2002 to 3.3 percentage points in 2018.



The gender gap (to the disadvantage of men) for early leavers from education and training in the EU was
3.3
percentage points in 2018

The ET 2020 framework aims to reduce the rates of early school leaving to below 10 %. The Europe 2020 strategy ⁽⁶⁾ includes this benchmark as one of its headline targets. Reducing early school leaving is also a priority of the European Social Fund.

A major expansion in higher education systems has taken place in the EU since the introduction of the Bologna process. The share of the population aged 30 to 34 who completed tertiary education increased steadily between 2002 and 2018. The increase was particularly strong for women, whose tertiary educational attainment rate rose from 24.5 % in 2002 to 45.8 % in 2018. While the men's rate also increased, the increase was slower than for women, from 22.6 % to 35.7 %. This means the gender gap increased considerably, from 1.9 to 10.1 percentage points between 2002 and 2018.



The tertiary education attainment rate of women in the EU was

10.1
percentage points higher than for men in 2018

Although more women than men have completed tertiary education, the employment rate of female graduates is lower

While women are more likely to be highly educated, the picture changes as soon as young graduates move from education into the labour market. At this stage, male graduates are more likely to have found employment than their female counterparts. This reversed gender gap compared with the education figures is remarkable,



The employment rate of recent graduates in the EU was

3.3
percentage points higher for men than for women in 2018

considering the important role education and training play in raising employability. In 2018, 83.3% of men aged 20 to 34 who had at least an upper secondary qualification and had left education and training within the past three years were employed, compared with 80.0% of women. The gender gap has narrowed over time, from 4.9 percentage points in 2006 to 3.3 percentage points in 2018.

Employment

Ensuring high employment rates for both men and women is one of the EU's key targets. Reducing the gender employment gap — the difference between the employment rates of men and women aged 20 to 64 — is important for equality and a sustainable economy. Women have a higher average level of education in most EU countries. Because a higher level of education is associated with higher average wages, this has a positive impact on reducing the overall **gender pay gap**. However, it does not prevent women in the EU from being over-represented in industries with low pay levels and under-represented in well-paid industries. Because of the gender pay gap and shorter working lives, women earn less over their lifetime than men. This results in lower pensions and a higher risk of poverty in old age.

Gender equality has improved slightly in the labour market, but many women remain inactive due to caring responsibilities

The selected indicators for the sub-theme on employment show gender equality in the labour market has increased in a long term. However, short-term trends show a faster decline in gender inequality for wages than for employment rates, which showed stagnation over the past five years. While the gender pay gap has narrowed in the short-term period by 1.4 percentage points to reach 16.0% in 2017, the gender employment gap has only decreased



marginally and amounted to 11.6 percentage points in 2018.

The picture is less positive regarding the **inactive** population outside the labour market. Women were far more likely than men to be economically inactive due to caring responsibilities, for example, for children or other family members.

The gender pay gap has decreased slightly in recent years

In 2017, women's gross hourly earnings were on average 16.0% below those of men in the EU. There are various reasons for the existence and size of the gender pay gap such as the kind of jobs held by women in terms of sectors or occupations, consequences of career breaks or part-time work due to childbearing and caring responsibilities, and decisions in favour of family life. Thus, the pay gap is linked to a number of legal, social and economic factors which go beyond the single issue of equal pay for equal work.

In 2017, the gender pay gap was generally much lower for new labour market entrants and tended to widen with age. This age effect might be a result of the career interruptions women experience during their working life, with older women in particular unable to benefit from specific equality measures that did not exist when they started work, such as flexible working arrangements or childcare facilities.

Reducing the gender pay gap is one of the key priorities of gender policies at both EU and national levels. At EU level, the European Commission prioritised 'reducing the gender pay, earnings and pension gaps and thus fighting poverty among women' as one of the key areas in the framework of the Strategic engagement for gender equality 2016–2019.

In 11 Member States, the gender pay gap was most distinct in the 'financial and insurance activities' sector, with the gross hourly earnings for women on average more than 30% below

those of men in 2017. In five Member States the highest gender pay gaps were in the 'arts, entertainment and recreation' sector. In another four the 'other service activities' sector had the highest gaps. In contrast, many Member States reported higher average earnings for women than for men in the 'construction' sector, the 'water supply, sewerage, waste management and remediation activities' sector, and the 'mining and quarrying' sector. These negative gender pay gaps might be due to the so-called selection effect, meaning that only women with higher skills are attracted to these industries ⁽⁷⁾.

The gender employment gap has stagnated over the past few years, and women are still less likely to be employed than men

Employment rates for women are an indication of a country's social customs, attitudes towards women in the labour force and family structures in general ⁽⁸⁾. In the EU, the employment rate for women grew from 58.7% in 2003 to 67.4% in 2018. For men, the rate grew more slowly from 75.4% in 2003 to 79.0% in 2018 (see the chapter on SDG 8 'Decent work and economic growth' on p. 165 for more detailed analyses on employment rates). As a result, the gender employment gap narrowed by 5.1 percentage points between 2003 and 2018. The strongest reduction occurred during the economic crisis, partly because jobs were lost in traditionally male-dominated fields, such as construction and the automotive industry ⁽⁹⁾. The gap continued to shrink until 2014, but has stagnated since then. In 2018, the proportion of men of working age in



employment still exceeded that of women by 11.6 percentage points.

A number of factors contribute to this situation. There is a considerable gender gap with regard to inactivity due to caring responsibilities, especially in countries where childcare services or facilities taking care of elderly and other dependent relatives are unaffordable, absent, not accessible or of low quality ⁽¹⁰⁾. In addition, the longer that women are out of the labour market or remain unemployed due to care duties, the harder it becomes for them to find a job.

Caring responsibilities were by far the main reason for inactivity among women

The gender gap is particularly pronounced regarding inactivity due to caring responsibilities, caused by the lack of available, accessible and quality formal care services, especially for children ⁽¹¹⁾. Inactivity due to caring responsibilities was the main reason for women not being part of the labour force, with almost one in three inactive women (31.7%) reporting this reason in 2018. In contrast, only 4.6% of inactive men reported being inactive due to caring responsibilities. For them, the main reasons for being inactive were illness or disability, retirement or being in education or training. The share of men who were out of the labour force due to caring responsibilities steadily increased between 2006 and 2018. However, over the same period the share of inactive women due to caring responsibilities increased even more, widening the gender gap from 23.7 percentage points in 2006 to 27.1 percentage points in 2018.



The gender gap (in favour of men) for inactivity due to caring responsibilities in the EU in 2018 was 27.1 percentage points

The **European Pillar of Social Rights** stipulates that parents and people with caring responsibilities have the right to suitable leaves of absence, flexible working arrangements and access to care services. In addition, women and men shall have equal access to special leaves of absence to fulfil their caring responsibilities and be encouraged to use them in a balanced way. One of the deliverables is a proposal for a **Work-Life Balance Directive** for parents and carers outlined in the **Communication from the Commission** ⁽¹²⁾, and for which a provisional agreement between the European Parliament, the Council and the European Commission was reached in January 2019.

Leadership positions

Traditional gender roles, a lack of support to allow women and men to balance care responsibilities with work, and political and corporate cultures are some of the reasons why women are underrepresented in decision-making processes. Promoting equality between women and men in decision-making is one of the areas the EU has set as a priority for achieving gender equality. With regard to political decision-making, the proportion of seats held by women in national parliaments (both houses, where relevant) has risen almost steadily since 2003. The share of women in senior management positions has also increased considerably in the same time period.



30.7 %
of seats in
national
parliaments
in the EU were
held by women
in 2019

The share of seats held by women in national parliaments has increased steadily since 2003

Women held 30.7 % of seats in national parliaments in the EU in 2019. This share has increased since 2003, when women accounted for about one-fifth of members in national parliaments. However, the share of men in national parliaments is still considerably higher across the EU as a whole, and there was no single EU country in early 2019 where women held more seats than men.

Contributing to this under-representation is the fact that women seldom become leaders of major political parties, which are instrumental in forming future political leaders. Another factor is that gender norms and expectations reduce the pool of female candidates for selection as electoral representatives. The share of female members of government (senior and junior ministers) in the EU increased from 23.3 % in 2003 to 30.7 % in 2019. The number of female presidents and prime ministers in EU countries also went up. In 2019, there were three female heads of government (10.7 %) in comparison to none in 2003. During the period, the share of female heads of government did not rise above 14.3 %, meaning there were never more than four women in this executive position at the same time ⁽¹³⁾.

The European Commission supports Member States in improving the gender balance in decision-making positions, by monitoring the situation and disseminating information, data and analysis of trends in the field, in particular through its **annual reports on equality between women and men**. In addition, there is a **Mutual Learning Programme in Gender Equality** to exchange good practices.

The share of seats held by women in national parliaments varied considerably between EU countries in 2019. In Sweden, almost half of the seats were held by women (46.4%). In Hungary, the share of women in parliaments was four times lower (12.6%). Between 2014 and 2019, the proportion of seats held by women in national parliaments increased in the majority of EU countries. However, the proportion decreased in ten EU countries, by up to six percentage points. Effectively designed electoral gender quotas ⁽¹⁴⁾ as well as proportional representation systems ⁽¹⁵⁾ may explain the higher representation of women in some cases.

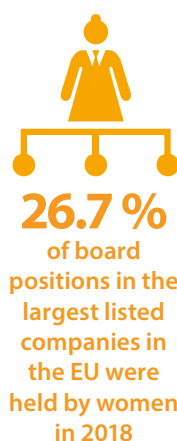
In 2018, a quarter of the board members of the largest listed companies were women

The share of women in boards of the largest listed companies was 26.7% in 2018. Between 2003 and 2018, there was an almost steady increase of 18.2 percentage points. However, the numbers mean that three out of four board members of the largest listed companies are still men. The data on board members nevertheless provide evidence of the positive impact of legislative action on the issue of female representation in boards ⁽¹⁶⁾.

Promoting gender equality in decision-making is a priority area for the European Commission and one of the key areas for action of the Strategic Engagement for Gender Equality. The goal of at least 40 % representation of the under-represented gender among non-executive directors of companies listed on stock exchanges is confirmed. In addition, the importance of a better gender balance among executive directors and in the talent pipeline is also recognised.

The share of women is even lower when considering also the members of the second-highest decision-making body of the largest listed companies (such as management board in case of a two-tier governance system and executive/management committee in a unitary system). In 2018, the share of female members in the two highest decision-making bodies was 16.6% across the EU; in 2013, it was 11.8%. The fact that senior management positions are more likely to be held by men is one of the reasons for the gender pay gap ⁽¹⁷⁾.

The share of female board members varied considerably between EU countries. In 2018, France was the closest to parity with women making up 44.0% of board members. In the same year, only 8.0% of board members in Estonia were female. While the representation of women in corporate boards improved in most Member States, the changes between 2013 and 2018 have been far from uniform. Italy and Belgium stand out with increases of more than 15 percentage points, while at the other end of the spectrum there has been no significant progress (less than two percentage points) in Latvia, Slovakia, Greece and Estonia and even a decline in Lithuania and Bulgaria.



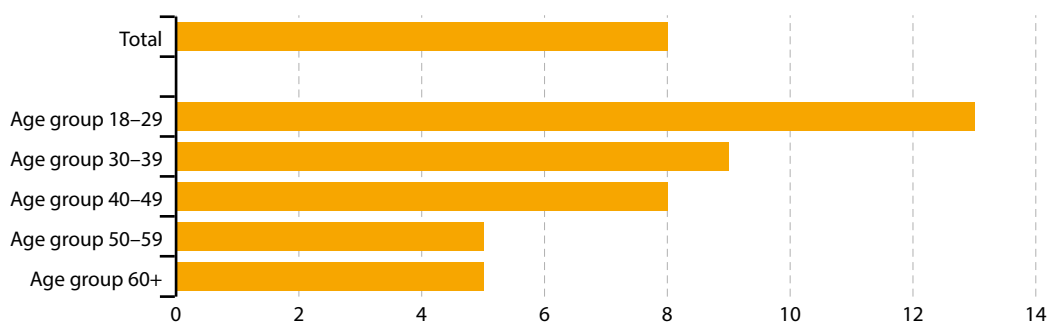
Presentation of the main indicators

Physical and sexual violence to women experienced within 12 months prior to the interview

X Insufficient data to calculate trends

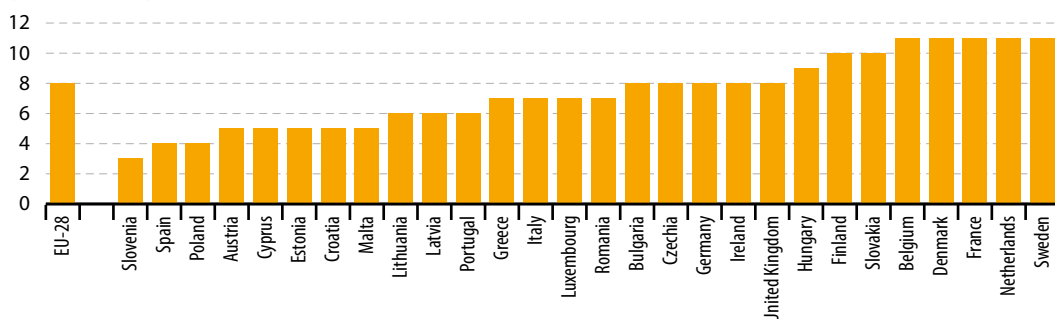
This indicator is based on the results of a survey by the European Union Agency for Fundamental Rights (FRA). Women were asked whether they had experienced physical and/or sexual violence within the 12 months prior to the interview.

Figure 5.1: Physical and sexual violence to women experienced within 12 months prior to the interview, EU-28, 2012
(% of women)



Source: European Union Agency for Fundamental Rights (FRA) (Eurostat online data code: [sdg_05_10](#))

Figure 5.2: Physical and sexual violence to women experienced within 12 months prior to the interview, by country, 2012
(% of women)



Source: European Union Agency for Fundamental Rights (FRA) (Eurostat online data code: [sdg_05_10](#))

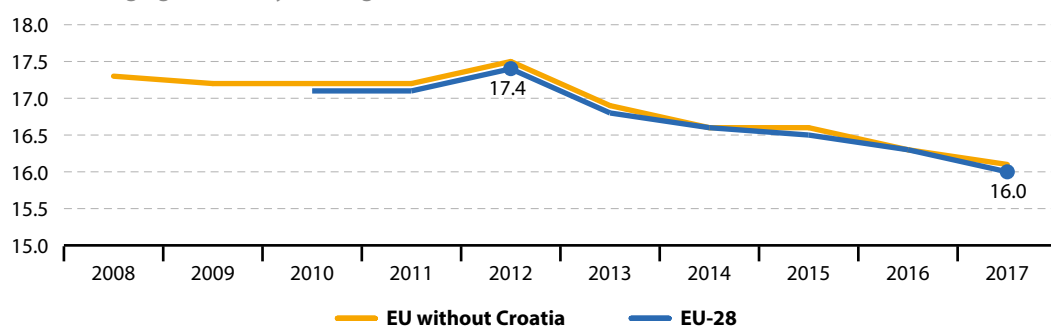


Gender pay gap in unadjusted form

The gender pay gap in unadjusted form represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The indicator has been defined as unadjusted because it gives an overall picture of gender inequalities in terms of pay and measures a concept which is broader than the concept of equal pay for equal work. The gender pay gap is based on the methodology of the [structure of earnings survey](#) (SES), which is carried out every four years.

Figure 5.3: Gender pay gap in unadjusted form, EU, 2008–2017

(% of average gross hourly earnings of men)



Note: 2009 and 2015–2017 data are provisional.

Source: Eurostat (online data code: [sdg_05_20](#))

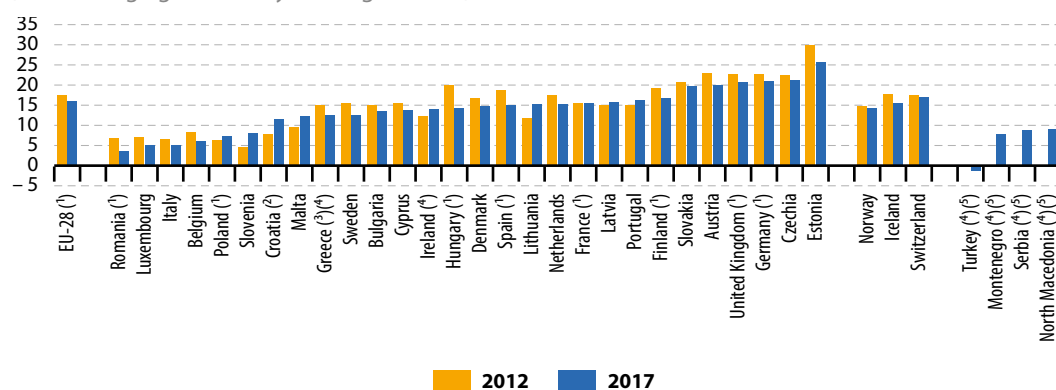
Table 5.3: Compound annual growth rate (CAGR) of the gender pay gap, EU

EU aggregate	Period	Growth rate
EU-28	2012–2017	– 1.7 % per year

Source: Eurostat (online data code: [sdg_05_20](#))

Figure 5.4: Gender pay gap in unadjusted form, by country, 2012 and 2017

(% of average gross hourly earnings of men)



⁽¹⁾ 2017 data are provisional or estimated.

⁽²⁾ 2013 data (instead of 2012).

⁽³⁾ 2010 data (instead of 2012).

⁽⁴⁾ 2014 data (instead of 2017).

⁽⁵⁾ No data for 2012..

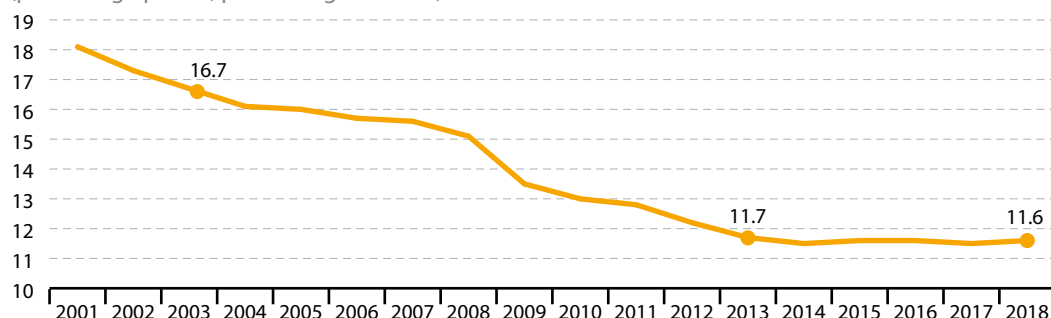
Source: Eurostat (online data code: [sdg_05_20](#))

Gender employment gap

The gender employment gap is defined as the difference between the employment rates of men and women aged 20 to 64. The employment rate is calculated by dividing the number of people aged 20 to 64 in employment by the total population of the same age group. The indicator is based on the EU Labour Force Survey (EU-LFS).



Figure 5.5: Gender employment gap, EU-28, 2001–2018
(percentage points, persons aged 20–64)



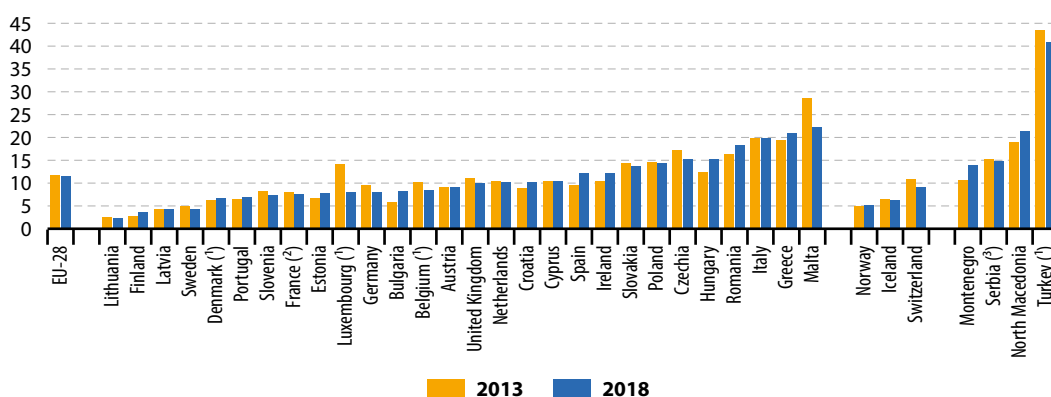
Source: Eurostat (online data code: [sdg_05_30](#))

Table 5.4: Compound annual growth rate (CAGR) of the gender employment gap, EU

EU aggregate	Period	Growth rate
EU-28	2003–2018	– 2.4% per year
EU-28	2013–2018	– 0.2% per year

Source: Eurostat (online data code: [sdg_05_30](#))

Figure 5.6: Gender employment gap, by country, 2013 and 2018
(percentage points, persons aged 20–64)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2013 data refer to metropolitan France.

⁽³⁾ 2014 data (instead of 2013).

Source: Eurostat (online data code: [sdg_05_30](#))



LONG TERM
2006–2018



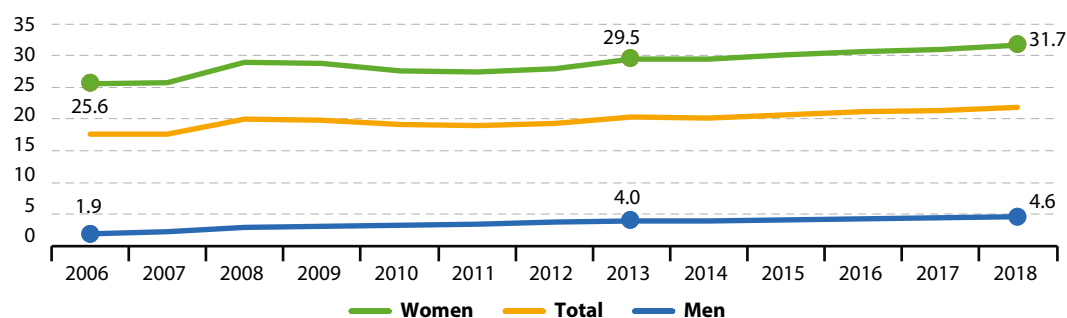
SHORT TERM
2013–2018

Inactive population due to caring responsibilities

The economically inactive population comprises individuals that are not working, not actively seeking work and not available to work even if they have found a job. Therefore, they are neither employed nor unemployed and considered to be outside the labour force. This definition used in the EU [Labour Force Survey](#) (EU-LFS) is based on International Labour Organization guidelines.

Figure 5.7: Inactive population due to caring responsibilities, by sex, EU-28, 2006–2018

(% of inactive population aged 20 to 64)



Source: Eurostat (online data code: [sdg_05_40](#))

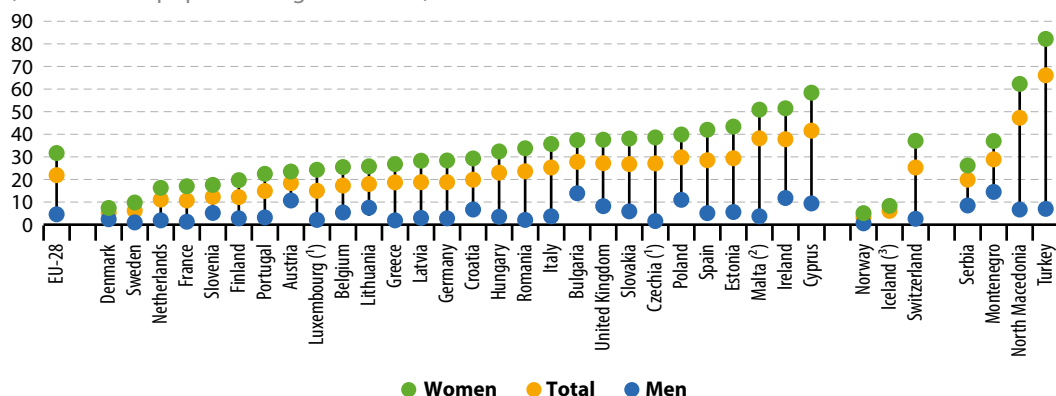
Table 5.5: Compound annual growth rate (CAGR) of the gender gap in inactive population due to caring responsibilities, EU

EU aggregate	Period	Growth rate
EU-28	2006–2018	1.1 % per year
EU-28	2013–2018	1.2 % per year

Source: Eurostat (online data code: [sdg_05_40](#))

Figure 5.8: Inactive population due to caring responsibilities, by sex, by country, 2018

(% of inactive population aged 20 to 64)



(*) Data for men have low reliability.

(*) 2017 data for men.

(*) No data for men.

Source: Eurostat (online data code: [sdg_05_40](#))

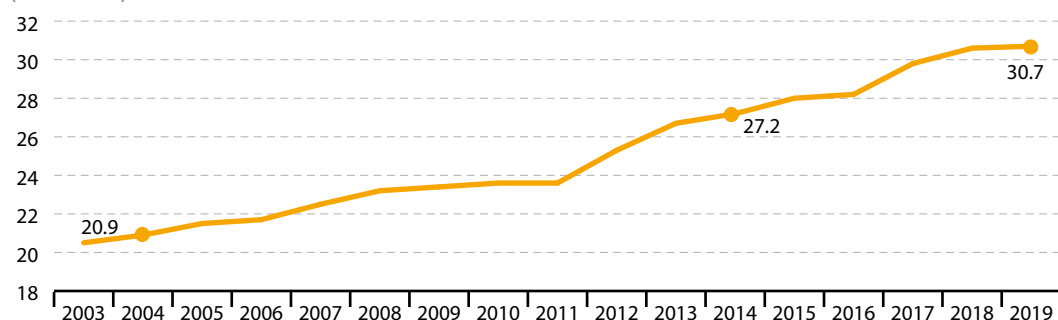
Seats held by women in national parliaments

This indicator refers to the proportion of women in national parliaments in both chambers (lower house and upper house, where relevant). The data stem from the Gender Statistics Database of the European Institute for Gender Equality.



Figure 5.9: Seats held by women in national parliaments, EU-28, 2003–2019

(% of seats)



Note: 2019 data are provisional.

Source: European Institute for Gender Equality (EIGE) (Eurostat online data code: [sdg_05_50](#))

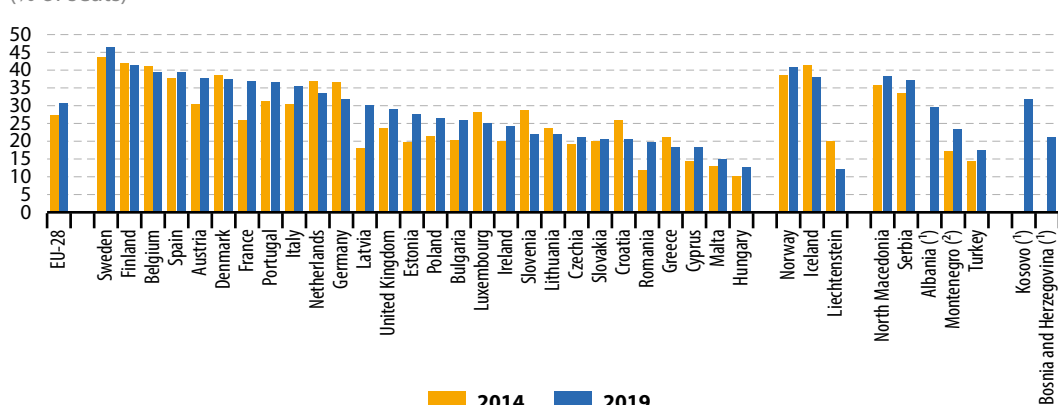
Table 5.6: Compound annual growth rate (CAGR) of the share of seats held by women in national parliaments, EU

EU aggregate	Period	Growth rate
EU-28	2004–2019	2.6 % per year
EU-28	2014–2019	2.5 % per year

Source: European Institute for Gender Equality (EIGE) (Eurostat online data code: [sdg_05_50](#))

Figure 5.10: Seats held by women in national parliaments, by country, 2014 and 2019

(% of seats)



Note: 2019 data are provisional (for all countries).

(*) No data for 2014.

(*) 2015 data (instead of 2014).

Source: European Institute for Gender Equality (EIGE) (Eurostat online data code: [sdg_05_50](#))



LONG TERM
2003–2018



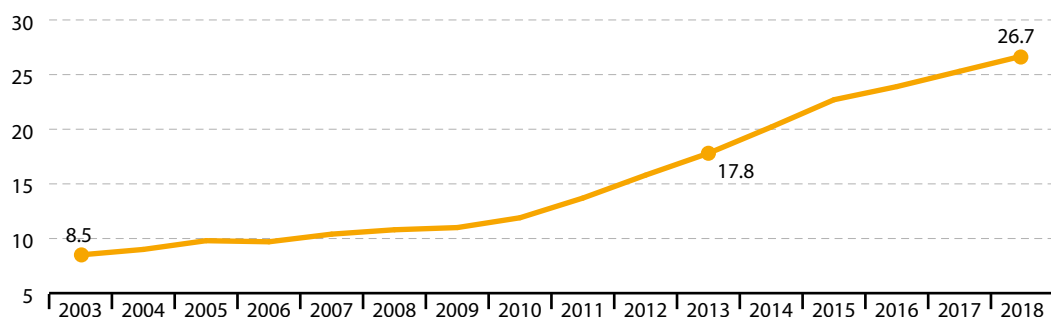
SHORT TERM
2013–2018

Positions held by women in senior management

This indicator measures the share of female board members in the largest publicly listed companies. The data presented in this section stem from the Gender Statistics Database of the European Institute for Gender Equality.

Figure 5.11: Positions held by women in senior management, EU-28, 2003–2018

(% of board members)



Source: European Institute for Gender Equality (EIGE) (Eurostat online data code: [sdg_05_60](#))

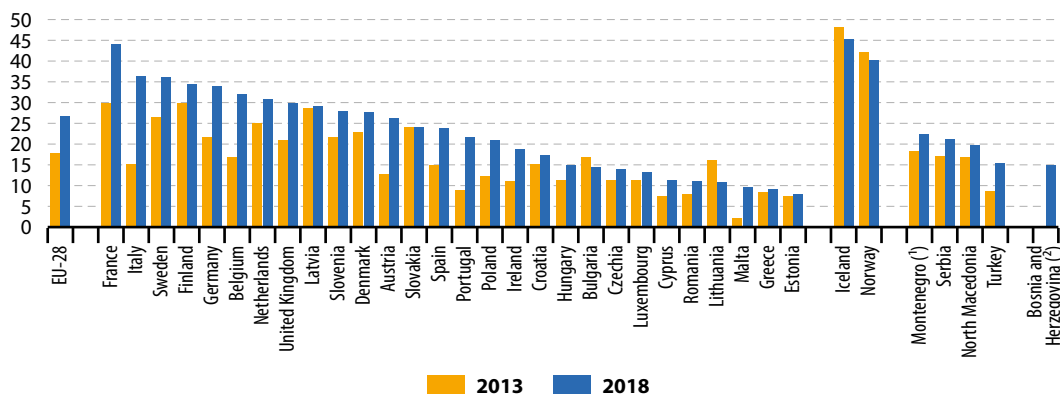
Table 5.7: Compound annual growth rate (CAGR) of the share of positions held by women in senior management, EU

EU aggregate	Period	Growth rate
EU-28	2003–2018	7.9% per year
EU-28	2013–2018	8.4% per year

Source: European Institute for Gender Equality (EIGE) (Eurostat online data code: [sdg_05_60](#))

Figure 5.12: Positions held by women in senior management, by country, 2013 and 2018

(% of board members)



⁽¹⁾ 2015 data (instead of 2018).

⁽²⁾ No data for 2013.

Source: European Institute for Gender Equality (EIGE) (Eurostat online data code: [sdg_05_60](#))

Further reading on gender equality

European Commission (2014), *Tackling the gender pay gap in the European Union*, Publications Office of the European Union, Luxembourg.

European Commission (2016), *Magnitude and Impact Factors of the Gender Pay Gap in EU Countries*, Publications Office of the European Union, Luxembourg.

European Commission (2019), *Joint Employment Report 2019*, Directorate-General for Employment, Social Affairs and Inclusion, Brussels.

European Commission (2018), *Report on equality between women and men in the EU*, Publications Office of the European Union, Luxembourg.

European Institute for Gender Equality (2018), *Study and work in the EU: set apart by gender*, Publications Office of the European Union, Luxembourg.

European Institute for Gender Equality (2017), *Gender equality in political decision-making*.

UN Women (2016), *Progress of the World's Women 2015–2016: Transforming Economies, Realizing Rights*.

UN Women (2018), *Turning Promises into Action: Gender equality in the 2030 Agenda for Sustainable Development*.

World Economic Forum (2017), *The Global Gender Gap Report 2017*.

Further data sources on gender equality

United Nations, Department of Economic and Social Affairs, Statistics Division (2015), *The World's Women 2015: Trends and Statistics*.

European Institute for Gender Equality, *Gender Statistics Database*.

Notes

- (¹) European Union Agency for Fundamental Rights (2014), *Violence against women: an EU-wide survey, Main results*, Publications Office of the European Union, Luxembourg, p. 25.
- (²) Id., p. 17.
- (³) Council of the European Union (2001), *Council framework decision of 15 March 2001 on the standing of victims in criminal proceedings*, 2001/220/JHA.
- (⁴) European Union Agency for Fundamental Rights (2014), *Violence against women: an EU-wide survey, Main results*, Publications Office of the European Union, Luxembourg, p. 25–26, 32.
- (⁵) Ibid.
- (⁶) European Commission (2010), *Europe 2020: A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.
- (⁷) European Federation of Public Service Unions (2013), *The Gender Pay Gap in Public Services*, p. 9, p. 51.
- (⁸) International Labour Organisation (2015), *Key Indicators of the Labour market: Full report*, Ninth Edition, International Labour Office, Geneva, p. 17.
- (⁹) European Commission (2009), *Economic Crisis in Europe: Causes, Consequences and Responses*, Directorate-General for Economic and Financial Affairs, p. 36.
- (¹⁰) European Commission's Expert Group on Gender and Employment Issues (2009), *The provision of childcare services: A comparative review of 30 European countries*, Office for Official Publications of the European Communities, Luxembourg, p. 23–24.
- (¹¹) European Commission (2017), *Draft Joint Employment Report from the Commission and the Council accompanying the Communication from the Commission on the Annual Growth Survey 2018*, COM(2017) 674 final, Brussels, p. 57.
- (¹²) European Commission (2017), *An initiative to support work–life balance for working parents and carers*, COM(2017) 252 final, Brussels.
- (¹³) European Institute for Gender Equality, *Gender Statistics Database (National governments: presidents and prime ministers)*.
- (¹⁴) Freidenvall, L., Dahlerup, D. and Johansson, E. (2013), *Electoral Gender Quota, Systems and their Implementation in Europe*, Brussels, p. 5.
- (¹⁵) European Parliament (2017), *Women in parliaments, At a glance*, Infographic, p. 2.
- (¹⁶) European Commission (2017), *2018 Report on equality between women and men in the EU*, Publications Office of the European Union, Luxembourg, p. 31.
- (¹⁷) European Commission (2017), *Employment and Social Developments in Europe, Annual Review 2017*, Publications Office of the European Union, Luxembourg, p. 34.

6

Ensure availability and sustainable management of water and sanitation for all

Goal 6 calls for ensuring universal access to safe and affordable drinking water, sanitation and hygiene, and ending open defecation. It also aims to improve water quality and water-use efficiency and to encourage sustainable abstractions and supply of freshwater.



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supports the SDGs

Access to water is a basic human need. The provision of drinking water and sanitation services is a matter of public and environmental health in the EU. Clean water in sufficient quantity is also of paramount importance for agriculture, industry and the environment and plays a crucial role in providing climate-related ecosystem services. The most important pressures on Europe's water resources are pollution, for example from agriculture, as well as municipal and industrial discharges and wastewater and hydrological or physical alterations of water bodies. Also, over-abstraction can be a severe issue in southern Europe, in particular during the summer months and in densely populated areas. In the past 30 years, the European Commission has put considerable effort into devising policies that address these challenges and aim to protect the quality of Europe's water resources and to ensure their sustainable and efficient use.



Table 6.1: Indicators measuring progress towards SDG 6, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Sanitation			
Population having neither a bath, nor a shower, nor indoor flushing toilet in their household	↑ ⁽¹⁾	↑	page 137
Population connected to at least secondary wastewater treatment	:	:	page 138
Water quality			
Biochemical oxygen demand in rivers	↑ ⁽²⁾	↗ ⁽²⁾	page 139
Nitrate in groundwater	↗ ⁽³⁾	↗ ⁽³⁾	page 140
Phosphate in rivers	↑ ⁽⁴⁾	↑ ⁽⁴⁾	page 141
Inland water bathing sites with excellent water quality (*)	:	↑	SDG 14, page 282
Water use efficiency			
Water exploitation index	:	:	page 142

(*) Multi-purpose indicator.


(1) Past 10-year period; trend refers to EU without Croatia.

(2) Data refer to an EU aggregate based on 19 Member States.

(3) Data refer to an EU aggregate based on 17 Member States.

(4) Data refer to an EU aggregate based on 20 Member States.

Table 6.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↘	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Clean water and sanitation in the EU: overview and key trends

Monitoring SDG 6 in an EU context focuses on sanitation, water quality and water use efficiency. As Table 6.1 shows, the EU has made significant progress on sanitation and water quality over the past few years. Progress on water use efficiency cannot yet be measured due to the lack of aggregated EU-level data.

Sanitation

Provision of drinking water and adequate treatment of sewage are matters of public and environmental health. As a vital resource, water is considered a public good in the EU. Thus, drinking water and sanitation services have been high on the political agenda of the EU and its Member States during the past decades. As a result, water utilities are subject to strict regulation regarding the quality and efficiency of services. The indicators chosen to monitor sanitation are the share of the population having neither a bath, nor a shower, nor indoor flushing toilet in their household and the share of the population connected to at least secondary wastewater treatment.

The vast majority of EU citizens have access to basic sanitation and are connected to secondary wastewater treatment

Overall, connection rates and the quality of water services in the EU were already high more than ten years ago, and have continued to improve. The share of the population that have neither a bath, shower, nor indoor flushing toilet in their household decreased from 3.2% in 2007 to 1.8% in 2017. Data also show that between 2010 and 2015, the amount of people connected to secondary wastewater treatment increased.

Protection of water resources, water ecosystems and drinking and bathing water is a cornerstone of EU water policy, as confirmed in the 7th Environment Action Programme ('). The EU health and food safety policy also contributes to high water and sanitation standard in terms of preventing the spread of communicable diseases. The EU, through its external relations, its development cooperation policy (through the European consensus and the Agenda for Change), the European Neighbourhood Policy and the EU Enlargement Policy, is supporting third countries' efforts to achieve this sustainable development goal through bilateral assistance programmes or regional initiatives.

Conventional primary wastewater treatment consists of basic physical processes, such as filtration and sedimentation, and mainly aims to remove suspended solids. Biological oxygen demand (BOD), which is a proxy for organic water pollution, is only reduced by 20–30% by primary treatment processes. In contrast, secondary treatment processes, which are typically applied after primary treatment, reduce BOD by at least 70% through biological or chemical processes.

Growth in the share of people connected to secondary treatment indicates that the



15

Member States reported that more than 80% of their population were connected to at least secondary wastewater treatment

implementation of the Urban Wastewater Treatment Directive ^(?), which started in the 1990s, has made an important contribution to reducing pollution and improving water quality in Europe's rivers.

Differences between Member States exist with regards to levels of access to water services and sanitation

Almost every household had basic sanitary facilities in the majority of EU Member States in 2017. However, the share of the population living in households without access to basic sanitary appliances such as a bath, shower and a flushing toilet varied greatly between countries, ranging from 27.2% to 0%. In general, most countries reported shares of below 1%, which indicates that the EU aggregated data are strongly influenced by only a few countries. In 2017, Romania reported more than a quarter of the population (27.2%) did not yet have access to sanitary facilities within their households. Another three countries from eastern and southern Europe reported that around 10% of their population lacked such access.

It is important to stress, however, that access to basic sanitary facilities is strongly inter-linked with poverty. Poor people, with an income below 60% of the median *equivalised disposable income*, and thus considered to be at risk of poverty, had much lower levels of access to a bath, shower or toilet in their households. In 2017, 6.1% of poor people in the EU reported being affected by this situation compared to only 1.2% of those living above the *poverty threshold* ^(?). The share of poor people without access to basic sanitation facilities was particularly high in Romania, Bulgaria, Lithuania and Latvia, with 58.1% of Romanians who lived below the poverty threshold reporting they lacked access to sanitation in 2017. Notably, in Romania also 17.7% of the richer population lacked access in 2017.



1.8 %
of the EU
population
lacked sanitary
facilities at
home in 2017

Similar to basic sanitary facilities, the share of the population connected to at least secondary wastewater treatment was highest in the 'old' (EU-15) Member States. These countries, due to their earlier EU membership, had a head start on implementing the Urban Waste Water Treatment Directive (and its successor, the Water Framework Directive). Nine of the 10 countries reporting that more than 90% of their population were connected to secondary or higher wastewater treatment belonged to this group. Most of the lowest-scoring countries were in the Mediterranean and Black Sea region.

It is important to note that for countries with a low *population density*, it may be unrealistic to implement comprehensive secondary treatment, especially in remote areas. In line with this understanding, the Urban Wastewater Treatment Directive only obliges agglomerations with more than 2 000 person equivalents to introduce a secondary treatment level. However, even in the absence of secondary treatment, such smaller agglomerations are still encouraged to find alternative solutions to reach the same level of protection for waterbodies. Thus, the share of the population connected to secondary treatment is not expected to reach 100% in all countries.

EU water policy provides a framework for comprehensively addressing water protection and for achieving good status for inland surface waters, transitional waters, coastal waters and groundwater. The EU health and food safety policy also contributes to high standards for water and sanitation in terms of preventing the spread of communicable diseases. The EU Enlargement Policy promotes the extension of EU norms to candidate countries covering water quality, wastewater treatment, but also water management and flood prevention.

Water quality

Protecting water bodies from pollution and deterioration of water resources has long been a focus of EU environmental policy. Diffuse pollution by agriculture, accidental spills of harmful substances and discharge of insufficiently treated domestic and industrial wastewater, as well as atmospheric deposition of pollutants such as mercury, can threaten human and environmental health. These pressures, along with changes to the structure and flow of water bodies, pose a barrier to sustainable development. Water quality monitoring distinguishes between chemical pollution and pollution by nutrients and pathogens. In this report, water quality is monitored through four indicators looking at nutrients in rivers and in [groundwater](#) and at bathing water quality. All these indicators show favourable trends for the EU over the past few years.

Improved wastewater treatment leading to declining BOD values in European rivers

As a direct result of improved wastewater treatment in the EU, biochemical oxygen demand (BOD) in European rivers is decreasing. BOD is a

proxy for the amount of organic water pollution. It is measured by the amount of oxygen that microorganisms consume while digesting the organic material in a water sample in the dark over five days of incubation at 20 °C. In nature, BOD values have been shown to range from less than 1 milligram per litre (mg/L) in very clean rivers to more than 15 mg/L in heavily polluted rivers. Typically, BOD is a function of municipal wastewater discharged into watercourses, but BOD levels can also be elevated by industrial or agricultural effluents. Very high BOD concentrations can lead to a deoxygenation of water with severe consequences for fish and invertebrates and the aquatic ecosystem as a whole.



In 2015, the biochemical oxygen demand in European rivers amounted to 2.02 mg/L

As the data show, BOD in European rivers has declined from 2.95 mg/L in 2000 to 2.02 mg/L in 2015. The decrease has, however, slowed in recent years, which might be due to secondary treatment already being widely implemented in wastewater treatment plants.

According to the [Water Framework Directive](#) ⁽⁴⁾, EU Member States were obliged to achieve good status in all bodies of surface water and groundwater by 2015, unless there were grounds for exemption. Only in those cases was it possible to extend the achievement of good status to 2021, or 2027, or to set less stringent targets. Achieving good status involves meeting certain standards for the ecology, chemistry and quantity of waters. In general, good status means that water shows only a slight change from what would normally be

expected under undisturbed conditions (i.e. with a low human impact).

The [7th Environment Action Programme](#) sets the policy agenda for the years from 2015 to 2020 with the naming of nine priorities. Priorities 1, 2, 3, 5, 6 and 8 deal in particular with the improvement of the status of water resources. Furthermore, priority objectives 4 and 7 are aimed at improving the integrated implementation of environmental policy in general that is clearly important for the water sector as well as other sectors.

Eutrophication is still a major issue for Europe's aquatic environment

The most recent assessment of European waters published by the European Environment Agency (EEA) concludes that chemical pollution impacts most EU [surface water](#) bodies (49%), followed by changes to the river structure and flow (40%) and nutrient pollution (28%) ⁽⁵⁾. In some regions, nutrient concentrations in rivers are still high enough to even cause [eutrophication](#) in coastal waters. This shows that although eutrophication has fallen since the 1990s, it remains one of the major threats to many surface water bodies achieving good water quality. Eutrophication describes a process caused by inputs of the nutrients nitrate/ammonia (N) and phosphorous (P) into water bodies and can lead to algae blooms and oxygen depletion of surface waters. With increased nutrient levels, communities of water organisms change as organisms that occur in oligotrophic (nutrient poor) waters are replaced by more eutrophic species.

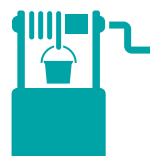
The main sources of nutrient inputs are agricultural practices involving the application of fertilisers and animal waste, as well as poorly treated wastewater from industry, such as food, beverages, pulp and paper production ⁽⁶⁾.

The [Water Framework Directive](#) ⁽⁷⁾ is the main European legislation aiming to prevent pollution. It integrates several previously existing Directives, including the [Freshwater Fish Directive](#) (which sets standards for P concentration) and the [Groundwater Directive](#) (which sets a threshold for N). In addition, the [Bathing Water Directive](#) ⁽⁸⁾ obliges Member States to preserve, protect and improve the environmental quality of bathing water sites to protect human health. The two main parameters to be used to monitor and assess the quality of bathing waters and to classify them are intestinal enterococci and E.coli.

Nitrates (NO_3), among other chemicals, can infiltrate and contaminate groundwater bodies. They are the most common pollutants causing poor chemical status of groundwater in the EU. In the second Water Framework Directive reporting cycle, nitrates caused poor chemical status in 18% of groundwater body area across 24 Member States ⁽⁹⁾. This is particularly problematic because groundwater, in addition to surface water, is an important source of drinking water in Europe. On average, nitrate concentrations in European groundwater bodies are within the EU drinking water standard of 50 mg/L. Between 2000 and 2015, nitrate concentrations in groundwater remained below 20 mg/L at EU level, reaching 18.3 mg/L in 2015. However, over the period 2012 to 2015, 13.2% of groundwater stations were considered polluted under the Nitrates Directive (exceeding 50 mg/L) ⁽¹⁰⁾.

Moreover, there are still regions with very intensive agriculture where nitrates concentrations exceed safe levels and further groundwater treatment is needed to protect human health.

The application of mineral and organic fertilisers in agricultural production is closely linked with ammonia emissions. It is a common by-product of animal waste, slurry or incomplete fertiliser uptake. Countries with the highest ammonia emissions per hectare of utilised agricultural area in Europe, such as Malta, Cyprus, Spain, Belgium or Luxembourg, are also struggling the most with high nitrates levels in groundwater.



In 2015, the concentration of nitrates in groundwater in Europe reached 18.3 mg/L



0.06 mg/L was the concentration of phosphates in European rivers in 2015

The Nitrates Directive⁽¹¹⁾ takes action to prevent nitrates from agriculture polluting ground and surface waters by decreasing the nitrogen balance on farmland (also see the chapter on SDG 2 'Zero hunger' on page 55). However, continued effort is needed to restore optimal water quality across the EU. All Member States have set up nitrate action programmes to prevent nitrates from agricultural sources polluting ground and surface waters.

Water quality in European rivers improved significantly between 2000 and 2015. Average phosphate (PO_4) concentrations in European rivers fell from 0.097 mg/L in 2000 to a low of 0.060 mg/L in 2015. This overall positive trend is to some extent the result of the implementation of measures under the Urban Waste Water Treatment Directive over the past two and a half decades and especially the introduction of phosphate-free detergents.

Vast majority of inland and coastal bathing waters show 'excellent' bathing water quality

Pure, clean water is not only vital to human health but also for people's well-being. Overall, the share of inland water bathing sites with excellent water quality in the EU has been growing since 2011. According to the latest Report on European Bathing Water Quality⁽¹²⁾, 86.3 % of all coastal bathing sites and 82.1 % of inland water bathing sites showed excellent bathing water quality in 2017. Wastewater pollution and less dilution of water discharges are the main reasons why inland water bathing sites are less likely to have excellent water quality than coastal bathing sites.



The Bathing Water Directive⁽¹³⁾ requires Member States to monitor and assess bathing water for at least two parameters of (faecal) bacteria. In addition, they must inform the public about bathing water quality and beach management, through the so-called bathing water profiles. These profiles contain, for instance, information on the kind of pollution and sources that affect bathing water quality and are a risk to bathers' health. The Directive requires Member States to have reached at least 'sufficient' status at all sites by 2015.

Water use efficiency

To manage water resources sustainably, the quantity of water used needs to be considered alongside its quality. Therefore, SDG 6 also calls for a focus on water use efficiency, with the aim of improving it across all sectors by 2030, in order to use freshwater sustainably and reduce water scarcity. The EU aims to increase the efficiency and sustainability of water resources that are monitored by the water exploitation index.

Water stress is low in most EU countries, but still high in a few

When considered over a year, water stress in most Member States is still rare. However, water exploitation index (WEI) values for Cyprus and Malta were above the severe water scarcity threshold of 40 % in 2015 and have been worsening since 2000. A further two countries were above the 20 % threshold: Belgium and Spain. Apart from Belgium, all of these countries are in the water-scarce Mediterranean region.



Water scarcity in Belgium can be explained by the fact that about two-thirds (68 % in 2009 ⁽¹⁴⁾) of the water abstracted is used for cooling in electricity generation, to a large extent in nuclear reactors ⁽¹⁵⁾. Cooling water is typically redirected to rivers after use, but such return flows are not captured by the WEI indicator. Another reason for the relatively high share of abstracted water in Belgium could be that the country has a relatively small amount of available renewable freshwater ⁽¹⁶⁾ in general.

To overcome the shortcomings of the WEI indicator, the water exploitation index plus (WEI+) was developed. It includes return flows and is therefore a more adequate reflection of net consumption ⁽¹⁷⁾. In 2018, the EEA published an assessment of European river basin districts for the period 1990 to 2015. Over the 15-year period from 2000 to 2015, an average of 14 % of the total EU territory was affected by water scarcity, with the highest values observed in 2000 (21 %) and 2015

(20 %). In 2015, a year with relatively high actual evapotranspiration and low precipitation levels, the share of the population exposed to water scarcity was around 30 %. Most of these people were living in densely populated cities, on small Mediterranean islands and in agricultural areas of southern Europe ⁽¹⁸⁾.

The 7th Environment Action Programme of the European Commission aims to increase resource, and thus water, efficiency. Ensuring water is used in appropriate quantities is one objective of the [Water Framework Directive](#). To overcome the shortcomings of the water exploitation index, the [European Environment Agency](#) has developed an improved indicator WEI+.

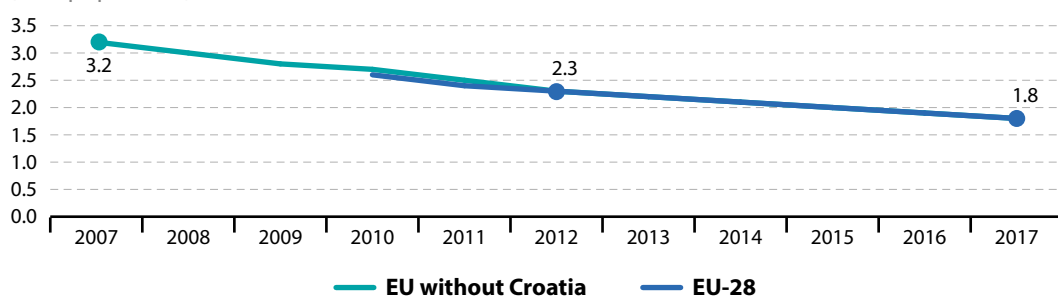
Presentation of the main indicators

Population having neither a bath, nor a shower, nor indoor flushing toilet in their household

This indicator reflects the share of total population having neither a bath, nor a shower, nor an indoor flushing toilet in their household. Data presented in this section stem from the [EU Statistics on Income and Living Conditions \(EU-SILC\)](#).



Figure 6.1: Population having neither a bath, nor a shower, nor indoor flushing toilet in their household, EU, 2007–2017 (% of population)



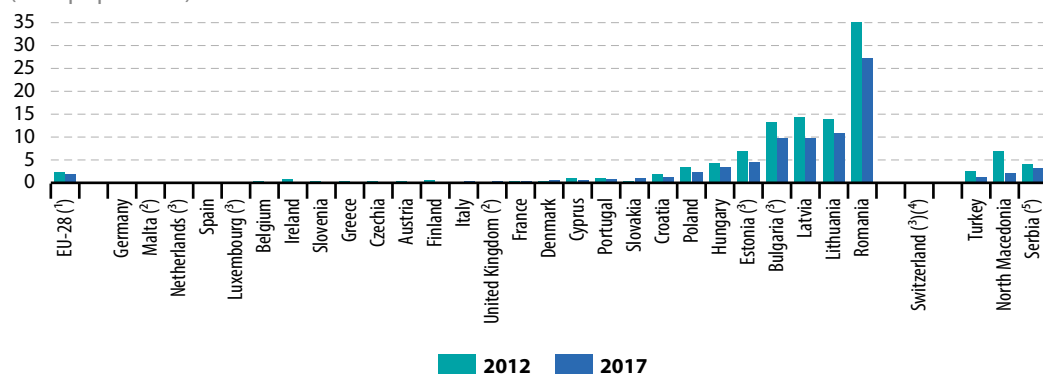
Source: Eurostat (online data code: [sdg_06_10](#))

Table 6.3: Compound annual growth rate (CAGR) of the share of population having neither a bath, nor a shower, nor indoor flushing toilet in their household, EU

EU aggregate	Period	Growth rate
EU without Croatia	2007–2017	– 5.6 % per year
EU-28	2012–2017	– 4.8 % per year

Source: Eurostat (online data code: [sdg_06_10](#))

Figure 6.2: Population having neither a bath, nor a shower, nor indoor flushing toilet in their household, by country, 2012 and 2017 (% of population)



(1) Estimated data.

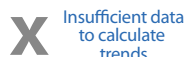
(2) 2016 data (instead of 2017).

(3) Break(s) in time series between the two years shown.

(4) 2015 data (instead of 2017).

(5) 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_06_10](#))

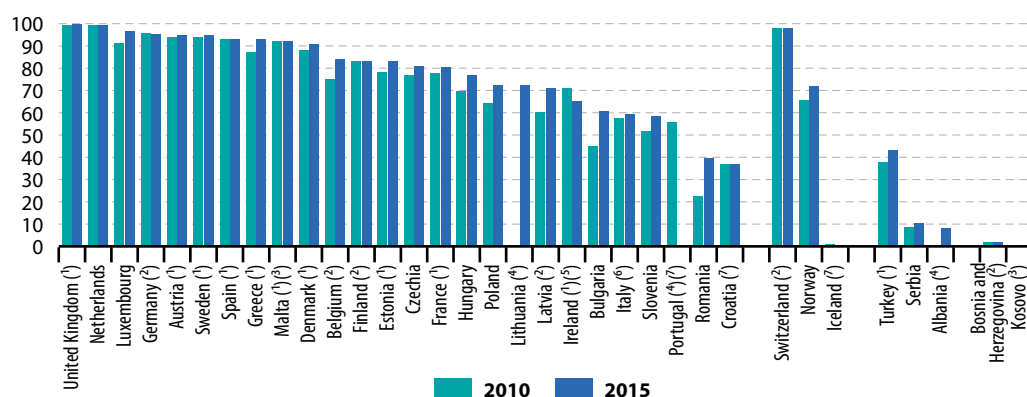


Population connected to at least secondary wastewater treatment

This indicator measures the percentage of the population connected to wastewater treatment systems with at least secondary treatment. Thereby, wastewater from urban sources or elsewhere is treated by a process generally involving biological treatment with a secondary settlement or other process, resulting in the removal of organic material that reduces the biochemical oxygen demand (BOD) by at least 70 % and the chemical oxygen demand (COD) by at least 75 %. Data presented in this section stem from the Water Statistics of the European Statistical System (ESS).

Figure 6.3: Population connected to at least secondary wastewater treatment, by country, 2010 and 2015

(% of population)



⁽¹⁾ 2014 data (instead of 2015).

⁽²⁾ 2013 data (instead of 2015).

⁽³⁾ 2011 data (instead of 2010).

⁽⁴⁾ No data for 2010.

⁽⁵⁾ 2009 data (instead of 2010).

⁽⁶⁾ 2008 data (instead of 2010).

⁽⁷⁾ No data for 2015.

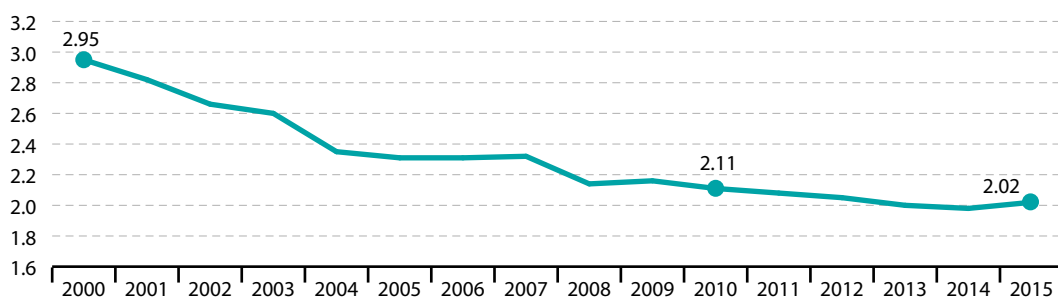
Source: Eurostat (online data code: [sdg_06_20](#))

Biochemical oxygen demand in rivers

This indicator measures the mean annual BOD₅ in rivers, weighted by the number of measuring stations. BOD₅ is a measure of the amount of oxygen that aerobic microorganisms need to decompose organic substances in a water sample over a five-day period in the dark at 20 °C. High BOD₅ values are usually a sign of organic pollution, which affects water quality. The cleanest rivers have a five-day BOD of less than 1 mg/L. Moderately polluted rivers show values ranging from 2 to 8 mg/L. Data presented in this section stem from the EEA Waterbase database on the status and quality of Europe's rivers.



Figure 6.4: Biochemical oxygen demand in rivers, EU, 2000–2015
(mg O₂ per litre)



Note: 'EU' refers to an aggregate based on 19 Member States (see Figure 6.5).

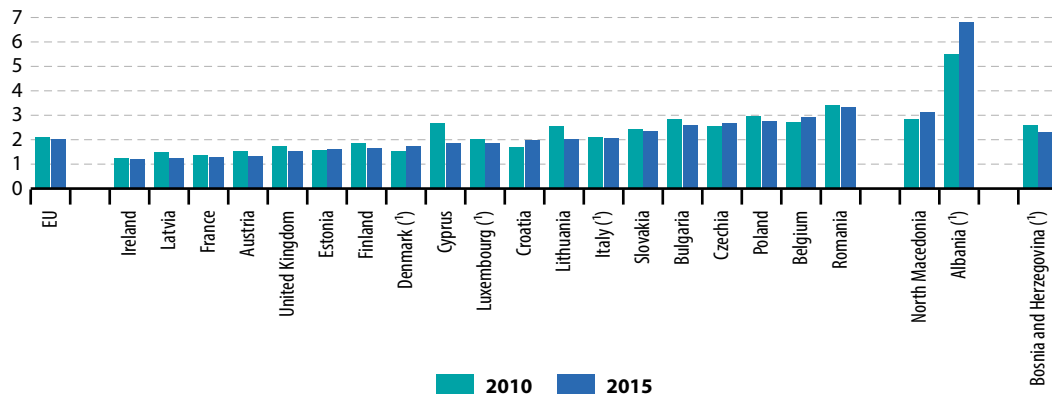
Source: EEA (Eurostat online data code: [sdg_06_30](#))

Table 6.4: Compound annual growth rate (CAGR) of the biochemical oxygen demand in rivers, EU

EU aggregate	Period	Growth rate
EU	2000–2015	– 2.5 % per year
EU	2010–2015	– 0.9 % per year

Source: EEA (Eurostat online data code: [sdg_06_30](#))

Figure 6.5: Biochemical oxygen demand in rivers, by country, 2010 and 2015
(mg O₂ per litre)



(*) 2015 data are estimated.

Source: EEA (Eurostat online data code: [sdg_06_30](#))

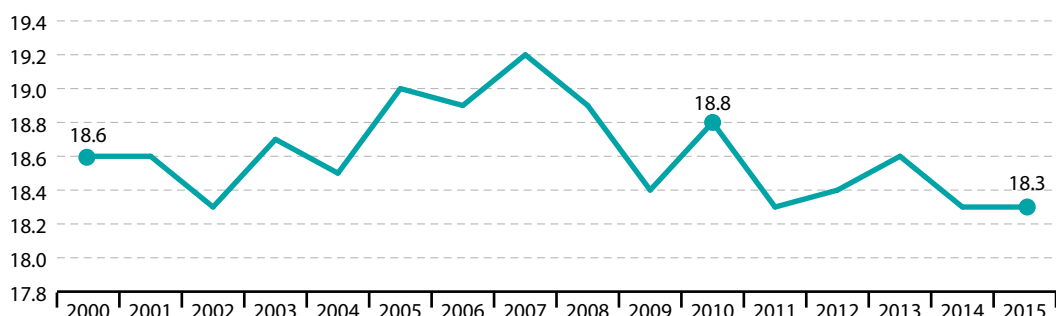
LONG TERM
2000–2015

SHORT TERM
2010–2015

Nitrate in groundwater

This indicator refers to concentrations of nitrate (NO_3) in groundwater measured as milligrams per litre (mg/L). Data are taken from well samples and aggregated to annual average concentrations for groundwater bodies in Europe. Only complete series after inter/extrapolation are included. The data stem from the EEA Waterbase database on the status and quality of Europe's rivers.

Figure 6.6: Nitrate in groundwater, EU, 2000–2015
(mg NO_3 per litre)



Note: 'EU' refers to an aggregate based on 17 Member States (see Figure 6.7).

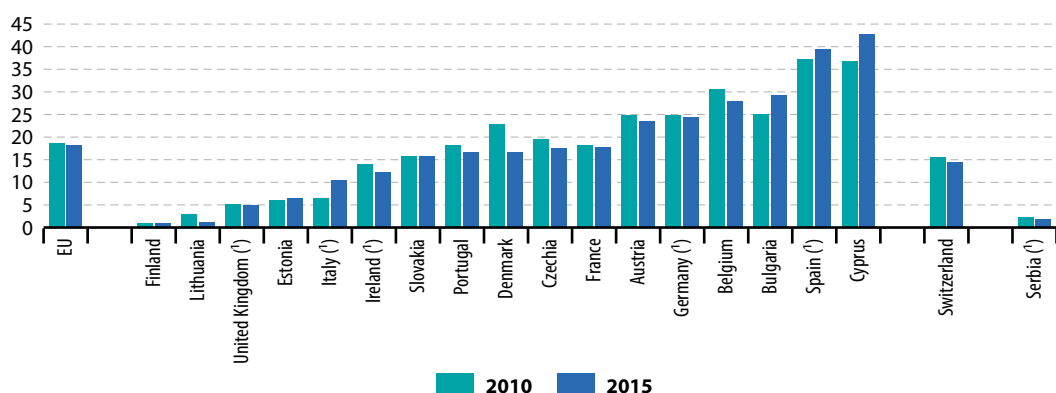
Source: EEA (Eurostat online data code: [sdg_06_40](#))

Table 6.5: Compound annual growth rate (CAGR) of the nitrate in groundwater, EU

EU aggregate	Period	Growth rate
EU	2000–2015	– 0.1 % per year
EU	2010–2015	– 0.5 % per year

Source: EEA (Eurostat online data code: [sdg_06_40](#))

Figure 6.7: Nitrate in groundwater, by country, 2010 and 2015
(mg NO_3 per litre)



(¹) 2015 data are estimated.

Source: EEA (Eurostat online data code: [sdg_06_40](#))

Phosphate in rivers

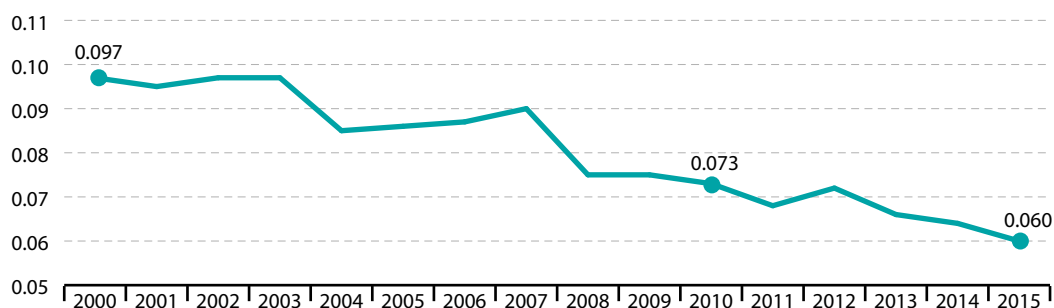
This indicator measures the concentration of phosphate (PO_4) per litre in the dissolved phase from water samples from river stations and aggregated to annual average values. At high concentrations phosphate can cause water quality problems, such as eutrophication, by triggering the growth of macrophytes and algae. The data stem from the EEA Waterbase database on the status and quality of Europe's rivers.

↑ **LONG TERM**
2000–2015

↑ **SHORT TERM**
2010–2015

Figure 6.8: Phosphate in rivers, EU, 2000–2015

(mg PO_4 per litre)



Note: 'EU' refers to an aggregate based on 20 Member States (see Figure 6.9).

Source: EEA (Eurostat online data code: [sdg_06_50](#))

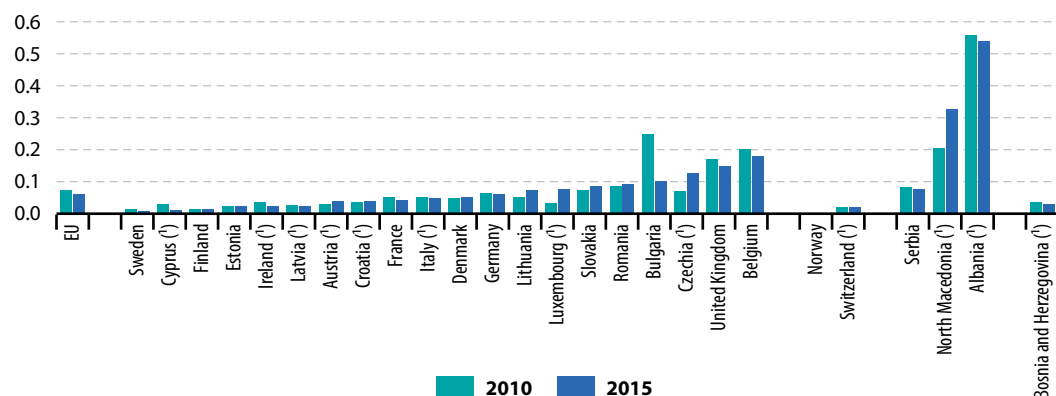
Table 6.6: Compound annual growth rate (CAGR) of the phosphate in rivers, EU

EU aggregate	Period	Growth rate
EU	2000–2015	– 3.2% per year
EU	2010–2015	– 3.8% per year

Source: EEA (Eurostat online data code: [sdg_06_50](#))

Figure 6.9: Phosphate in rivers, by country, 2010 and 2015

(mg PO_4 per litre)



(*) 2015 data are estimated.

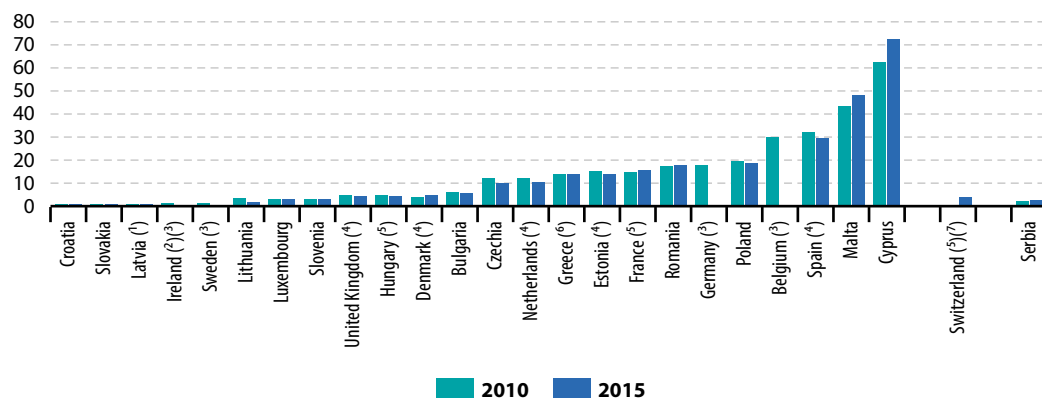
Source: EEA (Eurostat online data code: [sdg_06_50](#))

X Insufficient data
to calculate
trends

Water exploitation index

This indicator measures the annual total fresh water abstraction in a country as a percentage of its **long-term annual average available water (LTAA)** from renewable fresh water resources (groundwater and surface water). Total fresh water abstraction includes water removed from any fresh water source, either permanently or temporarily (for example, water abstraction for agriculture or for cooling purposes). Mine water and drainage water as well as water abstractions from precipitation are included, whereas water used for hydroelectricity generation (*in situ* use) is excluded. The indicator also illustrates pressure on groundwater resources. Water scarcity is noticeable above a threshold of 20%, whereas severe scarcity regions show WEI values beyond 40%. The indicator is based on data from the Water Statistics of the European Statistical System (ESS).

Figure 6.10: Water exploitation index, by country, 2010 and 2015
(% of long term average available water (LTAA))



⁽¹⁾ 2013 data (instead of 2015).

⁽²⁾ 2009 data (instead of 2010).

⁽³⁾ No data for 2015.

⁽⁴⁾ 2014 data (instead of 2015).

⁽⁵⁾ 2012 data (instead of 2015).

⁽⁶⁾ 2011 data (instead of 2010).

⁽⁷⁾ No data for 2010.

Source: Eurostat (online data code: [sdg_06_60](#))

Further reading on clean water and sanitation

EEA (2017), *Emissions of pollutants to Europe's waters — sources, pathways and trends*, ETC/ICM Technical Report 3/2017, European Environment Agency, Copenhagen.

EEA (2018), *European waters — Assessment of status and pressures 2018*, ETC/ICM Technical Report No 7/2018, European Environment Agency, Copenhagen.

UN Water (2018), *SDG 6 Synthesis Report 2018 on Water and Sanitation*.

Further data sources on clean water and sanitation

EEA, [Urban waste water treatment](#).

EEA, [Freshwater quality](#).

EEA, [Water intensity of crop production](#).

EEA, [Water exploitation index \(WEI\) and Water exploitation index+ \(WEI+\)](#).

Eurostat, [Water statistics](#).

Notes

- (¹) European Parliament and European Council (2013), *Decision No 1386/2013/EU on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'*.
- (²) Council of the European Communities (1991), *Council Directive 91/271/EEC of 21 of May 1991 concerning urban waste-water treatment*.
- (³) Source: Eurostat (online data code: *ilc_mdho05*).
- (⁴) European Parliament and Council of the European Union (2000), *Directive 2000/60/EC establishing a framework for the Community action in the field of water policy*.
- (⁵) European Environment Agency (2018), *European waters — Assessment of status and pressures 2018*, EEA Report No 7/2018, p. 63.
- (⁶) European Environment Agency (2017), *Emissions of pollutants to Europe's waters — sources, pathways and trends*, ETC/ICM report, p. 17.
- (⁷) European Parliament and Council of the European Union (2000), *Directive 2000/60/EC establishing a framework for the Community action in the field of water policy*.
- (⁸) European Parliament and Council of the European Union (2006), *Directive 2006/7/EC concerning the management of bathing water quality and repealing Directive 76/160/EEC*.
- (⁹) European Environment Agency (2018), *European waters — Assessment of status and pressures 2018*, EEA Report No 7/2018
- (¹⁰) European Commission (2018), *The Nitrates Directive: Reports from the Commission to the Council and the European Parliament on implementation of the Nitrates Directive (Article 11 reports)*, p. 5.
- (¹¹) Council of the European Communities (1991), *Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources*.
- (¹²) European Environment Agency (2018), *European Bathing Water Quality in 2017*, EEA Report No. 2/2018.
- (¹³) European Parliament and Council of the European Union (2006), *Directive 2006/7/EC concerning the management of bathing water quality and repealing Directive 76/160/EEC*.
- (¹⁴) Source: Eurostat (online data code: *env_wat_abs*).
- (¹⁵) Share of 51 % on overall electricity production in 2016, World Nuclear Association (2018), *Nuclear Power in Belgium*.
- (¹⁶) Eurostat (2017), *Statistics Explained, Water statistics*.
- (¹⁷) European Environment Agency (2017), *Water exploitation index plus (WEI+) for river basin districts (1990–2015)*.
- (¹⁸) European Environment Agency (2018), *Use of freshwater resources (CSI 018)*, Indicator assessment. Accessed 22 January 2019; and European Environment Agency (2018), *Environmental indicator report 2018*, EEA Report No 19/2018.

7

Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 7 calls for ensuring universal access to modern energy services, improving energy efficiency and increasing the share of renewable energy. To accelerate the transition to an affordable, reliable and sustainable energy system that fulfils these demands, countries need to facilitate access to clean energy research and technology and to promote investment in resource- and energy-efficient solutions and low-carbon energy infrastructure.





















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Everyday life depends on reliable and affordable energy services, such as heating and cooling, electricity supply and transport. Energy enables the smooth functioning of all economic sectors, from business and industry to agriculture. The EU still relies heavily on fossil fuels for its energy and faces a number of challenges in securing affordable, reliable and sustainable energy supplies. Increasing energy efficiency, improving energy productivity and reducing total consumption, while ensuring security of supply, competitiveness and access to affordable energy for all its citizens, are some of the ways the EU can help achieve SDG 7. As reflected in the Europe 2030 climate and energy framework, increased energy efficiency and a shift towards renewable energy production are crucial for the EU, especially when considering climate change.








Table 7.1: Indicators measuring progress towards SDG 7, EU-28

Indicator		Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Energy consumption				
 Energy consumption	Primary energy consumption			page 154
	Final energy consumption			
Final energy consumption in households per capita				page 156
Energy productivity				page 157
Greenhouse gas emissions intensity of energy consumption (*)				SDG 13, page 265
Energy supply				
 Share of renewable energy in gross final energy consumption		 ⁽¹⁾		page 158
Energy import dependency				page 160
Access to affordable energy				
Population unable to keep home adequately warm		 ⁽²⁾		page 161

(*) Multi-purpose indicator.

⁽¹⁾ Past 13-year period.⁽²⁾ Past 10-year period; data refers to EU without Croatia.**Table 7.2:** Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Affordable and clean energy in the EU:

Overview and key trends

Monitoring SDG 7 in an EU context requires looking into developments in the areas of energy consumption, energy supply and access to affordable energy. As shown in Table 7.1, EU progress in these areas has been mixed over the past few years. While energy productivity and the greenhouse gas emission intensity of energy consumption have improved in the EU, energy consumption itself has increased steadily since 2014, making the 2020 energy efficiency target difficult to achieve. Progress on the use of renewable energies has also slowed, while the dependence on energy imports from outside the EU keeps rising. On a positive note, the share of people who are able to keep their homes adequately warm has risen continuously.

Energy consumption

Increasing the EU economy's energy efficiency is one of the main pillars for reaching an affordable, reliable, sustainable and modern energy system as envisaged in SDG 7. Efficient energy systems reduce consumption and costs, decrease dependencies and diminish the environmental and climate impacts linked to energy supply and use. The EU aims to improve energy efficiency along the whole energy supply chain, and the proposed policies and measures seem to have contributed to falls in primary and final energy consumption since 2007. However, this downward trend reversed in 2014 when primary and final energy consumption started increasing again, implying the EU and its Member States need to intensify efforts to meet the 2020 energy efficiency target.

Due to recent increases in energy consumption, the EU is not on track to meet its 2020 energy efficiency target

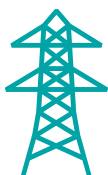
The EU aims to increase its energy efficiency by 20 % by 2020. Because this target was set in relation to business-as-usual projections of energy consumption up to 2020, it has been translated into absolute levels of energy consumption for monitoring purposes. This means that by 2020, EU energy consumption should not exceed 1 483 million tonnes of oil equivalent (Mtoe) of primary energy or 1 086 Mtoe of final energy (see the [Energy Efficiency Directive](#) ⁽¹⁾). [Primary energy](#) measures a country's total energy needs excluding all non-energy use of energy carriers (for example, natural gas used not for combustion but for producing chemicals). It covers energy consumption by end users such as industry, transport, households, services and agriculture, plus consumption by the energy sector itself for production and transformation of energies, losses during the transformation of energies (such as the efficiency of electricity production from combustible fuels) and the transmission and distribution losses of energy.

In comparison, [final energy consumption](#) measures a country's energy end-use excluding all non-energy use of energy carriers (for example, natural gas used not for combustion but for producing chemicals) and only covers the energy consumed by end users, such as households, industry, agriculture and transport. It excludes the energy used by the energy sector itself and losses during the transformation and distribution of energy.

The EU aims to improve energy efficiency by 20 % by 2020, as highlighted in the Europe 2020 strategy ⁽²⁾, and by at least 32.5 % by 2030 according to the revised Energy Efficiency Directive ⁽³⁾. The Energy Union strategy ⁽⁴⁾ includes energy efficiency as one of its five main pillars.

Furthermore, EU cohesion policy ⁽⁵⁾ invests EUR 29 billion in sustainable energy, including energy efficiency, renewable energy, smart energy infrastructure and low-carbon research and innovation, while the EU's digital policy ⁽⁶⁾ aims to contribute to energy efficiency at the household level, for example, through support for smart metering and smart cities.

Between 2002 and 2017, primary energy consumption fell by 95.5 Mtoe, or 5.8%, reaching 1 561.6 Mtoe in 2017. In comparison, final energy consumption fell by only 23.0 Mtoe or 2.0%, to 1 122.8 Mtoe in 2017. Progress on both fronts was due to various factors, including a structural transition towards less energy-intensive industries in many Member States and improvements in end-use efficiency in the residential sector. An analysis of these factors points to decreased energy intensity as a result of innovation, efficiency improvements and policy implementation as being the most important drivers of reductions in primary and final energy consumption in the EU between 2005 and 2014 ⁽⁷⁾. Moreover, the continued fall in primary energy consumption in the post-recession years (2009 to 2014) suggests some decoupling of energy consumption from economic growth ⁽⁸⁾. However, both primary and final energy consumption have increased since 2014, reflecting partially a return to average heating demand after an exceptionally warm 2014 ⁽⁹⁾ and stronger year-to-year economic growth (see the chapter on SDG 8 'Decent work and economic



1 561.6
Mtoe of primary
energy were
consumed in
the EU in 2017

growth' on page 165). Consequently, if this recent trend continues, it is likely that the targets for primary and final energy consumption will be missed, especially if economic growth accelerates in the future (also see the analysis of energy productivity below).

Reductions in primary energy consumption are partially attributed to a fall in fossil fuel use, in particular petroleum products and solid fuels, associated with a complementary increase in the use of renewable energy sources. Although petroleum products experienced a sizable absolute reduction in consumption between 2002 and 2017 (80.6 Mtoe) — amounting to a 14.0 % fall — they still accounted for the largest share of primary energy consumption at 31.6 %. Consumption of solid fuels fell by 87.6 Mtoe (– 27.9 %), while natural gas and nuclear heat consumption fell by 11.2 Mtoe (– 2.8 %) and 45.1 Mtoe (– 17.6 %), respectively.

In contrast, the share of renewable energy sources in primary energy consumption increased between 2002 and 2017, from 6.1 % to 14.8 % (also see the analysis on renewable energy sources on page 158) ⁽¹⁰⁾.

Furthermore, reductions in primary energy consumption were also the result of lower final energy consumption. A breakdown by sector for final energy consumption shows that between 2002 and 2017, the greatest absolute reduction of 41.2 Mtoe (– 13.6 %) occurred in the industrial sector, followed by the residential sector with 11.5 Mtoe (– 3.8 %) and agriculture/forestry with 2.3 Mtoe (– 8.1 %). Reductions in the industrial sector almost compensated for increases in the service (27.7 Mtoe or + 21.9 %) and transport (14.2 Mtoe or + 4.5 %) sectors ⁽¹¹⁾. Structural changes and improvements in end-use efficiency were the main drivers of these reductions, while the economic crisis caused a slump in economic output, further depressing final energy consumption in 2008 and 2009. However, accelerated economic growth and lower fuel costs have contributed to a rebound in



1 122.8
Mtoe of final
energy were
consumed in
the EU in 2017

energy consumption since 2014, especially in the transport sector.

EU citizens on average consumed less energy at home in 2017 than they did in 2002, but further reductions are needed

Households account for about a quarter of final energy consumption. At home, people use energy in particular for heating, cooling, cooking, lighting, sanitary purposes and appliances. The level of household energy consumption mainly depends on outdoor temperatures (or climate conditions), energy performance of buildings, the use and efficiency of electrical appliances, and the behaviour and the economic status of inhabitants (for example, desired or affordable level of thermal comfort, frequency of clothes washing, use of TV-sets, games and lighting preferences). Over the past 15 years (2002 to 2017), the average household energy consumption per EU inhabitant fell from 611 kilograms of oil equivalent (kgoe) to 563 kgoe — a 7.9% reduction.



563
kgoe of final
energy were
consumed
by each EU
inhabitant at
home in 2017

The EU's total household energy consumption showed a slight upward trend between 2002 and 2017, while the population grew by 4.5% or 22.0 million (¹²). This suggests that efficiency improvements, in particular in space heating, have balanced the effect of population growth and the increased number and size of dwellings. In addition, data suggest that households have reduced direct consumption of fossil fuels for heating and used more renewable energy and electricity (¹³).

Both energy productivity and greenhouse gas intensity of energy consumption have improved almost continuously since 2000

Historically, economies have developed in line with consumption as greater resource use spurs economic growth. However, recent trends in Europe point to a 'decoupling' of economic growth — measured as gross domestic product (GDP) — from energy inputs and their associated

greenhouse gas (GHG) emissions. In the EU, this has meant that energy consumption has started to decouple from its negative environmental and climate impacts, driven by a fall in fossil fuels use against a backdrop of increasing renewable energy production.

In terms of decoupling economic growth from energy consumption, increased energy efficiency and economic restructuring result in higher energy productivity (¹⁴), meaning that an economy produces more output from the same energy input. Since 2000, the EU has continuously increased its energy productivity, reaching EUR 8.3 per kgoe in 2017, with all Member States contributing to this upward trend. The steady rise in the EU's energy productivity up to 2017 is the result of falls in gross available energy, by 5.2% since 2002 and 1.1% since 2012, while GDP has grown, by 22.7% and 9.2% over the same periods respectively (¹⁵). Energy productivity varies substantially by country, ranging from EUR 17.6 per kgoe in Ireland to EUR 4.7 per kgoe in Malta (¹⁶). Ireland has significantly higher energy productivity than the remaining Member States due in part to relatively low industrial energy intensity (¹⁷).

The way to decouple energy consumption from its negative contribution to climate change is to reduce its GHG intensity — the ratio between energy-related GHG emissions and gross available energy. GHG intensity of available energy is thus expressed as the amount of CO₂ equivalent emitted per unit of gross available energy in a given economy.

In 2017, the majority of the EU's gross available energy (72.6%) was covered by fossil energy sources, which are prime emitters of GHGs (¹⁸) (see also the chapter on SDG 13 'Climate Action' on page 253). Between 2002 and 2017, the GHG emissions intensity of gross inland consumption fell by 12.7%, in particular due to a rising share of renewables in the energy mix and falling



In 2017, the
EU's energy
productivity
amounted to
EUR 8.3
per kgoe

consumption of primarily oil products and coal. The increased use of gas in some countries has also contributed to this trend as gas, and energy products derived from gas, tend to be less GHG intensive.

The GHG emissions intensity also varied by country between 2002 and 2017, with the largest progress being reported in Malta (– 33.2%)⁽¹⁹⁾, followed by Denmark (– 32.9%) and Finland (– 31.0%). Some countries saw their GHG emissions intensity increase in the 15-year period. Lithuania and Bulgaria in particular reported increases of 17.4% and 6.3%, respectively. The differences between countries can be attributed to many factors, including varying progress on energy efficiency measures, each country's respective energy mix — coal is still a significant energy source for several Member States — and pending infrastructure development (see the chapter on SDG 13 'Climate action' on page 265 for a more detailed discussion of this indicator).



12.7%
decline in the
GHG intensity
of EU gross
available energy
between 2002
and 2017

Energy supply

To achieve SDG 7's aim of ensuring an affordable and clean energy system, the EU seeks to increase the share of renewable energy in gross final consumption of energy to 20% by 2020. Most renewable energy sources are considered to be practically inexhaustible or renew within a human lifetime. In contrast, fossil energy sources regenerate over millions of years and are the main source of man-made GHG emissions, thus they contribute significantly to climate change. The EU highlights the importance of renewable energy sources in the context of its climate change mitigation targets for the purpose of decarbonising the EU energy system (see also the chapter on SDG 13 'Climate action' on page 253).

Additionally, to ensure a secure, affordable and clean energy system, the EU must reduce its dependency on energy imports, which mostly comprise natural gas, [crude oil](#) and coal imports.

Dependence on energy imports exposes the EU economy to significant costs and to the risk of supply shortages, for example, due to geopolitical conflicts. The risks increase when there is a dependency on a single country, which is often a result of the supply infrastructure in place. In this context, the EU seeks to become more energy independent through increased domestic energy production (such as from renewable energy sources), increased energy efficiency and moderation of demand by implementing necessary infrastructure, which will allow clean energy to be distributed across the EU. The selected indicators for this sub-theme paint an ambiguous picture: while the share of renewables in gross final energy consumption has increased continuously over the past few years, so has the EU's reliance on energy imports of mainly fossil fuels from outside its borders.

A rising share of renewables in electricity, heating, cooling and transport has put the EU on track to meeting its 2020 renewable energy target

Use of renewable energy has grown continuously in the EU. Its share has doubled since 2004, when renewables covered only 8.5% of gross final energy consumption, to reach 17.5% in 2017. Due to this steady growth, the EU is on track to meeting its target of increasing the share of renewable energy to 20% by 2020. More efficient technologies, support schemes and obligations for renewable energy sources as well as falling costs for renewable energy technologies have driven this rise⁽²⁰⁾. The share of renewables grew in all of the three application areas, namely electricity, heating and cooling, and transport. In 2017, the renewable share was highest in electricity generation at 30.8%, followed by heating and cooling, where renewables supplied 19.5%, and transport with 7.6%. Since 2004, the share of renewable energy in transport has increased



17.5%
of the energy
consumed in the
EU in 2017 came
from renewable
sources

fivefold, up from only 1.4%. The second largest increase was realised in electricity generation where renewables more than doubled their share, closely followed by heating and cooling where the share had almost doubled ⁽²¹⁾.

Renewable energy can be generated from a range of sources, including bioenergy, hydro, wind, solar and geothermal power. In 2017, renewable electricity was generated predominantly by hydropower and wind energy, while **biomass** supplied most of the renewable heating. Liquid **biofuels** were the main source of renewable transport fuels. Bioenergy (biomass and renewable waste) remained by far the EU's most important renewable energy source and contributed to all three aforementioned major energy use sectors, providing 58.5 % of the total gross available renewable energy in 2017 ⁽²²⁾. Hydropower accounted for 13.7 %, with wind (on- and off-shore) and solar (photovoltaic and thermal) energy contributing 16.5 % and 7.6 %, respectively. The smallest share was geothermal energy at 3.6 % ⁽²³⁾.

The Europe 2020 strategy ⁽²⁴⁾ sets a target of increasing the share of renewable energy sources in final energy consumption to 20 % by 2020. By 2030, the share should increase further to at least 32 % according to the 2030 climate and energy policy framework ⁽²⁵⁾. The Energy Union strategy ⁽²⁶⁾ highlights the aim of the EU to become a world leader in renewable energy sources. EU cohesion policy (2014 to 2020) ⁽²⁷⁾ invests EUR 29 billion in sustainable energy, including energy efficiency, renewable energy, smart energy infrastructure and low-carbon research and innovation.

In 2017, the share of renewable energy in gross final energy consumption varied widely among Member States, due to differences in the availability of renewable sources and financial and regulatory support. Sweden had a substantial lead with a share of 54.5 %, followed by Finland

and Latvia with shares of 41.0 % and 39.0 %, respectively. These particularly high shares were reached through the use of hydropower and solid biofuels. Still, wind and solar energy have also increasingly contributed to the growth of renewable energy in final energy consumption in most EU countries.

Imports of crude oil, natural gas and hard coal have been expanding since 2002 to meet the EU's energy demand

Despite the continuous growth of renewable energy sources over the past decade, the EU has increasingly relied on fuel imports from non-EU countries to meet its energy demands. As a result, the EU's energy dependence has increased significantly over the past two decades as the domestic primary production of many energy sources (hard coal, lignite, crude oil, natural gas and more recently nuclear energy) has declined ⁽²⁸⁾.

In 2002, 47.5 % of gross available energy within the EU was imported from outside. Between 2006 and 2016 import dependency remained more or less consistent, fluctuating around 53 %.

In 2017, however, the share increased to 55.1 %, mainly due to increased import shares of natural gas and solid fuels. Imports of fossil energy carriers, such as oil and petroleum products (86.7 % imported), natural gas (74.3 % imported), and solid fuels (predominately hard coal) (44.0 % imported), were primarily responsible for the increased energy dependency since 2002, which can be explained by exhausted or uneconomic domestic sources ⁽²⁹⁾.

Imports of renewable energy including biofuels accounted for 7.9 % of gross available renewable energy in 2017 and just 1.2 % of total imports ⁽³⁰⁾. Apart from bioenergy (which accounted for in effect 100 % of imported renewable energy), most other forms of renewable energy are sourced domestically, thus lessening import dependency.



55.1 %
of the energy
consumed in
the EU in 2017
was imported

The Energy Security Strategy⁽³¹⁾ outlines the need to enhance domestic energy production, including the need to increase local renewable energy production, energy efficiency and provide missing infrastructure. The Energy Union strategy⁽³²⁾ highlights energy security as one of its five pillars.

Russia continued to be the main supplier of energy to the EU in 2017, accounting for 38.5 % of gas imports, 33.3 % of petroleum product imports and 38.8 % of solid fuel imports from outside the EU. The next largest suppliers of gas were European countries that are not part of the EU (mainly Norway), delivering 25.4 % of gas imports. Regarding oil and petroleum products, the Middle East and Africa were the next largest suppliers after Russia, at 20.8 % and 15.2 %, respectively. The second largest source of solid fuels was North America at 19.0 %, followed by Central and South America with 17.0 %⁽³³⁾. All percentages reported here refer to shares of total imports from outside the EU only and do not account for energy traded between EU Member States.

In 2017, all Member States were net importers of energy, with 17 importing more than half of their total energy consumption from other countries (EU and non-EU countries). Countries with the highest shares of imports in 2017 were Luxembourg (95.4 %) and the island countries Cyprus (96.3 %) and Malta (102.8 %), which imported virtually all of its energy. The largest increase over the past 15 years took place in the UK, which was a net exporting country of petroleum products and gas in 2002 but in 2017 had to import both energy carriers. In 2017, only three Member States were net exporters of the energy carriers monitored here: Denmark was a net exporter of natural gas and oil, the Netherlands was a net exporter of natural gas, and Poland a net exporter of solid fossil fuels.

The greatest progress in reducing overall energy dependency was observed in Estonia. This was realised through increases in domestic production of solid fuels and petroleum products, which

allowed it to reduce imports while increasing its own consumption. The consequences of this development, however, involved an increase in primary energy consumption (see Figure 7.2), low levels of energy productivity (see Figure 7.7) and by far the highest amount of non-mineral waste generation per capita across the EU (see Figure 12.10 in the chapter on SDG 12 'Responsible consumption and production' on page 247), which mainly stems from oil shale mining, combustion and refining⁽³⁴⁾. Sweden, in contrast, reduced its dependency by increasing the share of renewable energy in its gross inland consumption to the detriment of imported fossil fuels, which also allowed the country to reduce its emissions of GHGs related to energy use.

Access to affordable energy

SDG 7 emphasises the need for affordable energy for reasons of social equality and justice. The inability to keep the home adequately warm is a survey-based indicator used to monitor access to affordable energy throughout the EU. A lack of access to affordable energy is strongly associated with low levels of income, so reducing overall poverty has the capacity to greatly improve people's ability to heat their homes (see also the chapter on SDG 1 'No Poverty' on page 35).

The EU has continued to increase access to affordable energy since 2012 following setbacks caused by the economic crisis

The EU has made some progress on improving access to affordable energy since the economic crisis and its impacts on employment, wage levels and social payments, which led to an intermittent increase in the rate of people reporting an inability to keep the home adequately warm. In 2017, 7.8 % of the EU population indicated a lack of access to affordable energy — 3.1 percentage points lower than



7.8%
of the EU
population
were unable to
keep their home
adequately
warm in 2017

in 2007. Gains were being made until the onset of the economic crisis in 2008, which caused a rise in unemployment and put pressure on wage levels and social payments. This resulted in rising indicator values in many Member States until 2012, when they reached almost the same levels as in 2007. After 2012, the inability to keep one's home adequately warm became less prevalent with steady reductions each year.

The EU cohesion policy (2014–2020) ⁽³⁵⁾ provides about EUR 350 billion in investments into smart, sustainable and inclusive growth from 2014 to 2020. One of its objectives is to combat poverty through housing investments and regeneration of deprived urban and rural areas.

At the start of 2018, the European Commission launched the EU Energy Poverty Observatory ⁽³⁶⁾, an initiative to aid Member States in their efforts to decrease energy poverty and ensure access to affordable energy. An online data platform seeks to improve monitoring, measuring and the sharing of best practices on combating energy poverty between countries.

The Energy Union strategy ⁽³⁷⁾ was established to ensure that Europe has access to secure, affordable and climate-friendly energy.

The ability to keep the home adequately warm depends greatly on income. People who are at risk of poverty are also likely to find energy difficult to afford (see also the chapter on SDG 1 'No poverty' on page 35). In 2017, 18.4% of people with an income below 60% of the median **equivalised income** (the 'poverty threshold') reported being unable to keep their homes adequately warm — this is a reduction of 2.6 percentage points from the year before. At the same time, only 5.7% of people with an income above 60% of the median equivalised income reported a lack of access to affordable energy. Household type (for example, single, elderly occupants, households with dependent children) has a limited effect on the indicator. However, among single households with dependent children, 12.1% reported being unable to keep their home adequately warm in 2017 ⁽³⁸⁾.

In 2017, 21 Member States indicated that less than 10% of their population reported an inability to keep their homes adequately warm. Northern and most western European countries, with particularly cold winters, had the lowest shares of people without access to heating. In contrast, lack of access to affordable heating seemed to be a widespread problem in southern Europe and Lithuania ⁽³⁹⁾. This distribution can be traced back mainly to building efficiency, including the lack of suitable heating systems and insulation predominantly in southern countries, leading to low indoor temperatures during winter; the general income level which affects housing standards and the ability to pay for fuels; and the existence and design of financial interventions by respective governments ⁽⁴⁰⁾.

LONG TERM
2002–2017

SHORT TERM
2012–2017

* Primary ** Final

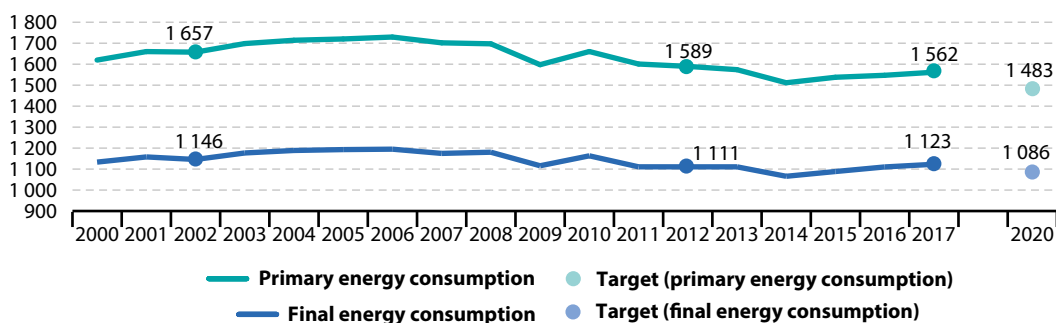
Presentation of the main indicators

Energy consumption

This indicator measures the total energy needs of a country excluding all non-energy use of energy carriers (such as natural gas used not for combustion but for producing chemicals). Primary energy consumption covers the energy consumption by end users such as industry, transport, households, services and agriculture, plus energy consumption by the energy sector itself for the production and transformation of energies, losses occurring during the transformation of energies (for example, the efficiency of electricity production from combustible fuels) and the transmission and distribution losses of energy. In comparison, final energy consumption only covers the energy consumed by end users, such as industry, transport, households, services and agriculture; it excludes energy consumption of the energy sector itself and losses that occur during the transformation and distribution of energy.

Figure 7.1: Primary and final energy consumption, EU-28, 2000–2017

(million tonnes of oil equivalent (Mtoe))



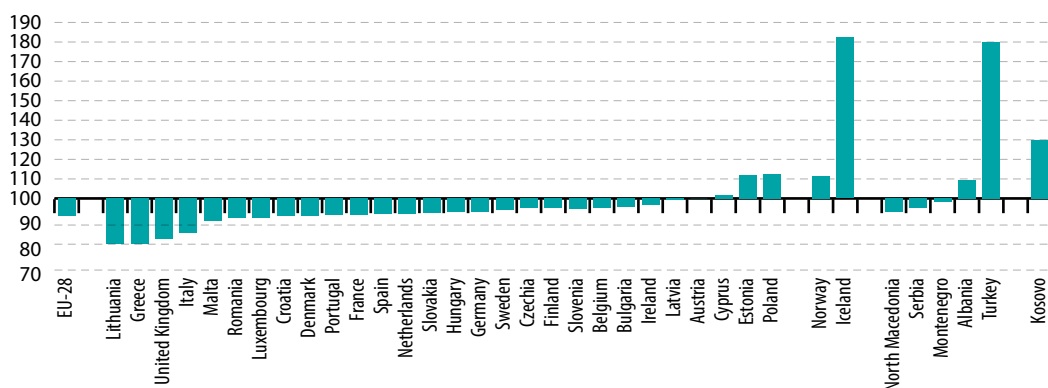
Source: Eurostat (online data code: [sdg_07_10](#) and [sdg_07_11](#))

Table 7.3: Compound annual growth rate (CAGR) of the primary and final energy consumption, EU

Energy	EU aggregate	Period	Growth rate	
			Observed	To meet target
Primary	EU-28	2002–2017	– 0.4 % per year	– 0.6 % per year
Primary	EU-28	2012–2017	– 0.4 % per year	– 0.9 % per year
Final	EU-28	2002–2017	– 0.1 % per year	– 0.3 % per year
Final	EU-28	2012–2017	0.2 % per year	– 0.3 % per year

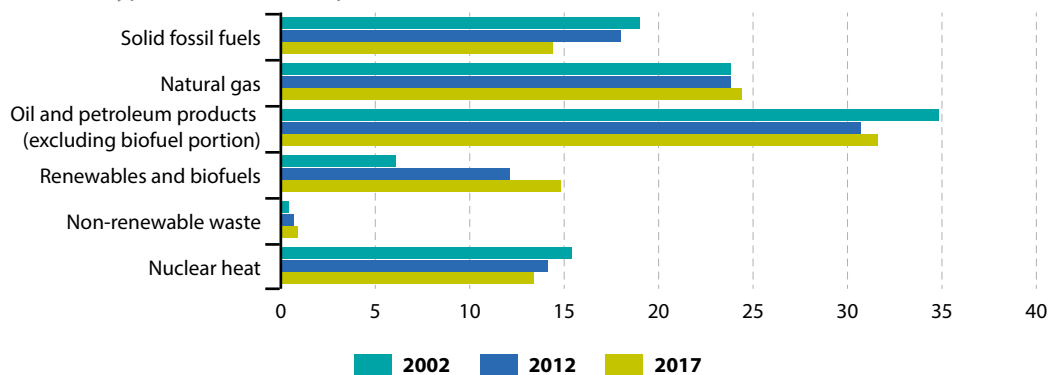
Source: Eurostat (online data code: [sdg_07_10](#) and [sdg_07_11](#))

Figure 7.2: Change in primary energy consumption, by country, 2017
(index 2005 = 100)



Source: Eurostat (online data code: [sdg_07_10](#))

Figure 7.3: Primary energy consumption, by fuel type, EU-28, 2002, 2012 and 2017
(% of fuel types in total consumption)



Source: Eurostat (online data code: [nrg_bal_c](#))

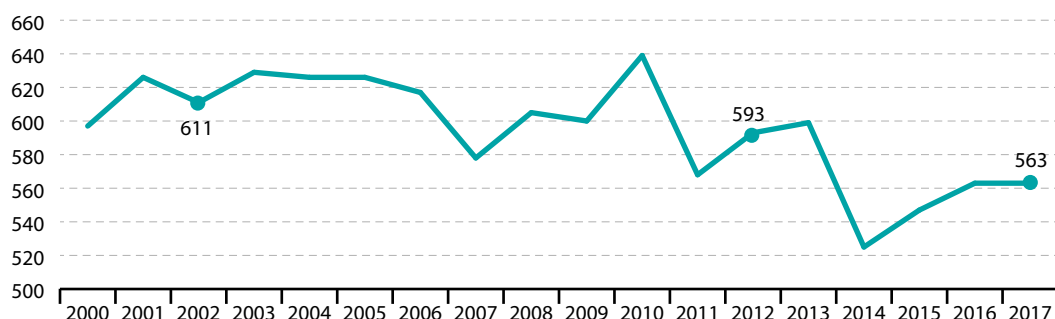


Final energy consumption in households per capita

The final energy consumption per capita in households measures how much energy each citizen consumes at home, excluding transport. Data are not temperature-adjusted, thus, year-to-year variations are partly due to weather.

Figure 7.4: Final energy consumption in households per capita, EU-28, 2000–2017

(kgoe)



Note: Breaks in time series in 2001, 2008, 2010, 2011, 2012, 2013, 2014, 2015 and 2017; 2013-2017 data are provisional and/or estimated.

Source: Eurostat (online data code: [sdg_07_20](#))

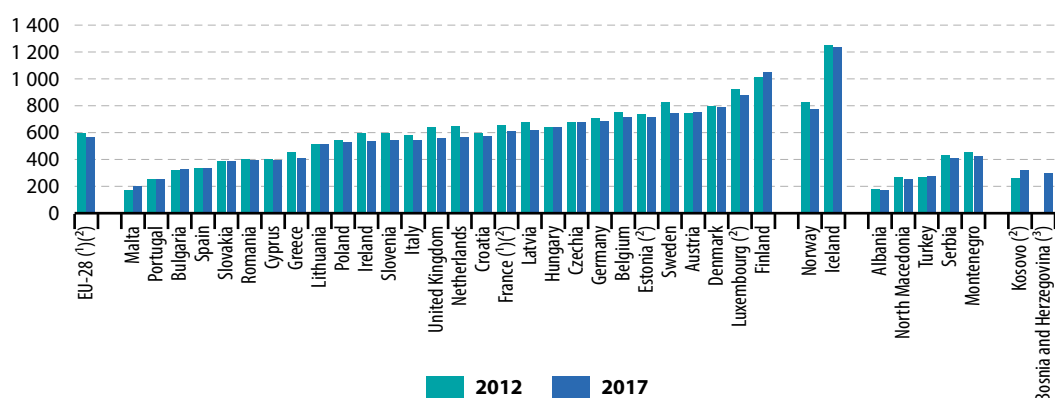
Table 7.4: Compound annual growth rate (CAGR) of the final energy consumption in households per capita, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	– 0.5 % per year
EU-28	2012–2017	– 1.0 % per year

Source: Eurostat (online data code: [sdg_07_20](#))

Figure 7.5: Final energy consumption in households per capita, by country, 2012 and 2017

(kgoe)



⁽¹⁾ 2017 data are estimated and/or provisional.

⁽²⁾ Break(s) in time series between the two years shown.

⁽³⁾ No data for 2012.

Source: Eurostat (online data code: [sdg_07_20](#))

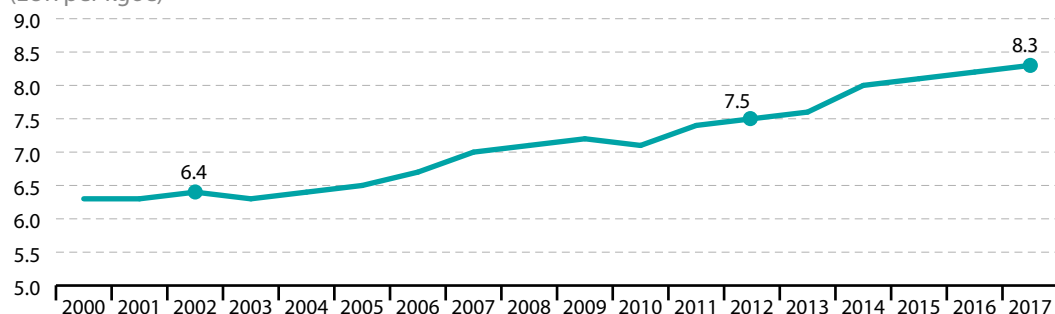
Energy productivity

This indicator measures the amount of economic output produced per unit of gross available energy. Gross available energy represents the quantity of energy products needed to satisfy all demand of entities in the geographical area under consideration. Economic output is either given as euros in chain-linked volumes to the reference year 2010 at 2010 exchange rates (Figure 7.6) or in the unit PPS (purchasing power standards) (see Figure 7.7) ⁽⁴¹⁾.



Figure 7.6: Energy productivity, EU-28, 2000–2017

(EUR per kgoe)



Source: Eurostat (online data code: [sdg_07_30](#))

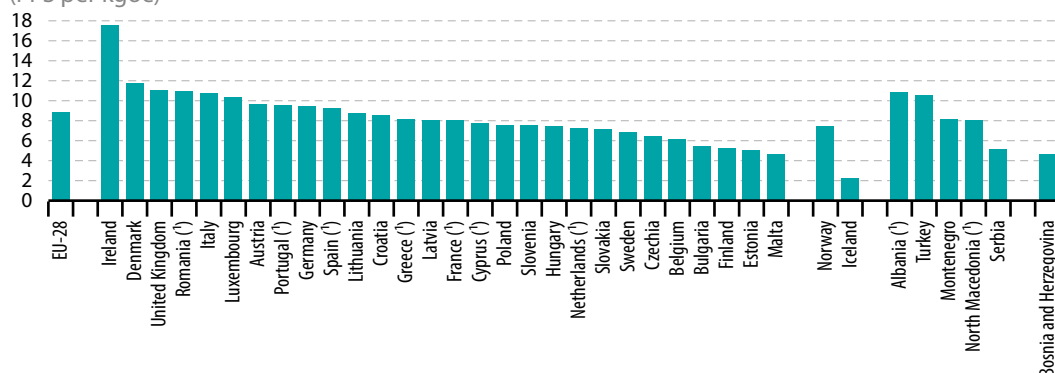
Table 7.5: Compound annual growth rate (CAGR) of the energy productivity, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	1.7 % per year
EU-28	2012–2017	2.0 % per year

Source: Eurostat (online data code: [sdg_07_30](#))

Figure 7.7: Energy productivity, by country, 2017

(PPS per kgoe)



(*) Provisional data.

Source: Eurostat (online data code: [sdg_07_30](#))



Share of renewable energy in gross final energy consumption

Renewable energy generation is given as the share of renewable energy consumption in gross final energy consumption, according to the Renewable Energy Directive ⁽⁴²⁾. The gross final energy consumption is the energy used by end consumers (final energy consumption) plus grid losses and self-consumption of power plants.

Figure 7.8: Share of renewable energy in gross final energy consumption, EU-28, 2004–2017



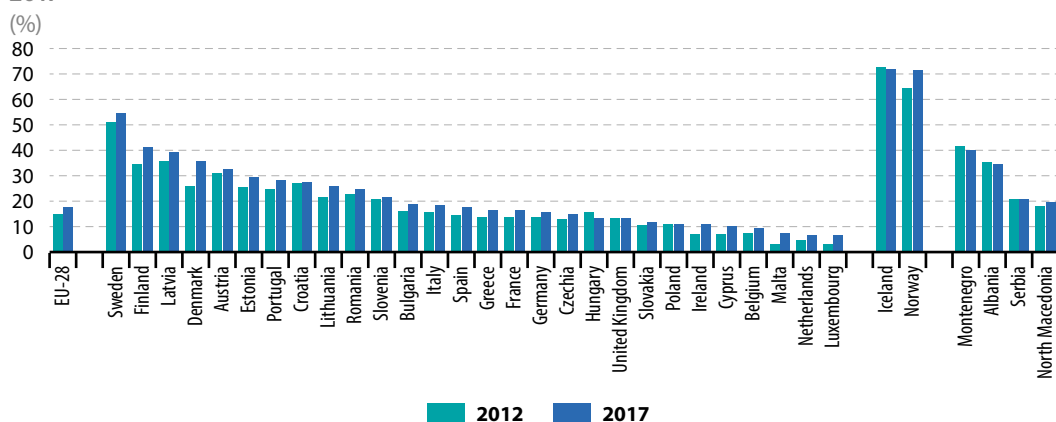
Source: Eurostat (online data code: [sdg_07_40](#))

Table 7.6: Compound annual growth rate (CAGR) of the share of renewable energy in gross final energy consumption, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2004–2017	5.7% per year	5.5% per year
EU-28	2012–2017	3.6% per year	3.9% per year

Source: Eurostat (online data code: [sdg_07_40](#))

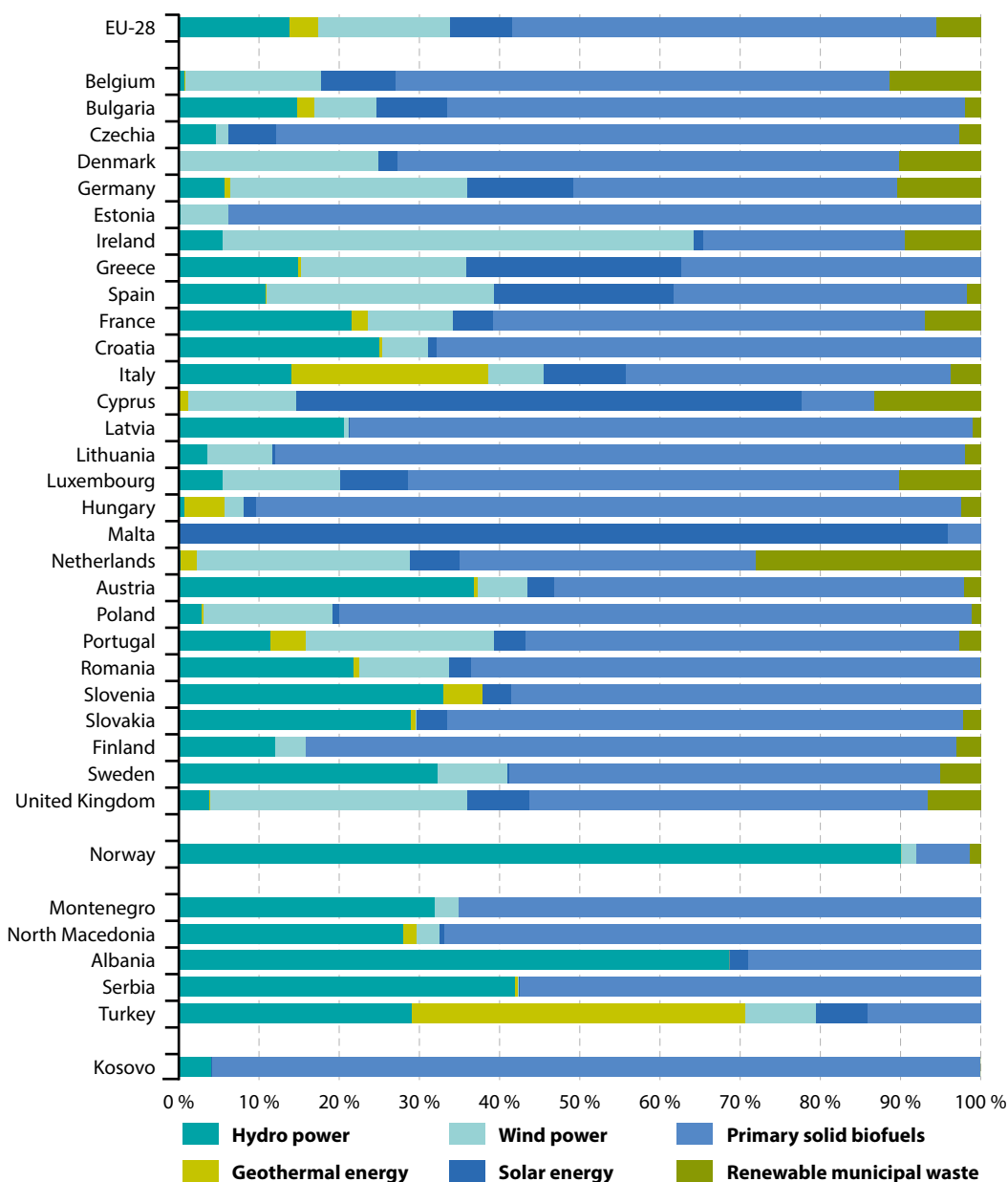
Figure 7.9: Share of renewable energy in gross final energy consumption, by country, 2012 and 2017



Source: Eurostat (online data code: [sdg_07_40](#))

Figure 7.10: Gross available renewable energy, by source, by country, 2017

(% of total gross available renewable energy)



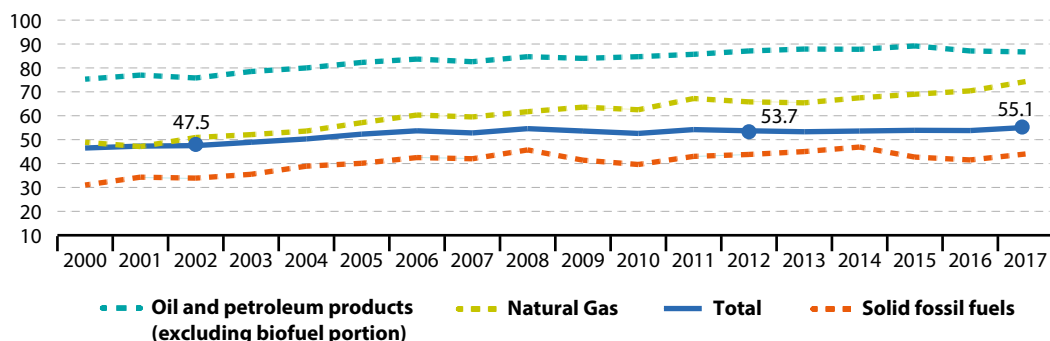
Source: Eurostat (online data code: nrg_bal_c)



Energy import dependency

Energy import dependency shows the share of a country's total energy needs that are met by imports from other countries. It is calculated as net imports divided by the gross available energy. Energy import dependency = (imports – exports) / gross available energy.

Figure 7.11: Energy import dependency, by product, EU-28, 2000–2017
(% of imports in gross available energy)



Note: 'All products' is not the average of the other three fuel categories shown. It also includes other energy sources, such as renewable energy or nuclear energy, which are treated as domestic sources.

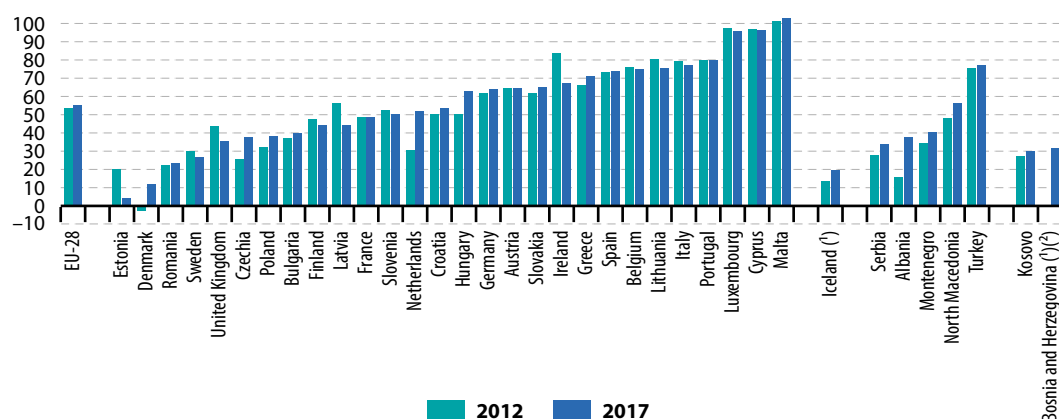
Source: Eurostat (online data code: [sdg_07_50](#))

Table 7.7: Compound annual growth rate (CAGR) of the energy import dependency, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	1.0 % per year
EU-28	2012–2017	0.5 % per year

Source: Eurostat (online data code: [sdg_07_50](#))

Figure 7.12: Energy import dependency, by country, 2012 and 2017
(% of imports in gross available energy)



(¹) 2016 data (instead of 2017).

(²) No data for 2011.

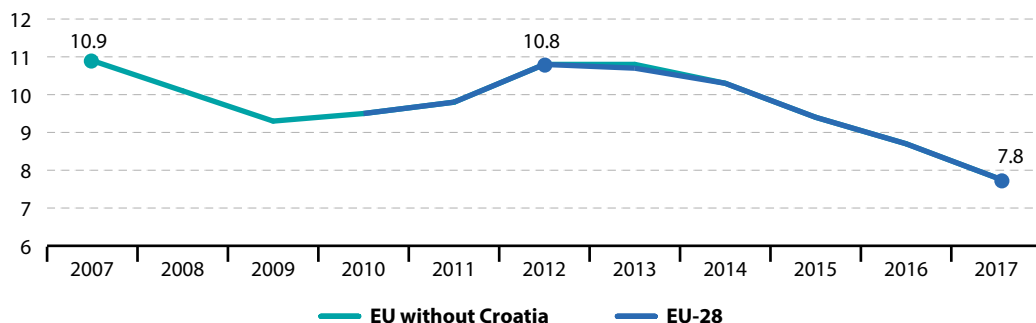
Source: Eurostat (online data code: [sdg_07_50](#))

Population unable to keep home adequately warm

This indicator monitors access to affordable energy throughout the EU. The data are collected as part of the EU Statistics on Income and Living Conditions (EU-SILC) to monitor the development of poverty and social inclusion in the EU. Data collection is based on a survey, which means that indicator values are self-reported.



Figure 7.13: Population unable to keep home adequately warm, EU, 2007–2017
(% of population)



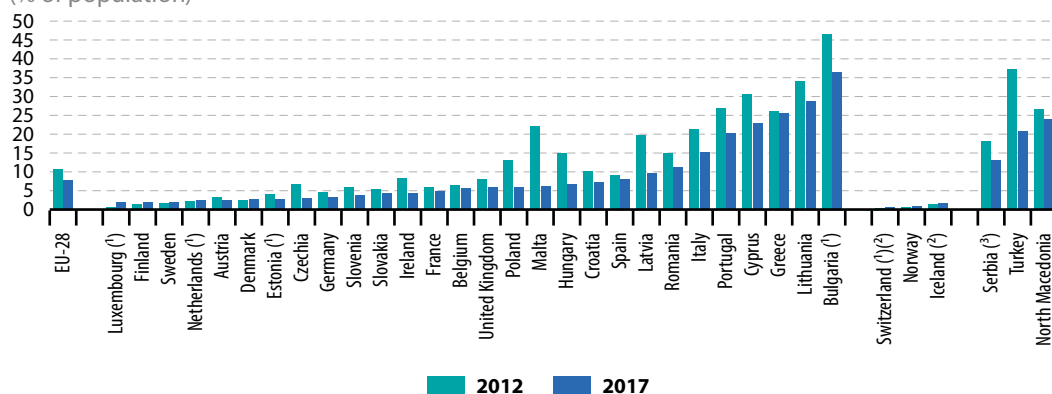
Source: Eurostat (online data code: [sdg_07_60](#))

Table 7.8: Compound annual growth rate (CAGR) of the share of population unable to keep home adequately warm, EU

EU aggregate	Period	Growth rate
EU without Croatia	2007–2017	– 3.3% per year
EU-28	2012–2017	– 6.3% per year

Source: Eurostat (online data code: [sdg_07_60](#))

Figure 7.14: Population unable to keep home adequately warm, by country, 2012 and 2017
(% of population)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_07_60](#))

Further reading on affordable and clean energy

European Commission, *Energy*.

European Union (2018), *EU energy in figures — Statistical pocketbook 2018*.

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

EEA (2018), *Renewable energy in Europe — 2018: Recent growth and knock-on effects*, Report No. 20/2018, European Environment Agency, Copenhagen.

European Commission (2019), *Fourth Report on the State of the Energy Union*. COM(2019) 175 final, Brussels.

European Commission (2019), *Renewable energy progress report*, COM(2019) 225 final, Brussels.

European Commission (2019), *Energy efficiency progress report*, COM(2019) 224 final, Brussels.

European Commission, EU Energy Poverty Observatory, *What is energy poverty*.

Further data sources on affordable and clean energy

European Commission, EU Energy Poverty Observatory.

Eurostat, *Energy statistics introduced — Statistics Explained*.

Eurostat, *Energy from renewable sources — Statistics Explained*.

Eurostat, *Energy production and imports — Statistics Explained*.

Eurostat, *Europe 2020 indicators — Climate change and energy*.

Odyssee-Mure, *Key indicators on energy efficiency*.

Notes

- (1) European Parliament and Council of the European Union (2012), *Directive 2012/27/EU on energy efficiency*, and Council of the European Union (2013), *Directive 2013/12/EU of 13 May 2013 adapting Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency, by reason of the accession of the Republic of Croatia*.
- (2) European Commission (2010), *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.
- (3) European Parliament and Council of the European Union (2018), *Directive (EU) 2018/2002 amending Directive 2012/27/EU on energy efficiency*.
- (4) European Commission (2015), *A framework strategy for a resilient Energy Union with a forward-looking climate change policy*, COM(2015) 80 final, Brussels.
- (5) European Commission (2015), *European structural and investment funds 2014–2020: Official texts and commentaries*, Brussels.
- (6) European Commission (2015), *A digital single market strategy for Europe*, COM(2015) 192 final, Brussels.
- (7) Economidou, M. (2017), *Assessing the progress towards the EU energy efficiency targets using index decomposition analysis*, EUR 28710 EN, Joint Research Centre, Publications Office of the European Union, Luxembourg.
- (8) European Commission (2017), *Energy efficiency progress report*, COM(2017) 687 final, Brussels, p. 1.
- (9) Id., p. 10.
- (10) Source: Eurostat (online data code: *nrg_bal_c*).
- (11) Source: Eurostat (online data code: *nrg_bal_c*).
- (12) Source: Eurostat (online data code: *demo_gind*).
- (13) Source: Eurostat (online data code: *t2020_rk210*).
- (14) Energy productivity is defined as GDP per unit of gross inland energy consumption, measured in EUR per kg of oil equivalent. Part of the energy considered is consumed by households, which means it is not used as an input to production activities. Thus, energy productivity is not directly comparable to concepts such as labour or capital productivity. Note that the indicator's inverse is energy intensity.
- (15) Source: Eurostat (online data codes: *nrg_bal_c* and *nama_10_gdp*).
- (16) For purposes of comparison EUR units are expressed as the purchasing power standard (PPS).
- (17) Odyssee-Mure (2018), *Key indicators on energy efficiency*.
- (18) Source: Eurostat (online data code: *nrg_bal_c*).
- (19) Malta obtained an electricity connection to Sicily and could thus close an old oil-fired power plant in 2016. The indicator does not include GHG emissions from imports as they are attributed to the place of production.
- (20) European Commission (2017), *Renewable energy progress report*, COM(2017) 57 final, Brussels, p. 2.
- (21) Source: Eurostat (online data code: *nrg_ind_ren*).
- (22) In this chapter, 'bioenergy' refers to the Eurostat product category 'biomass and renewable waste' (code: 5540), which includes 'solid biofuels (excluding charcoal)' (code: 5541), 'biogas' (code: 5542), 'municipal waste (renewable)' (code: 55431), 'charcoal' (code: 5544) and 'liquid biofuels' (code: 5545).
- (23) Source: Eurostat (online data code: *nrg_bal_c*).
- (24) European Commission (2010), *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.
- (25) European Commission (2014), *A policy framework for climate and energy in the period from 2020 to 2030*, COM(2014) 15 final, Brussels.
- (26) European Commission (2015), *A framework strategy for a resilient Energy Union with a forward-looking climate change policy*, COM(2015) 80 final, Brussels.
- (27) European Commission (2015), *European structural and investment funds 2014–2020: Official texts and commentaries*, Brussels.
- (28) Eurostat (2018), *Statistics explained: Energy production and imports*.
- (29) Import shares for natural gas were calculated in cubic meters; solid fuel and oil import shares were calculated in tonnes.
- (30) Source: Eurostat (online data code: *nrg_bal_c*).
- (31) European Commission (2014), *European energy security strategy*, COM(2014) 330 final, Brussels.
- (32) European Commission (2015), *A framework strategy for a resilient Energy Union with a forward-looking climate change policy*, COM(2015) 80 final, Brussels.
- (33) Source: Eurostat (online data codes: *nrg_122a*, *nrg_123a* and *nrg_124a*).
- (34) OECD (2017), *Estonia should reduce its oil shale reliance for greener growth*; accessed on 24 January 2019.
- (35) European Commission (2015), *European structural and investment funds 2014–2020: Official texts and commentaries*, Brussels.
- (36) European Commission (2018), *EU Energy Poverty Observatory*.
- (37) European Commission (2015), *A framework strategy for a resilient Energy Union with a forward-looking climate change policy*, COM(2015) 80 final, Brussels.
- (38) Source: Eurostat (online data code: *ilc_mdcs01*).
- (39) Bouzarovski, S. and Tirado-Herrero, S. (2017), *The energy divide: Integrating energy transitions, regional inequalities and poverty trends in the European Union*. European Urban and Regional Studies; 24: pp. 69–86.

- ⁽⁴⁰⁾ Pye, S. and Dobbins, A. (2015), *Energy poverty and vulnerable consumers in the energy sector across the EU: Analysis of policies and measures*, Insight_E; Andrei, A.-C. (2015), *Energy poverty — Proved of the effectiveness of the public heating systems? In: Proceedings of the 9th international management conference 'Management and innovation for competitive advantage'*, Bucharest, Romania.
- ⁽⁴¹⁾ To compare Member States, PPS are used instead of euros to adjust for price level differences. There are large disparities in energy productivity, ranging from 4.6 to 16.8 PPS per kilogram of oil equivalent. However, differences do not necessarily result only from differences in countries' efficiency levels, but can also reflect a country's economic specialisation, for example, energy-intensive industries or service-based economies.
- ⁽⁴²⁾ European Parliament and Council of the European Union (2009), *Directive 2009/28/EC on the promotion of the use of energy from renewable sources*.

8

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 8 recognises the importance of sustained economic growth and high levels of economic productivity for the creation of well-paid quality jobs, as well as resource efficiency in consumption and production. It calls for providing opportunities for full employment and decent work for all while eradicating forced labour, human trafficking and child labour, and promoting labour rights and safe and secure working environments.



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Inclusive green economic growth and decent employment are of key importance for the development and prosperity of European countries and for the well-being and personal realisation of individuals. For economic growth to be truly sustainable, it needs to be accompanied by eco-efficiency improvements, climate control and resilient measures, alongside active labour market and social inclusion policies, in order to avoid harming the natural environment it depends on or damaging the social fabric of European societies. Sustainable economic growth thus also means generating employment opportunities for all and improving working conditions for those already in employment.



Table 8.1: Indicators measuring progress towards SDG 8, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Sustainable economic growth			
Real GDP per capita	↑	↑	page 174
Investment share of GDP	↘	↑	page 175
Resource productivity (*)	↑	↑	SDG 12, page 243
Employment			
Young people neither in employment nor in education or training	↑	↑	page 176
🎯 Employment rate	↗	↑	page 177
Long-term unemployment rate	↑ ⁽¹⁾	↑	page 178
Inactive population due to caring responsibilities (*)	↓ ⁽²⁾⁽³⁾	↓ ⁽²⁾	SDG 5, page 124
Decent work			
People killed in accidents at work	:	↑	page 179
In work at-risk-of-poverty rate (*)	↓ ⁽³⁾⁽⁴⁾	↓	SDG 1, page 50

(*) Multi-purpose indicator.

(^) Past 12-year period

(1) Past 13-year period.

(4) Data refer to EU without Croatia.

(2) Trend refers to evolution of gender gap

Table 8.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
🎯	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↘	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Decent work and economic growth in the EU: overview and key trends

Monitoring SDG 8 in an EU context looks into trends in the areas of sustainable economic growth, employment and decent work. As Table 8.1 shows, the EU has achieved some progress in terms of sustainable economic growth over the past few years. While the overall employment situation and working conditions have also improved, a gender gap in labour market participation persists and the economic security of the working population remains an issue.

Sustainable economic growth

Economic growth contributes to society's well-being by enabling people to make a decent living and to enjoy high living standards. While it is an important driver of prosperity, economic growth can also harm the environment that it depends on. Therefore, for future well-being it is crucial to pursue sustainable economic growth that tries to satisfy the needs of the present generation in a manner that sustains natural resources and the environment for future generations. The indicators selected to monitor these aspects show that over the past few years, Europeans have been enjoying continuous economic growth, which has also become more sustainable.



The EU economy shows continuous growth over the past few years

Citizens' living standards depend on the economic performance of the EU, which can be measured by several indicators. One of these is growth in [gross domestic product \(GDP\)](#), which is commonly used as a proxy for measuring a country's socio-economic development. Although GDP is not a

complete measure of welfare, it gives an indication of an economy's potential to satisfy people's needs and its capacity to create jobs. It can also be used to monitor economic development.

Real GDP per capita (GDP adjusted for inflation) in the EU in 2018 reached EUR 28 200, which was 18.0% higher than in 2003. After the severe economic slump in 2009, real GDP per capita has been slowly recovering, experiencing ups (from 2009 to 2011 and from 2013 onwards) and downs (from 2011 to 2013) in the following years. Since 2013, per capita GDP has seen strong and continuous growth of 1.9% per year on average. Private consumption remained the key driver of economic expansion in the EU, supported by an improving employment situation and rising disposable incomes ⁽¹⁾.

However, after five years of strong growth, the EU economy is entering a period of less dynamic expansion ⁽²⁾, with real GDP being forecast to grow by 1.5% in 2019 and 1.7% in 2020 ⁽³⁾. The waning momentum of foreign trade due to weakening global economic activity and growing trade tensions, slower employment growth and increased uncertainty are factors behind a less dynamic growth forecast for the coming years ⁽⁴⁾.



Another indicator of economic growth is investment, as it represents spending that enhances an economy's productive capacity. This has an impact on living standards in the medium and long terms. The acquisition of capital goods can encompass, among other things, energy and transport infrastructure, industrial and service facilities, eco-innovative technologies, education and [research and development \(R&D\)](#). Long-term investment that is economically, environmentally and socially sound is crucial for supporting sustainable growth.

The total investment share of GDP in the EU was 21.0% in 2018. Its development was influenced by the economic crisis, which interrupted the steady growth observed between 2004 and 2007. After periods of decline and stagnation, the indicator has grown by 1.4% on average per year since 2013. This growth is mainly attributable to an increase in [business investment](#).

In 2015 the European Commission launched an [Investment Plan for Europe](#) ⁽⁵⁾ to unlock more than EUR 315 billion of investment over three years. In 2017, the initial timeline was extended to 2020 and the investment target increased to at least EUR 500 billion ⁽⁶⁾.

The EU [Capital Markets Union](#) ⁽⁷⁾ aims to tackle investment shortages head-on by increasing and diversifying business funding and investment financing.

The EU launched an [External Investment Plan](#) ⁽⁸⁾ in 2016 to encourage investment in partner countries in Africa and the EU neighbourhood region, in order to strengthen partnerships and contribute to the achievement of the Sustainable Development Goals, with the aim of addressing some root causes of migration.

Economic growth in the EU has become more sustainable

Economic growth should not lead to increased environmental pressures nor to depletion of natural capital. Using natural resources more efficiently reduces the pressure from production and consumption and increases the competitiveness of the economy. [Resource productivity](#), measured as GDP divided by [domestic material consumption](#) (DMC), monitors the relationship between what an economy produces and the physical materials it uses ⁽⁹⁾. Hence, it depicts an aggregate measure of an economy's material efficiency.

The EU has increased its resource productivity by 34.7% since 2002, reaching EUR 2.08 per kilogram (kg) in 2017. This favourable development can be attributed to GDP growth accompanied by a 8.9% decrease in DMC, which reflects such factors as the long-term shift of the EU towards a service economy, globalisation and increasing reliance on imports ⁽¹⁰⁾. However, the increase in resource productivity should be interpreted with caution and should not be contributed entirely to the success of environmental policy. It is likely that the observed trend was influenced by a number of other factors, such as a drop in DMC due to the economic crisis ⁽¹¹⁾. Indeed, the past five years have seen a 1.4% growth in the EU's material consumption alongside the strong expansion of economic activity reported above.



2.08
EUR of GDP
were produced
in the EU for
each kilogram
of DMC used
in 2017

Sustainable economic growth is also driven by trends in the green economy sectors represented by the [environmental goods and services sector](#) ⁽¹²⁾. Such goods and services include those produced for environmental protection and resource management. Environmental protection includes all activities that have the main aim of preventing, reducing and eliminating pollution and any other environmental degradation. The gross value added of the EU's environmental goods and services sector has increased by 122.0% since 2000, reaching EUR 302 488 million in 2015 ⁽¹³⁾. Over the same period, employment (in full-time equivalent) in the environmental goods and services sector increased by 47.3% ⁽¹⁴⁾. These positive trends are especially remarkable as they have persisted during the economic crisis and recovery. However, it should be noted that this sector is relatively small, contributing only 2.0% to the EU's GDP in 2015 ⁽¹⁵⁾.

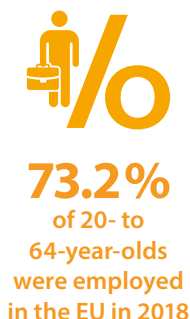
Employment

Decent employment for all — including women, people with disabilities, youth, the elderly and migrants — is a cornerstone of socio-economic development and is crucial for improving the well-being of society as a whole. Apart from generating the resources needed to provide decent living standards and to achieve life goals, work grants opportunities for meaningful engagement in society, promoting a sense of self-worth, purpose and social inclusion. Increased employment is a key condition for making societies more inclusive by reducing poverty and inequality in and between both regions and social groups. Overall, while the employment situation of EU citizens has improved over the past few years, many more women than men remain inactive due to caring responsibilities for children or incapacitated adults.

Overall, the employment situation in the EU keeps improving

The economic recovery in the EU over the past few years has been reflected in improved employment prospects.

Overall, the EU employment rate has exhibited an upward trend over the past 15 years (with some interruptions in the aftermath of the economic crisis): it has grown by 6.2 percentage points compared with 2003 and by 4.8 percentage points compared with 2013, reaching a record high of 73.2% in 2018. If this positive trend continues, the EU will be well placed to reach the Europe 2020 employment target of 75%. The overall growth of the employment rate over the past decade can be partly attributed to older workers delaying their retirement and women increasing their participation in the labour force ⁽¹⁶⁾.



The EU supports growth, job creation and competitiveness through funding instruments such as the **European Fund for Strategic Investments**, the **European Social Fund**, the **European Structural and Investment Funds**, **Horizon 2020**, the **EU Programme for Employment and Social Innovation (EaSI)** ⁽¹⁷⁾, the **Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME)**, the **Emergency Support Instrument**, the **Connecting Europe Facility** and the **Creative Europe Programme**.

The **European Pillar of Social Rights**, jointly proclaimed by the European Commission, the European Parliament and the European Council in 2017, promotes upward convergence towards better working and living conditions in Europe and supports equal opportunities and access to the labour market.

Unemployment and long-term unemployment have decreased since 2013

The unemployment situation in the EU has also improved following the economic recovery. In 2018, for the first time the unemployment rate was below its pre-crisis level, at 6.8%, which is a 4.0 percentage point improvement from 2013 ⁽¹⁸⁾. Long-term unemployment usually follows the trends in total unemployment, but with a delay. This means it can be considered to be the main legacy of the crisis, with the long-term unemployed as a proportion of all unemployed people rising from 36.9% in 2008 to 49.3% in 2014, but falling back to 43.0% by 2018 ⁽¹⁹⁾.

Long-term unemployment can have long-lasting negative implications for individuals and society

by endangering social cohesion and increasing the risk of poverty and social exclusion. Beyond material living standards, it can also lead to a deterioration of individual skills and health, thus hindering future employability, productivity and earnings. In 2018, 7.2 million people, or 2.9% of the **active population** in the EU, had been unemployed for a year or more, 2.2 percentage points less than at the peak of the long-term unemployment rate in 2013.



The Council Recommendation on the integration of the long-term unemployed into the labour market, proposed by the Commission in 2015 and adopted by the Council in 2016, puts forward assistance to help long-term unemployed people re-enter the labour market.

Labour market prospects for young people have improved since 2014 but still remain precarious

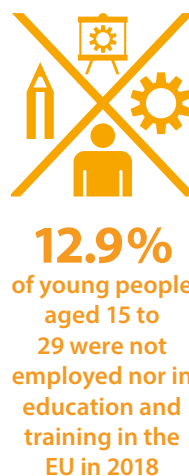
The economic recovery has also strengthened the labour market situation of younger people, with the employment rate of 20- to 24-year-olds steadily growing since 2014. Nevertheless, their employment perspectives remain precarious. People of this age group were the hardest hit by the economic crisis and are still underrepresented in the job market, with only 53.3% of 20- to 24-year-olds being employed in 2018, which is 1.4 percentage points below their pre-crisis level ⁽²⁰⁾. Moreover, young people aged 15 to 24 are more likely than other age groups to be in involuntary temporary employment (12.8% of total employees in 2018) or to have an involuntary part-time contract (7.4% of total employment of this age group in 2018) ⁽²¹⁾. The share of young people in part-time employment for whom it was not a personal choice has increased since 2008, while the share of 15- to 24-year-olds in involuntary temporary employment

increased between 2008 and 2016, but fell back to its pre-crisis level by 2018 ⁽²²⁾.

Despite the strong decrease in youth unemployment since 2014, the unemployment rate of 20- to 24-year-olds amounted to 14.0% in 2018, which is still significantly higher than for older age groups ⁽²³⁾. It should be noted though that many in their early 20s are studying full-time and are therefore neither working nor looking for a job. As a result, in absolute terms this age group of unemployed people was not large and amounted to only 2.4 million people in the EU in 2018 ⁽²⁴⁾.

Young people not engaged in employment nor in education and training (NEET) are among the most vulnerable groups in the labour market.

Over the long term they may fail to gain new skills and suffer from erosion of competences, which in turn might lead to a higher risk of labour market and social exclusion. Between 2003 and 2018, the NEET rate for 15- to 29-year-olds in the EU closely followed the economic cycle, improving from 15.5% to 12.9% over the period. In 2018, more than half of NEETs (7.8% of people aged 15 to 29) were not looking for a job and therefore were inactive, maintaining a similar rate since 2006 ⁽²⁵⁾. Fluctuations in the total NEET rate have thus been triggered by variations in unemployment. The reduction in the NEET rate over the past four years was mainly due to unemployed NEETs moving into work ⁽²⁶⁾.



The European Social Fund ⁽²⁷⁾ and the Youth Employment Initiative support measures that focus on quality employment and quality apprenticeships. The EU has also adopted a political commitment to establish a **Youth Guarantee ⁽²⁸⁾ helping young people in their school-to-work transitions.**

The employment rate of older people has been increasing since 2008

People in the latter stages of their careers also remain underrepresented in the job market. However, in contrast to young people, the situation of people aged 55 to 64 seems to have been less affected by the economic slowdown: their employment rate has increased by 13.3 percentage points since 2008 and reached 58.7 % in 2018 ⁽²⁹⁾. Apart from structural factors, this trend can be linked to recent pension reforms that led to longer working lives by increasing the pensionable age, the age for early retirement and the length of contribution ⁽³⁰⁾. For people in the later stages of their career path, unemployment was the lowest among all age groups, at 5.2 % for the 55 to 64 age group ⁽³¹⁾. This may be connected to the fact that if people of this age lose their job, they tend to become economically *inactive* or retire and therefore no longer count as being unemployed.

A higher education leads to increased employment possibilities

It is estimated that due to ongoing technological change, about 37 % to 69 % of low-skilled jobs could be automated in the EU in the near future ⁽³²⁾, raising the demand for better educated and better skilled workers. In a knowledge-based economy, educational attainment is crucial for securing a job and adequate income. Indeed, in 2018 a person aged 20 to 64 living in Europe with a tertiary education was much more successful in finding a job (employment rate of 84.5 %) compared to those with upper secondary or post-secondary non-tertiary education (employment rate of 73.4 %) and with lower secondary or lower education (employment rate of 56.1 %) ⁽³³⁾. Similarly, the unemployment rate among people with tertiary education in 2018 in the EU was 4.1 %, in comparison to 6.2 % for those with upper secondary or post-secondary non-tertiary education and 6.8 % of the total unemployment rate ⁽³⁴⁾.

Nowadays, upper secondary education can be considered the minimum level Europeans should ideally attain before leaving the education and training system. Therefore, low educational attainment is one of the key determinants of young people entering the NEET category. In 2018, the NEET rate (age group 15 to 29) for people with tertiary education was only 9.3 %, compared with 15.1 % for people with less than primary, primary and lower secondary education and 12.8 % for people with upper secondary or post-secondary non-tertiary education ⁽³⁵⁾.

Employment opportunities are lower for migrants and people with disabilities

In 2014, the employment rate for people with disabilities at the European level was 23.8 percentage points lower than the rate for people without disabilities. Only 48.7 % of people with disabilities were employed in that year, compared with 72.5 % of those without disabilities. For women with disabilities the rate was 45.7 %, while the equivalent rate for men was 52.3 %. The degree of disability is also an important factor affecting the employment rate. At the EU level, the employment rate for people with a severe disability was 28.3 %, while for people with a moderate disability it stood at 56.7 % in 2014 ⁽³⁶⁾.

The Active Inclusion of People Excluded from the Labour Market ⁽³⁷⁾ is a Commissions' recommendation to enable every citizen, notably the most disadvantaged, to fully participate in society, including having a job. It covers three main dimensions: adequate income support, inclusive labour markets and access to quality services. It has been reinforced by a Social Investment Package that stresses the importance of activating and enabling services to help people fully participate in employment and life.

Country of citizenship also affects the labour market prospects of individuals in the EU. Migrant workers from countries outside the EU not only tend to occupy low-skilled and insecure jobs with temporary contracts and poorer working conditions, they also show lower employment rates than EU citizens ⁽³⁸⁾. In 2018, their employment rate was 59.3%, 13.9 percentage points lower than the total employment rate. Migrants were particularly affected by the economic crisis, being among the first to lose their jobs. During the post-crisis recovery, the gap between the total EU employment rate and those of non-EU citizens widened from 7.7 percentage points in 2008 to 13.9 percentage points in 2018 ⁽³⁹⁾.

The risk of being unemployed in 2018 was also highest for migrants from outside the EU, at 15.2% compared with the total unemployment rate of 6.8% ⁽⁴⁰⁾. Young migrants from outside the EU (aged 15 to 29) are at the highest risk of being neither in employment nor in education and training compared with the total EU population: the NEET rate for this group in 2018 was 24.4%, which was almost twice as high as the total NEET rate in the EU ⁽⁴¹⁾.

Women's participation in the labour market is increasing, but gender differences persist

Over the past 15 years, the employment rate of women in the EU has been increasing, reaching a new record high of 67.4% in 2018. This development was mainly driven by a strong increase in the employment rate of women in their late career paths, aged 55 to 64. However, despite declining by 5.1 percentage points since 2003, the gender employment gap persists and shows stagnation over the short term period since 2013. In 2018, it amounted to 11.6 percentage points, with employment rates of 79.0% for men and 67.4% for women. This is despite the fact that women are increasingly well qualified and are even outperforming men in terms of educational attainment: in 2018, 45.8% of women aged 30 to 34 had attained tertiary education, compared with only 35.7% of men (see the chapter on SDG 4 'Quality education' on page 95).

Young women aged 15 to 29 are also at higher risk than men of being neither in employment nor in education and training. The NEET rate for young women in 2018 was 15.0%, compared with 10.9% for men, mostly because young women were almost twice as likely to be economically inactive as men ⁽⁴²⁾. However, young women (aged 15 to 24) are slightly less likely to be unemployed, with an unemployment rate of 14.5% in 2018, in comparison to 15.7% for men ⁽⁴³⁾.

The lower employment rates for women might be related to the fact that inactivity is more frequent among women of working age compared with men. In 2018, 31.7% of inactive women aged 20 to 64 were in this situation due to caring responsibilities for children or incapacitated adults, compared with only 4.6% of men. This **gender gap** has increased since 2005.



31.7% of economically inactive women in the EU were in this situation because of caring responsibilities in 2018

Decent work

For a society's sustainable economic development and well-being it is crucial that economic growth generates not just any kind of job but also 'decent' ones. This means work should deliver fair income, security in the workplace and social protection, and allow flexibility of work arrangements and working hours.

Over the past few years, work in the EU has become safer but less economically secure

A prerequisite for decent work is a safe and healthy working environment, without **fatal accidents**. Over the past decades, the EU and its Member States have put considerable effort into ensuring minimum standards in occupational safety and health. In 2016, the rate of fatal accidents at work amounted to 1.71 fatal accidents per 100 000 employed persons. The rate has fallen

considerably since 2008, indicating progress towards safer workplaces.

Construction, transportation and storage, manufacturing and agriculture, forestry and fishing appear to be the most dangerous working environments in the EU. In 2016, the number of fatal accidents in these activities combined represented 67.7 % of all fatal accidents at work. These economic activities are mostly male-dominated, and in 2016 the incidence rate of fatal accidents for men was more than 30 times higher than for women ⁽⁴⁴⁾. The risk of fatal accidents at work also rises with age, with the risk for workers aged 55 and above more than twice as high as for younger workers ⁽⁴⁵⁾.

The rate of **non-fatal accidents at work** has also decreased since 2008 ⁽⁴⁶⁾. In 2016, there were 1 586 incidents per 100 000 people employed in the EU compared with 1 940 in 2008. As a result of these accidents, 47.9 % of injured workers were out of work for between four days and up to one month, while 3.7 % became permanently incapable of work or were out of work for more than half a year ⁽⁴⁷⁾. In 2016, 19.3 % of all non-fatal injuries happened in manufacturing activities.

Besides health and safety at work, fair income and social protection are further important components of decent work. Poverty is often associated with the absence of a paid occupation. However, low wages can also push some workers below the poverty line. The recent economic expansion and increase in employment have hardly been reflected in wage developments at the EU level ⁽⁴⁸⁾. Wage growth remains subdued, below what could be expected given the positive labour market and economic performance, and lagged behind average productivity growth in the majority of Member

States ⁽⁴⁹⁾. Furthermore, since 2005, the share of the so-called 'working poor' (aged 18 and over) in the EU has increased by 1.2 percentage points, affecting 9.4 % of employed people in 2017 ⁽⁵⁰⁾.

Factors influencing in-work poverty rates include, among other things, type of contract, working time and hourly wages. While a fixed-term or part-time contract may provide greater flexibility for both employers and workers, it is not always a personal choice for an employee and can thus significantly influence their well-being. In 2018, 7.4 % of European employees were involuntarily working on temporary contracts, corresponding to 56.5 % of all temporary employees. This share has increased slightly over the past decade ⁽⁵¹⁾. Similar to involuntary temporary employment, the share of involuntary part-time employment in total employment in the EU also increased, from 4.4 % in 2008 to 4.7 % in 2018 ⁽⁵²⁾.



9.4 %
of people
employed in
the EU were at
risk of income
poverty in 2017



1.71
per 100 000
people
employed in the
EU had a fatal
accident at work
in 2016

A new Directive on transparent and predictable working conditions in the European Union was proposed by the Commission in 2017 and has recently been provisionally agreed between the Commission, the Council and the European Parliament. It complements and modernises existing obligations to inform each worker of his or her working conditions. In addition, in order to respond to the increase in precarious work, the proposal creates new minimum EU standards on working conditions for all workers, including those on atypical contracts, such as on-demand work or zero-hour contracts.

Presentation of the main indicators

Real GDP per capita



LONG TERM
2003–2018

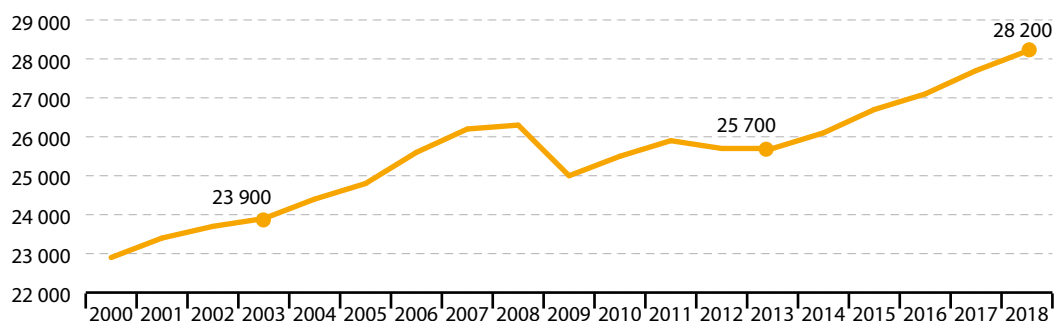


SHORT TERM
2013–2018

Gross domestic product (GDP) is a measure of economic activity and is commonly used as a proxy for developments in a country's material living standards. It refers to the value of total final output of goods and services produced by an economy within a certain period of time. Real GDP per capita is calculated as the ratio of real GDP (GDP adjusted for inflation) to the average population of a specific year and is based on rounded figures.

Figure 8.1: Real GDP per capita, EU-28, 2000–2018

(EUR per capita, chain-linked volumes (2010))



Source: Eurostat (online data code: [sdg_08_10](#))

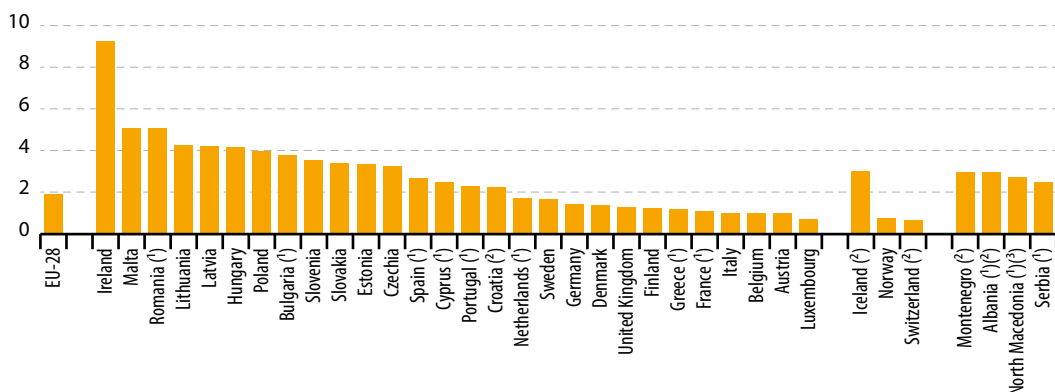
Table 8.3: Compound annual growth rate (CAGR) of the real GDP per capita, EU

EU aggregate	Period	Growth rate
EU-28	2003–2018	1.1 % per year
EU-28	2013–2018	1.9 % per year

Source: Eurostat (online data code: [sdg_08_10](#))

Figure 8.2: Change in real GDP per capita, by country, 2013–2018

(average annual growth rate in %)



⁽¹⁾ Provisional or estimated data.

⁽²⁾ Change 2011–2016.

⁽³⁾ Change 2012–2017.

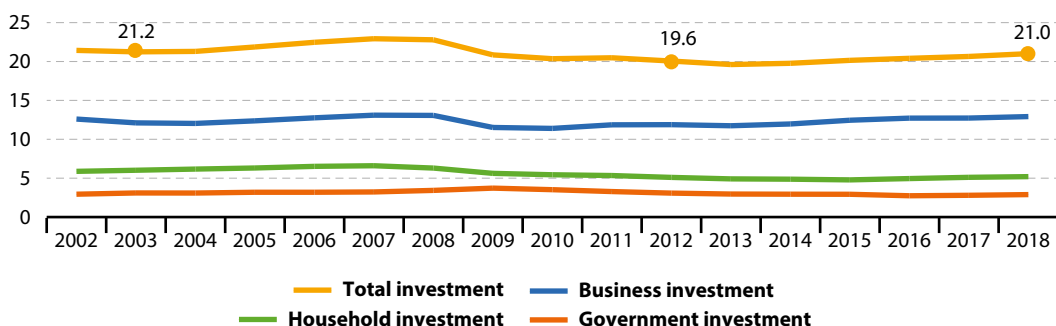
Source: Eurostat (online data code: [sdg_08_10](#))

Investment share of GDP

Investment share of GDP measures the investment for the total economy, government and business, as well as household sectors. The indicator is calculated as the share of GDP used for gross investment. It is defined as **gross fixed capital formation (GFCF)** expressed as a percentage of GDP for the government, business and households sectors.



Figure 8.3: Investment share of GDP, by institutional sector, EU-28, 2002–2018
(% of GDP)



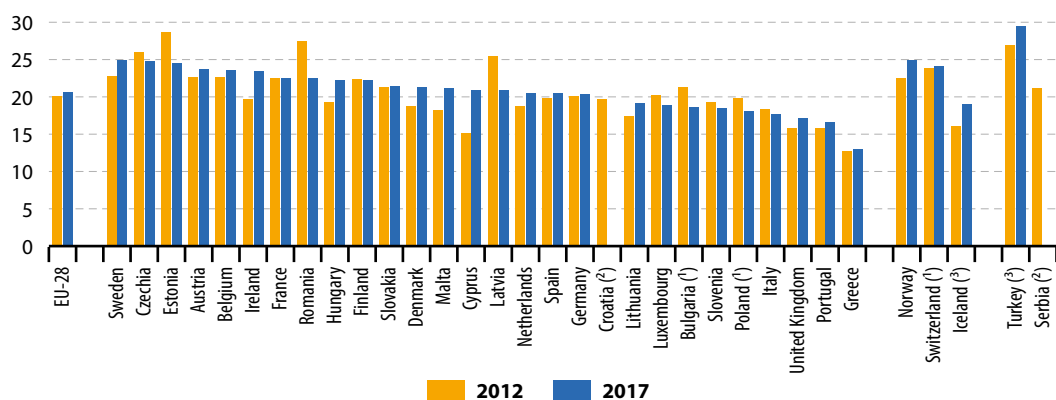
Source: Eurostat (online data code: [sdg_08_11](#))

Table 8.4: Compound annual growth rate (CAGR) of the investment share of GDP, EU

EU aggregate	Period	Growth rate
EU-28	2003–2018	– 0.1 % per year
EU-28	2013–2018	1.4 % per year

Source: Eurostat (online data code: [sdg_08_11](#))

Figure 8.4: Investment share of GDP, by country, 2012 and 2017
(% of GDP)



⁽¹⁾ 2016 data (instead of 2017).

⁽²⁾ No data for 2017.

⁽³⁾ 2015 data (instead of 2017).

Source: Eurostat (online data code: [sdg_08_11](#))



LONG TERM
2003–2018



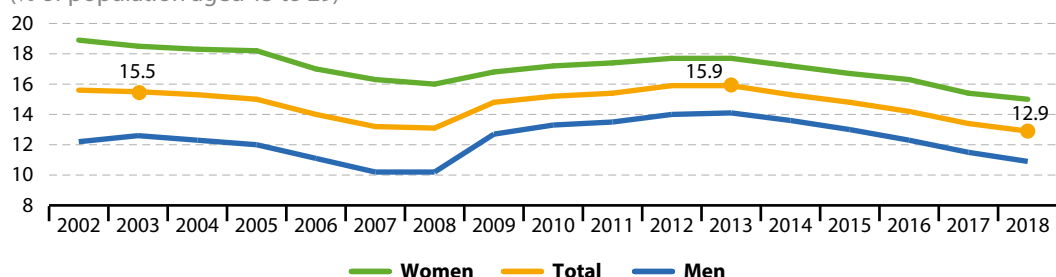
SHORT TERM
2013–2018

Young people neither in employment nor in education and training

A considerable proportion of young people aged 15 to 29 in the EU are economically inactive. For some this is due to the pursuit of education and training. Others, however, have withdrawn from the labour market or are not entering it after leaving the education system. Those who struggle with the transition from education to work are captured by the statistics on young people who are neither in employment, education nor training (NEET rate). Data presented in this section stem from the *EU Labour Force Survey (EU-LFS)*.

Figure 8.5: Young people neither in employment nor in education and training, by sex, EU-28, 2002–2018

(% of population aged 15 to 29)



Note: Breaks in time series in 2003 and 2006.

Source: Eurostat (online data code: [sdg_08_20](#))

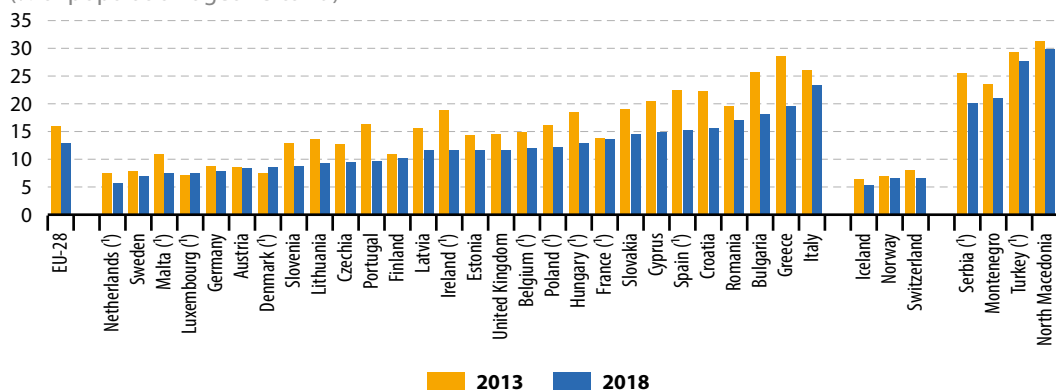
Table 8.5: Compound annual growth rate (CAGR) of the share of young people neither in employment nor in education and training, EU

EU aggregate	Period	Growth rate
EU-28	2003–2018	– 1.2 % per year
EU-28	2013–2018	– 4.1 % per year

Source: Eurostat (online data code: [sdg_08_20](#))

Figure 8.6: Young people neither in employment nor in education and training, by country, 2013 and 2018

(% of population aged 15 to 29)



(*) Break(s) in time series between the two years shown.

Source: Eurostat (online data code: [sdg_08_20](#))

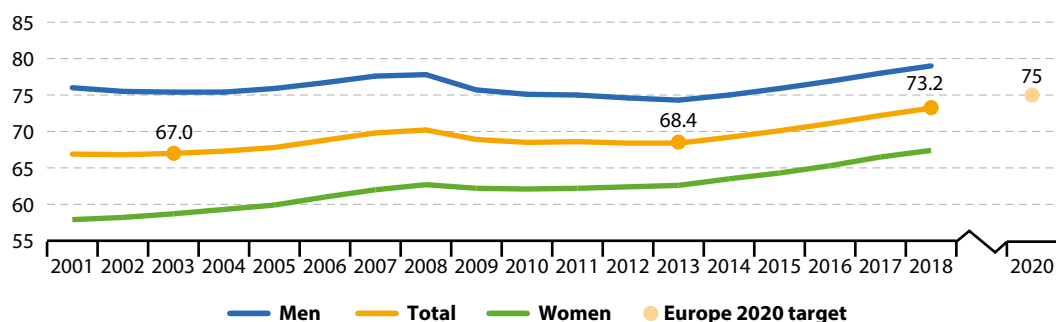
Employment rate

The **employment rate** is defined as the percentage of employed persons in relation to the comparable total population. The data analysed here focus on the population aged 20 to 64 with the view of monitoring the Europe 2020 strategy target of raising employment rates among this age group to 75 % by 2020 ⁽⁵³⁾. Data presented in this section stem from the **EU Labour Force Survey (EU-LFS)**.



Figure 8.7: Employment rate, by sex, EU-28, 2001–2018

(% of population aged 20 to 64)



Source: Eurostat (online data code: [sdg_08_30](#))

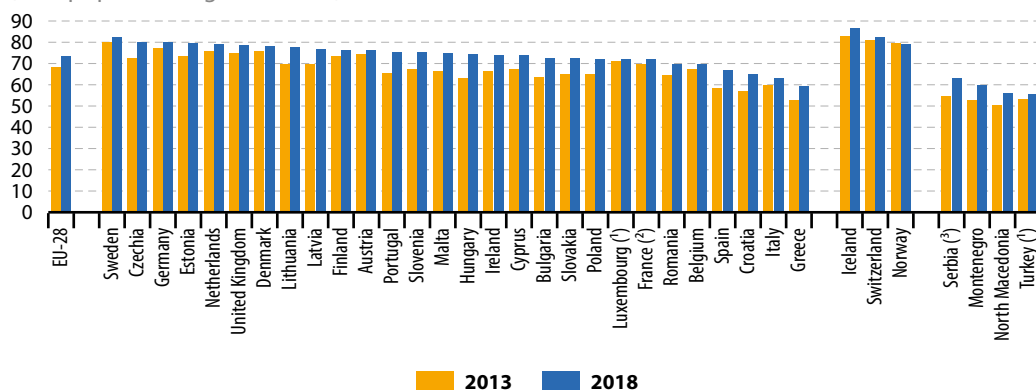
Table 8.6: Compound annual growth rate (CAGR) of the employment rate, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2003–2018	0.6% per year	0.7% per year
EU-28	2013–2018	1.4% per year	1.3% per year

Source: Eurostat (online data code: [sdg_08_30](#))

Figure 8.8: Employment rate, by country, 2013 and 2018

(% of population aged 20 to 64)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ Data refer to metropolitan France.

⁽³⁾ 2014 data (instead of 2013).

Source: Eurostat (online data code: [sdg_08_30](#))



LONG TERM
2005–2018



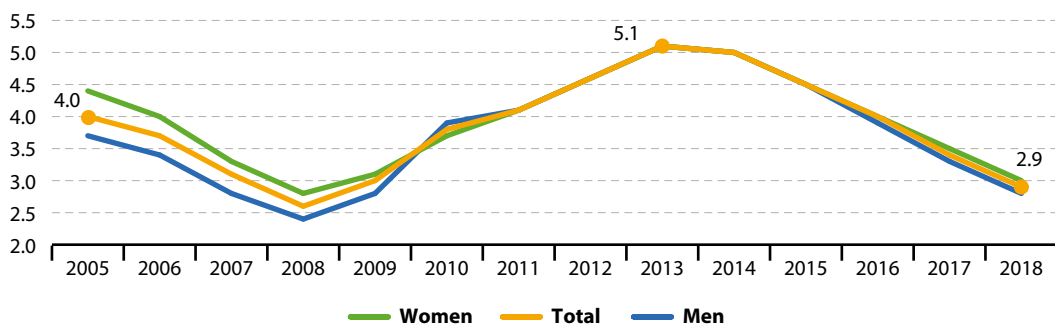
SHORT TERM
2013–2018

Long-term unemployment rate

Long-term unemployment is measured for economically active people (which includes both employed and unemployed people) aged 15 to 74 who have been unemployed for 12 months or more. Long-term unemployment increases the risk of falling into poverty and has negative implications for society as a whole. Long-term unemployed people in the EU have about half the chance of finding employment as those who are short-term unemployed ⁽⁵⁴⁾. Data presented in this section stem from the EU Labour Force Survey (EU-LFS).

Figure 8.9: Long-term unemployment rate, by sex, EU-28, 2005–2018

(% of active population)



Source: Eurostat (online data code: [sdg_08_40](#))

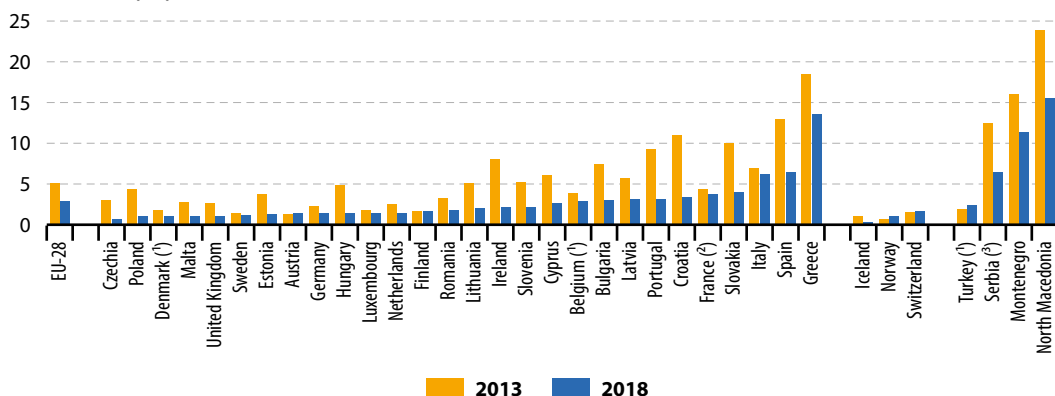
Table 8.7: Compound annual growth rate (CAGR) of the long-term unemployment rate, EU

EU aggregate	Period	Growth rate
EU-28	2005–2018	– 2.4 % per year
EU-28	2013–2018	– 10.7 % per year

Source: Eurostat (online data code: [sdg_08_40](#))

Figure 8.10: Long-term unemployment rate, by country, 2013 and 2018

(% of active population)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2013 data are estimated.

⁽³⁾ 2014 data (instead of 2013).

Source: Eurostat (online data code: [sdg_08_40](#))

People killed in accidents at work

Fatal accidents at work are those occurring during the course of employment and lead to the death of the victim within one year. The incidence rate refers to the number of accidents per 100 000 persons in employment. Data presented in this section are collected in the framework of the administrative data collection 'European Statistics on Accidents at Work (ESAW)' ⁽⁵⁵⁾. As an exception, accident data for the Netherlands do not include fatal work accidents on the road or other transport means, which may account for an important number of fatal work accidents in the country.

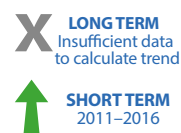
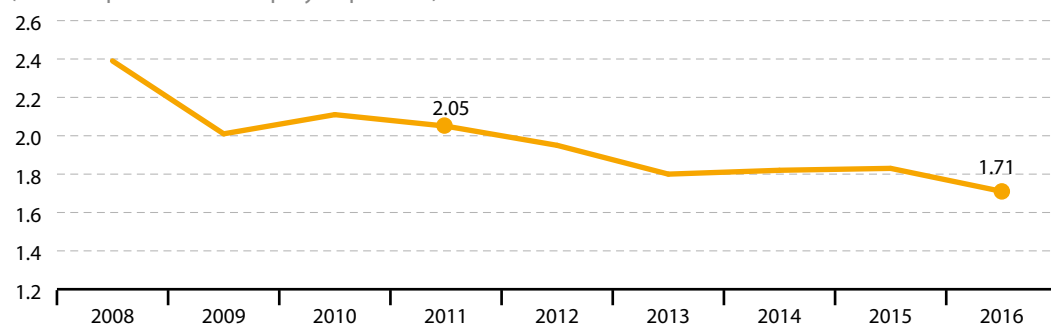


Figure 8.11: People killed in accidents at work, EU-28, 2008–2016
(number per 100 000 employed persons)



Note: 2013 data are provisional.

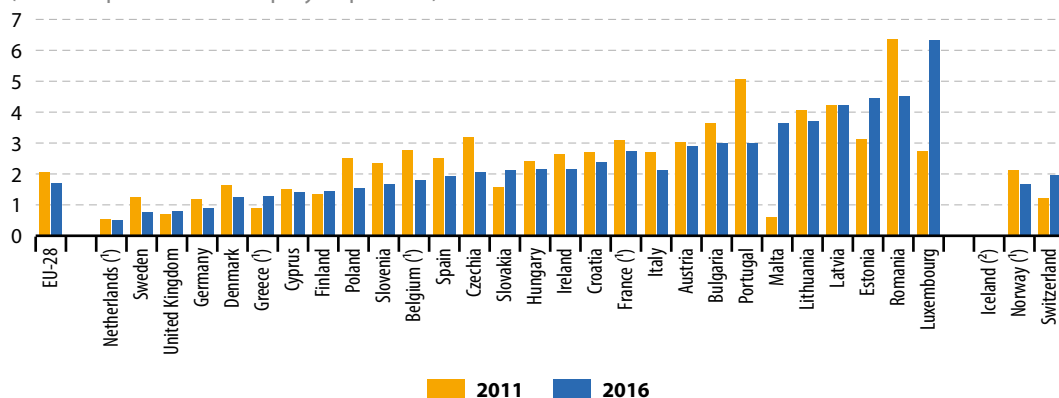
Source: Eurostat (online data code: [sdg_08_60](#))

Table 8.8: Compound annual growth rate (CAGR) of the people killed in accidents at work, EU

EU aggregate	Period	Growth rate
EU-28	2011–2016	– 3.6% per year

Source: Eurostat (online data code: [sdg_08_60](#))

Figure 8.12: People killed in accidents at work, by country, 2011 and 2016
(number per 100 000 employed persons)



⁽¹⁾ Break in time series between the two years shown

⁽²⁾ 2013 data (instead of 2016).

Source: Eurostat (online data code: [sdg_08_60](#))

Further reading on decent work and economic growth

European Commission (2018), *Employment and Social Developments in Europe, Annual review 2018*, Publications office of the European Union, Luxembourg.

European Commission (2019), *European Economic Forecast*, Winter 2019, Publications office of the European Union, Luxembourg.

European Commission (2019), *Joint Employment Report 2019*, Directorate-General for Employment, Social Affairs and Inclusion, Brussels.

OECD (2019), *OECD Employment outlook 2019: The future of work*, OECD Publishing, Paris.

OECD (2017), *Interim Economic Outlook*.

International Labour Organisation (ILO) webpage on '*decent work and the 2030 agenda for sustainable development*'.

European Commission (2017), *EU External Investment Plan — Factsheet*.

European Commission (2017), *Establishing a European Pillar of Social Rights*, COM(2017) 250 final, Brussels.

European Commission (2017), *European Semester Thematic Factsheet: Women in the Labour Market*.

Further data sources on decent work and economic growth

Eurostat, Europe 2020 headline indicators.

Eurostat, *Production, value added and exports in the environmental goods and services sector*.

Eurostat, *Employment in the environmental goods and services sector*.

Eurostat, *Gender employment gap*.

Eurostat, *People living in households with very low work intensity by sex*.

Eurostat, *Employment in current job by duration*.

Notes

- (¹) European Commission (2018), *Employment and Social Developments in Europe, Annual review 2018, Publications office of the European Union*, Luxembourg, p. 23.
- (²) European Commission (2019), *European Economic Forecast*, Winter 2019, Publications office of the European Union, Luxembourg.
- (³) Id., p. 1.
- (⁴) European Commission (2018), *European Economic Forecast*, Autumn 2018, Publications office of the European Union, Luxembourg, p. 9.
- (⁵) European Commission (2014), *An Investment Plan for Europe*, COM/2014/0903 final.
- (⁶) European Commission (2017), *European Commission — Press release: Commission welcomes agreement in principle to extend and reinforce Investment Plan's European Fund for Strategic Investments (EFSI)*.
- (⁷) European Commission (2015), *European Commission — Press release: Capital Markets Union: an Action Plan to boost business funding and investment financing*.
- (⁸) European Commission (2017), *EU External Investment Plan — Factsheet*.
- (⁹) Resource productivity is defined as GDP per unit of domestic material consumption (DMC), measured in EUR per kilogram. Some of these materials are directly consumed by households, which means that they are not used as an input to production activities. Thus, resource productivity is not directly comparable to concepts such as labour or capital productivity.
- (¹⁰) European Environment Agency (2016), *More from less – material resource efficiency in Europe. 2015 overview of policies, instruments, and targets in 32 countries*, EEA report No. 10/2016, EEA Copenhagen, p. 38.
- (¹¹) European Commission (2014), *Study on modelling of the economic and environmental impacts of raw material consumption, Publications office of the European Union*, Luxembourg, p. 5.
- (¹²) Eurostat (2018), *Statistics Explained: Environmental economy — statistics*.
- (¹³) Source: Eurostat (online data code: env_ac_egss2).
- (¹⁴) Source: Eurostat (online data code: env_ac_egss1).
- (¹⁵) Source: Eurostat (online data codes: env_ac_egss2 and nama_10_gdp).
- (¹⁶) European Commission (2017), *Employment and Social Developments in Europe 2017*, Publications office of the European Union, Luxembourg, p.10.
- (¹⁷) European Parliament and Council of the European Union (2013), *Regulation (EU) No 1296/2013 on a European Union Programme for Employment and Social Innovation ("EaSI")*.
- (¹⁸) Source: Eurostat (online data code: ifsa_urgaed).
- (¹⁹) Source: Eurostat (online data code: une_ltu_a).
- (²⁰) Source: Eurostat (online data code: ifsa_ergan).
- (²¹) Source: Eurostat (online data codes: ifsa_etgar, ifsa_epgaed, ifsa_epgar).
- (²²) Ibid.
- (²³) Source: Eurostat (online data code: ifsa_urgaed).
- (²⁴) Source: Eurostat (online data code: ifsa_pganws).
- (²⁵) Source: Eurostat (online data code: yth_empl_150).
- (²⁶) European Commission (2018), *Employment and Social Developments in Europe, Annual review 2018, Publications office of the European Union*, Luxembourg, p. 34.
- (²⁷) European Parliament and Council of the European Union (2013), *Regulation (EU) No 1304/2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006*.
- (²⁸) European Commission (2013), *Recommendation on establishing a Youth Guarantee*, 2013/C 120/01.
- (²⁹) Source: Eurostat (online data code: ifsa_ergan).
- (³⁰) European Commission (2016), *Employment and Social Developments in Europe 2015, Publications office of the European Union*, Luxembourg, p. 300.
- (³¹) Source: Eurostat (online data code: ifsa_urgaed).
- (³²) European Commission (2018), *Employment and Social Developments in Europe, Annual review 2018*, Publications office of the European Union, Luxembourg, p. 12.
- (³³) Source: Eurostat (online data code: ifsa_ergaed).
- (³⁴) Source: Eurostat (online data code: ifsa_urgaed).
- (³⁵) Source: Eurostat (online data code: edat_lfse_21).
- (³⁶) Academic Network of European Disability experts (2017), *European comparative data on Europe 2020 & People with disabilities*, pp. 61–72.
- (³⁷) European Commission (2008), *Recommendation on the active inclusion of people excluded from the labour market, notified under document number C(2008) 5737, 2008/867/EC*.
- (³⁸) European Commission (2016), *Employment and Social Developments in Europe 2015*, Publications office of the European Union, Luxembourg, p. 177.
- (³⁹) Source: Eurostat (online data code: ifsa_ergan).
- (⁴⁰) Source: Eurostat (online data code: ifsa_urgan).
- (⁴¹) Source: Eurostat (online data code: edat_lfse_23).
- (⁴²) Source: Eurostat (online data code: yth_empl_150).
- (⁴³) Source: Eurostat (online data code: ifsa_urgaed).
- (⁴⁴) Source: Eurostat (online data code: hsw_ph3_01).
- (⁴⁵) Ibid.
- (⁴⁶) Source: Eurostat (online data code: hsw_n2_01).
- (⁴⁷) Source: Eurostat (online data code: hsw_n2_04).

⁽⁴⁸⁾ European Commission (2018), *Employment and Social Developments in Europe*, Annual review 2018, Publications office of the European Union, Luxembourg, p. 27.

⁽⁴⁹⁾ Ibid.

⁽⁵⁰⁾ Source: Eurostat (online data code: *ilc_iw01*); 2005 data refer to EU before the accession of Croatia.

⁽⁵¹⁾ Source: Eurostat (online data code: *lfsa_etgar*).

⁽⁵²⁾ Source: Eurostat (online data codes: *lfsa_epgar*, *lfsa_epgaed*).

⁽⁵³⁾ In a majority of Member States 15 to 19-year-olds are still in education or training and few are seeking employment (even part-time). Therefore, the lower age limit of the Europe 2020 strategy's employment target has been set at 20 years. The upper age limit for the employment rate is usually set to 64 years, taking into account statutory retirement ages across Europe.

⁽⁵⁴⁾ European Commission (2016), *Employment and Social Developments in Europe 2015*, Publications office of the European Union, Luxembourg, p. 13.

⁽⁵⁵⁾ Eurostat (2013), *European Statistics on Accidents at Work (ESAW) — Summary methodology*, Publications office of the European Union, Luxembourg.

9

Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

Goal 9 calls for building resilient and sustainable infrastructure and promotes inclusive and sustainable industrialisation. It also recognises the importance of research and innovation for finding lasting solutions to social, economic and environmental challenges.



















eurostat 
supports the SDGs

To combat a wide range of political, economic and sustainability challenges the EU is facing, SDG 9 calls on countries to build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation. Inclusive and sustainable industrial development is the primary source of income and allows for rapid and sustained increases in living standards for all people. Research and development (R&D) and innovation drive economic growth, job creation, labour productivity and resource efficiency. They are crucial for a knowledge-based economy and to ensuring EU companies remain competitive. Similarly, investments in sustainable and energy-efficient transport and mobility systems are key elements for achieving sustainable development.



Table 9.1: Indicators measuring progress towards SDG 9, EU-28






Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
R&D and innovation			
 Gross domestic expenditure on R&D			page 190
Employment in high- and medium-high technology manufacturing and knowledge-intensive services	 ⁽¹⁾		page 192
R&D personnel			page 193
Patent applications to the European Patent Office (EPO)			page 194
Sustainable transport			
Share of buses and trains in total passenger transport			page 195
Share of rail and inland waterways in total freight transport	 ⁽²⁾		page 196
 Average CO ₂ emissions per km from new passenger cars ^(*)	 ⁽¹⁾		SDG 12, page 245

(*) Multi-purpose indicator.

(1) Past 10-year period.

(2) Past 12-year period.

Table 9.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Industry, innovation and infrastructure in the EU: overview and key trends

Monitoring SDG 9 in an EU context focuses on two main dimensions: R&D and innovation, and sustainable transport. As Table 9.1 shows, the EU has progressed in R&D and innovation along several lines over the past few years, while some areas remained stagnant. Similarly, a mixed picture can be observed concerning sustainable transport: while the share of buses and trains in passenger transport has increased and CO₂ emissions from cars have declined, the share of rail and inland waterways in freight transport has not changed substantially.

R&D and innovation

R&D expenditure is a vital contributor to human capital development as it creates knowledge and improves skills, making it a key enabling factor for smart, sustainable and inclusive growth. Highly skilled human resources, in turn, are imperative for keeping the EU's research and innovation capacity and competitiveness up to date. Innovative products and services, as a result of R&D activities, not only contribute to smart growth, but also to inclusiveness and sustainability objectives. Introducing new ideas to the market promotes job creation, labour productivity and efficient use of resources. R&D and innovation are also essential for finding solutions to societal challenges such as **climate change** and clean energy, security, and active and healthy ageing.



The selected indicators look at the monetary input into R&D and innovation activities, the human resources employed in this sector, and the innovation output in terms of filed patents. The picture derived from available data for these indicators for the EU since 2008 is generally characterised by stagnation of the inputs and outputs (R&D intensity and patents), accompanied by a continuous increase in the human resources engaged in R&D and innovation activities.

More investment in R&D needed to meet the Europe 2020 target

The EU economy is facing increasing global competition and can only remain competitive with other countries and regions in the world by strengthening its scientific and technological base. Therefore, one of the key aims of EU policies over recent decades has been to encourage increasing investment in R&D. However, EU expenditure on R&D in relation to GDP (**R&D intensity**) has shown only modest growth during the past 15 years. After prolonged stagnation between 2000 and 2007, R&D intensity has increased slowly and has stabilised at slightly above 2.0% since 2012, reaching 2.06% in 2017 (in absolute terms this corresponds to an R&D expenditure of nearly EUR 320 billion in 2017). With a gap of 0.94 percentage points, the EU thus remains far from its 3% target for 2020.

Overall, in many Member States R&D intensity emerged stronger from the economic crisis following stagnation in **GDP** and increased public funding for R&D. Nevertheless, only Sweden, Austria, Denmark and Germany recorded R&D intensities above 3% of GDP in 2017.

The Europe 2020 strategy sets the target of ‘improving the conditions for innovation, research and development’⁽¹⁾, in particular with the aim of ‘increasing combined public and private investment in R&D to 3 % of GDP’ by 2020.

Horizon 2020 is the current EU Research and Innovation programme with nearly EUR 80 billion of funding available over seven years (2014 to 2020). It aims to drive economic growth and create jobs by coupling research and innovation. The follow-up programme Horizon Europe (2021 to 2027) will continue to promote R&D at the intersection of disciplines, sectors and policies.

Private expenditure accounts for almost two-thirds of total R&D expenditure

An analysis of R&D expenditure by sector of performance shows that the two biggest spenders in 2017 remained the **business enterprise sector** (66.0 % of total R&D expenditure) and the **higher education sector** (21.8 %). Despite its more modest share of 11.2 % in 2017, the **government sector** plays an important role, especially in the long-term stability of R&D expenditure and in fostering public-private initiatives. The size of the **private non-profit sector** is almost negligible, accounting for less than 1.0 % of the total R&D expenditure in 2017.

The business enterprise sector did not only account for the lion's share of total R&D expenditure, it also increased its R&D intensity from 1.14 % of GDP in 2002 to 1.36 % in 2017, showing growth of 0.22 percentage points over 15 years. In contrast, the R&D intensities of the three other sectors — higher education, government and non-profit — have more or less stagnated at relatively low levels. Expenditure in the higher education sector increased from 0.40 % of GDP in 2002 to 0.45 % in 2017. The R&D intensities of the government sector (0.23 %) and the private non-profit sector (0.02 %) were virtually identical to the ratios recorded some 15 years earlier.

R&D expenditure in EU business enterprises boosts knowledge creation, turning ideas into new products and services, for which new patents are registered. Patents provide a valuable measure of the exploitation of research results and of the inventiveness of countries, regions and companies. While EU **patent applications** increased considerably in the years before the economic crisis (up to 2007), they have more or less stagnated since then, despite the slight but continuous increase in businesses' R&D intensity. In 2017, the number of patent applications submitted to the European Patent Office was below 55,000, which is almost 4 000 applications fewer than ten years earlier.



54 649
patent
applications
from within
the EU were
submitted to
the European
Patent Office
in 2017

The business sector is the largest source of R&D investment across Member States

Differences between countries' R&D investment, particularly business R&D spending, reflect the industrial structure of economies, differences in the knowledge intensity of sectors and the research capabilities of countries⁽²⁾. In general, a low business sector R&D intensity indicates that the broader innovation system and framework conditions for this type of investment are insufficiently attractive⁽³⁾. Business R&D can integrate and transform available knowledge into commercially viable technologies and innovation, such as greener products, processes and services that enable higher labour productivity, industrial competitiveness, resource efficiency and reduced environmental impacts.

In most EU Member States, R&D expenditure in the business sector was the main determinant of a country's total R&D intensity over the past decade. Furthermore, the business enterprise sector was the biggest employer of **R&D personnel**, providing jobs (full-time equivalent) for more than half of this workforce in 2017. The business sector consequently is the largest R&D sector in most

Member States. However, in some of the least research-intensive countries, such as the Baltic countries and some southern Member States, the public sector — higher education and government — tends to account for most of the R&D expenditure. There are, however, exceptions to this pattern in the east (Hungary and Slovenia) with above-average private expenditure. Figure 9.3 on page 191 illustrates the relationship between public and private R&D intensities on a country level.

The EU strives to provide the necessary human capital for a knowledge-based society

Achieving the Sustainable Development Goals will require significant innovation and will create new scientific and technical occupations in key manufacturing and other sectors, such as the energy sector. This structural change has important implications for employment as it helps to accommodate and stimulate the development of a highly skilled labour force. The share of employed people working either in high- and medium-high technology manufacturing or in knowledge-intensive service sectors has grown continuously in the EU since 2008, reaching 46.1 % in 2018. Furthermore, the EU aims to create an innovation-friendly environment for researchers and entrepreneurs that makes it easier for great ideas to be turned into products and services. Possibly due to these efforts, the



46.1 %
of employed
people in the EU
worked in high-
and medium-
high technology
manufacturing
or in knowledge-
intensive
services in 2018

share of R&D personnel in the economically active population — including researchers and other staff employed directly in R&D — has increased steadily since 2002 to reach 1.3 % in 2017. This trend was mainly driven by the business enterprise sector, where the share of R&D personnel (full-time equivalent) grew by 0.23 percentage points between 2002 and 2017.

Women remain underrepresented in the R&D sector, but are overrepresented in knowledge-intensive jobs

In the EU, women accounted for more than a third of those employed in R&D in 2015 (35.0 %) ⁽⁴⁾. Despite growth in the number of women with a tertiary education in science over the past few years, they are still underrepresented in the science and technology fields in the EU ⁽⁵⁾. This might be explained by the fact that women still engage in different fields of study than men. For instance, men are more than two times more likely than women to choose a degree in engineering, manufacturing and construction, while women are twice as likely to pursue an education degree ⁽⁶⁾.

Gender differences are also evident when looking at people employed in high- and medium-high technology manufacturing and knowledge-intensive service sectors. Employment in knowledge-intensive services makes up the lion's share of total employment in these areas, amounting to 40.3 % in 2018. Notably, less than a third of all employed men (30.6 %) but more than half of all employed women (51.6 %) were working in this sector in this year. The shares of this sector in total employment have slightly grown for both men and women over the past few years. In contrast, employment in high- and medium-high technology manufacturing sectors has stagnated at slightly below 6 % of total employment since 2008, amounting to 5.8 % in 2018. In this year, 7.9 % of all employed men but only 3.4 % of all employed women were working in these sectors ⁽⁷⁾.



1.3 %
of the active
population in
the EU worked
in R&D in 2017

Sustainable transport

In addition to R&D and innovation, well-functioning and efficient transport and mobility systems are key elements for a competitive economy. As the transport sector is responsible for nearly one-quarter of **greenhouse gas (GHG)** emissions in the EU (see the chapter on SDG 13 'Climate action' on page 253), sustainable transport is an essential ingredient in sustainable development strategies. Rethinking future mobility includes optimising the use of all **modes of transport**, car sharing and integration between different modes of collective transport such as train, tram, metro, bus and taxi (multimodal transport). At the EU level, however, the long-term trends of the selected indicators do not point to a shift towards more sustainable transport modes. The dominant modes for freight and passenger transport — trucks and passenger cars, respectively — have further increased their shares since 2000. The short-term trends paint a more favourable picture for passenger transport, including progress towards cleaner car fleets.



Signs of passenger transport becoming more sustainable over the past few years

Growth in transport activities puts increasing pressure on natural resources and on societies. Emissions of greenhouse gases, air pollutants and noise from transport affect the climate, the environment and human health. The shares of different transport modes in total passenger transport have not changed substantially since 2000, with passenger cars still accounting for almost 83 % of total land passenger transport in the EU ⁽⁸⁾. The share of buses and trains has slightly fallen over the same period, from 17.2 % in 2001 to 17.1 % in 2016. In the short term (since 2011), the share of these transport modes has increased moderately, by 0.3 percentage points.

The largest increases in the share of cars in total passenger transport over the past five years were recorded in some eastern Member States, reflecting their economic growth and the increase in personal income. While cars remain the dominant mode for passenger transport across the EU, new car fleets are becoming cleaner: average **carbon dioxide (CO₂) emissions** from new passenger cars have fallen almost continuously since 2007, reaching 118.5 g CO₂ per km in 2017. While the emission reduction target for new passenger cars for 2015 (130 g CO₂ per km) was met two years in advance, further progress will be needed to also meet the stricter target of 95 g CO₂ per km set for 2021.



118.5
grams of CO₂
per km were
emitted by new
passenger cars
in the EU in 2017

The decline in car fleets' CO₂ emissions can be attributed to newly implemented environmental regulation policies and technological progress. Member States have also managed to speed up the reduction of new cars' CO₂ emissions by demand-oriented incentives, such as scrappage schemes, extra taxes on cars with high CO₂ emissions, or purchase grants for low-emission vehicles such as hybrids. However, it should be noted that under real-world driving conditions, new passenger cars emit more CO₂ per km than in the laboratory (for a more detailed discussion, see the chapter on SDG 12 'Responsible consumption and production' on page 233).

EU legislation sets mandatory emission reduction targets for new cars ⁽⁹⁾. This legislation is the cornerstone of the EU's strategy to improve the fuel economy of cars sold on the European market.

The transport part of the **Horizon 2020 Research and Innovation programme dedicates more than 50 % of its budget to research and innovation to reduce the impact of transport on the climate, including research into improving the fuel efficiency of cars.**

The EU's freight transport system still relies on road transport

Similar to the modal split of passenger transport, the modal split of freight transport has not changed substantially since 2005. Despite the EU policy objective of shifting freight from road to rail (see box below), road continues to have by far the largest share of EU freight transport among the three inland transport modes analysed in this report (road, rail and inland waterways). Due to a marked increase in the share of road freight transport from 2014 to 2017, the share of rail and inland waterways in 2017 was lower than in most preceding years, accounting for 23.3% of total freight transport in the EU. Over the past five years, rail transport in particular has declined in importance (a 1.2 percentage points decrease from 2012 to 2017), reaching 17.3% in 2017, while the share of inland waterways transport fluctuated between 6% and 7% over this period.



23.3%
of total inland
freight tonne-
km in the EU
was carried
out via rail
and inland
waterways in
2017

In 2011, the European Commission adopted a roadmap of 40 concrete initiatives to reduce greenhouse gas emissions in transport by 60% by 2050. Further information can be found in the 2011 [Transport White Paper](#).

With the 2016 'Strategy on low-emission mobility' and the initiatives foreseen by the 2017 and 2018 'Europe on the Move' packages, the European Commission is taking action to fundamentally modernise European mobility and transport. The aim is to help the sector remain competitive while making a socially fair transition towards clean energy and digitalisation. Further information can be found on the [website of the Directorate-General for Mobility and Transport](#).

As of 2014, the Trans-European Transport Network (TEN-T) policy is directed towards the implementation and development of a Europe-wide network of roads, railway lines, inland waterways, maritime shipping routes, ports, airports and rail-road terminals. The ultimate objective of TEN-T is to close gaps, remove bottlenecks and eliminate technical barriers that exist between the transport networks of Member States, strengthening the social, economic and territorial cohesion of the Union and contributing to the creation of a single European transport area.

Availability of infrastructure is an important factor in the choice of freight transport mode

How transport is organised depends on a country's broader logistical system and the availability of infrastructure for the various transport modes. Even though the modal split between different freight transport modes does not change substantially from year to year at the EU level, considerable differences do exist at the country level. In 2017, four countries (Latvia, Lithuania, Romania and the Netherlands) had higher freight transport shares for rail and inland waterways than for road. Particularly high shares of rail transport were reported in the Baltic countries (Latvia, Lithuania and Estonia), essentially linked to the transport of Russian energy products to the Baltic ports⁽¹⁰⁾. In the Netherlands, freight transport via inland waterways still plays a very important role (modal split of 44.7% in 2017), almost matching the share of road (49.4% in 2017)⁽¹¹⁾.

Presentation of the main indicators

LONG TERM
2002–2017

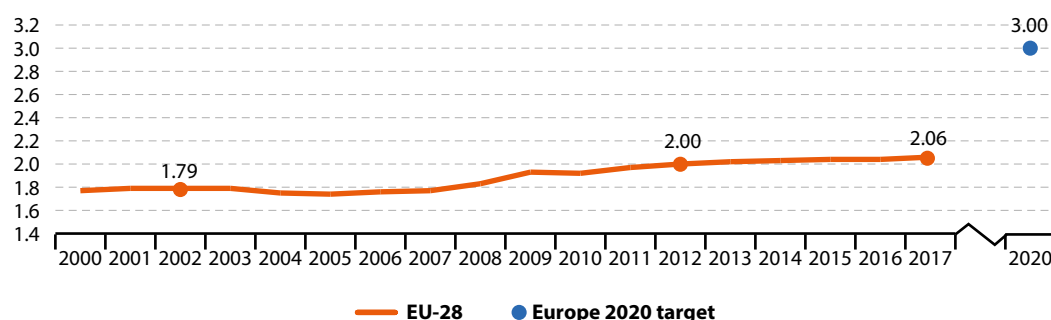
SHORT TERM
2012–2017

Gross domestic expenditure on R&D

This indicator measures gross domestic expenditure on R&D (GERD) as a percentage of the gross domestic product (GDP) — the R&D intensity. The Frascati Manual defines research and development (R&D) as creative and systematic work undertaken in order to increase the stock of knowledge — including knowledge of humankind, culture and society — and to devise new applications of available knowledge ⁽¹²⁾.

Figure 9.1: Gross domestic expenditure on R&D, EU-28, 2000–2017

(% of GDP)



Note: Data for 2000 to 2002 are estimates, 2017 data are provisional.

Source: Eurostat (online data code: [sdg_09_10](#))

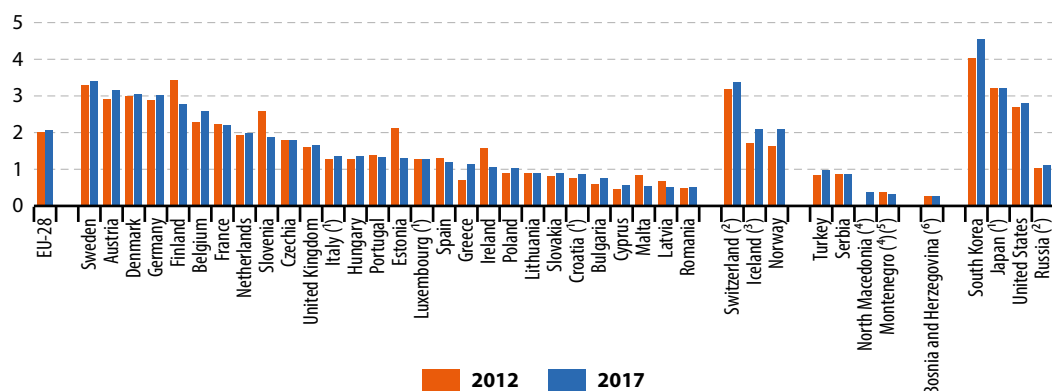
Table 9.3: Compound annual growth rate (CAGR) of the gross domestic expenditure on R&D as a share of GDP, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2002–2017	0.9 % per year	2.9 % per year
EU-28	2012–2017	0.6 % per year	5.2 % per year

Source: Eurostat (online data code: [sdg_09_10](#))

Figure 9.2: Gross domestic expenditure on R&D, by country, 2012 and 2017

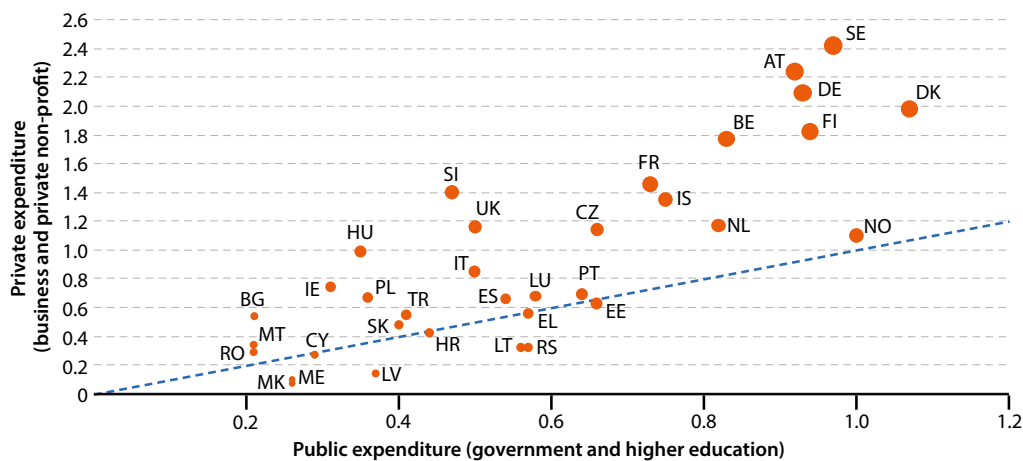
(% of GDP)



Note: Estimated or provisional data for many countries.

⁽¹⁾ 2016 data (instead of 2017).⁽²⁾ Break(s) in time series between the two years shown.⁽³⁾ 2015 data (instead of 2017).⁽⁴⁾ 2013 data (instead of 2012).⁽⁵⁾ No data for 2012.⁽⁶⁾ 2014 data (instead of 2017).Source: Eurostat (online data code: [sdg_09_10](#))**Figure 9.3: Public and private gross domestic expenditure on R&D, by country, 2017**

(% of GDP)



Note: Estimated or provisional data for many countries. 2016 data for France and Montenegro. The size of the dots reflects the total R&D intensity of the countries.

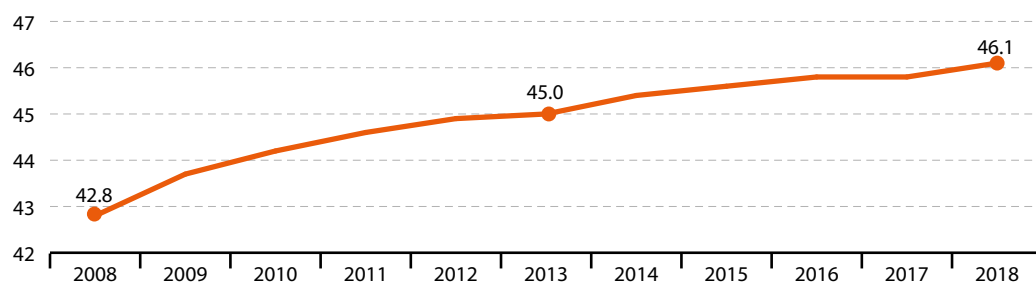
Source: Eurostat (online data code: [sdg_09_10](#))



Employment in high- and medium-high technology manufacturing and knowledge-intensive services

This indicator measures the employment in **high- and medium-high technology manufacturing** sectors and in **knowledge-intensive service** sectors as a share of total employment. Data stem from the **European Labour Force Survey (LFS)**. The definition of high- and medium-high technology manufacturing sectors and of knowledge-intensive services is based on a selection of relevant items of the statistical classification of economic activities in the European Community (NACE) Rev. 2 at two-digit level and is oriented on the ratio of highly qualified working in these areas.

Figure 9.4: Employment in high- and medium-high technology manufacturing and knowledge-intensive services, EU-28, 2008–2018
(% of total employment)



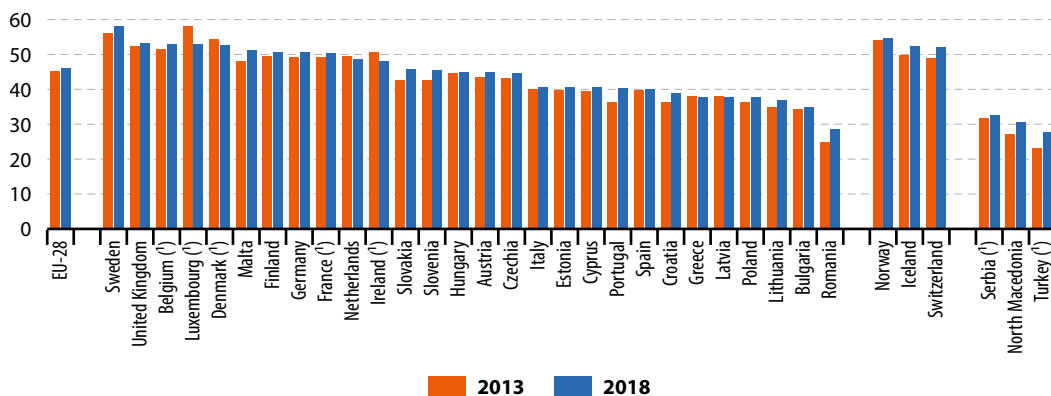
Source: Eurostat (online data code: [sdg_09_20](#))

Table 9.4: Compound annual growth rate (CAGR) of the share of employment in high- and medium-high technology manufacturing and knowledge-intensive services, EU

EU aggregate	Period	Growth rate
EU-28	2008–2018	0.7 % per year
EU-28	2013–2018	0.5 % per year

Source: Eurostat (online data code: [sdg_09_20](#))

Figure 9.5: Employment in high- and medium-high technology manufacturing and knowledge-intensive services, by country, 2013 and 2018
(% of total employment)



⁽¹⁾ Break(s) in time series between the two years shown.

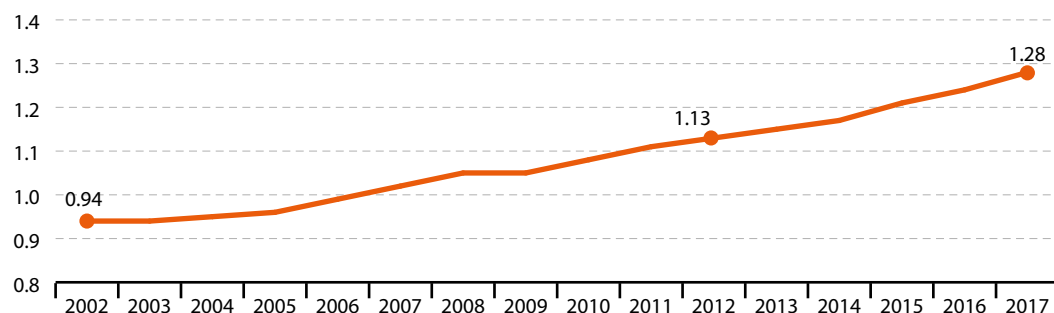
Source: Eurostat (online data code: [sdg_09_20](#))

R&D personnel

This indicator measures the share of R&D personnel broken down by the following institutional sectors: **business enterprise**, **government**, **higher education** and **private non-profit**. Data are presented in **full-time equivalents** as a share of the economically active population (the **labour force**).



Figure 9.6: R&D personnel, EU-28, 2002–2017
(% of active population)



Note: Data for 2002–2013 are estimates; 2017 data are provisional.

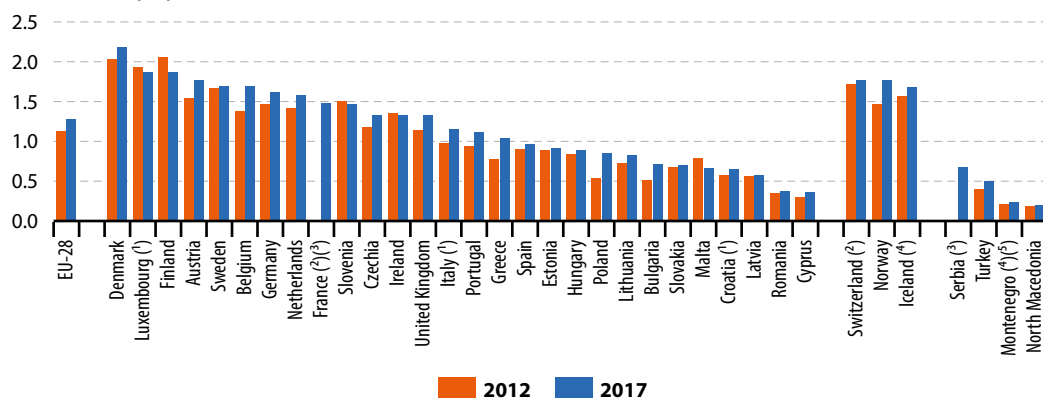
Source: Eurostat (online data code: [sdg_09_30](#))

Table 9.5: Compound annual growth rate (CAGR) of the share of R&D personnel, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	2.1 % per year
EU-28	2012–2017	2.5 % per year

Source: Eurostat (online data code: [sdg_09_30](#))

Figure 9.7: R&D personnel, by country, 2012 and 2017
(% of active population)



Note: Estimated or provisional data for many countries

⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2015 data (instead of 2017).

Source: Eurostat (online data code: [sdg_09_30](#))

⁽³⁾ No data for 2012.

⁽⁴⁾ 2013 data (instead of 2012).

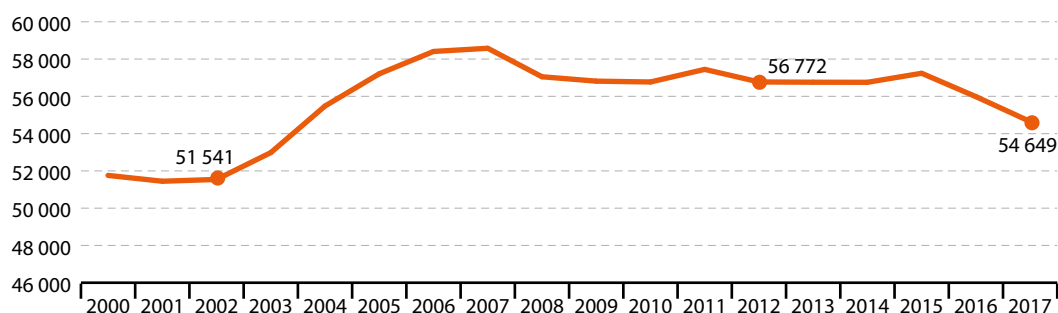
⁽⁵⁾ 2016 data (instead of 2017).



Patent applications to the European Patent Office (EPO)

This indicator measures the requests for protection of an invention directed either directly to the [European Patent Office \(EPO\)](#) or filed under the Patent Cooperation Treaty and designating to the EPO (Euro-PCT), regardless of whether they are granted or not. The data shows the total number of applications per country. If one application to the EPO has more than one inventor, the application is divided equally among all of them and subsequently among their countries of residence, thus avoiding double counting. Euro-PCT applications are allocated according to the nationality of the first listed applicant.

Figure 9.8: Patent applications to the European Patent Office (EPO), EU-28, 2000–2017
(number)



Note: Data for 2013–2017 are estimates.

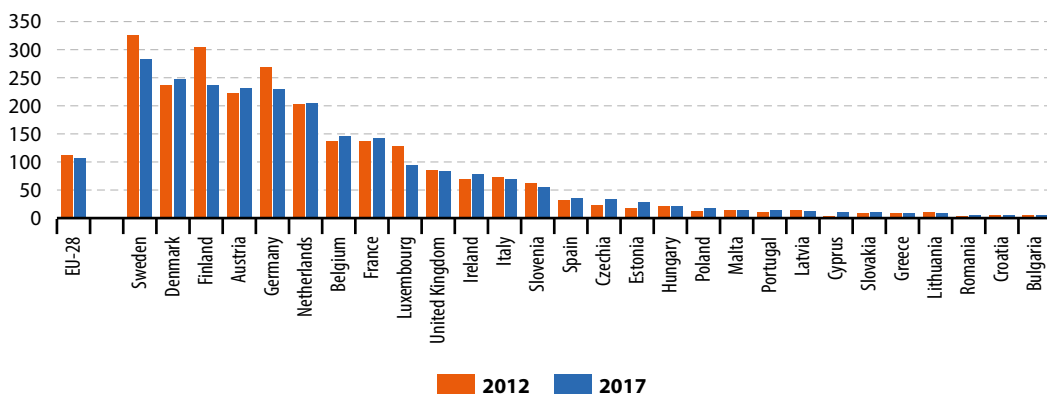
Source: Eurostat (online data code: [sdg_09_40](#))

Table 9.6: Compound annual growth rate (CAGR) of the patent applications to the European Patent Office (EPO), EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	0.4% per year
EU-28	2012–2017	– 0.8% per year

Source: Eurostat (online data code: [sdg_09_40](#))

Figure 9.9: Patent applications to the European Patent Office (EPO), by country, 2012 and 2017
(per million inhabitants)



Note: 2017 data are estimated or provisional for most countries.

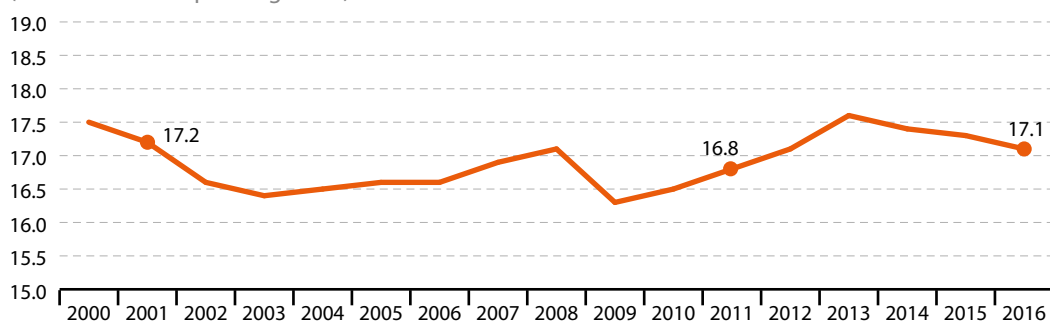
Source: Eurostat (online data code: [sdg_09_40](#))

Share of buses and trains in total passenger transport

This indicator measures the share of buses, including coaches and trolley-buses, and trains in total passenger transport, expressed in **passenger-kilometres (pkm)**. Total passenger transport here includes transport by passenger cars, buses and coaches, and trains, but excludes air and sea transport. All data should be based on movements within national territories, regardless of the nationality of the vehicle. The data collection is voluntary and not fully harmonised at the EU level. Other collective transport modes, such as tram and metro systems, are not included due to the lack of harmonised data.



Figure 9.10: Share of buses and trains in total passenger transport, EU-28, 2000–2016
(% of total inland passenger-km)



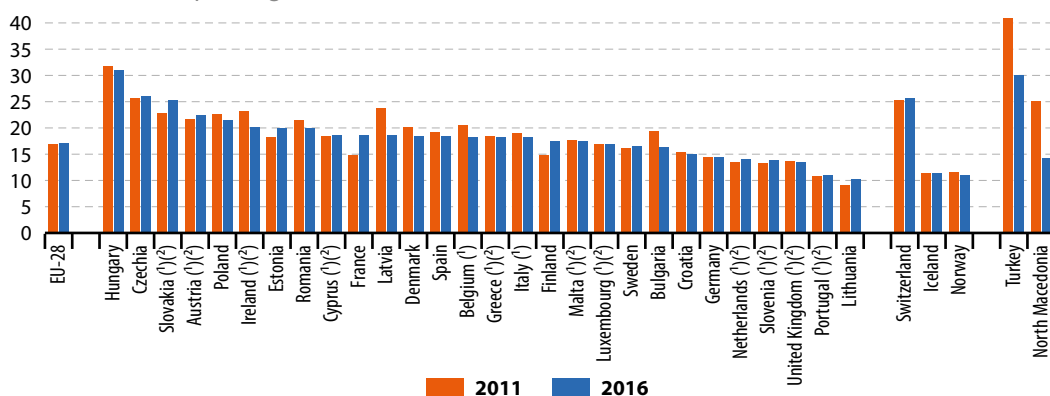
Source: Eurostat (online data code: [sdg_09_50](#))

Table 9.7: Compound annual growth rate (CAGR) of the share of buses and trains in total passenger transport, EU

EU aggregate	Period	Growth rate
EU-28	2001–2016	0.0% per year
EU-28	2011–2016	0.4% per year

Source: Eurostat (online data code: [sdg_09_50](#))

Figure 9.11: Share of buses and trains in total passenger transport, by country, 2011 and 2016
(% of total inland passenger-km)



⁽¹⁾ 2016 data are estimated or provisional.

⁽²⁾ 2011 data are estimated.

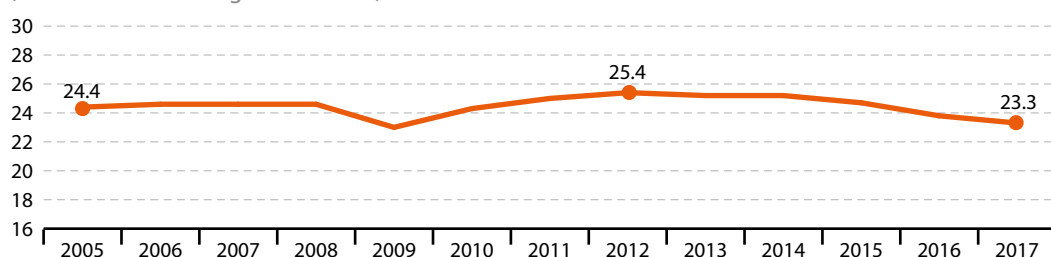
Source: Eurostat (online data code: [sdg_09_50](#))



Share of rail and inland waterways in total freight transport

This indicator measures the share of rail and inland waterways in total inland freight transport, expressed in tonne-kilometres (tkm). Inland freight transport modes include road, rail and inland waterways. All data are based on movements on national territory; rail and inland waterways transport are collected based on movements on national territory, regardless of the nationality of the train or vessel. Road transport is redistributed to the national territory on the basis of reported data on the activity of the vehicles registered in each country and modelling the likely journey itinerary by projecting it on the European road network. Neither sea nor air freight transport are currently represented in the indicator.

Figure 9.12: Share of rail and inland waterways in total freight transport, EU-28, 2005–2017
(% of total inland freight tonne-km)



Note: Data for 2005–2008 and 2012–2017 are estimated.

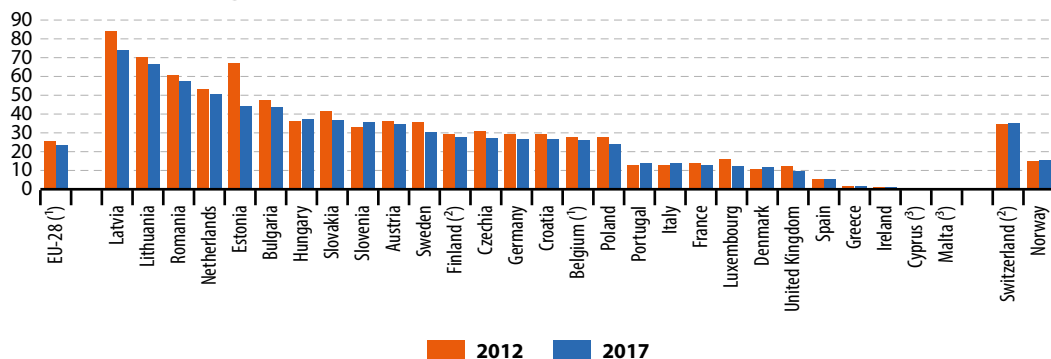
Source: Eurostat (online data code: [sdg_09_60](#))

Table 9.8: Compound annual growth rate (CAGR) of the share of rail and inland waterways in total freight transport, EU

EU aggregate	Period	Growth rate
EU-28	2005–2017	– 0.4 % per year
EU-28	2012–2017	– 1.7 % per year

Source: Eurostat (online data code: [sdg_09_60](#))

Figure 9.13: Share of rail and inland waterways in total freight transport, by country, 2012 and 2017
(% of total inland freight tonne-km)



⁽¹⁾ Estimated data.

⁽²⁾ 2017 data are estimated.

⁽³⁾ Not applicable (no rail or inland waterways).

Source: Eurostat (online data code: [sdg_09_60](#))

Further reading on industry, innovation and infrastructure

European Commission (2018), Science, *Research and Innovation Performance of the EU (SRIP) report*, Publications Office of the European Union, Luxembourg.

European Court of Auditors (2016), *Rail freight transport in the EU: still not on the right track*, Publications Office of the European Union, Luxembourg.

European Commission (2011), *White Paper — Roadmap to a Single European Transport Area — Towards a competitive and resource efficient transport system*, Brussels.

OECD (2018), *OECD Science, Technology and Innovation Outlook 2018: Adapting to Technological and Societal Disruption*, OECD Publishing, Paris.

United Nations Secretary-General's High-Level Advisory Group on Sustainable Transport (2016), *Mobilizing Sustainable Transport for Development*, United Nations, New York.

Further data sources on industry, innovation and infrastructure

European Commission (2018), *European Innovation Scoreboard*.

OECD (2017), *OECD Science, Technology and Industry Scoreboard 2017*.

UNIDO (2019), *Statistical Indicators of Inclusive and Sustainable Industrialization*, United Nations Industrial Development Organization, Vienna.

Notes

- (¹) European Council (2010), *European Council conclusions*, 17 June 2010, EUCO 13/10, Brussels.
- (²) Reinstaller, A., Unterlass, F., (2012), *Comparing business R&D across countries over time: a decomposition exercise using data for the EU27*, Applied Economics Letters, 19:12, pp. 1143–1148.
- (³) European Commission (2013), *Innovation Union Competitiveness Report*.
- (⁴) Source: Eurostat (online data code: rd_p_persocc).
- (⁵) European Commission (2015), *She Figures 2015 — Gender in Research and Innovation*, Publications Office of the European Union, Luxembourg, p. 20.
- (⁶) Ibid.
- (⁷) Source: Eurostat (online data code: htec_emp_nat2).
- (⁸) Source: Eurostat (online data code: tran_hv_psmmod).
- (⁹) European Commission (2017), *Commission Recommendation (EU) 2017/948 of 31 May 2017 on the use of fuel consumption and CO₂ emission values type-approved and measured in accordance with the World Harmonised Light Vehicles Test Procedure when making information available for consumers pursuant to Directive 1999/94/EC of the European Parliament and of the Council*.
- (¹⁰) Eurostat (2018), *Freight transport statistics — modal split*.
- (¹¹) Source: Eurostat (online data code: tran_hv_frmod).
- (¹²) OECD (2015), *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development*, OECD Publishing, Paris, § 1.32.

10

Reduce inequality within and among countries

Goal 10 addresses inequalities within and among countries. It calls for nations to reduce inequalities in income as well as those based on age, sex, disability, race, ethnicity, origin, religion or economic or other status within a country. The goal also addresses inequalities among countries, including those related to representation, and calls for the facilitation of orderly and safe migration and mobility of people.



















eurostat 
supports the SDGs

It is widely agreed that economic prosperity alone will not achieve social progress. High inequality levels risk leaving much human potential unrealised, damage social cohesion, hinder economic activity and undermine democratic participation, to name just a few examples. Although economists believe that some income inequality is necessary for a market economy to function effectively because it allows for incentives that support investment and growth, an ever-widening gap between the rich and the poor is a matter of concern. Inequalities between countries can be reduced by encouraging development assistance and foreign direct investment to the regions with the greatest need. Because rising income inequality within countries can hamper economic growth and social cohesion, the EU seeks to address this by supporting Member States in their efforts to reform their tax and benefit systems; provide quality and universal access to education, health and other key services; and promote the uptake of income support, active



labour market inclusion and integrated social services for those in need. Moreover, the EU promotes the social inclusion of migrants.

Table 10.1: Indicators measuring progress towards SDG 10, EU-28






Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Inequalities within countries			
Relative median at-risk-of-poverty gap	 ⁽¹⁾		page 207
Income distribution	 ⁽¹⁾		page 208
Income share of the bottom 40 % of the population	 ⁽¹⁾		page 209
People at risk of income poverty after social transfers (*)	 ⁽¹⁾		SDG 1, page 47
Inequalities between countries			
Purchasing power adjusted GDP per capita	 ⁽²⁾	 ⁽²⁾	page 210
Adjusted gross disposable income of households per capita	 ⁽²⁾	 ⁽²⁾	page 211
EU financing to developing countries (*)			SDG 17, page 339
EU imports from developing countries (*)			SDG 17, page 340
Migration and social inclusion			
Asylum applications	:	:	page 212

(*) Multi-purpose indicator.

(1) Past 12-year period; data refer to EU without Croatia.

(2) Calculation of trend based on coefficient of variation.

Table 10.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Reduced inequalities in the EU: overview and key trends

Monitoring SDG 10 in an EU context focuses on inequalities within countries, inequalities between countries, and migration and social inclusion. While economic disparities between EU countries have reduced over time, income inequalities within Member States have increased. Social and labour market inclusion in the EU have also been challenged by an unprecedented surge of migration into the EU over the past few years, although migration flows into the EU have dropped notably since 2016.

Inequalities within countries

High levels of inequality harm society in many ways. They can hamper social cohesion, result in lost opportunities for many and reduce social trust in institutions (¹). Since the onset of the 2008 economic crisis, income inequality within EU Member States has been gradually rising and only recently have there been signs of a potential turnaround in this trend. Although many factors have played a role, technological innovation and financial globalisation, favouring people with specific skills and those with accumulated wealth, have been important driving forces behind rising inequality within countries (²).



In 2017, the income of the richest 20 % of the households in the EU was 5.1 times higher than that of the poorest 20 %

The income gap between the rich and the poor in the EU remains at a high level

One of the objectives of the social policies in the EU is to reduce inequality by providing equal opportunities for all (³). However, inequality of opportunities and inequality of outcomes (such as income inequality) are closely interdependent: equal outcomes are difficult to reach without equal opportunities, but equal opportunities are

difficult to achieve when households begin from very unequal starting points (⁴). Analysing the income distribution is one of the ways to measure inequality within EU countries. The **income quintile share ratio** compares the income received by the 20 % of the population with the highest **equivalised disposable income** to that received by the 20 % of the population with the lowest equivalised disposable income. The higher this ratio, the bigger the income inequality. In the EU, this ratio has increased slightly since 2005, reaching a ratio of 5.1 in 2017. This means that the income of the richest 20 % of households was about five times as much as that of the poorest 20 %.



21.1 %
Share of total income earned by the bottom 40 % of the EU population in 2017

Reflecting the trend in the income quintile share ratio, the income share of the bottom 40 % of the population in the total equivalised disposable income has stabilised at a low level, reaching 21.1 % in 2017. While between 2010 and 2014, labour incomes almost recovered to their pre-crisis levels on average, this was not the case among low-income earners (⁵). This is likely to have contributed to declines in the income share of the bottom 40 % of earners. Households at the lower end of the income distribution are also more affected by financial distress and are therefore more vulnerable to income shocks. According to the **2018 Annual Review of Employment and Social Developments in Europe** (⁶), 9 % of adults in low-income households were in debt, and a further 14 % drew on savings to cover current expenditure in 2017, compared with 4 % and 9 %, respectively, for the total population (⁷).

Despite an overall downward trend in both the income quintile share ratio and the income share of the bottom 40 % of the population since 2005, some improvements for both indicators were

visible in 2017. This could be for several reasons, including more effective redistribution and active inclusion policies or the trickling down of economic recovery effects to low-income households.

The European Pillar for Social Rights⁽⁸⁾ sets out 20 key principles to support fair and well-functioning labour markets and welfare systems. These principles address topics related to inequality by tackling both inequality of outcomes (income inequality) and inequality of opportunities: from wage-setting to social-protection systems (including minimum income), gender equality, enabling social services, childcare and support to children, old-age income, healthcare and access to housing.

The European Semester is a key delivery tool of the Pillar and has in recent years focused more closely on social issues, including inequality challenges. For example, the 2018 Semester also addressed issues such as long-term care, income inequality, disability, the benchmarking of unemployment benefits and minimum income.

The extent and depth of poverty in the EU remain significant

Another way to measure inequality of outcomes within countries is by looking at relative or income poverty, as inequality and poverty are closely interrelated. The distribution of resources within a country has a direct impact on the extent and depth of poverty. In 2017, 85.3 million people — 16.9% of the EU population — were at risk of poverty after social transfers. People are

considered to be at risk of income poverty when their equalised disposable income (after social transfers) is below the at-risk-of-poverty threshold, which is set at 60 % of the national median equalised disposable income after social transfers.

The number of people at risk of income poverty in the EU has risen substantially since 2005, by 7.3 %⁽⁹⁾. Furthermore, the income of people at risk of poverty is now further away from the poverty threshold: in 2017, this gap amounted to 24.1 % in the EU, which means that the median income of those below the threshold was 24.1 % lower than the threshold itself. This represents a 0.8 percentage point widening of the gap since 2005, indicating an increase in the 'depth' of income poverty in the EU⁽¹⁰⁾.

Vulnerable groups of the population, including children, the elderly, people with disabilities, migrants and Roma, are more likely to be at risk of poverty and social exclusion⁽¹¹⁾.

Similar to the most recent trends in income inequality, the situation regarding income poverty improved in 2017. The number of people at risk of poverty after social transfers has fallen by 1.9 % (– 1.6 million people) since 2016, and the poverty gap has also decreased by 0.9 percentage points. However, these improvements did not help to compensate for the continuous increases in both indicators over the short-term period since 2012.



16.9%
of the EU
population
were at risk of
poverty after
social transfers
in 2017

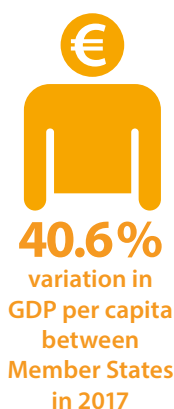


24.1%
Distance from
the poverty
threshold for
those at risk of
poverty in 2017

The **European Social Fund (ESF)** is the EU's main instrument for investing in people since the Treaty of Rome, with an EU budget allocation for 2014–2020 of EUR 88 billion. It also helps tackle inequalities, both in terms of outcomes and opportunities, by financing actions in the areas of employment, social inclusion, education, training and administrative capacity reforms. The revised European Social Fund Plus (ESF+), with an envelope of EUR 101 billion as part of the proposed **Multiannual Financial Framework 2021–2027**, will further contribute to reducing inequalities.

Inequalities between countries

We live in an interconnected world, where problems and challenges — be they poverty, climate change, migration or economic crises — are rarely confined to one country or region. Therefore, combating inequalities between countries and world regions is important, not only from a social justice perspective, but also as a prerequisite for solving many interdependent problems. In particular, sharing prosperity and reducing trade barriers allow nations to cooperate on meeting global challenges, which by definition cannot be addressed by the EU alone. Cohesion between Member States is one of the objectives of the EU, as mentioned in the [Treaty on European Union](#) (article 3.3) ⁽¹²⁾. The second chapter of [The Five Presidents' report: Completing Europe's Economic and Monetary Union](#) ⁽¹³⁾ is also devoted to convergence, prosperity and social cohesion, emphasising the importance of convergence



between and within European societies towards the highest levels of prosperity.

Economic disparities between EU countries have reduced over time

Not only have economic performance, incomes and living standards improved across the EU as a whole over time, they have also been converging between countries. The two indicators used to measure this convergence both show that inequalities between EU countries have decreased over the past 15 years.

The coefficient of variation in GDP per capita in the [purchasing power standard \(PPS\)](#) — calculated as the ratio of the standard deviation to the mean — shows that economic disparities in GDP per capita between Member States narrowed slightly between 2002 and 2017, reaching 40.6 % in 2017. According to the [2018 Annual Review of Employment and Social Developments in Europe](#) ⁽¹⁴⁾, this was mainly a result of rising GDP in countries that joined the EU in 2004 and later. Most of this convergence took place in the period leading up to the economic crisis of 2008.

While GDP per capita is used to measure a country's economic performance, adjusted gross [household disposable income](#) provides an indication of people's average material well-being. Gross household disposable income reflects households' purchasing power and ability to invest in goods and services or save for the future, by taking into account taxes, social contributions and in-kind social benefits. The coefficient of variation in gross household disposable income between EU Member States has decreased over time, reaching 26.1 % in 2017, which is 4.8 percentage points less than in 2012 and a 14.5 percentage point improvement since 2002.



Despite overall reduction in economic disparities, north–south and west–east divides between EU countries remain

A clear north–south and west–east divide is evident when looking at the geographical distribution of GDP per capita and income of households in the EU in 2017. EU citizens living in northern and western European countries with above average GDP per capita levels had the highest gross disposable income per capita. At the other end of the scale were eastern and southern EU countries, which displayed gross household disposable incomes and GDP per capita levels that were below the EU average.

This pattern is broadly reflected in other fields of economic performance, such as employment, R&D expenditure and resource productivity (see the chapters on SDG 8 ‘Decent work and economic growth’ on page 165, SDG 9 ‘Industry, innovation and infrastructure’ on page 183 and SDG 12 ‘Responsible consumption and production’ on page 233) as well as in social dynamics in terms of levels of poverty and social exclusion (see the chapter SDG 1 ‘No poverty’ on page 35).

EU cohesion policy promotes economic, social and territorial cohesion by investing in smart, sustainable and inclusive growth in all EU regions, with the main aim of ‘reducing disparities between the various regions and the backwardness of the least-favoured regions’, but also by promoting more balanced, more sustainable ‘territorial development’. The [European Structural and Investment Funds](#) are the financial instrument for implementing these policy actions.

The EU’s different forms of assistance to developing countries have risen over the past decade

The EU’s values of social and economic justice and equality apply not just to its own territories, but also to global development in general. The

assistance given by the EU and its Member States to developing countries is an expression of solidarity with their efforts to eradicate poverty and vulnerability, improve their populations’ well-being and achieve sustainable development.

The EU’s commitment to reducing inequalities between countries goes beyond [official development assistance \(ODA\)](#). In line with the new [European Consensus on Development](#), the EU takes a comprehensive approach to development cooperation, drawing on the framework agreed through the [Addis Ababa Action Agenda](#), combining aid with other financial and non-financial resources, with sound policies and a strengthened approach to [Policy Coherence for Development](#). For instance, trade openness is another means of helping countries to achieve lasting economic development and independence from ODA. Through trade cooperation, the EU aims to help developing and least-developed countries join the global economy and reap the benefits it provides for economic specialisation, growth and job creation.

The EU’s efforts for reducing inequalities between its Member States and other countries can be measured by two indicators:

EU financing to developing countries and EU imports from developing countries. Over the past decade, both the financial help given to developing countries and the imports from developing countries have increased significantly. Total EU financing for developing countries — encompassing flows from the public and private sectors — has quadrupled since 2002, amounting to almost EUR 155 billion in 2017. The main driver



155
billion EUR were
spent by the EU
on financing
to developing
countries
in 2017



1 014
billion EUR
Value of EU
imports from
developing
countries in
2018

behind the latest annual increase in EU financing was a 29.8% rise of private flows.

EU imports from developing countries also almost tripled between 2003 and 2018, from EUR 372 billion to EUR 1 014 billion, which is a new record high. Growing imports from China have been a decisive factor behind the long-term growth in EU imports. For more information on the different forms of the EU's assistance to developing countries, see the chapter on SDG 17 'Partnership for the goals' on page 329.

Migration and social inclusion

The number of irregular border crossings and asylum applications in the EU has fallen considerably since 2015

The Syrian conflict, the ongoing war in Iraq and unstable situations in Afghanistan and some African countries have contributed to an unprecedented surge of [migration](#) into the EU over the past few years. People fleeing from conflicts and war situations, as well as economic migrants, are sometimes forced to violate the migration laws of EU Member States

by overstaying their visas or by crossing borders illegally. In 2018, Member States detected 150 114 illegal border crossings along the EU's external borders ⁽¹⁵⁾. This represents a 26.7% drop compared with 204 719 detections in 2017. The main driver was the diminishing number of migrant arrivals on the Central Mediterranean Route ⁽¹⁶⁾. However, the changing flow of migration routes, including the Western Mediterranean Route becoming the most frequent one, indicates that pressure on the EU's external borders remains high.



586 050
first-time
asylum
applications
were submitted
in the EU in 2018

The urge to seek international protection is one of the main reasons forcing people to cross borders illegally. In 2018, the EU received 586 050 first-time [asylum applications](#) (equalling 1 144 [applications per million EU inhabitants](#)), which is about 50% fewer than at the height of the refugee crisis in 2015, but still a 3.8-fold increase compared with 2008. During 2018, 217 405 people were granted protection status at the first instance in the EU.

The European Commission's [Knowledge Centre for Migration and Demography](#) provides knowledge and evidence-based analysis for policy developments and decisions related to saving migrants' lives and securing the external borders, strengthening the common asylum policy and developing a new policy on legal migration. The [Asylum, Migration and Integration Fund](#) provides financial support for these actions.

The [European Social Fund](#) (ESF) supports various target groups, such as 'disadvantaged people' and 'marginalised communities', which often include 'migrants' and 'those seeking asylum and refugees',

without distinguishing though between EU and third-country nationals.

The [Fund for European Aid to the Most Deprived](#) (FEAD) may support asylum seekers by providing them with immediate relief (food, clothing and other essential items for personal use) and social assistance. However, Member States define the target groups individually and the scope of support by FEAD depends on the scope of the national programme.

The proposed [European Solidarity Corps](#) will enable young people across the EU to volunteer their help for the reception and integration of migrants or refugees.

Despite the unprecedented increase in first-time asylum applications in the EU between 2008 and 2018, the latest figure for 2018 showed a decrease of 10.5 % compared with the previous year. This followed on from a significant drop of more than half a million in first-time applicants (45.7 %) between 2016 and 2017. Such a rapid fall might be connected to the overall reduction in the number of arrivals to the EU due to stricter border controls ⁽¹⁷⁾. This has partly been influenced by the closure of the Western Balkans route ⁽¹⁸⁾ in early March 2016 and the [EU-Turkey Statement of 18 March 2016](#) ⁽¹⁹⁾, which made the irregular flow of people towards central and northern Europe more difficult. Migrants were forced to use different routes across the Mediterranean (the Central Mediterranean route from North Africa to Italy; the Eastern Mediterranean route from Turkey to Greece, Bulgaria and Cyprus; and the Western Mediterranean route from North Africa to Spain) ⁽²⁰⁾.

The largest groups of first-time asylum applicants in Member States in 2018 were Syrians (80 940), Afghans (41 055) and Iraqis (39 825), together accounting for nearly one-third of all first-time applicants. The distribution of first-time

asylum applicants by sex shows that men were overrepresented, with about two in three (63.3 %) of those seeking asylum being male. Men often arrive first, hoping to find a safe place to live or work before trying to reunite with their families ⁽²¹⁾.

In 2018, 217 405 asylum applicants received a positive [decision](#) at first instance (equalling 424 positive decisions per million EU inhabitants), entitling them to remain in the EU and receive international protection, up from 57 945 in 2008. Slightly more than half of them (56.1 %) were granted refugee status under the Geneva Convention ⁽²²⁾, which establishes protection for civilians with a well-founded fear of persecution. Nearly a third (28.5 %) of those with a positive asylum decision did not meet the criteria for the recognition as refugees under the Geneva Convention, but received subsidiary protection because of a real risk of suffering serious harm if they returned to the country of origin ⁽²³⁾. Finally, 15.4 % of those with positive decisions were granted authorisation to stay for humanitarian reasons ⁽²⁴⁾. Note that this type of protection is not applied by all Member States.

Presentation of the main indicators

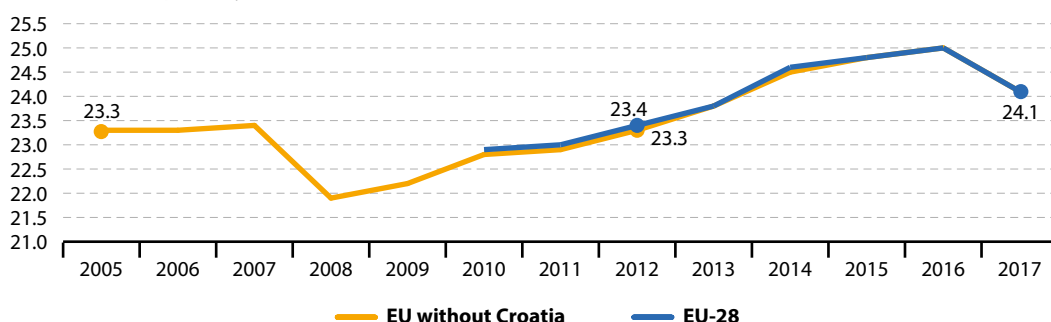
Relative median at-risk-of-poverty gap

The relative median at-risk-of-poverty gap helps to quantify how poor the poor are by showing the distance between the median income of people living below the poverty threshold and the threshold itself, expressed in relation to the threshold. This threshold is set at 60% of the national median equivalised disposable income of all people in a country and not for the EU as a whole. Data presented in this section stem from the [EU Statistics on Income and Living Conditions \(EU-SILC\)](#).

LONG TERM
2005–2017

SHORT TERM
2012–2017

Figure 10.1: Relative median at-risk-of-poverty gap, EU, 2005–2017
(% distance to poverty threshold)



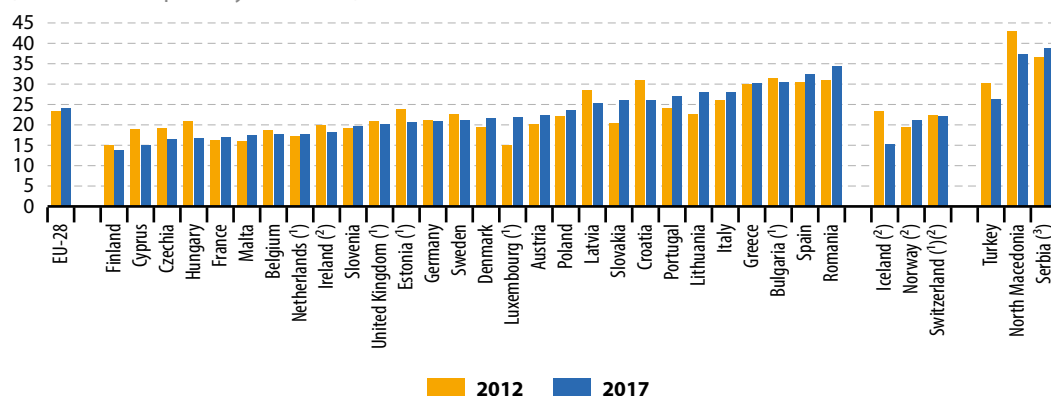
Source: Eurostat (online data code: [sdg_10_30](#))

Table 10.3: Compound annual growth rate (CAGR) of the relative median at-risk-of-poverty gap, EU

EU aggregate	Period	Growth rate
EU without Croatia	2005–2017	0.3 % per year
EU-28	2012–2017	0.6 % per year

Source: Eurostat (online data code: [sdg_10_30](#))

Figure 10.2: Relative median at-risk-of-poverty gap, by country, 2012 and 2017
(% distance to poverty threshold)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_10_30](#))



LONG TERM
2005–2017

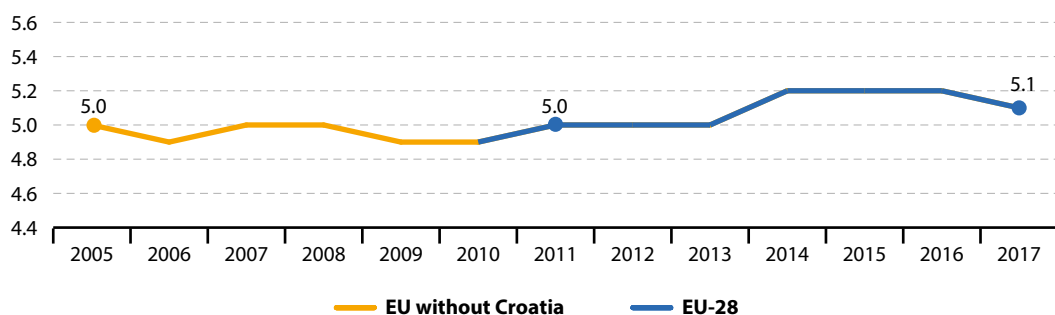


SHORT TERM
2012–2017

Income distribution

Income distribution is measured by the ratio of total equivalised disposable income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile). Equivalised disposable income is a household's total income (after taxes and other deductions) that is available for spending or saving, divided by the number of household members converted into *equivalised adults*. Data presented in this section stem from the *EU Statistics on Income and Living Conditions* (EU-SILC).

Figure 10.3: Income distribution, EU, 2005–2017
(income quintile share ratio)



Note: 2006 data are estimates.

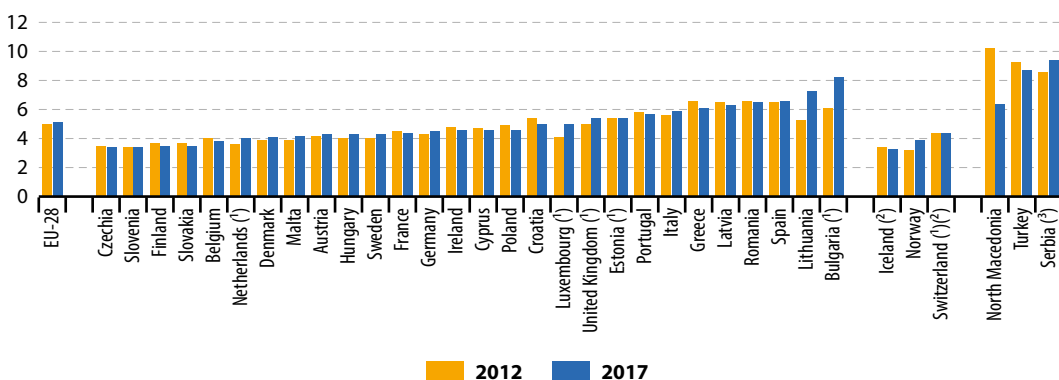
Source: Eurostat (online data code: [sdg_10_41](#))

Table 10.4: Compound annual growth rate (CAGR) of the income quintile share ratio, EU

EU aggregate	Period	Growth rate
EU without Croatia	2005–2017	0.2 % per year
EU-28	2012–2017	0.4 % per year

Source: Eurostat (online data code: [sdg_10_41](#))

Figure 10.4: Income distribution, by country, 2012 and 2017
(income quintile share ratio)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2013 data (instead of 2012).

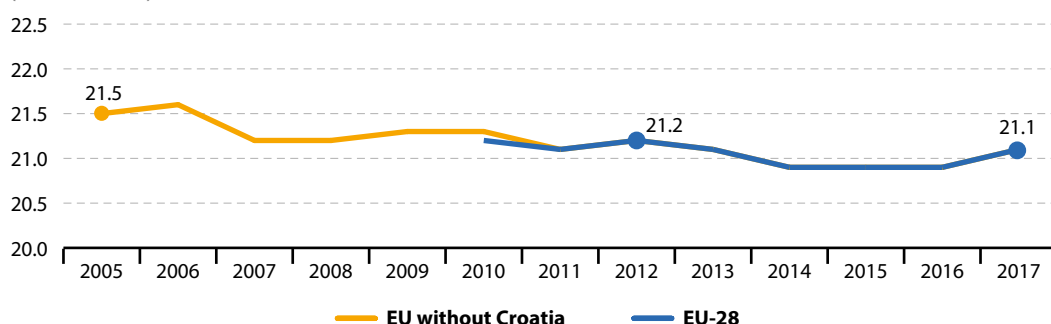
Source: Eurostat (online data code: [sdg_10_41](#))

Income share of the bottom 40 % of the population

This indicator measures the income share received by the bottom 40 % of the population (in terms of income). The income concept used is the total disposable household income, which is a household's total income (after taxes and other deductions) that is available for spending or saving. Data presented in this section stem from the [EU Statistics on Income and Living Conditions](#) (EU-SILC).



Figure 10.5: Income share of the bottom 40 % of the population, EU, 2005–2017
(% of income)



Note: 2005 data are estimates.

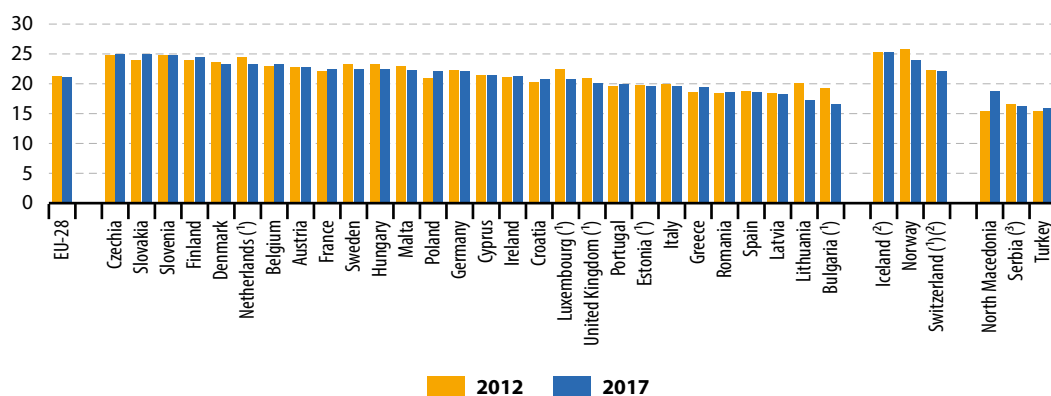
Source: Eurostat (online data code: [sdg_10_50](#))

Table 10.5: Compound annual growth rate (CAGR) of the income share of the bottom 40 % of the population, EU

EU aggregate	Period	Growth rate
EU without Croatia	2005–2017	– 0.2 % per year
EU-28	2012–2017	– 0.1 % per year

Source: Eurostat (online data code: [sdg_10_50](#))

Figure 10.6: Income share of the bottom 40 % of the population, by country, 2012 and 2017
(% of income)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2013 data (instead of 2012).

Source: Eurostat (online data code: [sdg_10_50](#))



LONG TERM
2002–2017

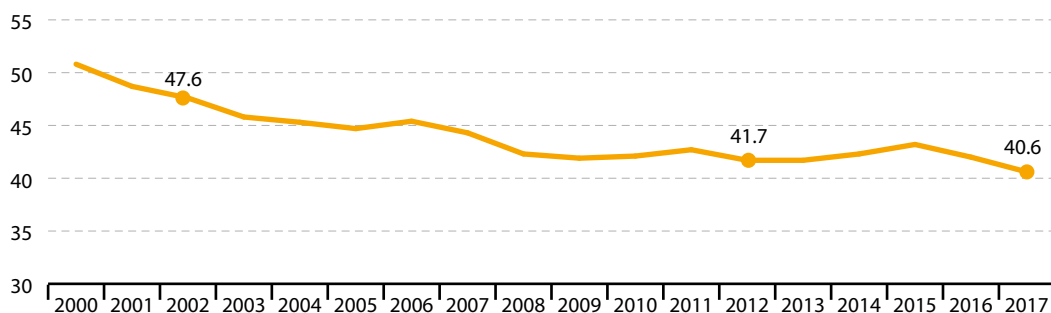


SHORT TERM
2012–2017

Purchasing power adjusted GDP per capita

GDP per capita is calculated as the ratio of GDP to the average population in a specific year. Basic figures are expressed in purchasing power standards (PPS) ⁽²⁵⁾, which represents a common currency that eliminates differences in price levels between countries to allow meaningful volume comparisons of GDP. The disparities indicator for the EU is calculated as the coefficient of variation of the national figures.

Figure 10.7: Disparity in purchasing power adjusted GDP per capita, EU, 2000–2017
(coefficient of variation, in %)



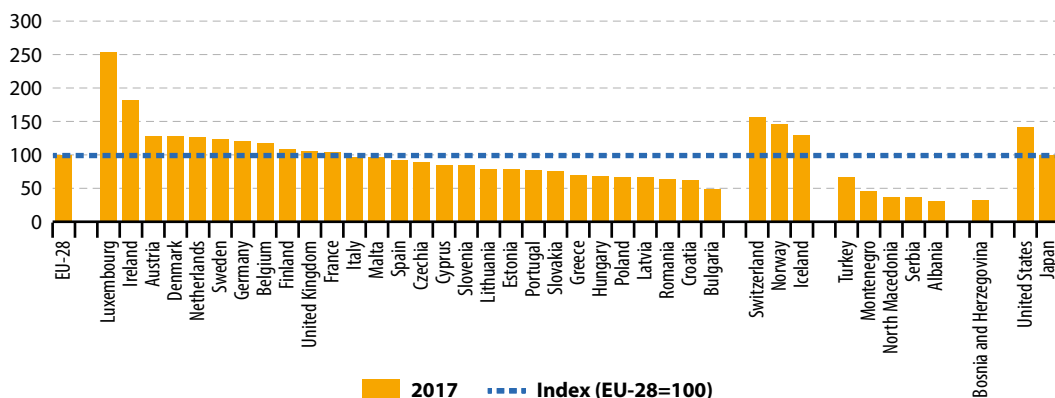
Source: Eurostat (online data code: [sdg_10_10](#))

Table 10.6: Compound annual growth rate (CAGR) of the coefficient of variation in GDP per capita, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	– 1.1 % per year
EU-28	2012–2017	– 0.5 % per year

Source: Eurostat (online data code: [sdg_10_10](#))

Figure 10.8: Purchasing power adjusted GDP per capita, by country, 2017
(index EU-28 = 100)



Source: Eurostat (online data code: [sdg_10_10](#))

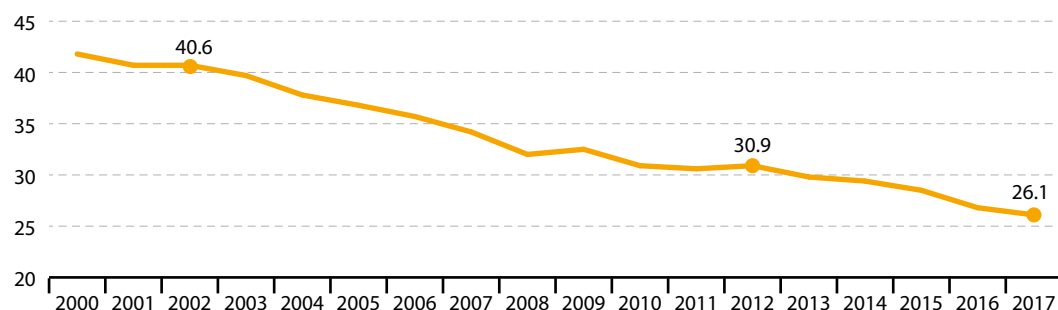
Adjusted gross disposable income of households per capita

This indicator reflects the purchasing power of households and their ability to invest in goods and services or save for the future, by accounting for taxes and social contributions and monetary in-kind social benefits. The disparities indicator for the EU is calculated as the coefficient of variation of the national figures in PPS.



Figure 10.9: Disparity in adjusted gross disposable income of households per capita, EU, 2000–2017

(coefficient of variation, in %)



Note: EU coefficient of variation excluding Malta (whole time series) and Croatia (2000–2001 and 2013–2017).

Source: Eurostat (online data code: [sdg_10_20](#))

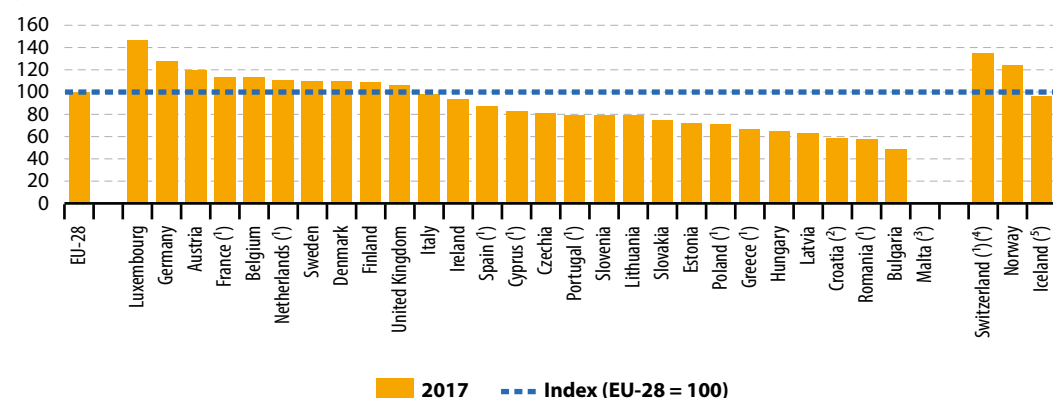
Table 10.7: Compound annual growth rate (CAGR) of the coefficient of variation in adjusted gross disposable income of households per capita, in PPS, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	– 2.9 % per year
EU-28	2012–2017	– 3.3 % per year

Source: Eurostat (online data code: [sdg_10_20](#))

Figure 10.10: Adjusted gross disposable income of households per capita, in PPS, by country, 2017

(index EU-28 = 100)



(¹) Provisional or estimated data.

(²) 2012 data.

(³) No data.

(⁴) 2016 data.

(⁵) 2014 data.

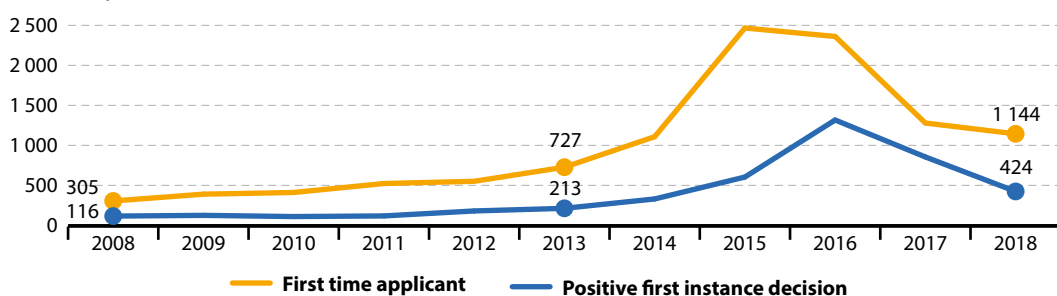
Source: Eurostat (online data code: [sdg_10_20](#))

X Indication of progress not possible

Asylum applications

This indicator shows the number of first-time asylum applicants per million inhabitants and the number of positive first-instance decisions per million inhabitants. A first-time applicant for international protection is a person who lodged an application for asylum for the first time in a given Member State. First-instance decisions are decisions granted by the respective authority acting as a first instance of the administrative/judicial asylum procedure in the receiving country. The source data are supplied to Eurostat by the national ministries of interior and related official agencies.

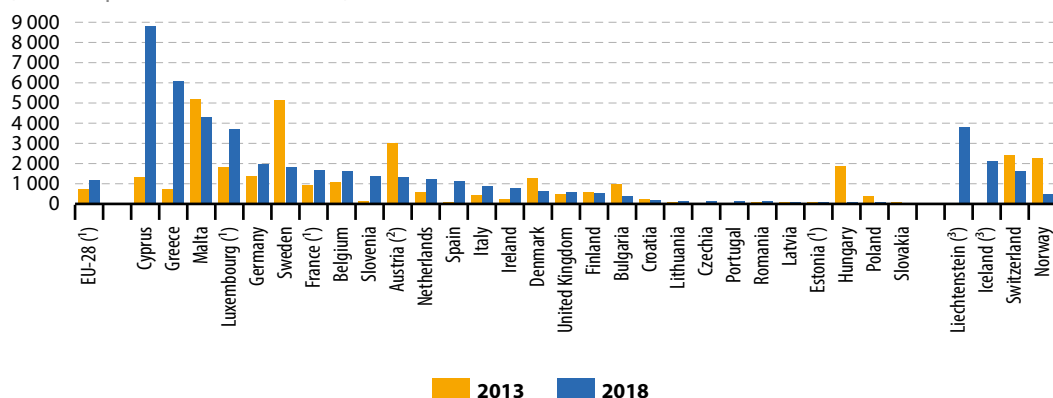
Figure 10.11: Asylum applications, by state of procedure, EU-28, 2008–2018
(number per million inhabitants)



Note: Multiple breaks in time series; data for 2015–2017 are provisional, 2018 data are provisional estimates.

Source: Eurostat (online data code: [sdg_10_60](#))

Figure 10.12: First time asylum applications, by country, 2013 and 2018
(number per million inhabitants)



Note: 2018 data are provisional estimates.

(¹) Break(s) in time series between the two years shown.

(²) 2014 data (instead of 2013).

(³) No data for 2013.

Source: Eurostat (online data code: [sdg_10_60](#))

Further reading on inequalities

Darvas, Z. and Wolff, G.B. (2016), *An anatomy of inclusive growth in Europe*, Bruegel Blueprint series, Brussels.

Eurofound (2017), *Income inequalities and employment patterns in Europe before and after the Great Recession*, Publications Office of the European Union, Luxembourg.

European Commission (2018), *Employment and Social Developments in Europe, Annual Review 2018*.

European Commission (2016), *Towards a reform of the common European asylum system and enhancing legal avenues to Europe*, COM (2016) 197 final, Brussels.

OECD (2016), *Income inequality update: Income inequality remains high in the face of weak recovery*.

OECD (2017), *How's life? 2017. Measuring well-being*.

OECD (2018), *International Migration Outlook 2018*.

OECD (2019), *Under Pressure: The Squeezed Middle Class*.

UNHCR (2019), *Mid-year trends 2018*, Geneva.

Further data sources on inequalities

Eurostat, [Gini coefficient of equivalised disposable income](#).

European Border and Coast Guard Agency (Frontex) (2019), [Risk analysis for 2019](#).

OECD (2019), [Settling in 2018 — Indicators of Immigrant Integration](#).

Notes

- (¹) OECD (2017), *Understanding the socio-economic divide in Europe. Background report*.
- (²) Darvas, Z. and Wolff, B. (2016), *An Anatomy of Inclusive Growth in Europe*, pp. 14–15.
- (³) European Parliament, European Council, European Commission (2017), *European Pillar of Social Rights*.
- (⁴) United Nations Development Programme (2013), *Humanity divided: confronting inequality in developing countries*.
- (⁵) OECD (2016), *Income inequality remains high in the face of weak recovery*, p. 2.
- (⁶) European Commission (2018), *Employment and Social Developments in Europe, Annual Review 2018*.
- (⁷) Id., p. 40.
- (⁸) European Commission (2017), *Establishing a European Pillar of Social Rights*, COM (2017) 250 final, Brussels.
- (⁹) 2005 data refer to the EU without Croatia.
- (¹⁰) 2005 data refer to the EU without Croatia.
- (¹¹) European Commission (2017), *Employment and Social Developments in Europe, Annual Review 2017*, p. 46.
- (¹²) *Consolidated version of the Treaty on European Union and the Treaty on the Functioning of the European Union*. 2012/C 326/01.
- (¹³) European Commission (2015), *Completing Europe's Economic and Monetary Union*, report by Jean-Claude Juncker.
- (¹⁴) European Commission (2018), *Employment and Social Developments in Europe, Annual Review 2018*, p. 45.
- (¹⁵) Frontex (2019), *Risk analysis for 2019*, p. 8.
- (¹⁶) Ibid.
- (¹⁷) European Commission (2018), *Migration: Number of asylum applications in the EU down by 43 % in 2017*.
- (¹⁸) The Balkan route has been the main entry point for migrants who entered the EU through Greece and tried to make their way to western Europe via North Macedonia, Serbia into Hungary and Croatia. The route became a popular passageway into the EU in 2012 when Schengen visa restrictions were relaxed for five Balkan countries: Albania, Bosnia and Herzegovina, Montenegro, Serbia and North Macedonia.
- (¹⁹) European Council and Council of the European Union (2016), *EU-Turkey statement, 18 March 2016*.
- (²⁰) UNHCR (2017), Bureau for Europe, *Desperate Journeys: Refugees and migrants entering and crossing Europe via the Mediterranean and Western Balkans routes*, pp. 1–2.
- (²¹) UNHCR (2015), *The sea route Europe: The Mediterranean passage in the age of refugees*, p. 7.
- (²²) The 1951 Geneva Convention relating to the status of refugees (as amended by the 1967 New York Protocol) has, for over 60 years, defined who is a refugee, and laid down a common approach towards refugees that has been one of the cornerstones for the development of a common asylum system within the EU. Since 1999, the EU has worked towards creating a common European asylum regime in accordance with the Geneva Convention and other applicable international instruments.
- (²³) *Council Directive 2004/83/EC of 29 April 2004* defines serious harm as the risk of: '(a) death penalty or execution; or (b) torture or inhuman or degrading treatment or punishment of an applicant in the country of origin; or (c) serious and individual threat to a civilian's life or person by reasons of indiscriminate violence in situations of international or internal armed conflict.'
- (²⁴) These include people who are not eligible for international protection as currently defined in the first-stage legal instruments, but are nonetheless protected against removal under the obligations that are imposed on all Member States by international refugee or human rights instruments or on the basis of principles flowing from such instruments. Examples of such categories include people who are not removable on ill-health grounds and unaccompanied minors.
- (²⁵) Purchasing power standard (PPS) is an artificial currency unit. Theoretically, one PPS can buy the same amount of goods and services in each country. However, price differences across borders mean different amounts of national currency units are needed for the same goods and services depending on the country. PPS are derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parities (PPPs). PPS is the technical term used by Eurostat for the common currency in which national accounts aggregates are expressed when adjusted for price level differences using PPPs. Thus, PPPs can be interpreted as the exchange rate of the PPS against the euro.

11

Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 11 aims to renew and plan cities and other human settlements in a way that offers opportunities for all, with access to basic services, energy, housing, transportation and green public spaces, while reducing resource use and environmental impact.



eurostat 
supports the SDGs

Almost three-quarters of the EU population live in urban areas — cities, towns and suburbs — with more than 40% residing in cities alone ⁽¹⁾. The share of the urban population in Europe is projected to rise to just over 80% by 2050 ⁽²⁾. Cities, towns and suburbs are therefore essential for Europeans' well-being and quality of life. They also serve as hubs for economic and social development and innovation. They attract many people thanks to the wide range of opportunities for education, employment, entertainment and culture on offer. This large concentration of people and wealth, however, often comes with a range of complex challenges. Ensuring sustainable and healthy mobility, such as walking or cycling, through better urban planning and by improving the accessibility and attractiveness of public transport systems, among other measures, is one of these challenges. Another is dealing with cities' negative environmental impacts, such as the spread of the settlement areas or the large amounts of waste generated in urban areas. Cities are consequently seen as both a source of



economic, environmental and social challenges as well as a solution to these issues. As such, they can be considered a key driver for achieving a sustainable future.

Table 11.1: Indicators measuring progress towards SDG 11, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Quality of life in cities and communities			
Overcrowding rate	↑ (¹)(²)	↑	page 224
Population living in households considering that they suffer from noise	↑ (¹)(³)	↑	page 225
Exposure to air pollution by particulate matter	↗	↑	page 226
Population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floor (*)	↑ (¹)(³)	↑	SDG 1, page 51
Population reporting occurrence of crime, violence or vandalism in their area (*)	↑ (¹)(³)	↑	SDG 16, page 321
Sustainable mobility			
🎯 People killed in road accidents	↗	↓	page 227
Share of buses and trains in total passenger transport (*)	↓	↗	SDG 9, page 195
Adverse environmental impacts			
Settlement area per capita	:	↓ (⁴)	page 228
🎯 Recycling rate of municipal waste	↑ (¹)	↑	page 229
Population connected to at least secondary wastewater treatment (*)	:	:	SDG 6, page 138

(¹) Multi-purpose indicator.

(¹) Data refer to EU without Croatia.

(²) Past 12-year period.

(³) Past 10-year period.

(⁴) Past 6-year period. Data refer to an EU aggregate without Bulgaria, Croatia, Cyprus, Malta and Romania.

Table 11.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
🎯	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↘	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Sustainable cities and communities in the EU: overview and key trends

Monitoring SDG 11 in an EU context means looking at trends in the quality of life in cities and communities, sustainable mobility and adverse environmental impacts. Statistics by [degree of urbanisation](#) provide an analytical and descriptive lens on urban and rural areas. Based on the share of the local population living in urban clusters and in urban centres, Eurostat differentiates between the three categories of 'cities', 'towns and suburbs' and 'rural areas' ⁽³⁾. As Table 11.1 shows, the EU has achieved significant progress in increasing the quality of life in cities and communities over the past few years, as well as in sustainably managing waste. However, progress towards safe and sustainable transport systems has been mixed, and urban land take has increased.

Quality of life in cities and communities

While European cities and communities provide opportunities for employment, economic and cultural activities, many inhabitants still face considerable social challenges and inequalities. Problems affecting the quality of housing and the wider residential area, such as noise disturbance, crime and vandalism, are some of the most visible challenges that cities and communities can face. These can have a direct impact on the quality of life of the population — their physical and mental health, sense of security, social cohesion and well-being.

Quality of housing in the EU has improved over the past five years

Safe and adequate homes are a foundation for living an independent, healthy and fulfilling life. Poor housing conditions, on the other hand, are associated with fewer life chances, health inequalities, increased risks of poverty and environmental hazards. In 2017, almost one in

eight EU residents (13.3 %) experienced at least one of the following basic deficits in their housing condition: leaking roof, damp walls, floors or foundation, or rot in window frames or floor. This is almost five percentage points lower than the share of the population reporting such deficiency in living conditions in 2007 ⁽⁴⁾, indicating that the perceived quality of the housing stock in the EU has improved. The biggest improvement of 2.1 percentage points happened in 2017, mostly due to a big drop in the number of people experiencing poor dwelling conditions in some southern and eastern EU Member States. The [overcrowding rate](#) has also fallen considerably since 2005, by 3.8 percentage points ⁽⁵⁾. However, in 2017, one in six Europeans (15.7 %) were still living in a densely populated home, which means overcrowding was more widespread in the EU than poor housing conditions.



13.3 %
of the EU
population lived
in poor dwelling
conditions in
2017



15.7 %
of the EU
population lived
in overcrowded
homes in 2017

Between 2014 and 2020 more than EUR 100 billion from the European Regional Development Fund will be invested in cities to create better opportunities for sustainable urban mobility, energy efficiency, urban renewal, research and innovation capacity, and economic and social regeneration of deprived communities.

Europeans perceive their residential areas as quieter and safer, but exposure to air pollution remains an issue

The wider residential environment can be as important for well-being as the quality of one's housing. Noise disturbance and air pollution, along with crime and vandalism can negatively affect the quality of life and housing satisfaction in a residential area. These factors can lead to property loss or damage and to increased health risks. Living in loud, unsafe environments can cause stress and anxiety. Pollutants such as tiny particles of matter suspended in the air reduce people's life expectancy and perception of well-being. In 2017, 17.5 % of the EU population said their household suffered from noise disturbance, compared with 23.0 % in 2007 ⁽⁶⁾. Crime, violence and vandalism were perceived to be a problem in their area by 12.0 % of the EU population in 2017, compared with 13.6 % in 2012. The population-weighted annual mean concentration of fine particulate matter (PM_{2.5}) in urban areas decreased by 16 % between 2012 and 2017, but, at 14.1 µg/m³ in 2017, remained only slightly below the 2000 level.

Prolonged exposure to loud and variable noise, for example from traffic, industry or construction, poses a high environmental risk to human health. It can lead to high blood pressure, sleep disturbance, cardiovascular diseases, cognitive impairment and mental health problems ⁽⁷⁾. The harmful effects of noise arise mainly from the stress reactions caused in the human body, which can also manifest themselves during sleep. The WHO has categorised noise from road traffic as the second most harmful environmental stressor in Europe, behind air pollution from fine particulate matter. According to European Environment Agency (EEA) calculations, road-traffic noise, both inside and outside urban areas, is still the dominant source of noise affecting human health.



The **Environmental Noise Directive** is the main EU instrument for identifying and combating noise pollution. It focuses on three areas: (a) determining exposure to environmental noise; (b) ensuring that information on environmental noise and its effects is made available to the public; and (c) preventing and reducing environmental noise where necessary, particularly where exposure levels can induce harmful effects on human health, and preserving environmental noise quality where it is good. The Directive requires Member States to prepare and publish noise maps and noise-management action plans for agglomerations with more than 100 000 inhabitants, major roads, railways and airports every five years. When developing such plans, Member States' authorities are required to consult local residents.

Based on modelling calculations from 2018, more than 75 million people in urban areas in the EU are estimated to be exposed to road traffic noise above 55 dB Lden (day–evening–night noise level) ⁽⁸⁾. Railways are the second most common source of noise, with 9.7 million people thought to be exposed to levels above 55 dB Lden in urban areas in the EU. Aircraft noise, with 2.8 million people estimated to be exposed to levels above 55 dB Lden, is the third main noise source, followed by industrial noise within urban areas, with 0.8 million people estimated to be affected ⁽⁹⁾.

Despite recent improvements, exposure of the urban population to fine particulate matter remains high

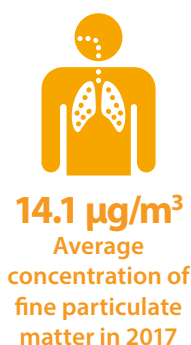
High concentrations of people and industry, through the density of related activities and transport movements, significantly increase exposure to air pollution. Poor air quality represents a major environmental and health risk. Exposure to fine **particulate matter** can lead

to or aggravate many chronic and acute respiratory and cardiovascular diseases ⁽¹⁰⁾.

In 2017, the EU average urban population exposure to PM_{2.5}, at a concentration of 14.1 µg/m³, was below the limit set by the EU from 2015 onward (25 µg/m³ annual mean) ⁽¹¹⁾. However, substantial air-pollution hotspots remain, and the annual mean for fine particulate matter continues to be above the levels recommended by the World Health Organization (10 µg/m³ annual mean). Emissions from fuel combustion in households and from commercial and institutional buildings are the main source of air pollution from PM_{2.5} in the EU, accounting for 56 % of total primary PM_{2.5} emissions in 2016 ⁽¹²⁾. However, a significant proportion of total particulate matter can also form in the atmosphere from other gaseous pollutants, such as nitrogen oxides and ammonia.

According to recent EEA estimates, 6 % of the EU urban population were exposed to levels above the EU PM_{2.5} limit value in 2016. If the more stringent WHO air-quality guideline is considered, at least 74 % of people living in the EU cities were estimated to be exposed to PM_{2.5} concentrations deemed harmful by the WHO ⁽¹³⁾. In most cities around the world, polluted air is a major health hazard, with only 9 % of the world's population living in areas that meet the annual WHO air-quality guideline value for particulate matter in 2016 ⁽¹⁴⁾. According to EEA estimates, exposure to PM_{2.5} in the EU was responsible for about 391 000 premature deaths in 2015 ⁽¹⁵⁾, which was about 15 times more deaths than from traffic road accidents in that year.

The EU addresses the problem of air pollution through its specific air quality and emissions legislation ⁽¹⁶⁾, such as the Clean Air Package, as well as through co-benefits resulting from implementation of certain climate policies.



The degree of urbanisation only has a marginal influence on overcrowding, but strongly affects perception of noise pollution, crime and vandalism

The prevalence of overcrowding in the EU did not differ greatly between cities (16.1 %) and rural areas (16.8 %) in 2017 ⁽¹⁷⁾, despite rural dwellings tending to be larger ⁽¹⁸⁾. One possible explanation for this is that households in rural areas also tend to be larger ⁽¹⁹⁾. The EU population living in towns and suburbs experienced the lowest overcrowding rate (14.2 %). However, while the overcrowding rate for rural areas has significantly decreased over the past 12 years (by 9.3 percentage points), it only experienced a 3.9 percentage point decline in cities, and even increased by 2.3 percentage points in towns and suburbs ⁽²⁰⁾.

The degree of urbanisation strongly affects the perceived level of noise pollution. In 2017, people living in EU cities were more likely to report noise from neighbours or from the street (23.2 %) compared with those living in towns and suburbs (16.6 %) or in rural areas (10.4 %) ⁽²¹⁾. Similarly, the perceived occurrence of crime and vandalism in cities (18.0 %) was three times higher than in rural areas (5.8 %), and also above the level observed in towns and suburbs (9.9 %) ⁽²²⁾.



18.0 %
of people
living in EU
cities reported
occurrence
of crime and
vandalism in
their area in
2017

Poor people tend to face more challenges in their living situation, especially in cities

The prevalence of poor housing, overcrowding, exposure to noise and the perception of crime and violence in the EU was higher for the population living below 60 % of the median equivalised income (the level where people are considered to be at risk of poverty) compared with the population above this level. The gap was particularly wide for overcrowding, where people below the poverty threshold were almost

twice as likely to live in overcrowded conditions (26.5 % in 2017) than people above it (13.5 %). The difference in perceived exposure to noise pollution between income groups was highest in cities (6.9 percentage points), followed by towns and suburbs (3.4 percentage points) and rural areas (2.0 percentage points). The perception of crime and vandalism shows similar differences between income groups, being highest in cities (5.5 percentage points) and lowest (1.9 percentage points) in rural areas.

Sustainable mobility

A functioning transport system is required for people to reach their places of work, education, services and social activities, all of which affect the quality of life. Not only the availability but also the type, quality and safety of transport systems are crucial when designing sustainable and inclusive cities and communities.

Cars are the main means of transport in the EU

The EU aims to improve citizens' quality of life and to strengthen the economy by promoting sustainable urban mobility and the increased use of clean and energy-efficient vehicles. The challenge of enhancing mobility while at the same time reducing congestion, accidents and pollution is common to all major cities ⁽²³⁾. Public transport networks help to relieve traffic jams, reduce harmful pollution and offer more affordable and sustainable ways to commute to work, access services and travel for leisure. Furthermore, they can stimulate economic growth and social inclusion through improved accessibility and mobility for all.

Since 2000, the share of buses and trains in total passenger transport has stagnated well below 20 %, accounting for only 17.1 % in 2016. Although this share has increased slightly by 0.3 percentage points since 2011, the long-term trend since 2001 shows these public transport modes are losing share (– 0.1 percentage points) in favour of passenger cars. This means most passenger journeys in the EU are still undertaken by car. A noticeable shift towards more sustainable

The EU has established guidelines for sustainable urban mobility planning and provides funding for related projects, including through the use of the European Regional Development Fund.

transport modes has thus not taken place in the past 15 years in the EU.

To encourage a modal shift towards collective transport modes, easy access to public transport is a prerequisite. However, data collected in 2012 show that one in five Europeans (20.4 %) reported 'high' or 'very high' levels of difficulty in accessing public transport ⁽²⁴⁾, indicating that convenient public transport is not universally accessible to EU citizens. Disadvantaged groups such as the elderly, those at risk of poverty and those with disabilities are likely to be the most affected by barriers to accessing public transport. Access is also particularly important for people with low incomes because they are less likely to be able to afford a car.



Despite good progress since 2001, stagnation in reducing the level of road fatalities in recent years has pushed the EU off track to meeting its 2020 target

Since most passenger journeys in the EU are undertaken by car, road safety is an important factor for human health and well-being. In 2014, 1.7 % of the EU population reported a road accident resulting in injuries ⁽²⁵⁾, and it is estimated that around 135 000 people are seriously injured each year ⁽²⁶⁾. In 2017, about 70 people lost their lives on EU roads every day. This equalled 25 309 people for the entire year — a loss equivalent to the size of a medium town. Nevertheless, the EU has made considerable progress in this respect, reducing road casualties by 53 % in the past 15 years. National regulations applying to

vehicles and drivers, along with improvements to road infrastructure have contributed to this trend. However, the stagnation in the number of road fatalities since 2013 has pushed the EU off its path to reaching its ambitious 2020 target of halving the total death toll on EU roads compared with 2010.



25 309
people were
killed in road
accidents in the
EU in 2017

Because accidents in cities tend to happen at lower speeds than those on country roads they are less likely to have a fatal outcome. The highest share of road-traffic fatalities was therefore recorded on non-motorway roads outside urban areas (54.0%), followed by roads inside urban areas (38.0%) in 2017 ⁽²⁷⁾.

In 2010 the Commission adopted the Communication 'Towards a European road safety area: policy orientations on road safety 2011–2020', setting the target of halving the overall number of road deaths in the EU by 2020 compared with 2010, and outlining 16 proposed actions, divided into seven focus areas. The EU's long-term goal is to move close to zero fatalities and serious injuries by 2050 ('Vision Zero') ⁽²⁸⁾. Several policy measures have been put in place that aim to make users, vehicles and infrastructure safer. In May 2018, the Commission published a new Communication outlining the road safety policy framework for the period 2020 to 2030, accompanied by two legislative initiatives on vehicle and pedestrian safety and on infrastructure safety management.

Men, young people and the elderly are overrepresented in road casualties

Men, especially those aged 20 to 24, are more likely to be involved in accidents resulting in injuries, with 3.6 % of the male EU population affected, compared with 2.7 % of women in the

same age group in 2014 ⁽²⁹⁾. In general, young people and the elderly face the highest risk of traffic accidents. Although these age groups did not account for the majority of road deaths in 2017, people aged between 15 and 24 years and those 65 years or over were overrepresented in road casualties, making up 14 % and 27 % of all road fatalities, but only 11 % and 19 % of the population, respectively ⁽³⁰⁾. Car drivers were the main victims of road accidents (62 %), followed by pedestrians (21 %) and passengers (17 %) ⁽³¹⁾.

Adverse environmental impacts

While cities, towns and suburbs serve as a focal point for social and economic activity, if not managed sustainably, they risk causing considerable environmental damage. At the same time, large and densely populated cities provide opportunities for effective environmental action, indicating that urbanisation is not necessarily a threat but can act as a transformative force towards more sustainable societies ⁽³²⁾. EU progress in combating the adverse environmental impacts of cities and communities is monitored by three indicators looking into the management of municipal waste, wastewater treatment and artificial land cover.

More environmentally friendly modes of municipal waste management in the EU

Waste management activities promote **recycling**, which not only reduces the amount of waste going to **landfills** and the associated environmental impacts, but also leads to higher resource efficiency. Recycling further helps to create jobs while reducing the demand for raw materials.

The 'waste hierarchy' is an overarching logic guiding EU policy on waste, which prioritises waste prevention, followed by **re-use**, recycling, other **recovery** and finally disposal, including landfilling, as the last resort. Although **municipal waste** accounts



46.4 %
of total
municipal waste
generated in the
EU was recycled
in 2017

for less than 10% of total waste generated in the EU ⁽³³⁾, it is highly visible and closely linked to consumption patterns. Sustainable management of this waste stream has the potential to reduce the adverse environmental impact of cities and communities, which is why the EU has set the target for 60% of municipal waste to be recycled and prepared for reuse in EU Member States by 2030 ⁽³⁴⁾.

Sustainable urban development is a horizontal objective of the 7th Environment Action Programme (EAP). The Circular Economy Package supports the transition to a stronger and more circular economy in which resources are used in a more sustainable way. The European Green Capital and the European Green Leaf initiatives showcase the EU's commitment to resolving urban environmental challenges. In May 2018 the European Council established legally binding targets for recycling and reuse of municipal waste. EU countries will now be required to recycle at least 55 % of their municipal waste by 2025, 60 % by 2030 and 65 % by 2035.

In 2017, each EU inhabitant generated on average 1.3 kilograms (kg) of municipal waste per day, which was just 0.1 kg below the 2000 figure. Although the EU has not substantially reduced its municipal waste generation in the past 15 years, it has clearly shifted to more sustainable modes of managing a large bulk of it. Since 2000, the recycling rate has increased continuously, by 21.1 percentage points in total ⁽³⁵⁾. In 2017, almost half (46.4%) of the municipal waste generated in

the EU was recycled. EU and national strategies prioritising efficient waste management through various instruments have largely contributed to this movement up the 'waste hierarchy'.

Connection rates to wastewater treatment are increasing

Urban areas also place significant pressure on the water environment through wastewater from households and industry that contains organic matter, nutrients and hazardous substances. Over the period 2013 to 2015, 15 Member States reported that more than 80% of the population were connected to at least secondary wastewater treatment plants, which use aerobic or anaerobic micro-organisms to decompose most of the organic material and retain some of the nutrients. In ten Member States, more than 90% of the population were connected to such services. The shares increased in all Member States between 2000 and 2015, with the highest connection rates generally observed in the 'old' (EU-15) Member States. However, it may not be suitable to connect 100% of the population to a sewage collection system, either because it would produce no environmental benefit or would be too costly. In these cases, other appropriate systems that achieve the same level of environmental protection should be used. For example, in countries such as those in Scandinavia or the Alpine region, where settlements are small and scattered, secondary treatment may not be required ⁽³⁶⁾.



15
Member States reported connection rates to at least secondary wastewater treatment for more than 80% of their population

Settlement area per capita has increased

Offering numerous cultural, educational and job opportunities, an urban lifestyle is increasingly attractive to Europeans, leading to an increase in urban population. While densely populated cities can provide a resource-efficient way for people to live and reduce land take, recent trends have shown that the land in urban areas is not always used efficiently ⁽³⁷⁾. Since the mid-1950s, settlement areas have been expanding more quickly than populations have been growing. Over this period the total surface area of cities in the EU has increased by 78% compared with a population growth of 33%. As a result, the loss of land and ecosystem services remains one of the major environmental challenges facing Europe ⁽³⁸⁾.

Despite EU efforts to increase land use efficiency, settlement area per capita — comprising both sealed and non-sealed surfaces — has increased by 9.2% since 2009 ⁽³⁹⁾, which does not put the EU

on track to achieving its goal of halting land degradation. In 2015, for each EU inhabitant, 648.2 m² of land were covered by settlement area (for example, buildings, industrial and commercial areas, and infrastructure). In the same year, the settlement area made up around 7% of total EU land cover ⁽⁴⁰⁾.

According to the EEA, land take for the expansion of residential areas and construction sites across Europe comes at the expense of agricultural zones (77.8%) and, to a lesser extent, forests (14.4%) and semi-natural and natural areas (6.3%). This affects biodiversity as it decreases habitats and fragments the landscapes that support and connect them ⁽⁴¹⁾.



648.2
square metres
of land were
covered by
settlement area
per capita in
2015

Presentation of the main indicators



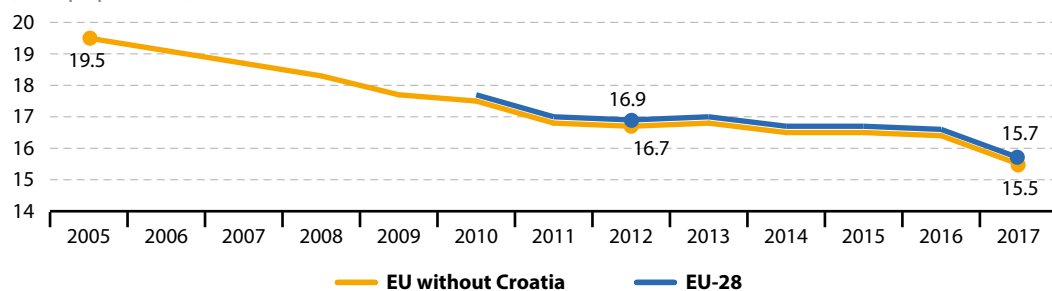
LONG TERM
2005–2017

SHORT TERM
2012–2017

Overcrowding rate

This indicator measures the share of people living in overcrowded conditions in the EU. A person is considered to be living in an overcrowded household if the house does not have at least one room for the entire household as well as a room for a couple, for each single person above 18, for a pair of teenagers (12 to 17 years of age) of the same sex, for each teenager of different sex and for a pair of children (under 12 years of age). The data stem from the [EU Statistics on Income and Living Conditions](#) (EU-SILC).

Figure 11.1: Overcrowding rate, EU, 2005–2017
(% of population)



Note: 2005–2006 data are estimates.

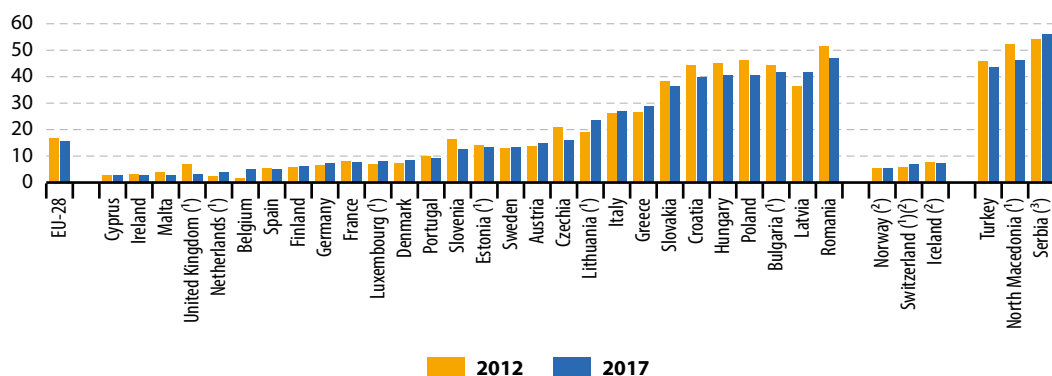
Source: Eurostat (online data code: [sdg_11_10](#))

Table 11.3: Compound annual growth rate (CAGR) of the overcrowding rate, EU

EU aggregate	Period	Growth rate
EU without Croatia	2005–2017	– 1.9% per year
EU-28	2012–2017	– 1.5% per year

Source: Eurostat (online data code: [sdg_11_10](#))

Figure 11.2: Overcrowding rate, by country, 2012 and 2017
(% of population)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2013 data (instead of 2012).

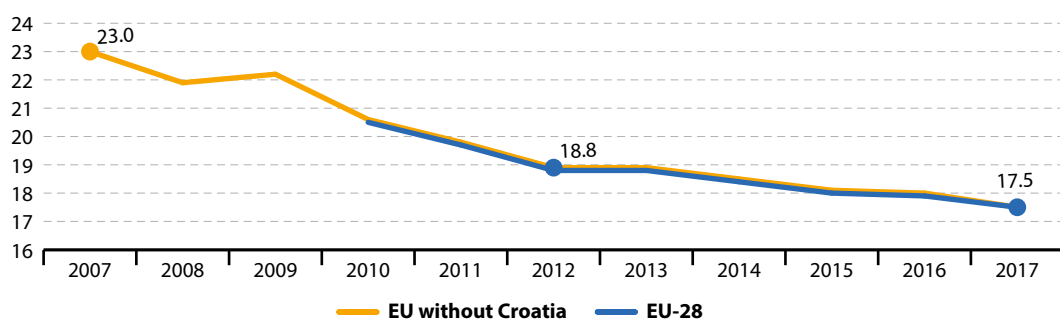
Source: Eurostat (online data code: [sdg_11_10](#))

Population living in households considering that they suffer from noise

This indicator measures the proportion of the population who declare they are affected either by noise from neighbours or from the street. Because the assessment of noise pollution is subjective, an increase in the value of the indicator may not necessarily indicate a similar increase in noise pollution levels, but could also mean a decrease in the levels that European citizens are willing to tolerate and vice versa. The data stem from the [EU Statistics on Income and Living Conditions](#) (EU-SILC).



Figure 11.3: Population living in households considering that they suffer from noise, EU, 2007-2017 (% of population)



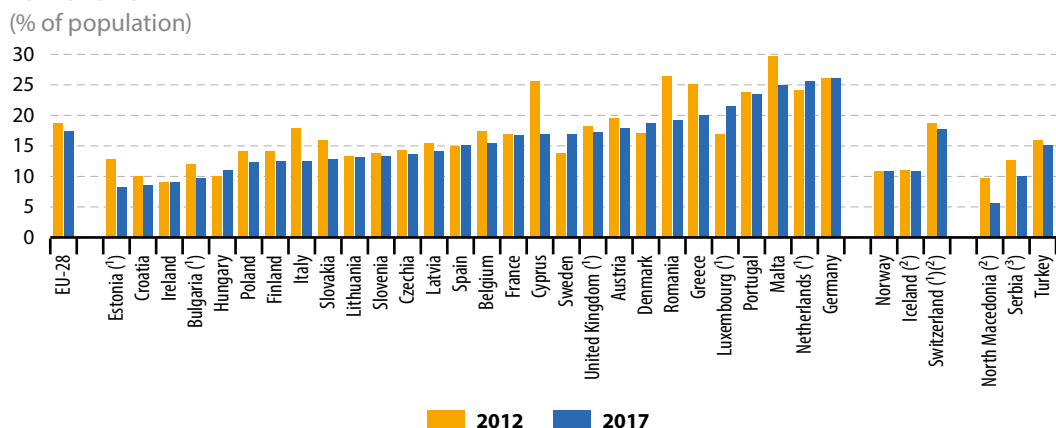
Source: Eurostat (online data code: [sdg_11_20](#))

Table 11.4: Compound annual growth rate (CAGR) of the share of population living in households considering that they suffer from noise, EU

EU aggregate	Period	Growth rate
EU without Croatia	2007-2017	- 2.7% per year
EU-28	2012-2017	- 1.4% per year

Source: Eurostat (online data code: [sdg_11_20](#))

Figure 11.4: Population living in households considering that they suffer from noise, by country, 2012 and 2017 (% of population)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2013 data (instead of 2012).

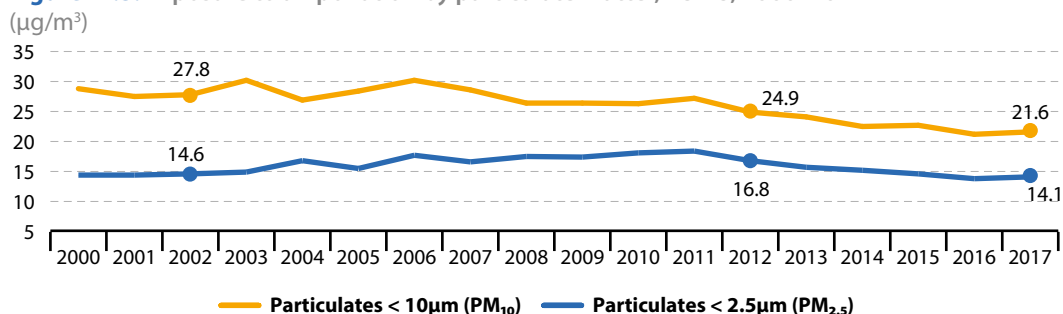
Source: Eurostat (online data code: [sdg_11_20](#))



Exposure to air pollution by particulate matter

The indicator measures the population weighted annual mean concentration of particulate matter at urban background stations in agglomerations. Fine and coarse particulates (PM_{10}) are less than 10 micrometers in diameter and can be carried deep into the lungs, where they can cause inflammation and exacerbate the condition of people suffering from heart and lung diseases. Fine particulates ($PM_{2.5}$) are less than 2.5 micrometers in diameter and are therefore a subset of PM_{10} particles. Their negative health impacts are more serious than PM_{10} because they can be drawn further into the lungs and may be more toxic. Based on the annual submissions of Member States' measured concentrations, the data are processed by the European Environment Agency (EEA), assisted by the Topic Centre on Air Pollution and Climate Change Mitigation (ETC/ACM).

Figure 11.5: Exposure to air pollution by particulate matter, EU-28, 2000–2017



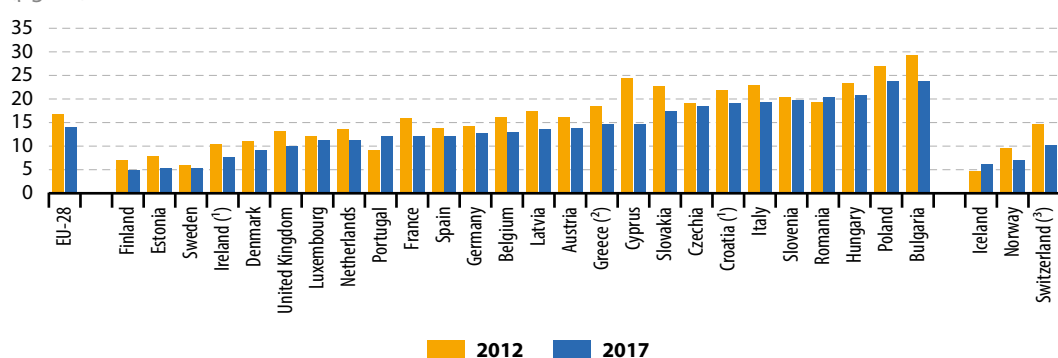
Source: EEA, Eurostat (online data code: [sdg_11_50](#))

Table 11.5: Compound annual growth rate (CAGR) of the exposure to air pollution by particulate matter ($PM_{2.5}$), EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	– 0.2% per year
EU-28	2012–2017	– 3.4% per year

Source: EEA, Eurostat (online data code: [sdg_11_50](#))

Figure 11.6: Exposure to air pollution by particulate matter ($PM_{2.5}$), by country, 2012 and 2017 (µg/m³)



⁽¹⁾ 2013 data (instead of 2012).

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ 2009 data (instead of 2012).

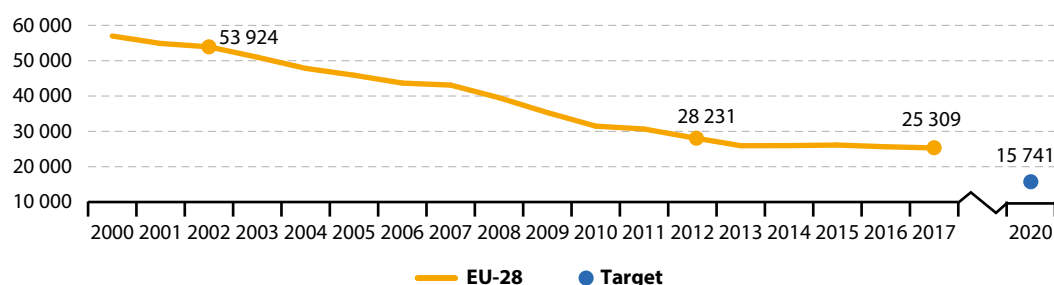
Source: EEA, Eurostat (online data code: [sdg_11_50](#))

People killed in road accidents

This indicator measures the number of fatalities caused by road accidents, including drivers and passengers of motorised vehicles and pedal cycles, as well as pedestrians. People who die from injuries up to 30 days after being involved in a road accident are counted as road-accident fatalities. After these 30 days, a different cause of death can be declared. For Member States not using this definition, corrective factors were applied. The data come from the CARE database managed by DG Mobility and Transport (DG MOVE).



Figure 11.7: People killed in road accidents, EU-28, 2000–2017
(number of killed people)



Note: 2017 data are provisional estimates.

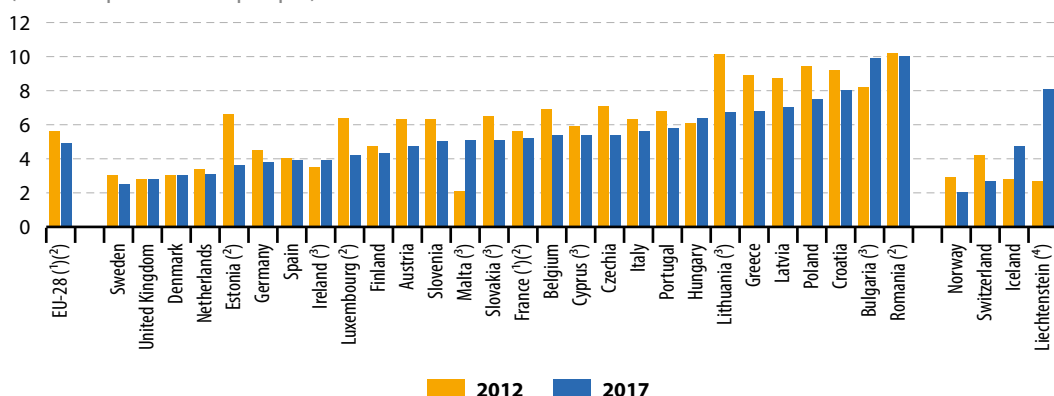
Source: European Commission services, DG Mobility and Transport (Eurostat online data code: [sdg_11_40](#))

Table 11.6: Compound annual growth rate (CAGR) of the number of people killed in road accidents, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2002–2017	– 4.9% per year	– 6.6% per year
EU-28	2012–2017	– 2.2% per year	– 7.0% per year

Source: European Commission services, DG Mobility and Transport (Eurostat online data code: [sdg_11_40](#))

Figure 11.8: People killed in road accidents, by country, 2012 and 2017
(number per 100 000 people)



(*) 2017 data are provisional and/or estimated.

(*) 2016 data (instead of 2017)

(*) Break(s) in time series between the two years shown.

(*) 2014 data (instead of 2017)

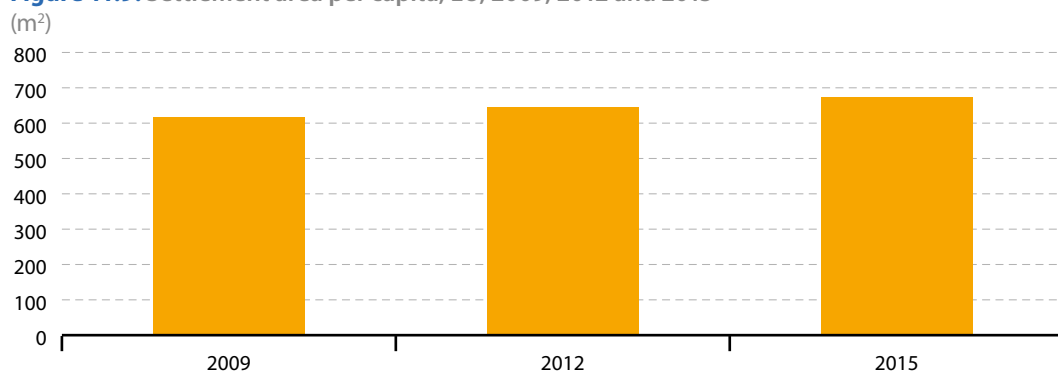
Source: European Commission services, DG Mobility and Transport (Eurostat online data code: [sdg_11_40](#))



Settlement area per capita

This indicator captures the amount of settlement area due to land take, such as for buildings, industrial and commercial areas, infrastructure, sports grounds, and includes both sealed and non-sealed surfaces. This indicator is closely linked to the [concept of settlement land use](#), which comprises physical components of shelter and infrastructure and services to which the physical elements provide support (such as education, health, culture, welfare, recreation and nutrition).

Figure 11.9: Settlement area per capita, EU, 2009, 2012 and 2015



Note: Data refer to an EU aggregate not including Bulgaria, Croatia, Cyprus, Malta and Romania.

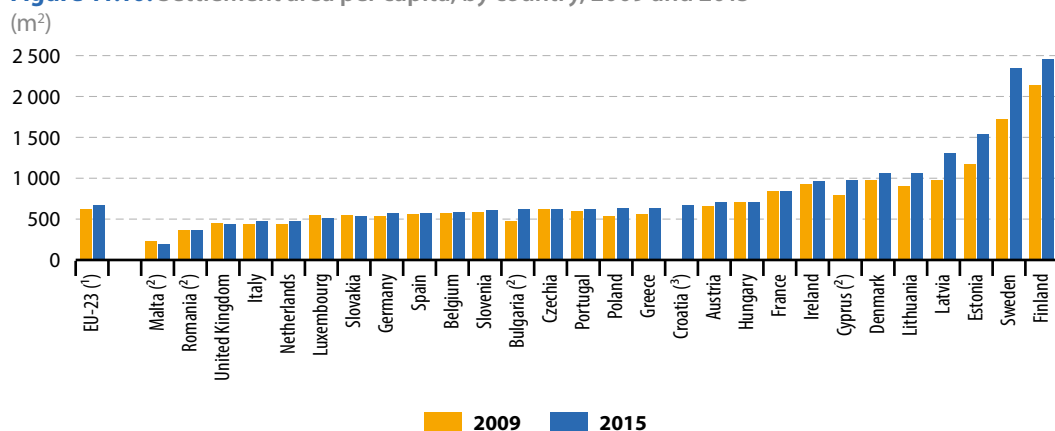
Source: Eurostat (online data code: [sdg_11_31](#))

Table 11.7: Compound annual growth rate (CAGR) of the settlement area per capita, EU

EU aggregate	Period	Growth rate
EU	2009–2015	1.5 % per year

Source: Eurostat (online data code: [sdg_11_31](#))

Figure 11.10: Settlement area per capita, by country, 2009 and 2015



⁽¹⁾ Not including Bulgaria, Cyprus, Croatia, Malta, Romania.

⁽²⁾ 2012 data (instead of 2009).

⁽³⁾ No data for 2009.

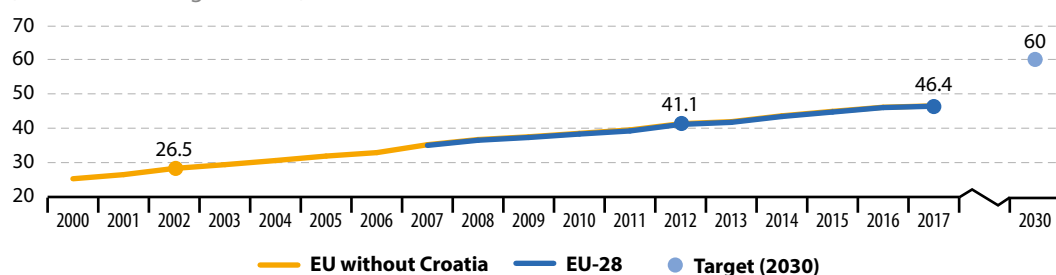
Source: Eurostat (online data code: [sdg_11_31](#))

Recycling rate of municipal waste

This indicator measures the amount of recycled municipal waste divided by total municipal waste. Recycling includes material recycling, composting and anaerobic digestion. Municipal waste consists mostly of waste generated by households, but may also include similar waste from small businesses and public institutions collected by the municipality. The latter may vary from municipality to municipality and from country to country, depending on the local waste-management system. For areas not covered by a municipal waste collection scheme, the amount of waste generated is estimated. Member States report the amount of waste recycled and the total municipal waste generated each year to Eurostat.



Figure 11.11: Recycling rate of municipal waste, EU, 2000–2017
(% of total waste generated)



Note: Eurostat estimates.

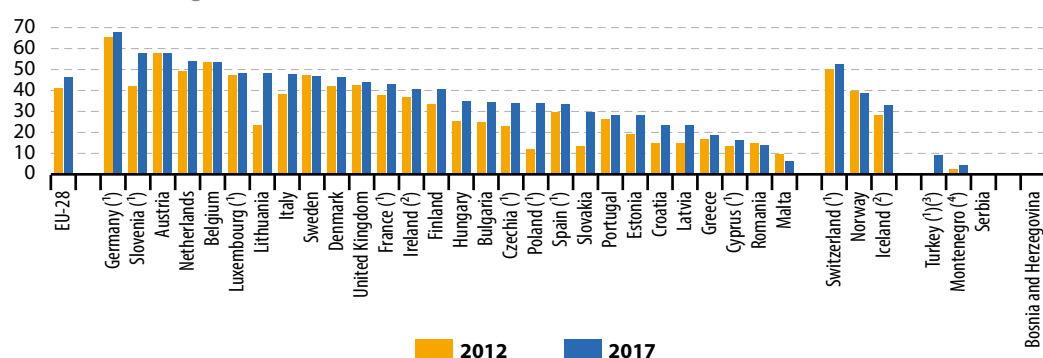
Source: Eurostat (online data code: [sdg_11_60](#))

Table 11.8: Compound annual growth rate (CAGR) of the recycling rate of municipal waste, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU without Croatia	2002–2017	3.4 % per year	2.7 % per year
EU-28	2012–2017	2.5 % per year	2.1 % per year

Source: Eurostat (online data code: [sdg_11_60](#))

Figure 11.12: Recycling rate of municipal waste, by country, 2012 and 2017
(% of total waste generated)



⁽¹⁾ Estimated data.

⁽²⁾ 2016 data (instead of 2017).

⁽³⁾ No data for 2012.

⁽⁴⁾ 2015 data (instead of 2017).

Source: Eurostat (online data code: [sdg_11_60](#))

Further reading on sustainable cities and communities

EEA (2018), *Air quality in Europe — 2018 report*, EEA report No 12/2018, European Environment Agency, Copenhagen.

EEA (2016), *Urban sprawl in Europe — joint EEA–FOEN report*, European Environment Agency, Copenhagen.

European Commission (2016), *State of European Cities 2016*, Publications Office of the European Union, Luxembourg.

European Commission (2018), *Road Safety in the European Union: Trends, statistics and main challenges*, Publications Office of the European Union, Luxembourg.

European Commission (2015), *Regional Working Paper 2015: Measuring access to public transport in European cities*.

Eurostat (2018), *Eurostat regional yearbook 2018*, Publications Office of the European Union, Luxembourg.

Eurostat (2016), *Urban Europe: Statistics on cities, towns and suburbs*, Publications Office of the European Union, Luxembourg.

Joint Research Centre (2018), *Atlas of the Human Planet 2018, a world of cities*, Publications Office of the European Union, Luxembourg.

Joint Research Centre (2016), *European cities: territorial analysis of characteristics and trends — An application of the LUISA Modelling Platform*, Publications Office of the European Union, Luxembourg.

The Housing Europe Observatory (2017), *The State of Housing in the EU 2017*, Housing Europe, the European Federation for Public, Cooperative and Social Housing, Brussels.

United Nations, Department of Economic and Social Affairs, Population Division (2016), *The World's Cities in 2016 — Data Booklet* (ST/ESA/ SER.A/392).

UN-Habitat (2016), *Urbanization and Development: Emerging Futures*, World Cities report 2016.

WHO (2015), *Global Status Report on Road Safety 2015*.

Further data sources on sustainable cities and communities

EEA, [Land take](#).

EEA, [Population exposure to environmental noise](#).

EEA, [Waste recycling](#).

European Commission, [Global Human Settlement Urban Centre Database 2015](#).

European Commission, [Mobility and Transport. Statistics — accidents data](#).

European Commission, [Urban Data Platform](#).

Notes

- (¹) 2017 data. Source: Eurostat (online data code: [ilc_lvho01](#)).
- (²) Eurostat (2016), *Urban Europe: Statistics on cities, towns and suburbs*, Publications Office of the European Union, Luxembourg, p.9.
- (³) Degree of urbanisation classifies local administrative units as 'cities', 'towns and suburbs', or 'rural areas'. In 'cities' at least 50% of the population lives in an urban centre. If less than 50% lives in an urban centre but more than 50% of the population lives in an urban cluster it is classified as 'towns and suburbs', and if more than 50% of the population lives outside an urban cluster it is a 'rural area'. An urban centre is a cluster of contiguous grid cells of 1 km² with a density of at least 1 500 inhabitants per km² and a minimum population of 50 000 people. An urban cluster is a cluster of contiguous grid cells of 1 km² with a density of at least 300 inhabitants per km² and a minimum population of 5 000 people.
- (⁴) 2007 data refer to EU without Croatia.
- (⁵) 2005 data refer to EU without Croatia and are estimated.
- (⁶) 2007 data refer to EU without Croatia.
- (⁷) European Commission, [Environment: Noise](#).
- (⁸) Lden is an indicator of the overall noise level during the day, evening and night, which is used to convey the annoyance caused by noise exposure. The Environmental Noise Directive defines an Lden threshold of 55 dB.
- (⁹) European Environment Agency (2018), *Population exposure to environmental noise*.
- (¹⁰) World Health Organization (2016), *World Health Statistics 2016: Monitoring Health for the SDGs*, p. 37.
- (¹¹) For PM_{2.5}, the Ambient Air Quality Directive 2008/50/EC introduced a target value to be attained by 2010, which became a limit value starting in 2015. For more information on EU air quality standards, see: <http://ec.europa.eu/environment/air/quality/standards.htm>
- (¹²) European Environment Agency (2018), *Air Quality in Europe 2018 Report*, EEA Report No 12/2018, Publications Office of the European Union, Luxembourg, p. 24.
- (¹³) Id., p. 7.
- (¹⁴) United Nations (2018), *The Sustainable Development Goals Report 2018*, p. 9.
- (¹⁵) European Environment Agency (2018), *Air Quality in Europe 2018 Report*, EEA Report No 12/2018, Publications Office of the European Union, Luxembourg, p. 64.
- (¹⁶) See: European Commission (2019), [Environment: Clean Air](#).
- (¹⁷) Source: Eurostat (online data code: [tessi174](#)).
- (¹⁸) See: Average size of dwelling by household type and degree of urbanisation. Source: Eurostat (online data code: [ilc_hcmh02](#)).
- (¹⁹) For instance, see Households characteristics by degree of urbanisation. Source: Eurostat (online data code: [hbs_car_t315](#)).
- (²⁰) Source: Eurostat (online data code: [ilc_lvho05d](#)); 2005 data refer to EU without Croatia.
- (²¹) Source: Eurostat (online data code: [ilc_mddw04](#)).
- (²²) Source: Eurostat (online data code: [ilc_mddw06](#)).
- (²³) European Commission (2013), *Together towards competitive and resource-efficient urban mobility*, COM(2013) 913 final, p. 1.
- (²⁴) Source: Eurostat (online data code: [ilc_hcmp06](#)).
- (²⁵) Source: Eurostat (online data code: [hlth_ehis_ac1e](#)).
- (²⁶) European Transport Safety Council (2017), *Press Release: Transport ministers call for target to reduce serious road injuries*.
- (²⁷) European Commission (2018), *Road Safety 2017: How is your country doing?*, p. 6.
- (²⁸) European Commission (2018), *Europe on the Move: Commission completes its agenda for safe, clean and connected mobility*, Press release database, Brussels.
- (²⁹) Source: Eurostat (online data code: [hlth_ehis_ac1e](#)).
- (³⁰) Source: Eurostat (online data codes: [tran_sf_roadag](#) and [demo_pjanind](#)).
- (³¹) Own calculations based on European Commission, Mobility and Transport. Statistics — accidents data.
- (³²) UN-Habitat (2016), *Urbanization and Development: Emerging Futures, World Cities report 2016*, pp. 85-100.
- (³³) Eurostat (2019), *Statistics explained: Municipal waste statistics*.
- (³⁴) European Commission (2018), *Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste (Text with EEA relevance)*.
- (³⁵) 2000 data refer to EU without Croatia.
- (³⁶) European Commission, (2016), *Eighth Report on the Implementation Status and the Programmes for Implementation (as required by Article 17) of Council Directive 91/271/EEC concerning urban waste water treatment*, p. 4.
- (³⁷) Examples of such trends are lower household occupancy and preference for detached houses. See also European Environment Agency (2016), *Urban sprawl in Europe — joint EEA-FOEN report*, Publications Office of the European Union, Luxembourg.
- (³⁸) European Commission (2016), *Science for Environment Policy. Future Brief: No net land take by 2050?* p. 4.
- (³⁹) Data refer to an EU aggregate not including Bulgaria, Croatia, Cyprus, Malta, and Romania.
- (⁴⁰) Source: Eurostat (online data code: [lan_settl](#)).
- (⁴¹) European Environment Agency (2018), *Land take*.

12

Ensure sustainable consumption and production patterns

Goal 12 calls for a comprehensive set of actions from businesses, policy-makers, researchers and consumers to adapt to sustainable practices. It envisions sustainable production and consumption based on advanced technological capacity, resource efficiency and reduced global waste.



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Consumption and production patterns have wide environmental impacts. Sustainable production and consumption patterns use resources efficiently, respect resource constraints and reduce pressures on natural capital in order to increase overall well-being, keep the environment clean and healthy, and safeguard the needs of future generations. The rise in living standards and the quality of life in Europe since the end of World War II has been made possible through increases in income, production and consumption, which so far have gone hand in hand with more resource extraction and growing pressures on natural capital (air, water, land and biodiversity) and the climate. Since we live on a planet with finite and interconnected resources, the rate at which they are used has relevant implications for today's prosperity and lasting effects on future generations. It is thus important for the EU to decouple economic growth and the improvement of living standards from resource use and the eventual negative environmental impacts. This involves increasing the circularity of materials in the economy, thereby reducing both the need for resource extraction and the amount of waste ending up in landfills or



incineration. It also means managing chemicals safely and shifting away from carbon-intensive energy carriers towards sustainably produced renewable energy sources. Such an approach would not only reduce environmental pressures, but also provide major economic benefits.

Table 12.1: Indicators measuring progress towards SDG 12, EU-28

Indicator		Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Decoupling environmental impacts from economic growth				
Consumption of toxic chemicals		↑ ⁽¹⁾	↗	page 242
Resource productivity		↑	↑	page 243
🎯	Average CO ₂ emissions per km from new passenger cars	↗ ⁽²⁾	↗	page 245
Energy productivity (*)		↑	↑	SDG 7, page 157
Energy consumption				
🎯	Energy consumption (*)	↗	↘	SDG 7, page 154
	Primary energy consumption			
	Final energy consumption	↘	↘	
🎯	Share of renewable energy in gross final energy consumption (*)	↑ ⁽¹⁾	↗	SDG 7, page 158
Waste generation and management				
Circular material use rate		↑ ⁽³⁾	↑	page 246
Generation of waste excluding major mineral wastes		↗ ⁽³⁾	↘ ⁽⁴⁾	page 247
Recycling rate of waste excluding major mineral waste		:	↗ ⁽⁴⁾	page 248

(*) Multi-purpose indicator.

(1) Past 13-year period.

(2) Past 10-year period.

(3) Past 12-year period.

(4) Past 4-year period.

Table 12.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
🎯	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↘	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Responsible consumption and production in the EU: overview and key trends

Monitoring SDG 12 in an EU context focuses on developments in the areas of decoupling environmental impacts from economic growth, energy consumption, and waste generation and management. As Table 12.1 shows, the EU has made some progress in decoupling environmental impacts from economic growth and in waste management. However, indicators measuring energy consumption show unfavourable trends and waste generation has increased over the past few years.

Decoupling environmental impacts from economic growth

Increases in economic activity have long been associated with growing resource and energy consumption. To allow living standards and quality of life to continue improving without exhausting the natural resources they depend on, the EU strives to become a resource-efficient, green and competitive low-carbon economy ⁽¹⁾. Focus has therefore shifted to improving resource- and energy-use efficiency by restructuring economies so they produce more from the same resource and energy inputs. This is particularly relevant in view of a growing population and rising per-capita wealth, which may result in more overall resource consumption, despite an increase in resource efficiency. Such decoupling of economic growth from the consumption of natural resources should also go along with minimising harmful health and environmental impacts.

The EU's progress in this area is monitored by four indicators. Two look at the ratio of resource use (materials and energy) to GDP, while the other two look at the harmful environmental impacts of

consumption of toxic chemicals and CO₂ emissions related to transport. Overall, these indicators show some progress over the past few years: the EU's resource and energy productivity has risen, while consumption of hazardous chemicals and CO₂ emissions from new cars have decreased.

Productivity of resources and energy has increased considerably over the past 15 years

Resource productivity ⁽²⁾ and energy productivity ⁽³⁾ directly monitor how much output (in terms of GDP) an economy produces per unit of materials or energy used. Over the past 15 years (2002 to 2017), the EU has increased its resource productivity by 34.7 %, reaching EUR 2.08 per kg in 2017, and its energy productivity by 29.7 %, reaching EUR 8.3 per kilogram of oil equivalent (kgoe). These trends can be attributed to the growth of the EU economy alongside reductions in [domestic material consumption](#) (DMC) and gross available energy (GAE). Over the period 2002 to 2017, the EU economy grew (in terms of GDP) by 22.7 % ⁽⁴⁾, while GAE fell by 5.2 % ⁽⁵⁾ and DMC fell by 8.9 %.

The observed trends, however, need to be interpreted with caution, as they might not be entirely due to the success of environmental policies. It is very likely that the drop in DMC from 2008 onwards was strongly influenced by the economic crisis: following the onset of the crisis, the use of materials declined rapidly. However, since the start of the economic recovery in 2013, DMC has increased by 3.6 %. Despite the recent increase, in 2017 total DMC was still 17.7 % lower than in 2007, the year before the start of the economic crisis. This development was mostly



2.08
EUR of GDP
were produced
in the EU for
each kilogram
of DMC in 2017



**In 2017, the
EU's energy
productivity
amounted to
8.3
EUR per kgoe**

caused by the rapid slowdown in construction activities, which account for the lion's share of total material use, but contribute, in relative terms, much less to the EU economy ⁽⁶⁾.

Other economic or technical factors might also have affected the positive trend in resource productivity, including the long-term shift of the EU towards a service economy, globalisation, an increasing reliance on imports, and even the nature of the indicator itself ⁽⁷⁾. The latter refers to the fact that DMC does not include 'hidden' raw material flows, which are required to generate imports or exports but are not part of the imported and exported raw materials and products ⁽⁸⁾.

The consumed materials can be classified into two types: renewable materials, such as **biomass**, and non-renewable materials, such as **fossil fuels**, metals and non-metallic minerals. Non-metallic minerals (such as marble, granite, sand and salt) are the largest category of materials consumed, with a share of 47.1 % in total DMC in 2017. They

are mainly used for building infrastructure such as roads, homes, schools and hospitals, and for producing many industrial and consumer products such as cars, computers, medicines and household appliances. Biomass is the second largest category (25.3 % in 2017), followed by fossil energy materials/carriers (22.5 %) and metal ores (5.0 %) ⁽¹¹⁾.

Consumption of non-metallic minerals decreased by 10.7 % over the long-term period (2002 to 2017), but has increased by 4.2 % in the short term, since 2012. In contrast, consumption of fossil energy materials (including coal, natural gas and oil) has fallen both in the long- and short-term periods, with an especially noteworthy 19.2 % decrease between 2002 and 2017. This decline may have been driven in part by a decrease in overall economic activity in the aftermath of the economic crisis, but also by a long-term increase in the use of renewable energy and an improvement in the overall energy efficiency of the EU economies ⁽¹²⁾. The consumption of biomass has increased by 3.9 % in the short

The 7th Environment Action Programme ⁽⁹⁾, the agreed framework for EU environment policy until 2020, has put forward three key objectives: (a) to protect, conserve and enhance the Union's natural capital; (b) to turn the Union into a resource-efficient, green and competitive low-carbon economy, with a special focus on converting waste into a resource; and (c) to safeguard the Union's citizens from environment-related pressures and risks to health and well-being while maintaining a long-term vision of a non-toxic environment. Four so-called enablers help Europe deliver on these goals: better implementation of legislation, better information by improving the knowledge base, more and wiser investment for environment and climate policy, and 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 and to help the Union address international environmental and climate challenges more effectively. The [evaluation of the programme](#) ⁽¹⁰⁾, published in May 2019, has shown that the programme has made some progress towards achieving its goals but there is a need for further commitment, especially in the areas of nature protection, environment and health, and integration.

Europe's [Bioeconomy Strategy](#) addresses the production of renewable biological resources and their conversion into vital products and bio-energy. The 2018 update of the EU Bioeconomy Strategy aims to strengthen the connection between the economy, society and the environment. The strategy has sustainability and circularity at its heart, contributing to achieving SDG 12.

term (since 2012), while it has remained nearly unchanged in the long term (since 2002). Only the consumption of metal ores increased significantly in both the short and the long term, by 24.9% and 16.4%, respectively.

Consumption of toxic chemicals has fallen moderately in the long and short term

Most everyday products used by businesses and consumers are produced with the help of chemicals. Chemicals are used by farmers to protect their crops from pests, and they are used as ingredients in pharmaceuticals, detergents, cosmetics, textiles, buildings and other artificial areas, as well as packaging. These uses make them a significant contributor to the EU economy, with sales worth EUR 542 billion in 2017 ⁽¹³⁾. The consumption of chemicals provides benefits to society, but can also entail risks to the environment and human health. Risk depends on both the hazard presented by the chemicals and the exposure to them. Tracking the volume consumed of industrial chemicals that are hazardous to human and environmental health is, therefore, used as an imperfect proxy for human exposure ⁽¹⁴⁾.

In 2017, 307.9 million tonnes of chemicals were consumed in the EU. Of this volume, 22.3% (68.6 million tonnes) were classified as hazardous to the environment and 71.4% (219.7 million tonnes) as substances that might harm human health ⁽¹⁵⁾. Since 2004, consumption has declined by 19.9% for chemicals hazardous to the environment and by 12.3% for chemicals hazardous to health.

However, a reduction in the consumption of **toxic chemicals** cannot be equated to a reduction in the risks. For instance, it is possible that reduced consumption of toxic chemicals is being offset by other exposures that are not included in this indicator, such as imported or recycled and



219.7
million tonnes
of chemicals
hazardous to
health were
consumed in
the EU in 2017

reused products containing such chemicals ⁽¹⁶⁾. And chemicals that are produced in the EU but are exported instead of being consumed can still pollute at the location where they are made. Likewise, chemicals that are made and used outside the EU can reach Europe via air, water and food, as well as in products ⁽¹⁷⁾. It should also be noted that the actual risks related to the use of toxic chemicals is not necessarily associated with the level of consumption, as some chemicals are handled in closed systems while others can be formed during use (for example, polycyclic aromatic hydrocarbons) with high-risk management measures, or as intermediate goods in controlled supply chains ⁽¹⁸⁾.

The REACH framework ⁽¹⁹⁾ aims to improve the protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances while enhancing the competitiveness of the EU chemicals industry.

To reduce the impact from the use of toxic chemicals on humans and the environment, the 7th EAP has announced an EU strategy for a non-toxic environment. A number of studies and evaluations were commissioned to provide a comprehensive basis for continued strategic work on sustainable chemicals management. A report bringing together findings and conclusions from these processes is expected in 2019.

The European Chemicals Agency (ECHA) substitution strategy, adopted in 2018, aims to encourage the replacement of harmful chemicals by boosting the availability and adoption of safer alternatives and technologies. It highlights networking, capacity building and improving access to data, funding and technical support as key areas for action.

The decline in average CO₂ emissions per km for newly registered passenger cars has slowed in recent years

In 2016, cars were responsible for around 14 % of total EU emissions of carbon dioxide (CO₂), the main greenhouse gas ⁽²⁰⁾. To reduce the negative impact of passenger cars on the environment, the EU has set mandatory targets for fleet-wide average CO₂ emissions of new passenger cars of 130 grams per kilometre (g/km) in 2015 and 95 g/km in 2021 ⁽²¹⁾. For each manufacturer's new car fleet, a specific emission target is set according to the average mass of its new vehicles, in such a way that these overall targets for the EU's average fleet emissions are met. Average CO₂ emissions per km from new passenger cars in the EU have fallen by 10.4 % since 2012, reaching 118.5 g/km in 2017. While the 2015 target has been met two years early, a recent slowdown in emission reductions has been observed since 2015 and in 2017 average CO₂ emissions even increased by 0.4 g/km as compared to 2016. This means that further progress will be needed to reach the 2021 target set at 95 g/km.

It should also be noted that the effective reduction in emission intensity, measured in CO₂ emissions per km, is lower than indicated by the official type-approval values used for



118.5
grams of CO₂
per km
were emitted by
new passenger
cars in the EU
in 2017

monitoring purposes. Under real-world driving conditions, new passenger cars in the EU emitted in 2015 on average around 40 % more than in the laboratory ⁽²²⁾. Until 2017, the New European Driving Cycle (NEDC) test procedure had been used to measure CO₂ emissions of new passenger cars. Yet, the NEDC did not correspond to actual driving conditions or present-day vehicle technologies and allowed carmakers to optimise the testing ⁽²³⁾. In recognition of these shortcomings, in September 2017 the EU introduced the Worldwide Harmonised Light Vehicles Test Procedure (WLTP). The WLTP provides for stricter, up-to-date test conditions and as a result should yield more realistic fuel-consumption and CO₂ emission values ⁽²⁴⁾. The new emission targets for 2025 and 2030 have been set on the basis of the WLTP emission values.

EU legislation sets mandatory CO₂ emission reduction targets for new vehicles. New CO₂ emission standards for cars and vans ⁽²⁵⁾ and, for the first time, CO₂ emission standards for heavy-duty vehicles ⁽²⁶⁾ will start applying from 2025 and 2030. Both regulations also include a mechanism to encourage the uptake of zero- and low-emission vehicles in a technology-neutral way. CO₂ emission targets for new passenger cars will require a further 15 % reduction by 2025 compared to 2021 and a reduction by 37.5 % from 2030 ⁽²⁷⁾.

Energy consumption

The availability of reliable and affordable energy is a prerequisite for the functioning and growth of European economies. However, increased energy consumption may put further pressure on the environment, deplete fossil fuels and intensify the EU's dependency on imported energy. To countervail these negative effects, the EU aims to use energy more efficiently and shift towards renewable energy sources.

Progress towards the EU's energy-related 2020 targets has been mixed over the past years, putting their achievement at risk

Using energy more efficiently and increasing the share of renewables allows for further growth while reducing environmental impacts, dependencies and costs linked to energy supply and use. Therefore the EU seeks to boost its energy efficiency by 20 % and to increase its share of **renewable energy** to 20 % of energy consumption by 2020.

To measure progress towards energy efficiency, the target has been translated into absolute target values for **primary energy consumption** (1 483 million tonnes of oil equivalent (Mtoe)) and **final energy consumption** (1 086 Mtoe) for 2020. In 2017, 1 561.6 Mtoe of primary and 1 122.8 Mtoe of final energy were consumed. Over the long-term period (between 2002 and 2017), the consumption of primary and final energy fell by 5.8 % and 2.0 %, respectively. However, in the short term (since 2012), final energy consumption has risen by 1.1 % and the decrease has been slower for primary energy consumption. Both primary and final

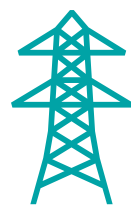


1 122.8
Mtoe of final
energy were
consumed in
the EU in 2017



In 2017,
renewable
energy sources
in gross
final energy
consumption
had a share of
17.5 %

energy consumption have been rising since 2014, and as a result, the 2020 energy-efficiency targets may be beyond reach. In contrast, the share of renewable energy in energy consumption still shows a favourable trend, although progress has slowed down over the past five years. While the EU steadily increased the share of renewables, from 8.5 % in 2004 to 17.5 % in 2017, further efforts appear necessary to ensure meeting the target of raising this share to 20 % by 2020 (see the chapter on SDG 7 'Affordable and clean energy' on page 145 for a more detailed analysis).



1 561.6
Mtoe
of primary
energy were
consumed in
the EU in 2017

Waste generation and management

Production and consumption patterns characterised by products being made, used and disposed of in an accelerated fashion are not sustainable. As consumption grows, such patterns are coming up against constraints. Therefore, the EU aims to establish a circular economy where materials and resources are kept in the economy for as long as possible, and **waste** is minimised.

Reducing both the input of materials and the output of wastes by closing economic and ecological loops of resource flows is an important aspect of a circular economy. In 2016, 905 million tonnes of waste, excluding major mineral waste, were generated, corresponding to 1 772 kilograms of waste per EU inhabitant ⁽²⁸⁾. When not managed sustainably, all of this waste could have a huge impact on the environment, causing pollution and greenhouse gas emissions that contribute to climate change, as well as to



1 772 kg
of waste
(excluding
major mineral
waste) were
generated
in the EU per
inhabitant
in 2016

significant losses of materials ⁽²⁹⁾. Waste cannot always be avoided and should be seen as a resource. Increased **recycling** rates would put materials back in the economy and ensure they are kept in circulation to preserve the value embedded in them.

Trends in recycling and re-use of waste are favourable, but generation of non-mineral waste is on the rise again

Between 2004 and 2016, the amount of waste generated per capita, excluding major mineral wastes, decreased by 7.1 % in the EU. Over the same period the EU circular material use (CMU) rate, indicating the share of used materials that came from collected waste, increased from 8.3 % to 11.7 %. While the short-term trend for the CMU rate remained favourable, the amount of waste generated per capita increased by 3.3 % between 2012 and 2016. This seems to be related to the increase in secondary waste over the same period. Secondary waste is generated during the treatment of waste (such as recycling) and comprises, for example, sorting residues, sludges and incineration ashes ⁽³⁰⁾. Thus, an increasing share of recycled and incinerated waste observed in the EU over the past few years resulted in a higher share of secondary waste and an increase in the overall amount of waste generated per capita ⁽³¹⁾.

Data for the recycling of waste excluding major mineral wastes are only available from 2010 onwards and show a slight increase between 2010 and 2016, from 55 % to 57 %. The difference between this relatively high end-of-life recycling rate and the CMU rate (11.7 % in 2016) may seem surprising at first sight. However, the comparatively low degree of circularity in the EU can be attributed to two structural barriers. First, a large fraction of the material is used to build and maintain buildings, infrastructure and other long-life goods, and is not available for recycling. A second barrier is the large amount of material



11.7 %
of the materials
used in the
EU came from
collected waste
in 2016

used to generate energy. For these materials, in particular for fossil fuels, closing the loop is hardly possible and the high share of these materials keeps the degree of circularity low ⁽³²⁾.

Building on existing EU policies and legislation, the Circular Economy Package ⁽³³⁾⁽³⁴⁾ establishes a programme of action with measures covering the whole cycle from production and consumption to waste management. This package includes commitments on ecodesign, waste prevention and reuse, clean material cycles, and quantitative targets that aim to increase recycling and reduce landfilling, as well as obligations to improve the separate collection of waste and promote the efficient use of bio-based resources. The new waste legislation, adopted as a part of Circular Economy Package in 2018, introduced ambitious measures for municipal and packaging waste recycling, such as raising targets for recycling municipal waste to 60 % by 2030 and 65 % by 2035, reducing the landfilling of municipal waste to 10 % by 2035 and ensuring high recycling levels for packaging and its specific materials. The Directive on Single Use Plastics represents an important step to reduce plastic litter on the European beaches ⁽³⁵⁾.

In 2016, a third of wastes (excluding major mineral wastes) was made up of mixed ordinary wastes. This category includes wastes from households, mixed undifferentiated materials and sorting residues. Wastes merged in the 'recyclable wastes' category, such as metal, glass, paper and plastic, accounted for around a quarter, followed by combustion waste (13.0 %), animal and vegetal wastes (10.5 %), chemical and medical wastes (6.0 %) and mineral wastes from waste treatment and stabilised wastes (5.1 %). Common sludges and equipment had a share of around 2 % each in 2016 ⁽³⁶⁾.

A multi-stakeholder platform (EU Platform on Food Losses and Food Waste) was established in 2016 to support all parties in taking concrete action, share best practice and learning, and thereby accelerate the EU's progress towards reducing food waste. The Commission has also adopted EU guidelines to facilitate food donation (2017) and the valorisation of food no longer intended for human consumption as animal feed (2018).

The revised Waste Framework Directive, adopted in 2018, requires Member States to reduce food waste at each stage of the supply chain, and monitor and report annually on food waste levels. On 3 May 2019, the Commission adopted a Decision laying down a common methodology to measure food waste, which is expected to enter into force in late 2019.

With a share of 57 % in 2016, more than half of the waste (excluding major mineral wastes) generated in the EU that underwent waste treatment was recycled. Another quarter went to landfill, meaning the deposit of waste onto or into land. While landfilling fell from 29 % in 2010 to 24 % in 2016, incineration with energy recovery increased from 11 % to 17 % over the same period.

Other treatment methods collectively accounted for less than 10 % of waste treatment over the whole period analysed.

Recycling rates appear to be higher for total waste (excluding major mineral wastes) than for municipal waste alone (see the chapter on SDG 11 'Sustainable cities and communities' on page 215). Despite a considerable increase over the past decade, recycling rates of municipal waste remained below 50 % in the EU (46.4 % in 2017) ⁽³⁷⁾. This is because landfill and incineration are the dominant treatment operations for



municipal waste. However, there was a significant shift from landfill to incineration (including for energy recovery). While in 2012, 32.1 % of generated municipal waste went to landfill and 24.2 % to incineration (including for energy recovery), in 2017 the share of landfill was slightly lower (23.2 %) than for incineration (28.1 %) ⁽³⁸⁾.

In 2016, 7.1 % of the generated waste (excluding major mineral wastes) — equal to 125 kg per resident — was hazardous to health or the environment. The share of hazardous waste increased by 1.2 percentage points overall between 2004 and 2016, but has changed very little in the short term since 2012 ⁽³⁹⁾.

Although the absolute amount of generated waste (excluding major mineral wastes) fell between 2004 and 2016 (by 3.8 %), the development was not uniform across all economic sectors. Waste that arose within the waste-management system ⁽⁴⁰⁾ has doubled since 2004 and accounted for more than one quarter (28.0 %) in 2016. The second largest share of waste (23.1 %) was generated by households, but their share remained relatively stable over the same period. Waste generated by manufacturing dropped over this 12-year period by almost a third and accounted for 21.1 % in 2016. Provision of utilities (electricity, gas, steam and air condition) and services accounted for, respectively, 8.4 % and 11.8 % of waste generation in 2016 ⁽⁴¹⁾.



125 kg
of hazardous
waste were
generated
in the EU per
inhabitant
in 2016

The Sustainable Consumption and Production and Sustainable Industrial Policy (SCP/SIP) Action Plan ⁽⁴²⁾ and the Circular Economy Package include a series of proposals on sustainable consumption and production that will contribute to improving the environmental performance of products and increase the demand for more sustainable goods and production technologies.

Presentation of the main indicators



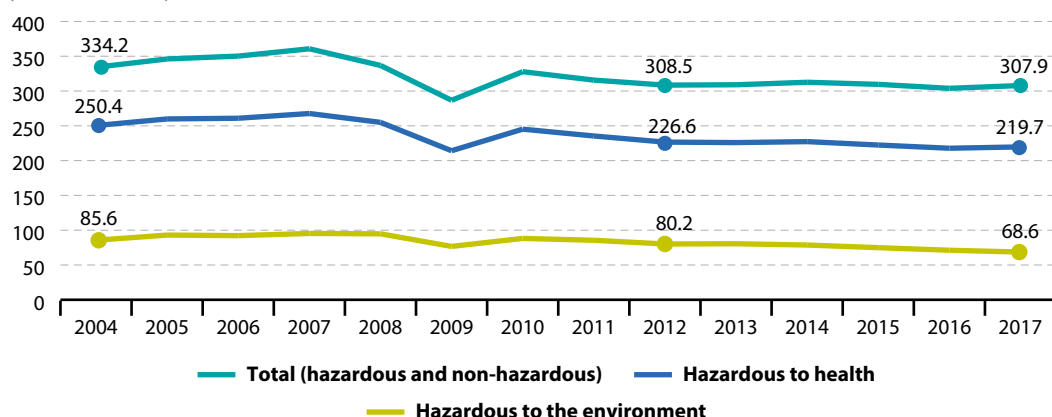
LONG TERM
2004–2017

SHORT TERM
2012–2017

Consumption of toxic chemicals

The indicator measures the volume of aggregated consumption of chemicals, expressed in million tonnes. The consumption of chemicals is calculated as the sum of the production volumes and the net import volumes of the chemicals according to the equation: consumption = production + imports – exports. The data on hazardous and non-hazardous chemicals show the total consumption of all chemicals regardless of their hazardousness. The two sub-categories on consumption of hazardous chemicals — hazardous to human health and hazardous to the environment — overlap by definition and the total is therefore not equal to their sum.

Figure 12.1: Consumption of toxic chemicals, by hazardousness, EU-28, 2004–2017
(million tonnes)



Note: Due to a change in the methodology between 2017 and 2018, data presented here are not comparable to those presented in previous editions of the SDG monitoring report.

Source: Eurostat (online data code: [sdg_12_10](#))

Table 12.3: Compound annual growth rate (CAGR) of the consumption of toxic chemicals, EU

Chemicals	EU aggregate	Period	Growth rate
Hazardous to health	EU-28	2004–2017	– 1.0 % per year
	EU-28	2012–2017	– 0.6 % per year
Hazardous to the environment	EU-28	2004–2017	– 1.7 % per year
	EU-28	2012–2017	– 3.1 % per year

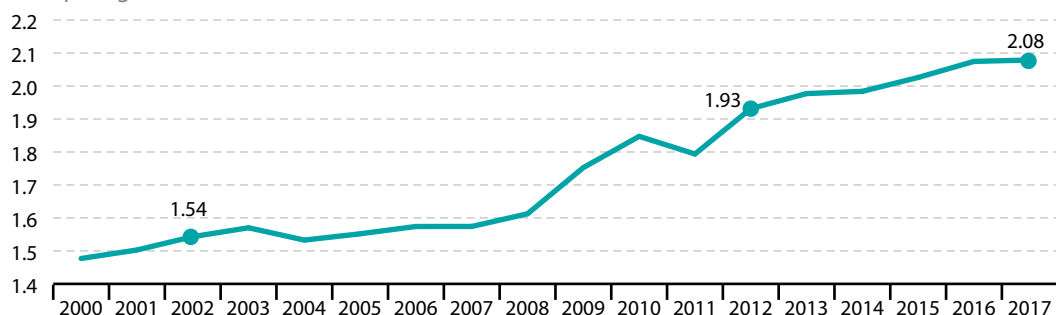
Source: Eurostat (online data code: [sdg_12_10](#))

Resource productivity and domestic material consumption

Resource productivity is defined as **gross domestic product** (GDP) divided by **domestic material consumption** (DMC). DMC measures the total amount of materials directly used by an economy. It is calculated as the annual quantity of raw materials extracted from the domestic territory of the focal economy, plus all physical imports, minus all physical exports.



Figure 12.2: Resource productivity, EU-28, 2000–2017
(EUR per kg, chain-linked volumes (2010))



Note: Data are estimated (whole time series); data for 2016 and 2017 are provisional.

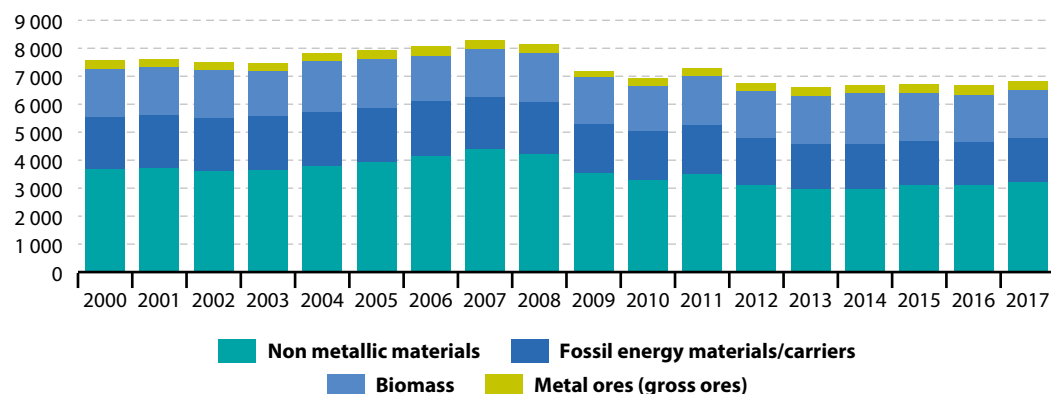
Source: Eurostat (online data code: [sdg_12_20](#))

Table 12.4: Compound annual growth rate (CAGR) of the resource productivity, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	2.0% per year
EU-28	2012–2017	1.5% per year

Source: Eurostat (online data code: [sdg_12_20](#))

Figure 12.3: Domestic material consumption, by material, EU-28, 2000–2017
(million tonnes)

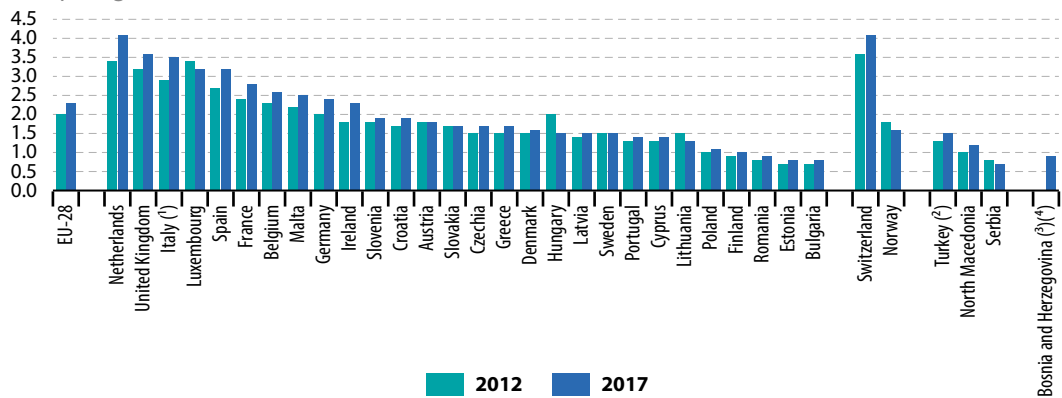


Note: Data are estimated, data for 2016 and 2017 are provisional.

Source: Eurostat (online data code: [env_ac_mfa](#))

Figure 12.4: Resource productivity, by country, 2012 and 2017

(PPS per kg)



Note: Provisional and/or estimated data for most countries.

(¹) Break in time series between the two years shown.

(²) 2016 data (instead of 2017).

(³) 2015 data (instead of 2017).

(⁴) No data for 2012.

Source: Eurostat (online data code: [sdg_12_20](#))

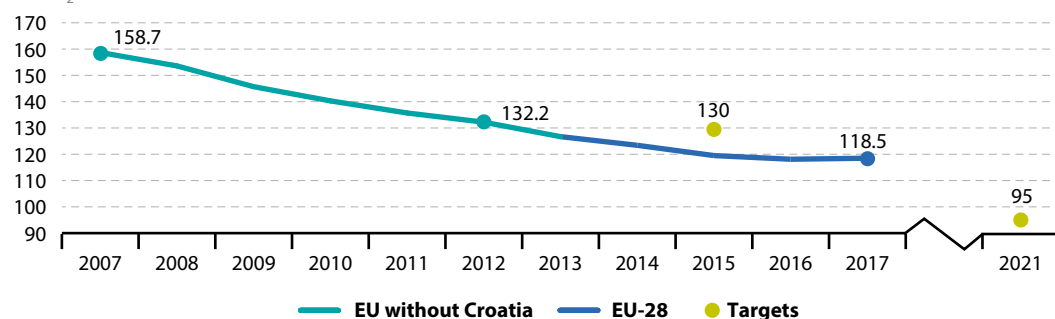
Average CO₂ emissions per km from new passenger cars

The indicator is defined as the average carbon dioxide (CO₂) emissions per km by new passenger cars in a given year. The reported emissions are based on type-approval and can deviate from the actual CO₂ emissions of new cars. Data presented in this section are provided by the European Commission, the Directorate-General for Climate Action and the European Environment Agency (EEA).



Figure 12.5: Average CO₂ emissions per km from new passenger cars, EU, 2007–2017

(g CO₂ per km)



Source: EEA, European Commission services, Eurostat (online data code: [sdg_12_30](#))

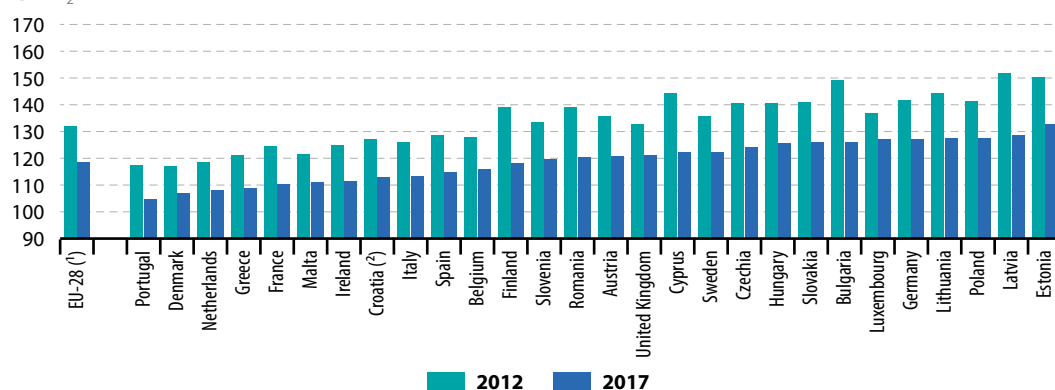
Table 12.5: Compound annual growth rate (CAGR) of the average CO₂ emissions per km from new passenger cars, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU without Croatia, EU-28	2007–2017	– 2.9% per year	– 3.6% per year
EU without Croatia, EU-28	2012–2017	– 2.2% per year	– 3.6% per year

Source: EEA, European Commission services, Eurostat (online data code: [sdg_12_30](#))

Figure 12.6: Average CO₂ emissions per km from new passenger cars, by country, 2012 and 2017

(g CO₂ per km)



⁽¹⁾ 2012 data refer to EU without Croatia.

⁽²⁾ 2013 data (instead of 2012).

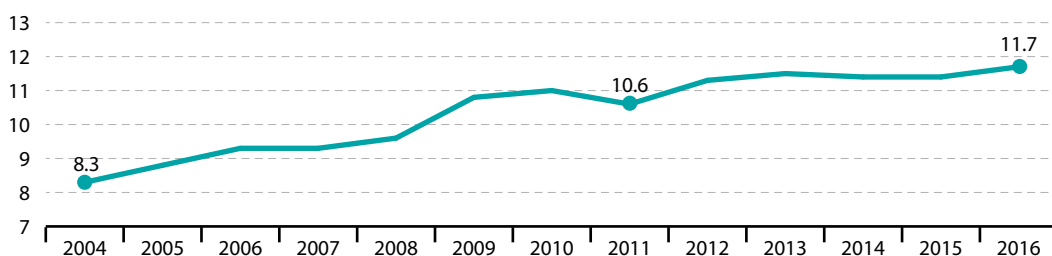
Source: EEA, European Commission services, Eurostat (online data code: [sdg_12_30](#))



Circular material use rate

The circular material use rate (CMU) measures the share of material recovered and fed back into the economy in overall material use. The CMU is defined as the ratio of the circular use of materials to the overall material use. The overall material use is measured by summing up the aggregate domestic material consumption (DMC) and the circular use of materials. DMC is defined in economy-wide material flow accounts. The circular use of materials is approximated by the amount of waste recycled in domestic recovery plants minus imported waste destined for recovery plus exported waste destined for recovery abroad. A higher CMU rate value means that more secondary materials substitute for primary raw materials thus reducing the environmental impacts of extracting primary material.

Figure 12.7: Circular material use rate, EU-28, 2004–2016
(% of material input for domestic use)



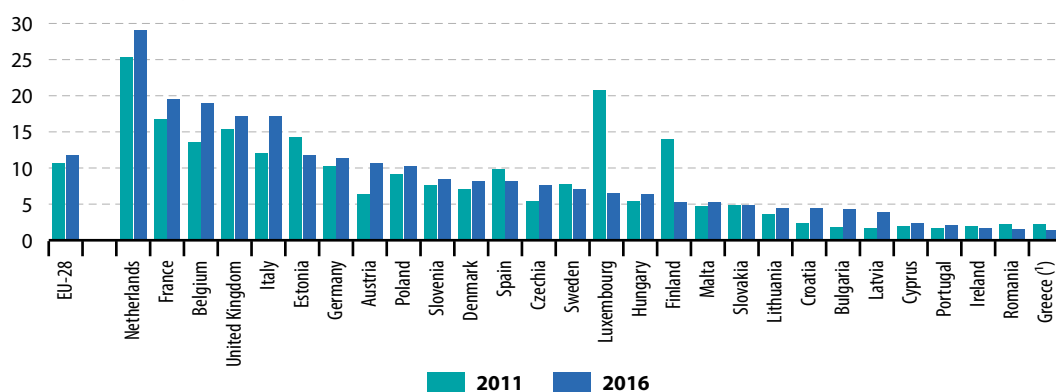
Source: Eurostat (online data code: [sdg_12_41](#))

Table 12.6: Compound annual growth rate (CAGR) of the circular material use rate, EU

EU aggregate	Period	Growth rate
EU-28	2004–2016	2.9% per year
EU-28	2011–2016	2.0% per year

Source: Eurostat (online data code: [sdg_12_41](#))

Figure 12.8: Circular material use rate, by country, 2011 and 2016
(% of material input for domestic use)



Note: 2011 data are estimated (all countries).

(¹) 2014 data (instead of 2016).

Source: Eurostat (online data code: [sdg_12_41](#))

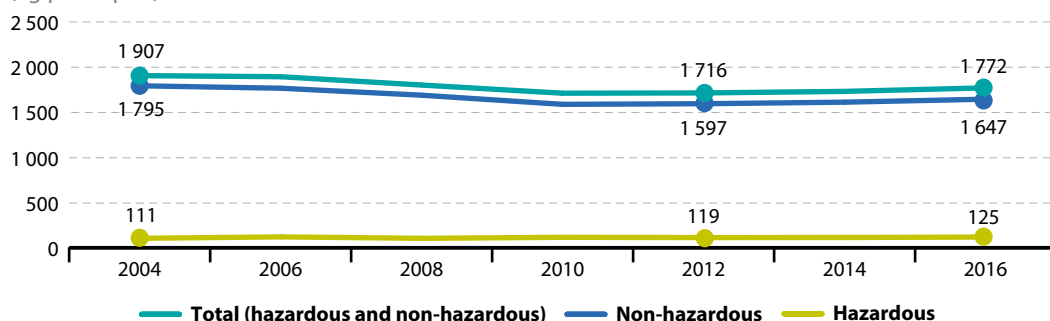
Generation of waste excluding major mineral wastes

This indicator is defined as all waste generated in a country, excluding major mineral wastes, dredging spoils and contaminated soils. This exclusion enhances comparability across countries as mineral waste accounts for high quantities in some countries with important economic activities such as mining and construction.



Figure 12.9: Generation of waste excluding major mineral wastes, by hazardousness, EU-28, 2004–2016

(kg per capita)



Source: Eurostat (online data code: [sdg_12_50](#))

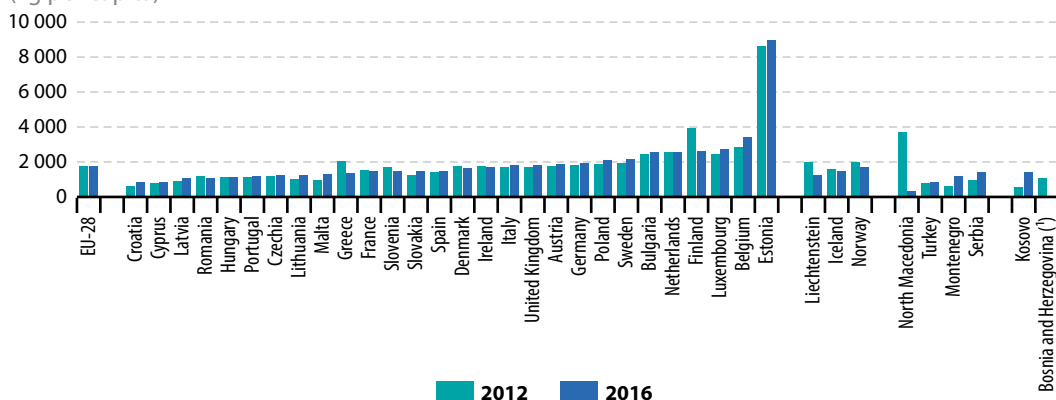
Table 12.7: Compound annual growth rate (CAGR) of the generation of waste excluding major mineral wastes, EU

EU aggregate	Period	Growth rate
EU-28	2004–2016	– 0.6 % per year
EU-28	2012–2016	0.8 % per year

Source: Eurostat (online data code: [sdg_12_50](#))

Figure 12.10: Generation of waste excluding major mineral wastes, by country, 2012 and 2016

(kg per capita)



⁽¹⁾ No data for 2016.

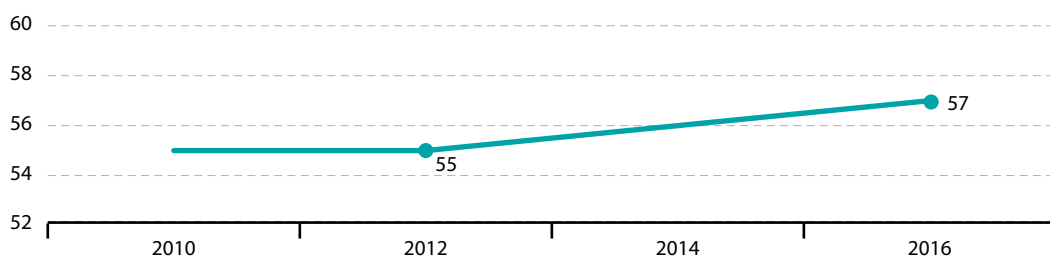
Source: Eurostat (online data code: [sdg_12_50](#))



Recycling rate of waste excluding major mineral wastes

The indicator measures the share of a country's — or the EU's — own waste that is recycled. 'Recycling' means any recovery operation by which waste materials are reprocessed into products, materials or substances, whether for the original or other purposes. It does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations. Major mineral wastes, dredging spoils and contaminated soils are excluded. The data reflect the treatment of national waste and exclude waste that is imported from non-EU countries.

Figure 12.11: Recycling rate of waste excluding major mineral wastes, EU-28, 2010–2016
(% of total waste treated)



Note: 2016 data are estimated.

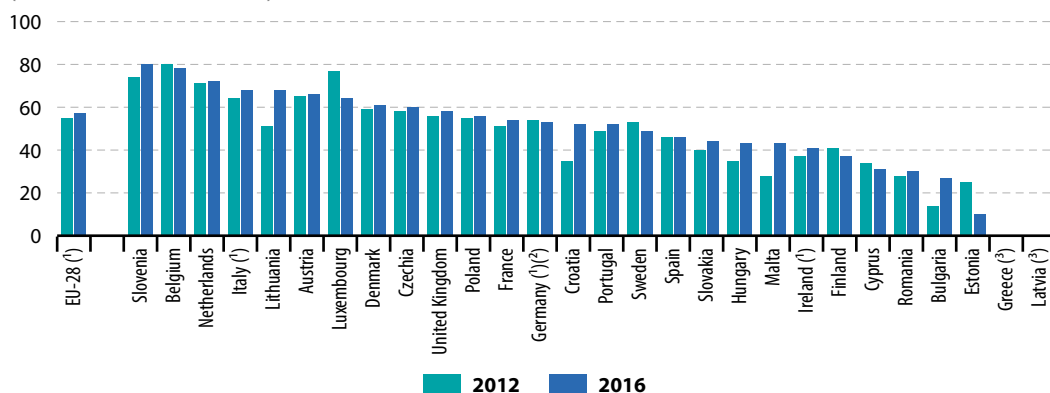
Source: Eurostat (online data code: [sdg_12_60](#))

Table 12.8: Compound annual growth rate (CAGR) of the recycling rate of waste excluding major mineral wastes, EU

EU aggregate	Period	Growth rate
EU-28	2012–2016	0.9% per year

Source: Eurostat (online data code: [sdg_12_60](#))

Figure 12.12: Recycling rate of waste excluding major mineral wastes, by country, 2012 and 2016
(% of total waste treated)



(1) Data are estimated.

(2) 2014 data.

(3) No data.

Source: Eurostat (online data code: [sdg_12_60](#))

Further reading on responsible consumption and production

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EEA (2016), *More from less — material resource efficiency in Europe*, EEA Report No 10/2016, European Environment Agency, Copenhagen.

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Haas, W., Krausmann, F., Wiedenhofer, D., Heinz, M. (2015), *How Circular is the Global Economy?: An Assessment of Material Flows, Waste Production, and Recycling in the European Union and the World in 2005*, in *Journal of Industrial Ecology*, October 2015, Vol.19(5), pp. 765–777.

United Nations Environment Programme (2019), *Global Chemicals Outlook II. From Legacies to Innovative Solutions: Implementing the 2030 Agenda for Sustainable Development*.

Further data sources on responsible consumption and production

Eurostat, *Generation of waste by waste category, hazardousness and NACE Rev. 2 activity*.

Eurostat, *Resource Efficiency Scoreboard*.

Eurostat, *Monitoring Framework for the Circular Economy*.

UNEP, *Natural Resources: Resource Efficiency Indicators*.

Notes

- (¹) European Parliament and Council of the European Union (2013), *Decision No 1386/2013/EU on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'*.
- (²) Resource productivity is defined as GDP per unit of domestic material consumption (DMC), measured in EUR per kilogram. Part of these materials is directly consumed by households, which means they are not used as an input to production activities. Thus, resource productivity is not directly comparable to concepts such as labour or capital productivity.
- (³) Energy productivity is defined as GDP per unit of gross inland energy consumption, measured in EUR per kg of oil equivalent. Part of the energy considered is consumed by households, which means it is not used as an input to production activities. Thus, energy productivity is not directly comparable to concepts such as labour or capital productivity. Note that the indicator's inverse is energy intensity.
- (⁴) Source: Eurostat (online data code: [nama_10_gdp](#)).
- (⁵) Source: Eurostat (online data code: [nrg_bal_s](#)).
- (⁶) European Environment Agency (2016), *More from less — material resource efficiency in Europe. 2015 overview of policies, instruments and targets in 32 countries*, EEA report No 10/2016, p. 38.
- (⁷) European Environment Agency (2016), *More from less — material resource efficiency in Europe. 2015 overview of policies, instruments and targets in 32 countries*, EEA report No 10/2016.
- (⁸) Id., p. 122.
- (⁹) European Parliament and Council of the European Union (2013), *Decision No 1386/2013/EU on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'*.
- (¹⁰) European Commission (2019), *Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the evaluation of the 7th Environment Action Programme*, COM(2019) 233 final, Brussels.
- (¹¹) 'Other products' and 'waste for final treatment and disposal' account for 0.2%.
- (¹²) European Environment Agency (2016), *More from less — material resource efficiency in Europe. 2015 overview of policies, instruments and targets in 32 countries*, EEA report No 10/2016, p. 35.
- (¹³) The European Chemical Industry Council (2018), *Facts and Figures of the European Chemical Industry Report 2018*, p. 10.
- (¹⁴) European Environment Agency (2018), *Consumption of hazardous chemicals*.
- (¹⁵) Data for the consumption of hazardous chemicals, mainly for those hazardous to the environment, as presented in this report are not comparable to those presented in previous editions due to a change in the methodology between 2017 and 2018.
- (¹⁶) European Environment Agency (2018), *Consumption of hazardous chemicals*.
- (¹⁷) Ibid.
- (¹⁸) Eurostat (2016), *Compilation of chemical indicators. Development, revision and additional analysis*, p. 43.
- (¹⁹) European Parliament and Council of the European Union (2006), *Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC*.
- (²⁰) European Commission (2018), *EU Transport in figures — Statistical pocketbook 2018*, p. 154.
- (²¹) European Parliament and Council of the European Union (2009), *Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO₂ emissions from light-duty vehicles, as amended by Regulation (EU) No 333/2014*.
- (²²) Tietge, U. et al. (2016), *From Laboratory to Road — A 2016 update of official and 'real world' fuel consumption and CO₂ values for passenger cars in Europe*, International Council on Clean Transportation.
- (²³) European Environment Agency (2017), *Fuel efficiency improvements of new cars in Europe slowed in 2016*; European Environment Agency (2016), *Explaining road transport emissions: a non-technical guide*.
- (²⁴) European Commission (2017), *European Commission recommendation 2017/948 of 31 May 2017 on the use of fuel consumption and CO₂ emission values type-approved and measured in accordance with the World Harmonised Light Vehicles Test Procedure when making information available for consumers pursuant to Directive 1999/94/EC of the European Parliament and of the Council*.
- (²⁵) European Parliament and Council of the European Union (2019), *Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO₂ emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011, OJ L 111*.
- (²⁶) European Commission (2018), *Proposal for a Regulation of the European Parliament and of the Council setting CO₂ emission performance standards for new heavy-duty vehicles*, COM(2018) 284 final, Brussels.
- (²⁷) European Parliament and Council of the European Union (2019), *Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO₂ emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011*.
- (²⁸) Source: Eurostat (online data code: [env_wasgen](#)).
- (²⁹) European Commission (2010), *Being wise with waste: the EU's approach to waste management*, Publications Office of the European Union, Luxembourg.
- (³⁰) European Environment Agency (2018), *Waste Generation*.
- (³¹) Ibid.

⁽³²⁾ Haas, W., Krausmann, F., Wiedenhofer, D., Heinz, M. (2015), *How Circular is the Global Economy?: An Assessment of Material Flows, Waste Production, and Recycling in the European Union and the World in 2005*, in *Journal of Industrial Ecology*, October 2015, Vol.19(5), pp. 765–777.

⁽³³⁾ European Commission (2015), *Closing the loop — An EU action plan for the Circular Economy*, COM(2015) 614 final, Brussels.

⁽³⁴⁾ European Commission (2019), *Report from the Commission on the implementation of the Circular Economy Action Plan*, COM(2019) 190 final, Brussels.

⁽³⁵⁾ European Commission (2019), *Press Release Database: Circular Economy: Commission welcomes Council final adoption of new rules on single-use plastics to reduce marine plastic litter*.

⁽³⁶⁾ Source: Eurostat (online data code: [env_wasgen](#)).

⁽³⁷⁾ Source: Eurostat (online data code: [sdg_11_60](#)).

⁽³⁸⁾ Source: Eurostat (online data code: [env_wasmun](#)).

⁽³⁹⁾ Source: Eurostat (online data code: [env_wasgen](#)).

⁽⁴⁰⁾ This category includes the NACE Rev. 2 activities waste collection, treatment and disposal activities; materials recovery (E 38), Water collection, treatment and supply; sewerage; remediation activities and other waste management services (E36, E37, E39) and wholesale of waste and scrap (G4677).

⁽⁴¹⁾ Source: Eurostat (online data code: [env_wasgen](#)).

⁽⁴²⁾ European Commission (2008), *Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan*, COM(2008) 397 final, Brussels.

13

Take urgent action to combat climate change and its impacts

Goal 13 seeks to implement the commitment to the United Nations Framework Convention on Climate Change and deliver on the Green Climate Fund. It aims to strengthen countries' resilience and adaptive capacity to climate-related hazards and natural disasters with a special focus on supporting least-developed countries.







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Climate change already has observable effects, such as an increase in average global air and ocean temperatures, changes in precipitation patterns, a rising global average sea level and rising ocean acidity. The impacts of climate change threaten the viability of social, environmental and economic systems and may make some regions less habitable due to food and water scarcity. As reflected in the EU 2030 climate and energy framework and in its long-term vision 'A Clean Planet for all', the EU pursues climate change mitigation, by reducing emissions of greenhouse gases, reducing energy consumption and increasing the share of renewable energy. Moreover, through the 2013 Adaptation Strategy, the EU works to increase the climate resilience of its Member States and the EU as a whole. Since climate change is a global, cross-border challenge that affects areas differently, it demands international coordination and cooperation. Europe has taken a leading role in this context by engaging in international negotiations, pursuing




the goals of the Paris Agreement and supporting climate initiatives around the world.

Table 13.1: Indicators measuring progress towards SDG 13, EU-28

Indicator		Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Climate mitigation				
 Greenhouse gas emissions		↑	↑	page 263
Greenhouse gas emissions intensity of energy consumption		↗	↑	page 265
 Energy consumption (*)	Primary energy consumption	↗	↓	SDG 7, page 154
	Final energy consumption	↓	↓	
 Share of renewable energy in gross final energy consumption (*)		↑ ⁽¹⁾	↗	SDG 7, page 158
 Average CO ₂ emissions per km from new passenger cars (*)		↗ ⁽²⁾	↗	SDG 12, page 245
Climate impacts				
Mean near surface temperature deviation		↓ ⁽³⁾	:	page 266
Climate-related economic losses		:	:	page 267
Mean ocean acidity (*)		↓	↓	SDG 14, page 283
Support to climate action				
Contribution to the international 100bn USD commitment on climate-related expending		:	:	page 268

(*) Multi-purpose indicator.

⁽¹⁾ Past 13-year period.⁽²⁾ Past 10-year period.⁽³⁾ Change over two most recent decades (2009–2018 compared to 1999–2008).**Table 13.2:** Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↓	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Climate action in the EU: overview and key trends

Monitoring SDG 13 in an EU context focuses on climate mitigation, climate impacts and on initiatives that provide support to climate action. While the EU has achieved some progress in climate mitigation over the past few years, as shown in Table 13.1, it continues to face unfavourable trends in climate impacts, such as rising surface temperatures and ocean acidification. Moreover, progress in climate mitigation has slowed down recently, putting the achievement of the energy efficiency target at risk and slowing the positive developments towards the two targets on renewable energies and greenhouse gas emissions.

Climate mitigation

Climate mitigation aims to decrease emissions of climate-harming **greenhouse gases** (GHG) that originate from human activity, through measures such as promoting low-carbon technologies or enhancing GHG sinks by encouraging sustainable forest management and land use policy. The EU also pursues climate adaptation and resilience objectives as part of the Europe 2020 strategy ⁽¹⁾ (see section on resilience to climate impacts on page 258). Annual change in GHG emissions serves as the main indicator to track the success of climate mitigation measures. In the EU, the highest share of emissions comes from the production and consumption of energy ⁽²⁾. As a result, curbing **climate change** in an EU context requires a shift to less carbon-intensive energy systems and cleaner (less GHG-intensive) and more resilient economies. A further indication of climate-mitigation progress can be found in the rising share of renewable energy in energy consumption and increased

energy efficiency in households, industry, the transport sector and the energy sector itself.

The EU has reduced its GHG emissions by 21.7 % compared with 1990 levels

As part of its Europe 2020 strategy, the EU set a target to reduce GHG emissions by 20 % by 2020 compared with 1990 levels. In 2017, EU emissions had already fallen by 21.7 %, putting them on track to meeting the 2020 target. A large proportion of these reductions have occurred over the past 15 years, with emissions falling by 15.4 % between 2002 and 2017.

However, since 2014 there has been a small increase in emissions. Reductions during the early 1990s were the result of many factors, including structural changes and the modernisation of European industries as well as a broad shift towards service economies and the use of natural gas ⁽³⁾. In the following years, until 2007, emissions more or less stabilised. Around the same time, rising **primary energy consumption** was increasingly offset by low-carbon energy production, particularly renewable energy, which rose from an 8.5 % share in the energy mix in 2004 to 17.5 % in 2017. Also, during this period, manufacturing industries became more energy efficient, the waste sector reduced the amount of emissions from solid waste disposal and agriculture reduced livestock and used less nitrogenous **fertilisers** ⁽⁴⁾.



The EU reduced its GHG emissions by **15.4%** between 2002 and 2017

Under the **Europe 2020 strategy** ⁽⁵⁾, the EU seeks to reduce greenhouse gas emissions by 20 % compared with 1990, improve energy efficiency by 20 % and increase the share of renewables in final energy consumption to 20 % by 2020.

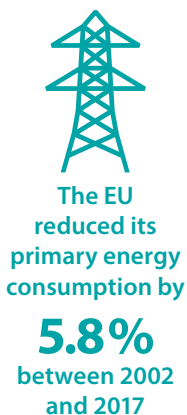
In 2014, the European Council agreed on the **2030 climate and energy framework** ⁽⁶⁾, which includes 2030 targets for GHG emissions, renewable energy and energy efficiency. In June 2018, an **inter-institutional political agreement** ⁽⁷⁾ increased the ambition of the latter two targets for renewable energy and energy efficiency to their current values: at least a 40 % cut in GHG emissions (from 1990 levels), a minimum 32 % share for renewable energy and at least a 32.5 % improvement in energy efficiency (compared with a projected business-as-usual scenario for 2030).

In 2018, the Commission presented its 2050 long-term strategy ⁽⁸⁾ with the vision to have a climate-neutral Europe by 2050. It contains no specific targets but aims to create a sense of direction for this vision by inspiring and enabling stakeholders, researchers, entrepreneurs and citizens.

The **Energy Union** ⁽⁹⁾ further supports the shift towards a resource-efficient, low-carbon economy to achieve sustainable growth through legal frameworks and related initiatives, highlighting renewables as a key element of decarbonisation.

Finally, the **EU cohesion policy (2014 to 2020)** ⁽¹⁰⁾ sets aside EUR 29 billion for sustainable energy programmes and initiatives, including for energy efficiency, renewable energy, smart energy infrastructure and low-carbon research and innovation.

Between 2008 and 2009, the economic crisis reduced industrial production, transport volumes and energy demand sharply, leading to a relatively steep decline in GHG emissions in the EU. Although **gross domestic product** (GDP) growth gradually picked up again in the following years, GHG emissions kept falling, due in large part to improvements in electricity generation and heat production (especially in thermal power stations), increased renewable energy generation and advances in energy efficiency ⁽¹¹⁾. Primary and **final energy consumption**, for instance, fell by 5.8 % and 2.0 %, respectively, in the period 2002 to 2017. In addition, unprecedentedly high average annual temperatures and a general trend towards milder winters have reduced the need for heating fuel.



A sectoral breakdown of the years 1990 and 2017 shows that all sectors of the economy contributed to GHG emissions reductions, except transport ⁽¹²⁾. Fuel combustion in the energy industries showed the strongest absolute decrease in emissions, although it remained the main source in 2017. In contrast, emissions from fuel combustion in transport (international aviation and shipping are not included in the calculations) were 19.2 % higher in 2017 than in 1990, despite reductions between 2007 and 2014. After 2007, fuel price rises and the economic recession reduced demand for freight transport, and energy efficiency improvements as a result of CO₂ standards for new cars and vans contributed to emissions reductions ⁽¹³⁾. However, these could not offset growth in passenger car traffic. In 2017, transport accounted for 24.6 % of



total EU emissions (including international aviation and excluding land use, land use change and forestry (LULUCF) and memo items ⁽¹⁴⁾) and was therefore the second largest emitter in the EU after the energy industries (26.3 %). Emissions from international aviation were more than twice as high in 2017 compared with their 1990 levels.



17.5%
of energy
consumed in the
EU in 2017 came
from renewable
sources

Although overall GHG emissions from transport have not reduced in line with other economic sectors, **CO₂ emissions** per km for new passenger cars have been decreasing since 2007. Between 2012 and 2017, CO₂ emissions per km decreased by 10.4 % or 13.7 grams per km (g/km), reaching 118.5 g/km in 2017. However, average CO₂ emissions in 2017 were 0.4 g/km higher than in the previous year. Also, these emission figures, which are based on the New European Driving Cycle (NEDC) laboratory test, paint an overly optimistic picture, as it has been shown that under real-world driving conditions new passenger cars in the EU in 2015 emitted on average around 40 % more than in laboratory tests ⁽¹⁵⁾. A new measurement procedure, the Worldwide Harmonised Light Vehicles Test Procedure (WLTP), was introduced in September 2017, providing more realistic fuel consumption and CO₂ emission values of new passenger cars ⁽¹⁶⁾ (see also chapter on SDG 12 'Responsible consumption and production' on page 233). Meeting the 2021 target of 95 grams of CO₂ per km driven will therefore require further progress.



118.5
grams of CO₂
per km were
emitted by new
passenger cars
in the EU in 2017

Transport is a key sector in terms of the EU's commitments under the Paris Agreement. The Commission's strategic long-term vision **A Clean Planet for all ⁽¹⁷⁾ confirms the vital role that transport can play in reaching a climate-neutral Europe by 2050.**

Additionally, the EU's **Accelerating Clean Energy Innovation ⁽¹⁸⁾ initiative aims to facilitate the clean energy transition through targeted research and innovation.**

The 2009 **Fuel Quality Directive ⁽¹⁹⁾ sets standards for the quality of road-transport fuels with a focus on reducing GHG emissions and improving air quality**

The EU CO₂ emission standards for cars and vans up to 2020/21 have contributed to emission reductions from new light-duty vehicles since 2007. New CO₂ emission standards for cars and vans ⁽²⁰⁾ and for heavy-duty vehicles ⁽²¹⁾ will start applying from 2025 and 2030. Both regulations include a mechanism to encourage the uptake of zero- and low-emission vehicles in a technology-neutral way.

Per capita emissions have continued to fall in most EU countries

At the Member State level, significant differences in total GHG emission trends can be observed between 1990 and 2017. Most countries have reduced their emissions, with the largest relative falls taking place in the Baltic countries and some central and south-eastern European countries. For eastern European countries in particular, economic developments after 1990 led to extensive GHG reductions, which were further spurred on by modernisation in electricity and central heat

production, as well as in direct fuel use, such as for heating purposes.

For a more equalised comparison of countries' GHG emissions, population differences need to be taken into account. Across the EU, per capita GHG emissions in 2017 ranged from 5.5 tonnes to 20.0 tonnes of CO₂ equivalents. Luxembourg by far exceeded the per capita emissions of other Member States, which can be partly attributed to a considerably higher number of commuters and transit traffic flowing into and through the country ⁽²²⁾. Most countries reduced their per capita GHG emissions compared with 2002, except for the Baltic states, Bulgaria and Poland, all of which, after tremendous reductions in the 1990s, saw increases ranging from 8.8 % to 27.6 %.

GHG emissions intensity of EU energy consumption has decreased gradually over the past two decades

The GHG intensity of energy is measured as the ratio between energy-related emissions and gross inland consumption of energy. Between 2002 and 2017, GHG emissions intensity of energy consumption fell by 12.7 %. Most progress was reported in Malta (– 33.2 %) ⁽²³⁾ followed by Denmark (– 32.9 %) and Finland (– 31.0 %). These developments can be explained by a gradual shift away from GHG-intensive energy sources. Between 1990 and 2017, **gross inland consumption** of coal (and other solid fuels) and oil decreased from 64.6 % of total energy consumption to 48.4 %. Simultaneously, renewable energy and natural gas — both less GHG-intensive — increased their share in gross inland consumption, rising from 4.3 % to 13.9 % and 17.8 % to 23.8 % between 1990 and 2017, respectively. Despite nuclear phase-out policies in some EU countries, the use of nuclear energy has also increased marginally since 1990, rising from 12.3 % of gross inland consumption to 12.6 % in 2017 ⁽²⁴⁾.



Between 2002 and 2017, GHG emissions intensity of energy consumption in the EU fell by 12.7 %

Climate impacts

Climate impacts refer to climate change-induced changes to environmental, social and economic systems. Three indicators are used for monitoring climate impacts, indirectly providing an indication of trends in terms of climate change vulnerability in the EU: average global and European temperature deviations, ocean acidity and the economic costs that arise as a result of weather- and climate-related disasters.

The international community, including the EU, has committed to halting the increase in mean global temperature to well below 2 °C above pre-industrial levels and seeks to further limit the increase to 1.5 °C. These objectives were enshrined in the Paris Agreement ⁽²⁵⁾ signed at the United Nations Framework Convention on Climate Change (UNFCCC) 21st Conference of the Parties (COP) in 2015.

Continuous increases in near-surface temperatures and ocean acidity over the past decades

Near-surface air temperature gives one of the clearest signals of global and regional climate change, as it has been measured at the same locations for decades. Historical recordings of the combined global land and marine temperature show a clear upward trend. In the decade from 2009 to 2018, average global near surface temperature was the hottest on record with an increase of between 0.91 and 0.96 °C when compared with pre-industrial levels ⁽²⁶⁾. The data — especially global mean temperatures in the past five years — indicate that roughly half of the warming towards the 2 °C threshold has already occurred ⁽²⁷⁾. Warming effects are stronger over land than water and, as a result, warming in the northern hemisphere is more pronounced than in the southern hemisphere ⁽²⁸⁾. For this reason, the average annual temperature over the European continent has increased by more than the global

average. The decade from 2009 to 2018 was also the hottest on record for Europe, with an average temperature deviation of between 1.61 and 1.71 °C above pre-industrial times. During this period, 2018 and 2014 in particular were the hottest years on record. In both years, the mean temperature in Europe was more than 2 °C above pre-industrial times ⁽²⁹⁾.

Ocean acidity is another important indicator of the environmental impacts of climate change, because oceans act as a reservoir for man-made GHG emissions, also referred to as a carbon sink. As CO₂ is absorbed into the world's oceans, it reduces the pH of the water, resulting in the ocean acidification recorded over the past few decades. The [Copernicus Marine Environment Monitoring Service](#) has reconstructed the global annual mean surface sea water pH from 2001 onwards using a combination of methods including in situ and remote-sensing data as well as empirical relationships. In 2016, the average acidity was calculated as 8.06 pH, which is an unprecedented low compared with pre-industrial levels of 8.2 and 8.3 ⁽³⁰⁾. Despite considerable annual variability, the decline in ocean pH has been consistent (see the chapter on SDG 14 'Life below water' on page 273 for a more detailed discussion).



**Europe's
mean surface
temperature
for the decade
2009–2018
increased by**

**1.61–1.71
degrees Celsius
compared with
pre-industrial
levels**



**In 2016, the
mean pH level
of ocean water
reached a new
low of
8.06**

Economic losses from weather- and climate-related extremes have been considerable over the past decades

While extreme events are only partially caused by climate change, statistical attribution studies have shown that various climate extremes in Europe and beyond have become stronger and/or more frequent as a result of global climate change ⁽³¹⁾.

Between 1980 and 2017 natural disasters caused by weather- and climate-related extremes accounted for over 87 000 fatalities and about 83 % of the monetary losses ⁽³²⁾ caused by natural hazards ⁽³³⁾. The reported economic losses generally reflect monetised direct damages to certain assets and as such should be considered only partial damage estimates. Losses related to mortality, cultural heritage or ecosystems services are not considered in the estimate; their inclusion would considerably raise the estimate.

Over the period 1980 to 2017, weather- and climate-related losses accounted for a total of EUR 426 billion in losses at 2017 values for Member States. Still, recorded losses vary substantially over time — more than 70 % of the total losses have been caused by just 3 % of disaster events. In contrast, the least damaging three-quarters of the registered events were responsible for approximately 0.7 % of the total losses ⁽³⁴⁾. This variability makes the analysis of historical trends difficult. Furthermore, the distribution of weather- and climate-related losses across the EU has been uneven historically, ranging from EUR 76 per capita (in Estonia) to EUR 1 936 per capita (in Denmark) in cumulative losses



**Over the period
1980 to 2017,
weather- and
climate-related
economic losses
in EU countries
accumulated to
EUR 426
billion**

between 1980 and 2017. Country variability is partly due to differences in levels of wealth as well as discrepancies in reporting. The most expensive climate extremes in the period in question included the 2002 flood in Central Europe (over EUR 21 billion), the 2003 drought and heatwave (almost EUR 15 billion) and the 2000 extreme precipitation event in France and Italy (EUR 13 billion), all at 2017 values ⁽³⁵⁾.

It is important to note that the indicator for economic losses due to climate impacts used in this report does not provide the whole picture — in large part due to the difficulty in accounting for climate-related damage to biodiversity and ecosystem services. Recent reporting indicates that direct damage to environmental systems due to climate change has risen in recent years ⁽⁴⁶⁾. These include, among other things, impacts on

Since 2013, the **EU Adaptation Strategy** ⁽³⁶⁾ has encouraged national, regional and local adaptation action within EU borders. Good progress has been achieved so far: 25 Member States now have an Adaptation Strategy (up from 15 in 2013) and the others are working on developing one. Climate action has been integrated into EU funding instruments; and adaptation is also now fully integrated in the Covenant of Mayors, with thousands of cities in Europe and worldwide being part of the initiative.

In 2018, the Commission published an **evaluation of the EU Adaptation Strategy** ⁽³⁷⁾ to climate change. This showed that the strategy has delivered on its objectives, with progress recorded against each of its eight individual actions. However, the progress is different in the various sectors.

The EU has also been at the forefront of international efforts in particular with regards to the adoption of the **Paris Agreement** ⁽³⁸⁾ on climate change and the **Sendai Framework for Disaster Risk Reduction** ⁽³⁹⁾. The EU is highly committed to delivering on the commitments made in Paris ⁽⁴⁰⁾ and supporting work and action to implement the Sendai Framework, finding synergies wherever possible. The **EU Action Plan for the Sendai Framework for Disaster Risk Reduction 2015–2030** ⁽⁴¹⁾ includes climate change adaptation actions carried out at both the EU and international level, linking these to disaster risk reduction strategies and their coherent implementation.

Furthermore, the EU has made disaster and climate resilience a central objective of its humanitarian assistance. The **EU Resilience Marker** ⁽⁴²⁾ is used in all humanitarian projects to define ways to reduce disaster risks and to strengthen people's coping capacities for disasters and crises.

Multiple programmes have been established at the EU level to manage and respond to the risk of natural disaster. For one, the **European Union Civil Protection Mechanism** ⁽⁴³⁾ steps in to aid Member States in a state of emergency due to natural disaster when national capacities are lacking. The **European Commission Disaster Risk Management Knowledge Centre (DRMKC)** ⁽⁴⁴⁾ and the GIS web-platform **Risk Data Hub** help enhance resiliency across the EU while also directing policy-makers towards more risk-informed decisions.

Finally, the **European Climate Change and Adaptation Platform (Climate-ADAPT)** ⁽⁴⁵⁾ is an online platform, managed jointly by the European Commission and the European Environment Agency, to support Europe in adapting to climate change. It provides access to data and information on: expected climate change in Europe; current and future vulnerability of regions and sectors; European, national and transnational adaptation strategies and actions; adaptation case studies and potential adaptation options; and tools that support adaptation planning.

marine and sea life, terrestrial and coastal zone habitat loss, flooding effects on freshwater systems and soil conditions on land. In Europe alone, 14% of habitats and 13% of species of interest have been assessed as under pressure due to climate change ⁽⁴⁷⁾.

As a first step towards policy action and monitoring weather- and climate-related losses at the European level, a more rigorous scientific procedure is required to ensure a full cost accounting of the losses at different European governance levels and allow for the comparison, aggregation and sharing of data. Also, international data compatibility, for example with data collected by the UN, needs to be considered. Currently, there is no standardised methodology for reporting climate-related losses by Member States to the European Commission or the European Environment Agency. However, the Joint Research Centre (JRC) has developed recommendations to improve national databases to help record disaster losses. Once these comparable databases are available for all European Economic Area member countries, there will be a more accurate picture of the costs related to climate change throughout Europe ⁽⁴⁸⁾.

Support to climate action

Climate actions occur at multiple levels of governance in the EU and take various forms, such as policies, economic and strategic planning and financing schemes, among others. At the EU level, climate change mitigation and adaptation has been integrated into all major spending programmes ⁽⁴⁹⁾. In the current Multiannual Financial Framework (MFF) for the period 2014 to 2020, 20% — corresponding to EUR 206 billion — are to be spent on climate change mitigation and adaptation. In the upcoming MFF for the period 2021 to 2027, the European Commission proposed to increase the share to at least 25% of the budget, which would amount to EUR 320 billion ⁽⁵⁰⁾. In addition to the EU budget resources, the NER 300 programme ⁽⁵¹⁾ and the Innovation Fund ⁽⁵²⁾ provide financing for innovative low-carbon energy demonstration projects and technology.

The EU also supports the [Covenant of Mayors for Climate and Energy](#), which was established in 2008 and is one of the EU's flagship climate initiatives. The Covenant of Mayors mobilises local governments and regions to make voluntary but ambitious climate commitments that help achieve the EU emission reduction target and increase the climate resilience of European economies and societies. While initially focusing on mitigation measures only, from 2015 onwards the Covenant of Mayors for Climate and Energy has explicitly concentrated on mitigation and adaptation measures as well as access to secure, sustainable and affordable energy to promote an integrated approach to climate and energy action ⁽⁵³⁾. Local governments commit to implementing the EU's climate and energy objectives by taking steps to curb GHG emissions, adapt to and mitigate climate impacts and secure sustainable and affordable energy within their jurisdictions. The concrete objectives encompass various energy-related ends, such as the energy efficiency of buildings, energy security and renewable energy use. The Covenant of Mayors is mentioned in various EU Directives and strategy papers, such as the [Energy Union Package](#) ⁽⁵⁴⁾, the [Energy Security Strategy](#) ⁽⁵⁵⁾, the [Energy Efficiency Directive](#) ⁽⁵⁶⁾ and the [EU Adaptation Strategy](#) ⁽⁵⁷⁾, as an important platform to deliver on strategic objectives targeted in those documents.

As of May 2019, Covenant of Mayors signatories amounted to 9 060, representing around 239 million inhabitants within the EU. Most signatures relate to mitigation. 1 762 signatories in 26 countries included adaptation commitments, covering almost 86 million inhabitants in the EU ⁽⁵⁸⁾.

At an international level, the EU supports climate investments and initiatives outside of the EU, in particular in the most vulnerable countries, and thus contributes to achieving the USD 100 billion goal set within the auspices of the United Nations Framework Convention on Climate Change (UNFCCC). The USD 100 billion goal represents a joint effort by developed countries to mobilise finance from various sources for mitigation and the transparency of implementation efforts in developing countries.

In 2013, the EU launched the [Global Climate Change Alliance \(GCCA\)](#) ⁽⁵⁹⁾, followed in 2015 by the [GCCA+](#), a seven-year thematic flagship programme to help the world's poorest and most climate-vulnerable countries shift to a climate-resilient, low-carbon future. The alliance is a platform for dialogue and exchange of experience between the EU and developing countries and provides technical and financial support for the implementation of climate action.

The EU's contribution to climate finance for developing countries has been increasing since 2014

The EU and its Member States are committed to scaling up the mobilisation of international climate finance, as part of the developed countries' collective goal to jointly mobilise USD 100 billion per year by 2020 through to 2025, from a wide variety of sources, instruments and channels ⁽⁶⁰⁾. There are many rules and guidelines for reporting climate finance, with many developed countries following the reporting rules established by the UNFCCC and the Organisations for Economic Co-operation and Development (OECD). At the European level, reporting rules are laid down in Article 16 of the Monitoring Mechanism Regulation (MMR), which closely follow rules agreed under UNFCCC ⁽⁶¹⁾⁽⁶²⁾.

Total EU public finance contributions (includes all 28 Member States as well as the EU institutions) increased from about EUR 14.5 billion in 2014

to EUR 20.4 billion in 2017 — a 40.7 % increase in three years. In 2017, EUR 11.6 billion (or 57.1 %) went towards mitigation actions while EUR 4.4 billion (21.6 %) and EUR 4.3 billion (21.2 %) flowed into adaptation and cross-cutting actions, respectively. Overall contributions vary significantly between Member States. The largest contributor in the 2014–2017 period was Germany, with contributions increasing from EUR 5.1 billion to EUR 6.7 billion, followed by France (see Table 13.5). The European Commission and the European Investment Bank (EIB) were the third- and fourth-largest donors in 2017, respectively.

An important part in the EU's contribution to climate finance is the [External Investment Plan \(EIP\)](#). It aims to promote inclusive growth and job creation in Africa and the EU Neighbourhood countries by mobilising at least EUR 44 billion in sustainable investment for Africa and the EU Neighbourhood countries by 2020. At the core of this plan lies the creation of a new European Fund for Sustainable Development (EFSD) that will support investments by public financial institutions and the private sector. The main investment areas are sustainable cities, sustainable energy and connectivity, as well as sustainable agriculture, rural entrepreneurs and agribusiness ⁽⁶³⁾.



In 2017, the EU's contribution to the international USD 100 billion commitment amounted to EUR 20.4 billion

Presentation of the main indicators

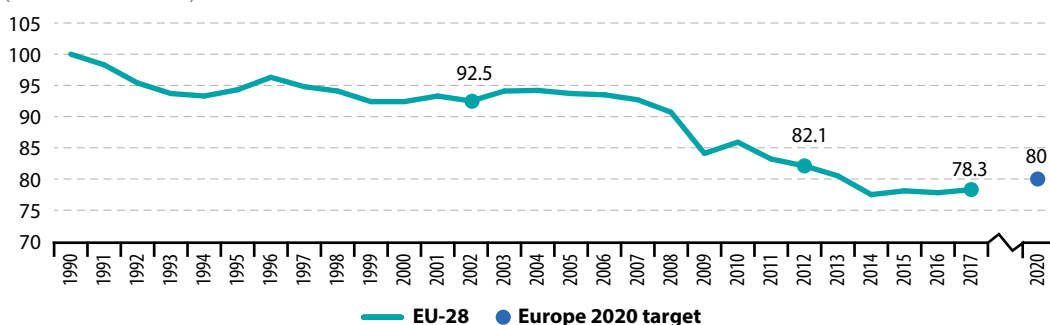
Greenhouse gas emissions

This indicator measures man-made emissions of the so-called 'Kyoto basket' of greenhouse gases (GHGs) ⁽⁶⁴⁾, which are integrated into a single indicator expressed in units of CO₂ equivalents using each gas's global warming potential (GWP). Emissions data are submitted annually by Member States to the United Nations Framework Convention on Climate Change (UNFCCC) and published by Eurostat based on data from the European Environment Agency (EEA).



Figure 13.1: Greenhouse gas emissions, EU-28, 1990–2017

(index 1990 = 100)



Note: Total emissions, including international aviation and indirect CO₂, but excluding emissions from land use, land use change and forestry (LULUCF).

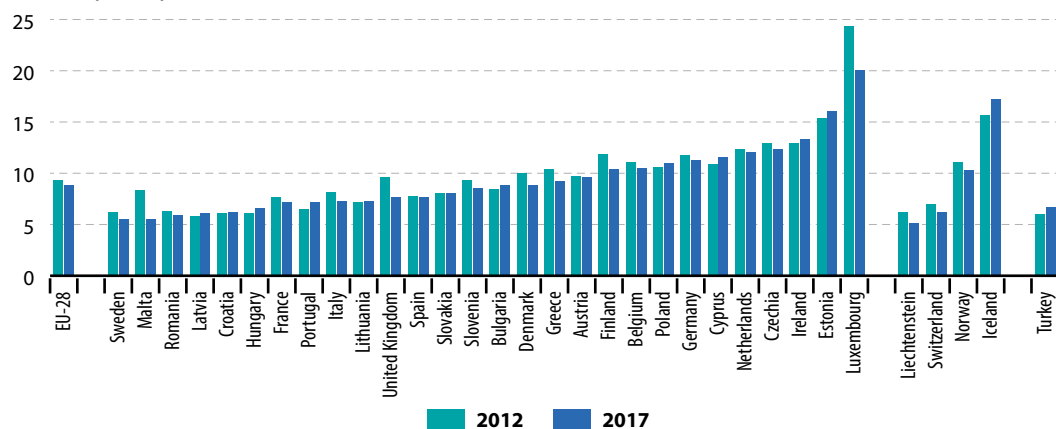
Source: EEA, Eurostat (online data code: [sdg_13_10](#))

Table 13.3: Compound annual growth rate (CAGR) of the greenhouse gas emissions, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2002–2017	– 1.1 % per year	– 0.8 % per year
EU-28	2012–2017	– 0.9 % per year	– 0.3 % per year

Source: EEA, Eurostat (online data code: [sdg_13_10](#))

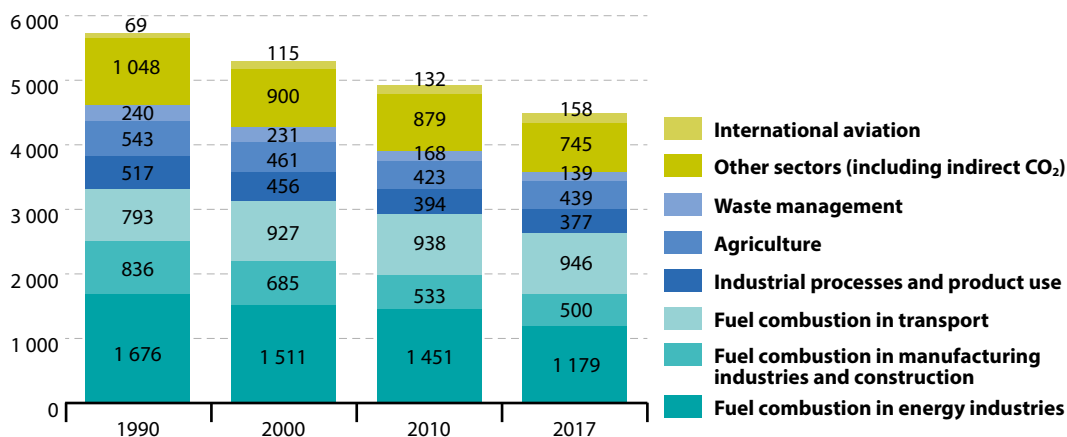
Figure 13.2: Greenhouse gas emissions per capita, by country, 2012 and 2017
(tonnes per capita)



Note: Total emissions, including international aviation and indirect CO₂, but excluding emissions from land use, land use change, and forestry (LULUCF).

Source: EEA, Eurostat (online data code: [sdg_13_10](#))

Figure 13.3: Greenhouse gas emissions by sector, EU-28, 1990, 2000, 2010 and 2017
(million tonnes of CO₂ equivalent)



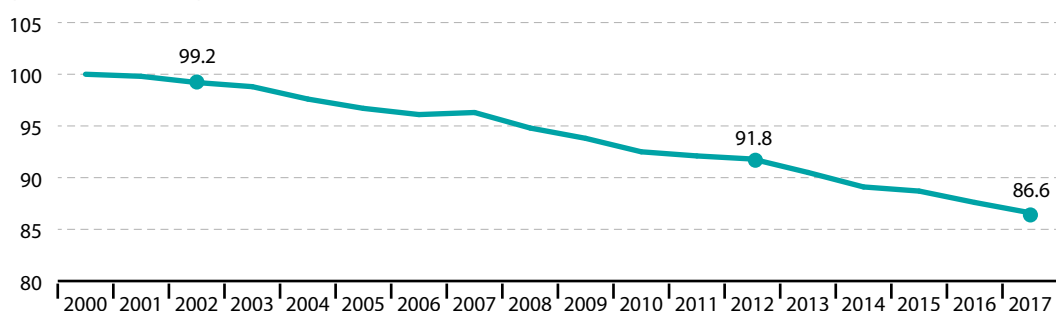
Source: EEA, Eurostat (online data code: [env_air_gge](#))

Greenhouse gas emissions intensity of energy consumption

The GHG intensity of energy consumption is the ratio between energy-related GHG emissions and gross inland consumption of energy. It expresses how many tonnes of CO₂ equivalent of energy-related GHGs are emitted in a certain economy per unit of energy consumed. The data on energy emissions are sourced from the GHG emissions reported to the UNFCCC. Gross inland consumption is reported by each Member State to Eurostat and is the sum of final energy consumption, distribution losses, transformation losses and statistical differences.



Figure 13.4: Greenhouse gas emissions intensity of energy consumption, EU-28, 2000–2017 (index 2000 = 100)



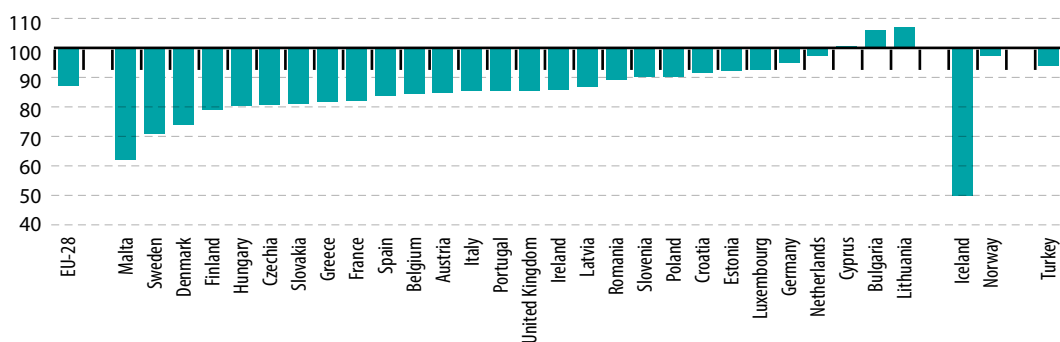
Source: EEA, Eurostat (online data code: [sdg_13_20](#))

Table 13.4: Compound annual growth rate (CAGR) of the greenhouse gas emissions intensity of energy consumption, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	– 0.9% per year
EU-28	2012–2017	– 1.2% per year

Source: EEA, Eurostat (online data code: [sdg_13_20](#))

Figure 13.5: Greenhouse gas emission intensity of energy consumption, by country, 2017 (index 2000 = 100)



Source: EEA, Eurostat (online data code: [sdg_13_20](#))



LONG TERM
2009–2018
compared to
1999–2008

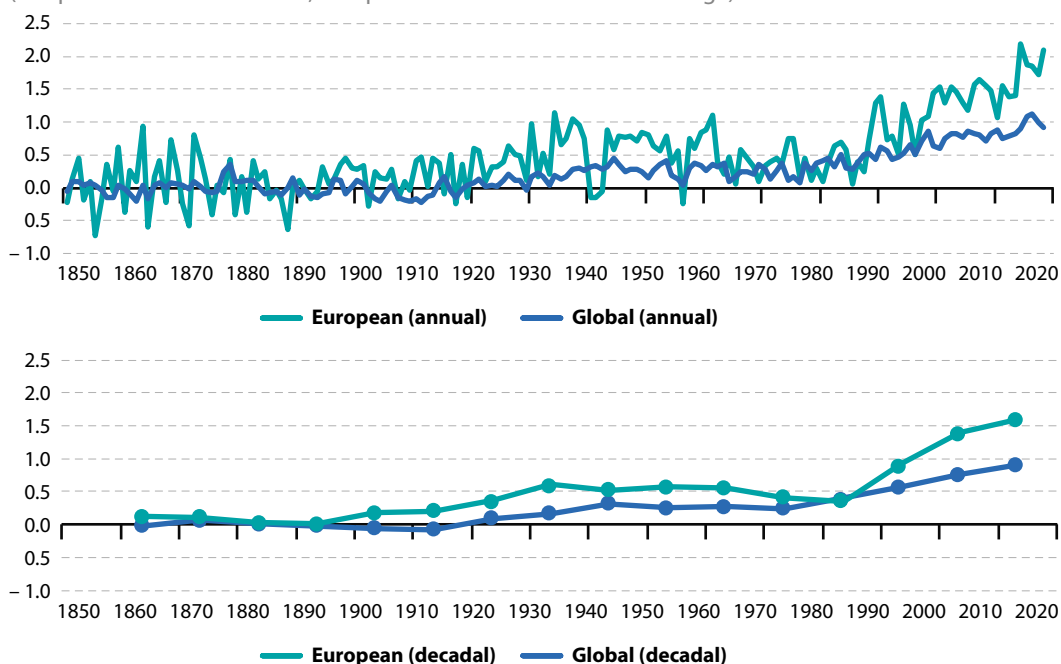


SHORT TERM
Not applicable

Mean near-surface temperature deviation

This indicator tracks deviations in the average near-surface temperature worldwide and for Europe compared with the 1850 to 1899 average. These measurements have been taken for decades by a dense network of stations across the globe. The data are monitored using standardised measurements, and quality control and homogeneity procedures are used to ensure data are compatible and comparable. The average annual temperature shown here is expressed in relation to the 'pre-industrial' baseline period of 1850 to 1899, when widespread temperature measurement was first established⁽⁶⁵⁾. In addition to annual data, decadal averages are shown, as they form the basis for the indicator assessment. Data presented in this section stem from the European Environment Agency (EEA), based on the Met Office Hadley Centre and Climatic Research Unit (HadCRUT4).

Figure 13.6: Global and European annual and decadal mean temperature deviations, 1850–2018
(temperature deviation in °C, compared with the 1850–1899 average)



Source: EEA, Eurostat (online data code: [sdg_13_30](#))

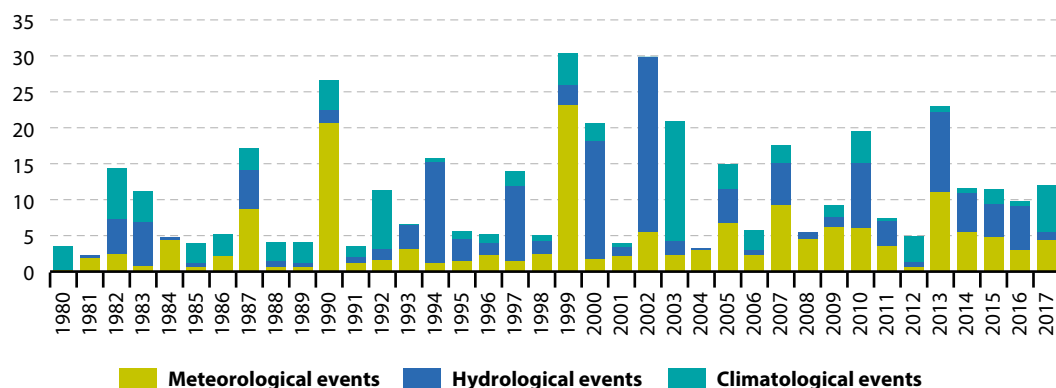
Climate-related economic losses

This indicator includes the overall losses from weather- and climate-related disasters. It is based on data from the NatCatSERVICE managed by Munich Reinsurance Company ⁽⁶⁶⁾. The NatCatSERVICE is a global database of natural catastrophe data around the world, collected since 1974.

X Indication of progress not possible

Figure 13.7: Climate related economic losses, by type of event, EU-28, 1980–2017

(EUR billion, in 2017 values)



Source: EEA, Eurostat (online data code: [sdg_13_40](#))

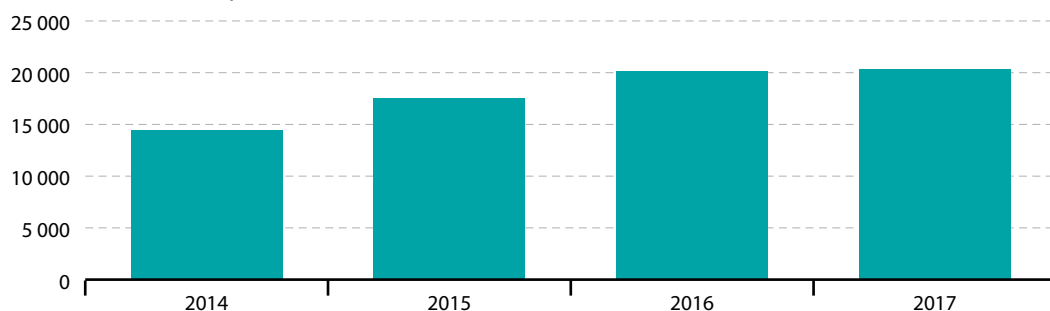


Indication of
progress not
possible

Contribution to the international USD 100bn commitment on climate-related expending

The intention of the international commitment on climate finance under the UNFCCC is to enable and support enhanced action by developing countries to advance low emission and climate resilient development. The data presented in this section are reported under the Monitoring Mechanism Regulation (MMR) to the European Commission.

Figure 13.8: Contribution to the international USD 100bn commitment on climate-related expending, EU-28, 2014–2017 (EUR million, current prices)



Note: Data for EU-28 include the European Commission (EC), the European Investment Bank (EIB) and the 28 Member States.

Source: European Commission services and EIONET (Eurostat online data code: [sdg_13_50](#))

Table 13.5: Contribution to the international USD 100bn commitment on climate-related expending, by country, 2014–2017
(EUR million, current prices)

Country	2014	2015	2016	2017
EU-28	11 715.3	13 813.9	15 501.5	14 924.6
European Commission	677.0	1 535.4	2 730.2	2 823.7
European Investment Bank	2 098.5	2 214.7	1 947.7	2 640.4
Belgium	142.7	46.8	100.9	104.9
Bulgaria	0.1	0.1	:	:
Czechia	7.7	8.2	7.6	7.1
Denmark	222.0	143.8	173.0	181.7
Germany	5 130.6	7 406.2	8 534.1	6 729.6
Estonia	0.5	1.2	0.4	0.6
Ireland	41.4	36.0	52.7	64.5
Greece	0.0	0.2	0.2	4.6
Spain	498.8	466.7	595.0	529.1
France	2 921.4	2 792.8	3 334.8	4,377.4
Croatia	0.0	:	:	0.0
Italy	143.2	327.3	243.0	632.6
Cyprus	0.0	:	:	:
Latvia	0.4	0.0	0.0	:
Lithuania	0.3	0.4	0.5	1.5
Luxembourg	36.3	45.7	129.5	40.4
Hungary	2.7	41.3	35.3	14.0
Malta	0.1	0.2	0.2	0.2
Netherlands	340.0	425.8	471.9	405.4
Austria	141.3	117.6	199.3	164.1
Poland	4.2	5.7	5.4	4.3
Portugal	9.5	6.2	2.0	2.2
Romania	0.0	:	0.8	0.9
Slovenia	2.4	2.4	3.0	3.8
Slovakia	1.2	2.2	3.0	3.6
Finland	132.3	115.4	43.0	119.4
Sweden	384.8	341.4	402.4	515.0
United Kingdom	1 551.4	1 480.2	1 163.6	1 017.8

Source: European Commission services and EIONET (Eurostat online data code: [sdg_13_50](#))

Further reading on climate action

European Commission, *Climate Action*.

European Commission (2018), *The European Commission calls for a climate-neutral Europe by 2050*.

European Commission (2018): *EU and the Paris Climate Agreement: Taking stock of progress at Katowice COP*.

European Commission (2018), *Report from the Commission to the European Parliament and the Council on the implementation of the EU Strategy on adaptation to climate change*.

EEA (2018), *Trends and projections in Europe 2018 — Tracking progress towards Europe's climate and energy targets*, European Environment Agency, Copenhagen.

EEA (2018), *Renewable energy in Europe 2018 — Recent growth and knock-on effects*, European Environment Agency, Copenhagen.

EEA (2018), *National climate change vulnerability and risk assessments in Europe, 2018*, European Environment Agency, Copenhagen.

IPCC (2018), *Special Report: Global Warming of 1.5 °C — Summary for Policymakers*, Intergovernmental Panel on Climate Change.

Further data sources on climate action

EEA, [Greenhouse gas data viewer](#).

EEA, [Global and European temperature](#).

Eurostat, [Climate change](#).

Eurostat, [Statistics Explained: Climate change — Driving forces](#).

Eurostat, [Europe 2020 indicators — Climate change and energy](#).

Eurostat, [Statistics Explained: Greenhouse gas emission statistics — Air emissions accounts](#).

Eurostat, [Statistics Explained: Greenhouse gas emission statistics — Emission inventories](#).

Notes

- (¹) European Commission (2010), *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.
- (²) European Environment Agency (2017), *Analysis of key trends and drivers in greenhouse gas emissions in the EU between 1990 and 2015*, Report No. 8/2017, Copenhagen.
- (³) European Environment Agency (2018), *Annual European Union greenhouse gas inventory 1990–2016 and inventory report 2018*, Report No. 5/2018, Copenhagen, p. iv.
- (⁴) Eurostat (2017), *Statistics Explained: Climate change — Driving forces*.
- (⁵) European Commission (2010), *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.
- (⁶) European Council (2014), *European Council (23 and 24 October 2014) — Conclusions*, EUCO 169/14, Brussels.
- (⁷) Council of the European Union (2018), *Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources — Analysis of the final compromise text with a view to agreement*, 10308/18 COR 1, Brussels.
- (⁸) European Commission (2018), *A Clean Planet for all — A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*, COM(2018) 773 final
- (⁹) European Commission (2015), *A framework strategy for a resilient Energy Union with a forward-looking climate change policy*, COM(2015) 80 final, Brussels.
- (¹⁰) European Commission (2015), *European structural and investment funds 2014–2020: Official texts and commentaries*, Brussels.
- (¹¹) European Environment Agency (2018), *Trends and projections in Europe 2018 — Tracking progress towards Europe's climate and energy targets*, Report No. 16/2018, Copenhagen.
- (¹²) Source: Eurostat (online data code: env_air_gge).
- (¹³) Odyssee-Mure (2015), *Trends and policies for energy savings and emissions in transport*.
- (¹⁴) Emissions that are not included in the national totals, such as emissions estimates from international marine and aviation bunker fuels, are reported as memo items.
- (¹⁵) Tietge, U. et al. (2016), *From Laboratory to Road — A 2016 update of official and 'real world' fuel consumption and CO₂ values for passenger cars in Europe*, International Council on Clean Transportation.
- (¹⁶) European Commission (2017), *European Commission recommendation 2017/948 of 31 May 2017 on the use of fuel consumption and CO₂ emission values type-approved and measured in accordance with the World Harmonised Light Vehicles Test Procedure when making information available for consumers pursuant to Directive 1999/94/EC of the European Parliament and of the Council*.
- (¹⁷) European Commission (2018), *A Clean Planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy*, COM(2018) 773 final, Brussels.
- (¹⁸) European Commission (2016), *Accelerating clean energy innovation*, COM(2016) 763 final, Brussels.
- (¹⁹) European Parliament and Council of the European Union (2009), *Directive 2009/30/EC amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC*.
- (²⁰) European Parliament and Council of the European Union (2019), *Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO₂ emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011*, OJ L 111, 25.4.2019, p. 13–53.
- (²¹) European Commission (2018), *Proposal for a regulation of the European Parliament and of the Council setting CO₂ emission performance standards for new heavy-duty vehicles*, COM(2018) 284 final, Brussels
- (²²) Eurostat (2010), *Using official statistics to calculate greenhouse gas emissions — A Statistical Guide*, Publications Office of the European Union, Luxembourg.
- (²³) Malta established an electricity connection to Sicily and was thus able to close an old fuel power plant in 2016. The indicator does not include GHG emissions from imports as they are attributed to the place of production.
- (²⁴) Source: Eurostat (online data code: nrg_100a); all calculations are in tonnes of oil equivalent (TOE).
- (²⁵) United Nations (2015), *Paris Agreement*.
- (²⁶) Please note that some of the ranges in this section refer to three different data sets (NOAA, GISTEMP and HadCRUT) included in table [sdg_13_30](#), whereas Figure 13.6 and the respective decadal analysis refer to the HadCRUT dataset only.
- (²⁷) European Environment Agency (2018), *Global and European temperature*.
- (²⁸) Friedman, A. R., Y.-T. Hwang, J. C. H. Chiang, and D. M. W. Frierson (2013), *Interhemispheric temperature asymmetry over the twentieth century and in future projections*. *J. Climate*, 26, 5419–5433.
- (²⁹) European Environment Agency (2018), *Global and European temperature*.
- (³⁰) European Environment Agency (2016), *Ocean acidification*.
- (³¹) Intergovernmental Panel on Climate Change (2012), *Managing the risks of extreme events and disasters to advance climate change adaptation*, Special Report of the Intergovernmental Panel on Climate Change, Cambridge; New York: Cambridge University Press.
- (³²) Economic or monetary losses refer here to damages caused by climate-related events expressed in euros (2017 values).
- (³³) European Environment Agency (2019), *Economic losses from climate-related extremes in Europe (temporal coverage 1980–2017)*.

- (⁶⁴) European Environment Agency (2019), *Economic losses from climate-related extremes in Europe (temporal coverage 1980–2017)*.
- (⁶⁵) Ibid.
- (⁶⁶) European Commission (2013), *An EU strategy on adaptation to climate change*, COM (2013) 216 final, Brussels.
- (⁶⁷) European Commission (2018), *Report from the Commission to the European Parliament and the Council on the implementation of the EU Strategy on adaptation to climate change*, COM(2018)/738 final, Brussels.
- (⁶⁸) United Nations (2015), *Paris Agreement*.
- (⁶⁹) United Nations Office for Disaster Risk Reduction (2015), *Sendai Framework for Disaster Risk Reduction 2015–2030*.
- (⁷⁰) European Commission (2017), *Report from the Commission to the European Parliament and the Council. Two years after Paris — progress towards meeting the EU's climate commitments*, COM(2017) 646 final, Brussels.
- (⁷¹) European Commission (2016), *Action plan on the Sendai Framework for Disaster Risk Reduction 2015–2030 — A disaster risk-informed approach for all EU policies*, SWD(2016) 205 final/2, Brussels.
- (⁷²) European Commission (2014), *Resilience marker — General Guidance*.
- (⁷³) European Commission (2017), *Strengthening EU disaster management: rescEU solidarity with responsibility*, COM(2017) 773 final, Brussels.
- (⁷⁴) European Commission, Disaster risk management knowledge centre.
- (⁷⁵) European Commission, European climate adaptation platform.
- (⁷⁶) IPBES (2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, Bonn; and European Environment Agency (2016), *Climate change impacts and vulnerability in Europe: An indicator-based report*, Report No. 1/2017, Copenhagen.
- (⁷⁷) European Environment Agency (2016), *Climate change impacts and vulnerability in Europe: An indicator-based report*, Report No. 1/2017, Copenhagen.
- (⁷⁸) Joint Research Centre (2018), *Loss database architecture for disaster risk management*, Publications Office of the European Union, Luxembourg.
- (⁷⁹) European Commission, *Budget — Multiannual Financial Framework programmes*.
- (⁸⁰) European Commission, *EU budget 2021–2027: Commission proposes to further strengthen climate action*.
- (⁸¹) European Commission, *NER 300 programme*.
- (⁸²) European Commission, *Innovation fund*.
- (⁸³) European Commission, *European climate adaptation platform — Covenant of Mayors for Climate and Energy*.
- (⁸⁴) European Commission (2015), *A framework strategy for a resilient Energy Union with a forward-looking climate change policy*, COM(2015) 80 final, Brussels.
- (⁸⁵) European Commission (2014), *European Energy Security Strategy*, COM(2014) 330 final, Brussels.
- (⁸⁶) European Parliament and Council of the European Union (2012), *Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC*.
- (⁸⁷) European Commission (2013), *The EU Strategy on adaptation to climate change*.
- (⁸⁸) Covenant of Mayors for Climate and Energy, *The Covenant in figures*; accessed 23 May 2019.
- (⁸⁹) European Commission, *Global Climate Change Alliance (GCCA)*.
- (⁹⁰) European Commission (2018), *A modern budget for a Union that protects, empowers and defends: The Multiannual Financial Framework for 2021–2027*, COM(2018) 321 final, Brussels.
- (⁹¹) European Parliament and Council of the European Union (2013), *Regulation (EU) No 525/2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC*.
- (⁹²) European Environment Agency (2017), *EIONET reporting obligations database — Reporting obligation for: Financial and technology support provided to developing countries*.
- (⁹³) European Commission (2017), *External Investment Plan*.
- (⁹⁴) The 'Kyoto basket' of GHGs includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and the so-called F-gases, i.e., hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride (NF₃) and sulphur hexafluoride (SF₆).
- (⁹⁵) European Environment Agency (2018), *Global and European temperature*.
- (⁹⁶) Munich RE, *NatCatSERVICE*.

14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 14 aims to protect and ensure the sustainable use of oceans. This includes the reduction of marine pollution and the impacts of ocean acidification, the ending of overfishing and the conservation of marine and coastal areas and ecosystems. SDG 14 has strong interdependencies with a broad range of other SDGs, as oceans sustain coastal economies and livelihoods and contribute to food production, while also functioning as a sink for land- and sea-based pollution.



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EU Member States share four main marine regions: the Baltic Sea, the Mediterranean Sea, the Black Sea and the North-East Atlantic Ocean. While the specific threats may vary between sea basins, it is clear that habitat alteration, over-exploitation of marine resources and pollution are among the most important general pressures affecting the environmental status of EU marine waters. At the same time, the livelihood and well-being of Europeans are heavily dependent on the productivity and health of marine ecosystems. To combat biodiversity loss and ensure sustainable ecosystems, the EU has implemented measures to protect, conserve and restore marine areas. Through its policies, the EU also promotes the sustainable use of marine resources and addresses pollution to protect the health and productivity of the oceans. Ocean acidification is addressed through climate and energy policies.



Table 14.1: Indicators measuring progress towards SDG 14, EU-28










Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Ocean health			
Coastal bathing sites with excellent water quality	:		page 282
Mean ocean acidity			page 283
Marine conservation			
Surface of marine sites designated under Natura 2000	:		page 284
Sustainable fisheries			
Estimated trends in fish stock biomass	:	:	page 285
Assessed fish stocks exceeding fishing mortality at maximum sustainable yield (F_{MSY})	:	:	page 286

Table 14.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Life below water in the EU: overview and key trends

Monitoring SDG 14 in an EU context looks into developments in the areas of ocean health, marine conservation and sustainable fisheries. As indicated in Table 14.1, the lack of data for Europe's seas over time or the limited scope of the available indicators make it difficult to assess the EU's progress in some areas over the past 15 years.

Ocean health

Healthy and productive oceans are the objective of SDG 14. Accomplishing this goal will require further restraining ocean acidification and preventing marine pollution. Within this context, two different areas are monitored: bathing water quality and ocean acidification. Bathing water quality is affected by sewage discharge, river outlets, surface run-off from coastal cities and diffuse pollution, which creates unpleasant and unsafe bathing conditions. Organic pollutants and excess nutrients from agricultural [fertilisers](#), as well as litter, also lead to significant pressures on aquatic ecosystems and underwater life.

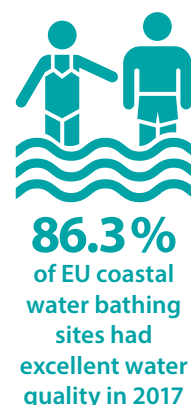
Ocean acidification occurs where increased levels of CO₂ are absorbed by the ocean and reduce sea water pH levels. This problem is a growing threat to ocean health and productivity. Lower pH levels affect the growth of corals and species such as mussels and other shellfishes and can impact processes such as photosynthesis, with knock-on effects for entire ecosystems ⁽¹⁾. As cold water can absorb more CO₂ and therefore becomes more acidic, polar regions are hit disproportionately harder by the effects of acidification ⁽²⁾.

The EU is committed to improving water quality in its regional seas and coastal areas through a range of EU policies and through Regional Sea Conventions ⁽³⁾. Some positive results are emerging for bathing water quality and the

reduction of point-source pollution through improved wastewater treatment. This chapter analyses the quality of coastal and transitional waters only. See the chapter on SDG 6 'Clean water and sanitation' on page 129 for a more detailed analysis of inland water quality.

Excellent bathing water quality is increasingly being achieved in European coastal waters

Under the EU Bathing Water Directive ⁽⁴⁾, bathing water quality has improved steadily since 2012. Bathing water quality takes into account microbiological and physicochemical parameters, for example, faecal and chemical contamination. Water quality is analysed during the bathing season and classified as being poor, sufficient, good or excellent based on the previous four years of data. As the classification always takes into account preceding years, bathing water quality does not tend to fluctuate greatly from year to year. Only a small number (1.4%) of sites failed to meet minimum quality standards in 2017, and the general trend has been towards very high water quality, with the number of European bathing sites with an 'excellent' rating growing almost steadily between 2012 and 2017 ⁽⁵⁾. In 2017, 86.3% of marine bathing sites were classed as having 'excellent' water quality. It should be noted though that the bathing water indicator provides only a limited view of the state of European seas because it only covers bathing sites located along the shore and excludes transitional waters or waters in the Exclusive Economic Zones of Europe ⁽⁶⁾.



The EU Bathing Water Directive ⁽⁷⁾ is one of the success stories in EU water policy and has played an important role in protecting human health and the environment. Bathing water quality is also dependent on the successful implementation of the Marine Strategy Framework Directive ⁽⁸⁾, the Water Framework Directive ⁽⁹⁾ and the Urban Waste Water Treatment Directive ⁽¹⁰⁾.

In 2017, the five Member States with the highest proportion of 'excellent' marine bathing water quality sites were all in the eastern Mediterranean. This may be due to limited rainfall and river flow during summer, more sunlight and greater ultraviolet radiation in this region which all contribute to a higher quality of coastal bathing waters. In contrast, in the Baltic Sea and Greater North Sea, a higher proportion of both coastal and transitional water bodies is affected by pollution pressures, among others.

Pollution continues to threaten the marine environment

Despite improvements in bathing water quality, organic and chemical pollutants from human activities as well as marine litter continue to pose a serious threat to Europe's marine ecosystems. In early 2018, only 58 % of coastal water bodies were reported to have a good chemical status according to the Water Framework Directive ⁽¹⁾.

Excessive loads of nutrients from agriculture and municipal wastewater create eutrophication, a process characterised by increased plant growth, problematic algal blooms, depletion of oxygen, loss of life in bottom water and an undesirable disturbance to the marine trophic webs ⁽¹²⁾. The European Environment Agency (EEA) monitors the levels and trends in winter means of dissolved inorganic nitrogen (nitrate, nitrite and ammonium), oxidised nitrogen (nitrate and nitrite) and phosphate concentrations (micromol/l) in Europe's regional seas ⁽¹³⁾.

A lack of data for the Black and Mediterranean Seas makes it difficult to assess trends,

although the measurements that exist for the Mediterranean generally show low levels of eutrophication. The lack of data for the Black Sea is of greater concern, as this area, like the Baltic Sea, is particularly prone to eutrophication due to low levels of water exchange with connecting seas and high run-off from the densely populated catchment surrounding the regional sea ⁽¹⁴⁾.

In the Baltic Sea, nitrogen concentrations are decreasing but phosphate concentrations show an increase at some stations. In the Atlantic region, a lack of data makes it impossible to analyse overall trends in dissolved nitrogen concentrations, and no significant changes in phosphorus concentrations were observed. However, for the Greater North Sea, long-term time series data, covering more than 10 years, show some positive developments in nutrient reductions. In the case of phosphorus, this can be attributed to improved wastewater treatment, which led to a significant reduction of phosphorus loading in most North Sea countries between 1985 and 2005 ⁽¹⁵⁾. However, due to time lags in the marine system, reductions in nutrient loads have not yet led to an improvement in the overall eutrophication status in this area ⁽¹⁶⁾.

To support the reduction of nutrient loads to European waters, the Nitrates Directive ⁽¹⁷⁾, the Water Framework Directive ⁽¹⁸⁾ and the Urban Waste Water Treatment Directive ⁽¹⁹⁾ aim to reduce pollution caused by nitrates from agricultural and industrial sources respectively. To tackle marine pollution, the EU uses a wide set of instruments, including Directives on waste management and prevention ⁽²⁰⁾ and port reception facilities ⁽²¹⁾ for ship-generated waste and cargo residues. REACH ⁽²²⁾, the EU framework to improve the protection of human health and the environment from the risks that can be posed by chemicals, includes contaminants in seafood and marine litter.

In addition to organic pollution, chemical pollution with hazardous substances and marine litter also threaten the marine environment. Chemical pollution can come from a number of land-based and marine sources, including agriculture (through the application of pesticides and veterinary medicines), industry, households and the transport sector.

The EEA monitors eight hazardous substances in marine organisms, including cadmium, mercury, lead, HCB, lindane, DDT, PCB and BAP. Levels of most of these substances were low or moderate in 2012, apart from PCB, which was found in moderate or high concentrations in marine organisms between 2003 and 2012. A downward trend was observed in the North-East Atlantic for all of the substances except mercury and HCB. In the Baltic Sea, lindane and PCB levels fell, indicating that the abatement measures for these substances have worked ⁽²³⁾. No such trend could be seen for the other regional seas. Apart from these eight chemicals, many other substances are released into Europe's seas every day for which no common monitoring system is yet in place. Of particular concern are the persistent organic pollutants (POPs), which degrade slowly and can bio-accumulate in the food chain.

With regards to marine litter, estimations of plastic entering Europe's oceans are highly tentative, due to a lack of data and the variable distribution of litter within the oceans. However, based on scientific studies, the European Commission estimates that 150 000 to 500 000 tonnes of plastic enter the oceans in the EU every year ⁽²⁴⁾. Marine plastic can come from both land-based sources (for example, rivers or surface water runoff combined with improper disposal) and sea-based sources (ship waste and lost or disposed fishing gear). Single-use plastics pose a particular problem because they account for about 50% of all marine litter on European beaches ⁽²⁵⁾. A new European Directive targeting these single-use plastics and fishing gear alongside other plastic products was adopted in May 2019 ⁽²⁶⁾.

Research regarding the impact of plastic in the marine environment is still ongoing. Among other impacts, plastic items are known to strangle and trap marine species. Furthermore, scientific evidence

suggests microplastic can exacerbate chemical pollution — its absorbent characteristics can attract other contaminants and cause them to further accumulate in the food chain if they are ingested ⁽²⁷⁾. Furthermore, plastic additives, such as softeners (phthalates) or structural constituents (bisphenol), can leach into seawater and once ingested can harm species, including through sexual disruption, inhibited locomotion or genotoxic damage ⁽²⁸⁾.

Human-induced eutrophication, contaminant concentrations and marine litter are three of the 11 descriptors that must be minimised for marine and coastal waters to achieve good environmental status under the Marine Strategy Framework Directive (MSFD). The targets and thresholds for the criteria have to be set at national level.

In January 2018, the European Commission published the [European Strategy for Plastics in a Circular Economy](#) ⁽²⁹⁾, which outlines several elements: the obligation of Member States to monitor and reduce marine litter within the scope of the MSFD, the obligation to adopt measures for the reduction of the consumption of single-use items, such as plastic bags ⁽³⁰⁾, a 55 % target for the recycling of plastic packaging waste by 2030 and the promotion of research and innovation on product design and biodegradable plastics.

Recognising the limitations of tackling ocean problems at a Member State or European level, the EU and its Member States are working on strengthening the ocean governance framework worldwide to achieve the conservation and sustainable use of international waters. The EU has expressed its commitment in a joint communication on international ocean governance ⁽³¹⁾ and recently reported on its progress ⁽³²⁾. Furthermore, the EU and its Member States actively participate in the regional seas conventions ([OSPAR](#), [HELCOM](#), [Barcelona Convention](#) and [Bucharest Convention](#)).

Ocean acidification poses a risk to the marine environment and global climate regulation

Globally, surface ocean pH has reached an unprecedented low and is declining steadily. Increased acidity affects the ocean's capacity to act as a carbon sink and to regulate global CO₂ concentrations, and is expected to have severe knock-on effects for marine species and ecosystems. Research has shown that organisms relying on calcification (for example, mussels, corals and plankton) and photosynthesis (plankton and algae) are particularly vulnerable ⁽³³⁾. Before industrialisation, pH levels varied between 8.3 and 8.2. These levels are now falling at an alarming rate, with global ocean surface water pH reaching 8.06 in 2016. Reductions in pH levels are projected between 8.05 and 7.75 by the end of the 21st century, depending on future CO₂ emission levels ⁽³⁴⁾. EU leadership to mitigate climate change is of vital importance not only to achieving SDG 13 (climate action) but also for reaching the targets of SDG 14.



In 2016, the mean pH level of ocean water reached a new low of 8.06

In its International ocean governance Communication ⁽³⁵⁾, the European Commission expresses its commitment for a global plan of action to address the impacts of climate change on oceans. Apart from this, the EU has a range of strategies which aim to mitigate climate change and greenhouse gas (GHG) emissions, including CO₂. These include, for example, the Energy 2020 Strategy ⁽³⁶⁾ to cut GHG emissions by 20% compared to 1990, to ensure 20% of energy comes from renewables and a 20% increase in energy efficiency. The Circular Economy Package ⁽³⁷⁾ also contributes to mitigation through greater resource and energy efficiency (also see the chapter on SDG 13 'Climate action' on page 253).

Marine conservation

European citizens depend in many ways on the services that marine ecosystems provide, including fish and seafood, coastal protection, degradation of pollutants and climate regulation. In addition, the marine environment is important for recreation and tourism. The European Commission and Member States have taken multiple steps to combat the loss of aquatic habitats and biodiversity, which poses a serious threat to human livelihoods, food security and climate stability ⁽³⁸⁾.

A crucial step in terms of the protection of habitats and biodiversity has been the designation of a network of marine protected areas (MPAs) ⁽³⁹⁾, in which human activities are subject to stricter regulation. The degree of protection varies and depends on the management plan regulating the protected area. Management measures range from a total ban on any type of economic activity, such as fishing, mining or wind power generation, to a more moderate protection regime where only certain types of fishing methods are allowed, and/or any other economic development is handled in a restrictive way. The EU currently has no overview or assessment of the management plans and their effectiveness associated with the MPAs designated in EU regional seas.

The extent of marine protected areas has been growing in the EU

In 2016, marine protected areas in the EU were to a large extent formed by the Natura 2000 network (54%), and complemented by nationally designated marine protected areas that are established under each Member State's national framework (46%) ⁽⁴⁰⁾. The Natura 2000 network comprises protected areas under the EU Habitats and Birds Directives, which have the goal of maintaining or restoring the favourable conservation status of the natural habitat types and species for which the area was designated.

Current data and trends on the development of the sites declared under Natura 2000 show a clear increase in marine protected areas in the EU. In 2018, the spatial extent of marine sites designated for the Natura 2000 network was about 2.2 times

the size of the designated area in 2013, having increased from 251 566 km² to 551 899 km².

The target for the spatial extent of protected areas in the EU is set by the EU Biodiversity Strategy 2020 and the Aichi Targets in the global Strategic Plan for Biodiversity 2011–2020 ⁽⁴¹⁾ under the Convention of Biological Diversity (CBD). As signatory partners to the CBD, the EU and individual Member States have agreed to adhere to the Aichi target 11, according to which at least 10% of marine and coastal areas must be conserved by 2020 through the establishment of ecologically representative and well-connected systems of protected areas that are effectively and equitably managed ⁽⁴²⁾.

The coverage of marine protected areas in the EU has grown from 5.9% of total marine and coastal surface area in 2012 ⁽⁴³⁾ to 10.8% in 2016. While the Aichi target was already met for the protected area covered on a European level and in most regional seas in 2016, the North-East Atlantic Ocean was slightly lagging behind with 9.9% of total marine and coastal surface area protected ⁽⁴⁴⁾.



In 2018, the spatial extent of marine protected areas under Natura 2000 in the EU reached **551 899 km²**

Compared to terrestrial protected areas, there were significant delays in establishing marine protected areas in the Natura 2000 network until 2013. Since then, a sharp increase has taken place, as marine protected areas have climbed up political agendas and research efforts have accelerated, including through EU financial support.

The coverage of marine protected areas has shown rapid growth over the past few years and varies between different countries. Furthermore, significant differences occur between near-shore and coastal waters, where MPA coverage can exceed 75%, and offshore waters, where MPA coverage can be close to zero ⁽⁴⁵⁾.

The Birds ⁽⁴⁶⁾ and Habitats Directives ⁽⁴⁷⁾ make a substantial contribution to the implementation of the EU Biodiversity Strategy to 2020 ⁽⁴⁸⁾ in the marine environment by promoting the protection, conservation and restoration of a network of key marine habitats and species in European marine waters. The Marine Strategy Framework Directive fosters the designation of marine protected areas by requiring Member States to include spatial protection measures in their Programmes of Measures ⁽⁴⁹⁾. The protection of the marine environment also constitutes a key objective under the Maritime Spatial Planning Directive ⁽⁵⁰⁾. On top of this, the EU is also actively preparing for the negotiation of an international legally binding instrument on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ) under the United Nations Convention on the Law of the Sea ⁽⁵¹⁾.

The conservation status of marine habitats and species remains unfavourable

Although a positive development, growth in the extent of protected areas alone does not provide a good indication on how well species and habitats are being protected. To gain a better picture, information on their connectivity, status and the implementation of conservation measures is needed. According to the Aichi target 11 of the global Strategic Plan for Biodiversity 2011–2020 ⁽⁵²⁾, the management of marine protected areas should be effective and equitable, and they should be ecologically representative and well-connected. A scarcity of marine data limits the conclusions that can be drawn in this respect, but the data that are available indicate that in 2012 the conservation status of marine habitats and species was still unfavourable in most cases.

This is illustrated by the latest EEA analysis of the conservation status of marine habitats, carried out

in 2016 with data from the 2007 to 2012 reporting period of the Birds and Habitats Directives. Based on a limited number of assessments (six to eight per marine region) in the North-East Atlantic, none of the habitats had a favourable conservation status, while the share of unfavourable but improving marine habitats was relatively high, at 43 %. For 29 % of the assessed habitats the status was unknown. In the Baltic region, none of the habitats assessed had a favourable status and 71 % had an unfavourable and declining status ⁽⁵³⁾.

Similar to the situation with marine habitats, the data on the status of marine species protected by the Habitats Directive are too scarce to draw any general conclusion. The latest assessment was conducted by the EEA in 2016 and is based on data from the 2007 to 2012 reporting period. The limited number of species assessments per marine region (ranging from three to 48) indicates that the conservation status of the large majority of species was unfavourable or unknown in all marine regions, with the exception of the Baltic region, where, however, only three species assessments were conducted ⁽⁵⁴⁾.

Sustainable fisheries

After pollution, the unsustainable use of living resources is the main threat to marine habitats and species in the EU ⁽⁵⁵⁾, so the prudent management of the fishing activities of the European fleet also has important implications for biodiversity conservation.

Governance of fisheries in EU waters mainly focuses on fair access and sustainable supply. Management efforts are channelled through the European Common Fisheries Policy (CFP), which limits the total amount of fish catches and controls who is allowed to fish, as well as how, when and where, with a view to preventing damage to vulnerable marine ecosystems and preserving fish stocks. The ambition and implementation of the CFP will have a direct bearing on success in reaching SDG 14, which includes the aim of ending overfishing, the destructive and/or illegal, unreported and unregulated fishing practices, and the subsidies that encourage these activities.

Fisheries in the North-East Atlantic and adjacent seas (FAO 27 area) have become more sustainable

European fisheries affect fish stock productivity and stock size through catches. A fish stock is a group of fish from the same species that live in the same geographical area and mix enough to breed with each other when mature. Stock size is subject to natural variability, which can offset the impact of fishing from year to year.

Fisheries management cannot directly control stock size; the only variable that can be directly controlled is fishing mortality. Fishing mortality (F) is a measure of fishing pressure that monitors the proportion of fish of a given age that is taken by fisheries during one year. For fisheries to be sustainable, fishing mortality should not exceed the maximum sustainable yield (MSY) — the point at which the largest catch can be taken from a fish stock over an indefinite period without harming it ⁽⁵⁶⁾. Thus, MSY is not a target to aim for, but rather a limit to stay well clear of in order for fisheries to be sustainable.

There has been improvement in the number of stocks fished at maximum sustainable yield (F_{MSY}) in the North-East Atlantic, where around three-quarters of the EU's catch originates. In 2003, only about 30 % of stocks in this region were fished at F_{MSY} compared with 57 % in 2017 ⁽⁵⁷⁾.

The model based mean value of all F/F_{MSY} assessments can be used as an additional tool to indicate fishing pressures on fish stocks. Values above 1.0 mean the current fishing mortality (F) exceeds the estimated maximum sustainable yield (F_{MSY}). The results for the North-East Atlantic mirror the downward trend in overexploited stocks and show a reduction in pressure from 1.69 to 0.98 between 2003 and 2017 ⁽⁵⁸⁾. This means that overall stocks are on average fished sustainably in this region.

The EU's approach to sustainable fisheries is not limited to achieving MSY. The Marine Strategy



42.7 %
of assessed
stocks in the
North-East
Atlantic were
overfished
in 2017

Framework Directive (MSFD) ⁽⁵⁹⁾ requires that commercially exploited fish and shellfish populations have a healthy distribution of age and size. Positive reductions in fishing mortality can lead to increases in stock size, and the status of stocks and their reproductive capacity can be measured and described by fish stock biomass as well as by spawning stock biomass (SSB). Biomass estimates are associated with high levels of uncertainty due to the fact that stock biomass can vary substantially from one year to the next. Fish stocks can also take time to respond to changes in management measures, and results can be masked by other factors, such as environmental conditions and predation ⁽⁶⁰⁾. For this reason, analyses of stock biomass trends should always focus on longer term patterns.

In the case of the North-East Atlantic and adjacent seas, the reports of reproductive capacity (MSY Btrigger) are currently within policy thresholds, and there has been an estimated 36 % increase in biomass for the North-East Atlantic between 2003 and 2017. Furthermore, considering that unsustainable fisheries are a major threat to marine ecosystems ⁽⁶¹⁾, additional measures to regulate fisheries are required under the Birds and Habitats Directives. The CFP empowers Member States and the Commission to adopt such measures to fulfil obligations under these directives and the MSFD.

The Common Fisheries Policy (CFP) ⁽⁶²⁾ aims to ensure the long-term sustainability of the sector by safeguarding stock reproduction for high long-term yield, improving distribution of fishing opportunities, conserving marine resources and supporting the profitability of the industry. The Marine Strategy Framework Directive (MSFD) ⁽⁶³⁾ takes a comprehensive and integrated approach to the protection of the marine environment and natural resources with the aim of achieving good environmental status of EU marine waters that are ecologically diverse, clean, healthy and productive by 2020.

Fisheries in the Mediterranean and Black Seas face greater threats to sustainability and have had an insufficient number of assessments

Beyond the North-East Atlantic, the picture is far less positive, with a low likelihood that the 2020 policy objective of attaining good environmental status will be met in the Mediterranean and Black Seas ⁽⁶⁴⁾. Fishing pressure in the Mediterranean is, for example, on average two times greater than in the North-East Atlantic ⁽⁶⁵⁾.

Overexploitation remained at very high levels between 2003 and 2016, with a slightly decreasing trend from 2.7 to 2.2. The assessments indicate that in 2016 stocks were being exploited on average at rates around 2.2 times what would be sustainable according to the CFP objectives. In addition, of the 47 stocks assessed up to 2016, most were overfished; only six stocks (around 13%) were not ⁽⁶⁶⁾⁽⁶⁷⁾. As these

objectives were to be reached for all stocks by 2015 where possible and at the latest by 2020, efforts need to be increased substantially if the EU is to meet its own targets for sustainable fisheries.

With regards to reproductive capacity, there seems to be a slight increase in spawning stock biomass (SSB) in the Mediterranean and Black Sea between 2012 and 2016 ⁽⁶⁸⁾. However, any apparent trends relating to SSB in the Mediterranean and Black Sea should be viewed with caution: there have been strong variations between ecoregions, in particular regarding the number of stocks for which information is available, which makes it difficult to allow for a robust indication of the true extent of overfishing ⁽⁶⁹⁾.



Between 2003 and 2017, fish stock biomass in the North-East Atlantic increased by

36.0%

Presentation of the main indicators

X LONG TERM
Insufficient data
to calculate trend

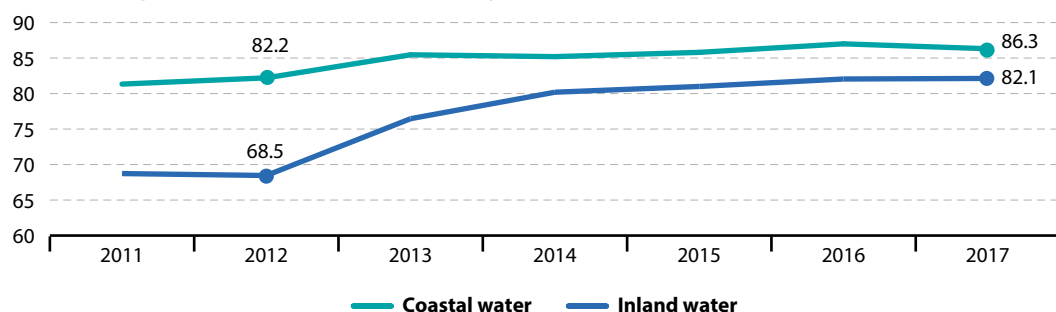
↑↑ SHORT TERM
2012–2017

* Coastal water sites
** Inland water sites

Bathing sites with excellent water quality

The [Bathing Water Directive](#) (BWD) requires Member States to identify and assess the quality of all inland and marine bathing waters and to classify these waters as 'poor', 'sufficient', 'good' or 'excellent'. Bathing water quality is assessed according to standards for microbiological parameters (intestinal enterococci and *Escherichia coli*). The data presented in this section stem from the European Environment Agency (EEA) and are based on Member State reporting under the BWD and described in the annual [Bathing Water report](#).

Figure 14.1: Bathing sites with excellent water quality, by locality, EU, 2011–2017
(% of bathing sites with excellent water quality)



Note: 'EU' refers to an aggregate based on 26 and 23 Member States for coastal and inland water, respectively (see Figure 14.2).

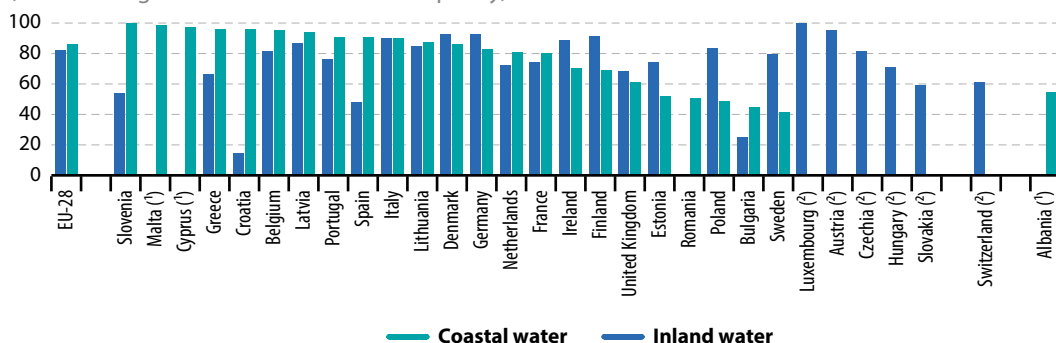
Source: EEA (Eurostat online data code: [sdg_14_40](#))

Table 14.3: Compound annual growth rate (CAGR) of the share of bathing sites with excellent water quality, EU

Locality	EU aggregate	Period	Growth rate
Coastal water	EU	2012–2017	1.0 % per year
Inland water	EU	2012–2017	3.7 % per year

Source: EEA (Eurostat online data code: [sdg_14_40](#))

Figure 14.2: Bathing sites with excellent water quality, by locality, by country, 2017
(% of bathing sites with excellent water quality)



(*) No measurements of inland water bathing sites.

(*) No coastal water bathing sites (landlocked country).

Source: EEA (Eurostat online data code: [sdg_14_40](#))

Mean ocean acidity

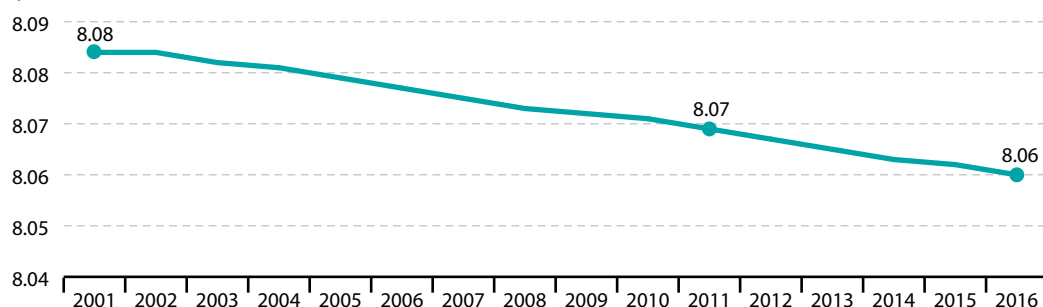
This indicator shows the global yearly mean surface sea water pH value. The decline in pH observed on a global scale corresponds to an increase in the acidity of ocean water and vice versa. This trend is caused by an increase in atmospheric CO₂, which increases the uptake of CO₂ by oceans. This is directly correlated with ocean pH. The Copernicus Marine Service has reconstructed the global yearly mean surface sea water pH from 2001 onwards, based on a combination of methods which make use of in situ and remote-sensing data, as well as empirical relationships.

LONG TERM
2001–2016

SHORT TERM
2011–2016

Figure 14.3: Mean ocean acidity, 2001–2016

(pH value)



Source: EEA, Copernicus Marine Service (Eurostat online data code: [sdg_14_50](#))

Table 14.4: Compound annual growth rate (CAGR) of the mean ocean acidity

Period	Growth rate
2001–2016	– 0.02% per year
2011–2016	– 0.02% per year

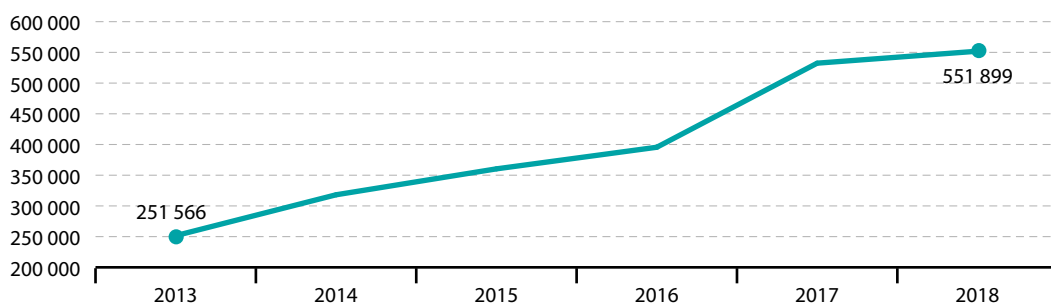
Source: EEA, Copernicus Marine Service (Eurostat online data code: [sdg_14_50](#))



Surface of marine sites designated under Natura 2000

The EU Birds and Habitats Directives require Member States to designate and manage Sites of Community Importance (SCIs) where habitats and species of EU interest should be maintained in or restored to favourable conservation status. Together the SCIs constitute the Natura 2000 network. This indicator measures the surface area covered by marine SCIs (km²). A thorough typology has been developed to support precise reporting. Data provided by the Member States to the Commission are consolidated at least yearly by the European Environment Agency and the European Topic Centre on Biological Diversity (EEA ETC/BD) and collected by European Commission Directorate-General for the Environment.

Figure 14.4: Surface of marine sites designated under Natura 2000, EU-28, 2013–2018 (km²)



Source: European Commission services, EEA (Eurostat online data code: [sdg_14_10](#))

Table 14.5: Compound annual growth rate (CAGR) of the surface of marine sites designated under Natura 2000, EU

EU aggregate	Period	Growth rate
EU-28	2013–2018	17.0 % per year

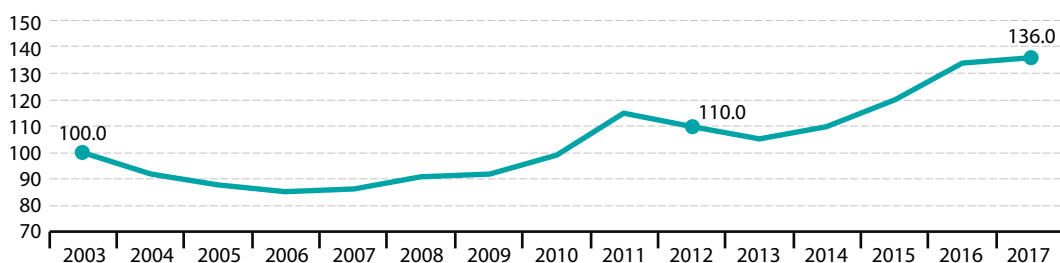
Source: European Commission services, EEA (Eurostat online data code: [sdg_14_10](#))

Estimated trends in fish stock biomass

Fish stock biomass is a function of biological characteristics such as abundance and weight and can indicate the status of a fish stock when measured against reference values. This is a model-based indicator that is computed using results from single-species quantitative stock assessments. It shows the median value of fish stock biomass relative to 2003 for the North-East Atlantic and adjacent seas (FAO area 27) ⁽⁷⁰⁾. Time series for stock biomass estimates are provided by the International Council for the Exploration of the Sea (ICES), the General Fisheries Commission for the Mediterranean (GFCM) and the EU Joint Research Centre's Scientific, Technical and Economic Committee for Fisheries (STECF). The model-based indicator for stock biomass for the Mediterranean and Black Sea is currently excluded because it is associated with high uncertainties due to the fact that biomass estimates for this area are quite variable from one year to the next ⁽⁷¹⁾.

X Indication of progress not possible

Figure 14.5: Estimated trends in fish stock biomass, North-East Atlantic and adjacent seas (FAO 27 area), 2003–2017
(index 2003 = 100)



Source: Joint Research Centre (JRC) — Scientific, Technical and Economic Committee for Fisheries (STECF) (Eurostat online data code: [sdg_14_21](#))



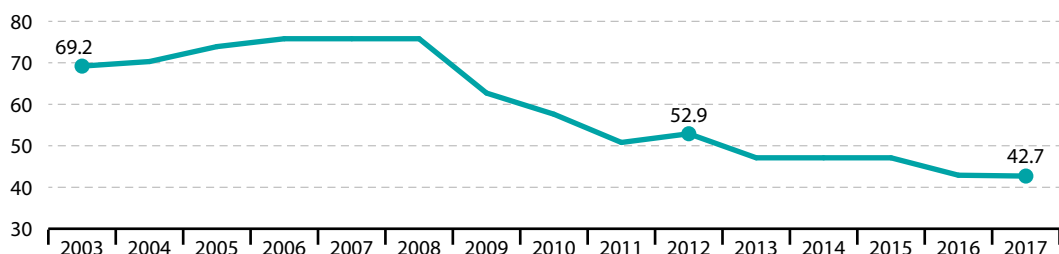
Indication of
progress not
possible

Assessed fish stocks exceeding fishing mortality at maximum sustainable yield (F_{MSY})

To ensure fish stocks are exploited sustainably, the CFP aims to rebuild stocks above levels at which they can produce the maximum sustainable yield (MSY). MSY is determined by the long-term average stock size that allows fishing at this level. The indicator measures the proportion of assessed fish stocks where current fishing mortality (F) exceeds the estimated maximum sustainable yield (F_{MSY}), expressed with the term $F > F_{MSY}$. Data are provided by the Joint Research Centre (JRC). The model-based indicator for F/F_{MSY} for the Mediterranean and Black Sea is currently excluded because it is not very robust due to the large changes in the number of stocks available to fit the model ⁽⁷²⁾.

Figure 14.6: Assessed fish stocks exceeding fishing mortality at maximum sustainable yield (F_{MSY}) in the North-East Atlantic, 2003–2017

(% of stocks exceeding fishing mortality at maximum sustainable yield ($F > F_{MSY}$))



Source: Joint Research Centre (JRC) — Scientific, Technical and Economic Committee for Fisheries (STECF) (Eurostat online data code: [sdg_14_30](#))

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15

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 15 seeks to protect, restore and promote the conservation and sustainable use of terrestrial, inland-water and mountain ecosystems. This includes efforts to sustainably manage forests and halt deforestation, combat desertification, restore degraded land and soil, halt biodiversity loss and protect threatened species.



eurostat  supports the SDGs

Along with SDG 14, SDG 15 is one of the key goals at international level that incorporates environmental considerations for UN member countries. In the EU, this goal ensures that ecosystem health and functioning, with the delivery of ecosystem services, remain a priority, especially in the face of global trends such as population growth, accelerating urbanisation and the increasing need for natural resources. Ecosystem services provided by terrestrial ecosystems offer many benefits to society, including recreation, natural resources, food, clean air and water, as well as protection from natural disasters and mitigation of climate change. However, human activities that damage ecosystems and increase land degradation threaten the provision of these services and diminish biodiversity. Thus, the EU endeavours to ensure healthy and sustainably used and managed ecosystems.



Table 15.1: Indicators measuring progress towards SDG 15, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Ecosystems status			
Share of forest area	:	↑ ⁽¹⁾⁽²⁾	page 302
Biochemical oxygen demand in rivers (*)	↑ ⁽³⁾	↗ ⁽³⁾	SDG 6, page 139
Nitrate in groundwater (*)	↗ ⁽⁴⁾	↗ ⁽⁴⁾	SDG 6, page 140
Phosphate in rivers (*)	↑ ⁽⁵⁾	↑ ⁽⁵⁾	SDG 6, page 141
Land degradation			
Soil sealing index	:	↓ ⁽¹⁾	page 303
Estimated soil erosion by water	↑ ⁽⁶⁾	:	page 304
Settlement area per capita (*)	:	↓ ⁽¹⁾⁽²⁾	SDG 11, page 228
Biodiversity			
Surface of terrestrial sites designated under Natura 2000	:	↓	page 305
Common bird index	↓ ⁽⁷⁾	↓ ⁽⁷⁾	page 306
Grassland butterfly index	↓ ⁽⁸⁾	↗ ⁽⁸⁾	page 307

(*) Multi-purpose indicator.

(1) Past 6-year period.

(2) Data refer to an EU aggregate without Bulgaria, Croatia, Cyprus, Malta and Romania.

(3) Data refer to an EU aggregate based on 19 Member States.

(4) Data refer to an EU aggregate based on 17 Member States.

(5) Data refer to an EU aggregate based on 20 Member States.

(6) Past 12-year period.

(7) Data refer to an EU aggregate that changes over time depending on countries joining the Pan-European Common Birds Monitoring Scheme.

(8) Data refer to an EU aggregate based on 15 Member States.

Table 15.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
↑	Significant progress towards the EU target	Significant progress towards SD objectives
↗	Moderate progress towards the EU target	Moderate progress towards SD objectives
↘	Insufficient progress towards the EU target	Moderate movement away from SD objectives
↓	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Life on land in the EU: overview and key trends

Monitoring SDG 15 in an EU context focuses on ecosystem status, land degradation and biodiversity. According to the selected indicators (see Table 15.1), the EU has made progress on improving the ecosystem status over the past few years. However, progress in slowing land degradation and increasing biodiversity has been mixed, and most indicators of biodiversity, including those beyond those featured in the report, show continued and strong declines in biodiversity and species abundance (¹).

Ecosystem status

Humans greatly benefit from many [ecosystem services](#), such as clean air, purified water and food. In addition, terrestrial ecosystems offer natural resources used in industrial processes, as well as cultural services such as outdoor recreation. Other services provided by ecosystems include protection from natural disasters and the mitigation of the negative effects of [climate change](#). Human activities that degrade ecosystems, including pollution and overuse of resources, threaten animal and plant species and the provision of ecosystem services and their benefits to human well-being (²). Hence, EU legislation such as the Birds and Habitats Directives and policies such as the EU Biodiversity Strategy to 2020 and the EU Forest Strategy help to ensure a healthy ecosystem status and that terrestrial ecosystems and the services they provide are sustainably used and managed. The 'ecosystem status' can be assessed by comparing the state of a habitat or ecosystem against the goals and objectives set within these Directives, as well as the EU Biodiversity Strategy and other policy targets, such as the international Aichi biodiversity targets as defined in the Convention on Biological Diversity. This can include legal parameters allowing certain levels of pollutants or chemicals in an ecosystem, with the main aim of averting unwanted consequences resulting from human activities. Conservation and monitoring efforts are essential in ensuring that Europe's ecosystems remain or are restored to a healthy state.

In 2019, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) released a Global Assessment Report on Biodiversity and Ecosystem Services (³). The work of more than three years by 145 expert authors and 310 contributing authors, the report provides a comprehensive assessment of how economic development pathways impact nature. Its key findings indicate that species extinction rates are accelerating. Downwards trends in biodiversity and ecosystem services are expected to negatively impact progress towards the Agenda 2030 and its SDG targets. As such, current global conservation and sustainability goals will not be met unless transformative change is implemented.

The indicators selected for monitoring ecosystem status assess mainly abiotic parameters indicating ecosystem health, including pollutants in rivers and in groundwater, as well as the share of forests in total land area. The living parts of ecosystems and their state are assessed in the section on 'biodiversity', see page 299).

Overall, the indicators on ecosystem status provide an indication of Europe's ecosystem health for only a small portion of its land and freshwater areas. It is important to recognise the limitations of these indicators in presenting a full and complete picture of Europe's terrestrial ecosystems, the status of which cannot be fully addressed with the available long-term datasets. Hence, although the indicators chosen show positive trends for Europe's terrestrial ecosystems, this does not truly reflect all ecosystems (for example, wetlands, plains, mountain regions, floodplains and marshes) nor all pressures and stresses (such as other nitrate and phosphorous pollution, habitat fragmentation, noise and light pollution, water stress and water availability and invasive species). However, despite these limitations, the selected indicators and the

available data do provide relevant information on key aspects of SDG 15 and their implementation in the EU.

Nitrate and phosphate pollution in European rivers has decreased since 2000

The ecological status of European water bodies is an important indication of how Europe's natural environment is faring in the face of pressures from human use. Three indicators monitor progress: biochemical oxygen demand in rivers, nitrate in groundwater and phosphate in rivers. Combined, these indicators paint a rather favourable picture of the EU's progress over the past 15 years, with decreasing levels of pollution in both rivers and groundwater bodies. In rivers, both concentrations of phosphate (PO_4) and biochemical oxygen demand (BOD) have fallen since 2000, reaching levels of 0.06 milligrams per litre (mg/L) of PO_4 and 2.02 mg/L of BOD in 2015. Declines have been more or less continuous for biochemical oxygen demand and phosphate concentrations over the whole period. In contrast, nitrate (NO_3) levels in groundwater increased from 2000 to 2007, but since then have fallen back to levels below those of 2000, reaching 18.3 mg/L in 2015.

Biochemical oxygen demand in rivers is an indicator of organic water pollution in rivers and the effectiveness of water treatment ⁽⁴⁾. Measuring the amount of oxygen required for microbiological decomposition of organic compounds in water indicates the state of health of river systems. Fortunately, the EU has shown a positive trend in river water quality since 2000, which is helping to improve the state of aquatic ecosystems and their biodiversity. In 2015, EU levels of biochemical oxygen demand

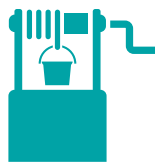
fell to 2.02 mg/L of O_2 . This represents a 32% reduction from 2000 levels of 2.95 mg/L. Between 2010 and 2015, most EU countries saw reductions in biochemical oxygen demand in their rivers, with the exception of Croatia, Czechia, Belgium, Denmark and Estonia.

Pollutants in the EU's groundwater and rivers have generally reduced over time, although individual levels vary by Member State and between regions within countries. For example, Member States' levels of nitrate in groundwater varied widely between 2000 and 2015. Groundwater flows directly interact with rivers, lakes and wetlands, and are often used for drinking water and for agricultural irrigation. As such, groundwater has a high economic, social and environmental value ⁽⁵⁾. The pollution of groundwater with high levels of nitrates can pose risks to public health and contribute to environmental degradation. Nitrate pollution of this kind is generally caused by the high use of mineral fertilisers and intensive agricultural practices, such as the application of slurry and manure ⁽⁶⁾.

In 2007, average EU nitrate levels peaked at 19.2 mg/L, followed by a fluctuating but overall declining trend. By 2015, average EU nitrate levels had decreased to 18.3 mg/L, with all Member States complying with the levels defined for safe use (below 50 mg/L). Nevertheless, large variations of nitrate levels in groundwater exist in different regions in the EU, spanning from less than 10 mg/L to more than 50 mg/L ⁽⁷⁾. In some cases, similar variations can be found in Member States within their territories, regularly leading to interventions by the European Court of Justice for the failure to meet nitrate standards for groundwater. This was the case for France in 2014 ⁽⁸⁾ and Germany in 2016 ⁽⁹⁾, for example. Overall, between 2012 and 2015, 13.2% of groundwater stations were considered polluted under the Nitrates Directive (exceeding 50 mg nitrates per litre) and regional pressures and pollution hotspots remain ⁽¹⁰⁾.



0.06 mg/L
of phosphates
were present in
European rivers
in 2015



**In 2015 the
concentration
of nitrates in
groundwater in
Europe reached
18.3 mg/L**



**In 2015, the
biochemical
oxygen
demand in
European rivers
amounted to
2.02 mg/L**

EU legislation on freshwater water quality is mainly embodied within the [Water Framework Directive](#) ⁽¹¹⁾. This directive imposes restrictions on activities that could pollute and damage Europe's freshwater resources. As such, the directive aims for all surface water and groundwater sources to reach 'good ecological status' and 'good chemical status'. This legislation is complemented by the [EU Drinking Water Directive](#) ⁽¹²⁾ and [Nitrates Directive](#) ⁽¹³⁾, which also impose restrictions on levels of chemicals and minerals in Europe's freshwater resources.

Phosphate in rivers can originate from agricultural production, [urban wastewater](#) and industrial discharges ⁽¹⁴⁾. Negative environmental consequences of phosphate in rivers can manifest as biodiversity loss and [eutrophication](#) in rivers. On average European phosphate concentrations have fallen by 38.1 % since 2000, reaching levels of 0.06 mg/L in 2015. Overall, reductions in phosphate concentrations can be linked to the introduction of measures by national and European legislation, such as the Urban Waste Water Treatment Directive ⁽¹⁵⁾, and the switch to phosphate-free detergents ⁽¹⁶⁾. Some countries, especially in eastern Europe, have higher phosphate levels in their rivers due to higher agricultural pressure, as well as underequipped treatment plants for tertiary treatment.

Europe's share of forest area has continued to improve gradually

Europe's [forests](#) provide multiple benefits, such as enhancing soil fertility and conserving soil moisture, storing carbon and providing habitats for animals and plants. They also provide working opportunities in rural areas and help mitigate climate change and regulate the microclimate ⁽¹⁷⁾. Currently, forest ecosystems are affected by pressures from habitat loss and degradation, invasive alien species, pollutants and excessive nutrient loads, as well as climate change ⁽¹⁸⁾,

making EU efforts to retain and sustainably manage its forested areas increasingly important.

In 2015, forests and other wooded land covered 41.9% of the EU's total land area. The EU share of forests and other wooded land in proportion to total land area increased slightly by 2.6 percentage points between 2009 and 2015 ⁽¹⁹⁾. This increase can be largely allocated to the [Food and Agriculture Organization](#) (FAO) category 'forests' ⁽²⁰⁾, which is defined as land spanning more than 0.5 hectares with trees larger than five metres high with a canopy cover of more than 10 % ⁽²¹⁾. The share of this area increased by 1.6 percentage points during the period. The FAO category 'Other wooded land' increased to a lesser extent.



In 2015, the share of forests in total EU land area reached

41.9 %

The new [EU Forest Strategy](#) ⁽²²⁾ from 2013 builds on the objectives stated under the [EU Biodiversity Strategy to 2020](#) ⁽²³⁾ and its target on forest preservation and management. The Forest Strategy stresses the importance and multiple socio-economic and environmental benefits of sustainable forest management. A high proportion of forests are also covered in the [Habitats Directive](#) ⁽²⁴⁾, showing their importance for biodiversity. The [Europe 2020 strategy](#) ⁽²⁵⁾ recognises the importance of forests for reducing CO₂ emissions and combating climate change.

While the above indicator provides an indication of the share of land dedicated to forests, it does not provide any information on the condition or growing stock of forests in the EU. Growing stock, increment and fellings of forests ⁽²⁶⁾ can be used as an indicator of the economic sustainability of timber-producing operations in forests. Furthermore, data on growing stock, increment and fellings are important for calculating carbon

budgets in the forest sector. For long-term economic sustainability, annual fellings should not exceed the net annual increment and, according to the European Environment Agency (EEA), the ratio of fellings to increment should be less than 70 % over the long term ⁽²⁷⁾. Increases in growing stock relative to forest area indicate a maturing forest. In 2015, the growing stock of European forests amounted to 26.5 billion m³ and has grown faster than forest area, while the ratio of fellings to increment was estimated to be 70.5 % in 2010 ⁽²⁸⁾.

In general, most Member States maintained their ratio of forest fellings to increment at below 80 % in 2010, with the exception of countries such as Austria, Belgium, Czechia, Germany and Sweden, which have ratios exceeding 80 %. Although these high rates of forest fellings allow the EU's forest stock to be thinned, thus helping them to rejuvenate by leaving more open space and light for natural forest habitats to develop, they exceed the recommended average of 70 % for sustainable forest production. There is also the expectation for the ratio of fellings to increment to increase in the coming years, as people turn to the EU's forests to produce more fuel wood for bioenergy. The increased use of woody biomass could have substantial negative impacts on forest biodiversity and ecosystem services ⁽²⁹⁾.

Land degradation

Land degradation is a complex phenomenon that is linked to the long-term biological productivity of land. It brings together several elements, including soil degradation and the capacity of land areas to support water resources, biodiversity and primary productivity ⁽³⁰⁾. Soil degradation by itself covers many aspects such as soil sealing and contamination, erosion by wind and water, loss of soil biodiversity, compaction, decline in organic matter, desertification, acidification and salination ⁽³¹⁾. Not all of these threats to soil quality can be covered in this indicator set, limiting the analysis to soil sealing, settlement area per capita and soil erosion by water.

The area of sealed soil has increased in the EU, but the rate of change is slowing

Sealing of land areas indicates the amount of area covered with impervious materials due to urban development, increases in traffic infrastructure and construction (for example, buildings, constructions and laying of completely or partially impermeable artificial material, such as asphalt, metal, glass, plastic or concrete). The increase in the area of sealed land can approximate land-use change or intensification ⁽³²⁾.

Across the EU, sealed soil has generally increased since 2006. In total, over the whole period from 2006 to 2015, the EU area covered with impervious materials grew by 3 131 square kilometres (km²), which corresponds to an increase of 4.2 %. This means that in the EU on average an area of 348 km², which is more than the size of Malta, is converted to sealed surface each year, corresponding to an average growth of 0.5 % per year. Growth in soil sealing was strongest between 2006 and 2009 and between 2009 and 2012, with sealed soil increasing by 1.7 % and 1.6 %, respectively. Between 2012 and 2015, growth in soil sealing fell to 0.9 %. At the country level, all Member States showed increases in their surface imperviousness levels compared with 2006.

Contributing to this increase in soil sealing is 'land take', which is described as the process of transforming unsealed agricultural, forest and other semi-natural and natural areas into artificial areas. Land take is monitored using the [Copernicus CORINE land cover datasets](#) ⁽³³⁾ every six years between 2000 and 2018. In the EU-28, land take amounted to 14.049 km² for the whole time span. Even though the rate of land



648.2
square metres
of land were
used for human
settlement
purposes per
capita in the EU
in 2015



**Between 2006
and 2015, soil
sealing in the
EU grew by**

4.2 %

take has decreased by more than 40% over the three observation periods, indicating positive developments, recultivation and renaturalisation of land was still far less than the land taken, indicating a distance from the 'no net land take' policy target for 2050 ⁽³⁴⁾.

The EU has released guidelines with best practices to limit, mitigate or compensate soil sealing. These guidelines aim to support the EU's Soil Thematic Strategy ⁽³⁵⁾ and the goal of limiting average annual land take (the increase of artificial land) to less than 800 km² in the period 2000 to 2020 and no net land take by 2050, set in the Roadmap to a Resource-Efficient Europe ⁽³⁶⁾. In the period 2000 to 2018, average annual land take was 734 km² in the EU-28. If this trend continues, the EU could be on-track to reach its 2020 target.

In all three observation periods, mainly arable land and permanent crop areas were converted to artificial surfaces (48.8% in 2000 to 2006, 51.7% in 2006 to 2012 and 50.2% in 2012 to 2018) ⁽³⁷⁾. The conversion of these areas was mainly towards construction sites in the first two periods, taken over by sprawl of industrial sites in the period 2012 to 2018. Urban sprawl and the sprawl of mines represented the third and fourth largest reason for converting arable lands to artificial surfaces ⁽³⁸⁾. The increases in artificial areas can lead to increased flood risk, more frequent rapid surface runoff, and isolates soils from functional ecosystem components ⁽³⁹⁾. Moreover, sealed lands cannot store carbon and thereby contribute to greenhouse gas emissions and climate change. The negative social and environmental consequences caused, in particular, by the spread of artificial surfaces can include the escalation of flood risk, damage to biodiversity and natural habitats, and the reduction of the amount of land available for food production ⁽⁴⁰⁾.

Settlement area per capita has increased since 2009, spurred by the exploitation of natural areas for more housing and recreational sites

Settlement area per capita has increased since 2009, despite EU efforts to limit land take and soil sealing and to increase land-use efficiency. The EU's land take for human settlement purposes includes areas occupied by buildings, industrial and commercial areas and infrastructure — including both sealed and non-sealed surfaces. These human settlement areas spread from 616.1 square metres (m²) per inhabitant in 2009 to 648.2 m² in 2015 ⁽⁴¹⁾. Reasons for this trend can be linked to the growing demand for increased living space per person, including secondary homes ⁽⁴²⁾, and to ever-expanding levels of economic activity and increased mobility ⁽⁴³⁾.

The EU has funded research and improved soil monitoring through projects such as LUCAS, a survey on land cover, land use and agri-environmental indicators run by Eurostat, and Copernicus, the EU's Earth Observation and Monitoring Programme, which provides CORINE land cover and high resolution layers on imperviousness, grasslands, forests, water and wetness on a full, free and open basis.

Estimates for soil erosion by water indicate a potential decline in the area at risk of soil erosion in the EU

Soil is a resource that provides multiple benefits to society, including the provision of raw materials, food production and the storage, filtration and transformation of many substances, including water, carbon and nitrogen ⁽⁴⁴⁾. Retaining soil health ensures the continued provision of such benefits. Soil erosion by water is one of the major threats to soils in the EU and contributes to land degradation by removing fertile topsoil. Soil erosion by water has substantial on-site as well as off-site effects. Removing fertile topsoil reduces soil productivity

and threatens crop production, the quality of drinking water, habitats and biodiversity, and carbon stocks ⁽⁴⁵⁾.

Efforts to address and mitigate soil erosion by water helped to reduce the estimated land area at risk of severe soil erosion by water by 14.0% in the EU between 2000 and 2012. One study that estimated the average soil loss by water erosion in Europe found high variation depending on land cover and use. Areas with sparse vegetation have very high average rates of soil loss (i.e. 40.16 tonnes per hectare per year (t/ha/yr)), followed by areas with permanent crops (9.47 t/ha/yr) and heterogeneous agriculture (4.21 t/ha/yr), while the lowest rates are found in forested areas (0.07 t/ha/yr) ⁽⁴⁶⁾. The same study stated that in agricultural lands, improvements due to the implementation of agri-environmental standards required under the Common Agricultural Policy (CAP) saw reductions in the mean rate of soil loss by water erosion up to 30% in some Member States between 2003 and 2010 ⁽⁴⁷⁾. Improvements include reduced tillage, minimum soil cover, reduction in the area of bare soils, contour farming along slopes, maintenance of terraces and stone walls, and extended use of grass margins ⁽⁴⁸⁾. However, more than half of the agricultural area in the EU remains at risk of being eroded at a rate that is faster than soils can be replaced naturally (over 1 t/ha/yr). Moderate to severe erosion (higher than 5 t/ha/yr) is estimated to affect nearly 12.5% of EU arable soils and about 10% of permanent pastureland, while 0.4% of EU soils are estimated to suffer from extreme erosion (over 50 t/ha/yr) ⁽⁴⁹⁾.



Between 2000 and 2012, the estimated risk of severe soil erosion by water in the EU fell by 14.0 %

Erosion is a recognised threat to soil in the EU's [Soil Thematic Strategy](#) ⁽⁵⁰⁾ and the [7th Environment Action Programme](#) ⁽⁵¹⁾. The [Roadmap to a Resource-Efficient Europe](#) ⁽⁵²⁾ sets out a milestone to reduce soil erosion and requires Member States to implement the actions needed to reduce erosion. Europe's [Common Agricultural Policy](#) sets requirements to protect utilised agricultural areas against erosion and establishes a framework of standards that aim, among others things, to help prevent soil erosion.

The organic carbon content of topsoil has been declining in croplands in most EU Member States, but the picture is rather mixed for grassland

The Joint Research Centre (JRC) of the European Commission is currently developing an indicator to measure the organic content of topsoil in cropland and grassland soils based on the [Land Use and Land Cover survey](#) (LUCAS) for 2009 and 2015. Carbon is one of the main components of soil organic matter that constitutes fertile topsoil. Results show that between 2009 and 2015, the topsoil organic carbon content in croplands has slightly decreased in most EU Member States. The most significant decreases were seen in Malta (– 22.1%), followed by Portugal (– 16.3%) and Latvia (– 15.0%). Ten countries showed increases in cropland topsoil organic carbon, with Ireland (+ 87.2%), Estonia (+ 22.7%) and Slovenia (+ 22.6%) leading the way. In grasslands, however, the results give a more mixed picture, with many countries showing an increase in topsoil

organic carbon content and only a few showing a decline ⁽⁵³⁾. Member States with the most significant increases in grassland topsoil organic content were Italy (+ 35.2 %), France (+ 26.6 %) and the Netherlands (+ 21.7 %), while Sweden (– 20.1 %), Denmark (– 8.3 %) and Estonia (– 7.7 %) showed the largest decreases. Changes in soil organic carbon content are driven by human-induced factors, such as land-management practices and land-use change, and by natural factors, such as climate, topography, vegetation and soil parental material ⁽⁵⁴⁾.

Biodiversity

Terrestrial ecosystems have been protected under the Birds Directive since 1979 and the EU Habitats Directive since 1992. Both Directives form the main pillar for the protection of Europe's biodiversity and ecosystems. Under these Nature Directives, Member States are required to designate and manage Special Protection Areas (SPAs; Birds Directive) and Sites of Community Importance (SCIs; Habitats Directive) and, if necessary, restore them to favourable conservation status. These sites, which are collectively known as the Natura 2000 network, significantly contribute to the protected area network of EU Member States. The Natura 2000 network is complemented by nationally designated terrestrial protected areas that are established under each Member State's national framework. In 2018, the EU had protected 784 252 km² of terrestrial habitats through Member State's designated Natura 2000 sites, covering 18.0 % of EU's terrestrial land area. Member States with the highest percentage of Natura 2000 areas in 2018 include Slovenia (37.8 %), Croatia (36.6 %) and Bulgaria (34.5 %), with



the lowest percentages attributed to Denmark (8.4 %) and the UK (8.6 %) ⁽⁵⁵⁾. The designation of additional terrestrial protected areas saw slow growth between 2013 and 2017, but fell sharply between 2017 and 2018. This decline resulted in an overall reduction in total terrestrial area protected under Natura 2000 during the past five-year period.

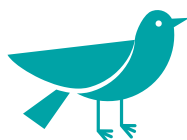
Despite being protected, many terrestrial habitats and species have not reached 'favourable conservation status' under the Habitats Directive

Assessments of the conservation status of species of European interest ⁽⁵⁶⁾ and habitats of European interest ⁽⁵⁷⁾ revealed that many species and habitats did not meet favourable condition standards as set out within the Habitats Directive. Across the EU (not including Greece), only 23 % of species assessments and 16 % of habitats assessments were considered 'favourable' in 2012, with the majority considered unfavourable (60 % for species and 47 % for habitats), unfavourable to bad, or declining (18 % for species and 30 % for habitats). Taxonomic groups with a particularly high proportion of species with a deteriorating trend in conservation status were mainly fish, molluscs and amphibians. Habitats showing a declining trend tended to be bogs, mires and fens, followed by grasslands. The majority of forests and freshwater habitat assessments were unfavourable, but with a stable trend ⁽⁵⁸⁾.

The EU Biodiversity Strategy to 2020 ⁽⁵⁹⁾ sets out six targets and 20 actions to halt the loss of biodiversity and ecosystem services in the EU by 2020. The Habitats Directive ⁽⁶⁰⁾ and the Birds Directive ⁽⁶¹⁾ play a central role in achieving these targets. In 2015, the European Commission published the mid-term review of the EU Biodiversity Strategy to 2020, reporting on progress towards the EU biodiversity targets ⁽⁶²⁾.

Common bird species and grassland butterfly species continue to decline in Europe

Changes in land use and the overuse of ecosystems can harm biodiversity. As biodiversity supports all ecosystem functions by contributing to their capacity to provide ecosystem services ⁽⁶³⁾, monitoring efforts are vital to preserving and restoring biodiversity levels. Birds are sensitive to both human-induced and natural environmental change, making them good indicators of wider ecosystem health. Their widespread and diverse habitats also make them ideal for monitoring the results of conservation efforts ⁽⁶⁴⁾.



Between 2001 and 2016, common bird species in the EU declined by **6.2%**

The EU [common bird index](#) tracks population abundance and diversity of a selection of common bird species in the EU, typified by common forest and farmland bird species. Between 1990 and 2016, the abundance and

diversity of all common bird species included in the index declined by 8.7%. Most of this drop took place from 2001, with the common bird index falling by 6.2% between 2001 and 2016. Common forest birds have experienced the smallest changes, with their index falling by 2.7% since 1990, but gaining 0.8% since 2001. In contrast, strong declines are apparent for common farmland birds, which have declined by 31.6% since 1990, half of which (14.8%) occurred after 2001. This decrease has largely been attributed to agricultural intensification, which has reduced natural nesting habitats through the removal of hedges, drainage of wetlands and the planting of previously uncultivated areas, such as meadows and fallow fields. Agro-chemicals and changes in ploughing times for cereals have also affected common farmland birds by reducing their habitats, disrupting their breeding and decreasing available food sources ⁽⁶⁵⁾. Recent improvements can be seen in the abundance and diversity of common forest bird species, with an increase of 2.1% since 2011, while the indices for common farmland birds and all common birds have continued to decline, by 3.1% and 1.9% respectively.

The EU [Birds Directive](#) ⁽⁶⁶⁾ protects all wild bird species and their habitats across the EU. The [Habitats Directive](#) ⁽⁶⁷⁾ introduces very similar measures but extends its coverage to more than 1 200 other rare, threatened or endemic species of wild animals and plants. It also protects more than 200 rare habitat types in their own right. Under the EU [Biodiversity Strategy to 2020](#) ⁽⁶⁸⁾, these Nature Directives should be fully implemented in an effort to halt and reverse the trends of biodiversity loss. In 2015, the European Commission published the [mid-term review of the EU Biodiversity](#)

[Strategy to 2020](#), reporting on the progress towards the EU biodiversity targets ⁽⁶⁹⁾, and in 2017 it launched the '[Action plan for nature, people and the economy](#)' ⁽⁷⁰⁾.

Funding through the [LIFE](#) programme has been made available to encourage nature conservation in Member States. Additional funding is available for farmers through the [European Agricultural Fund for Rural Development](#) ⁽⁷¹⁾ to implement farming practices aimed at addressing biodiversity loss.

While birds make great biodiversity indicators, butterflies – which are among the most common plant pollinators – can also act as signals of environmental and habitat health. The grassland butterfly index is based on data from 15 Member States, measuring the population trends of 17 butterfly species within the national Butterfly Monitoring Schemes ⁽⁷²⁾. According to estimates from these monitoring efforts, butterfly populations declined by 39.3% between 1990 and 2017, signifying a dramatic loss of grassland biodiversity. Much of this decrease has occurred over the past 15 years, with the index falling by 23.2% between 2002 and 2017. Causes for this decline can be attributed to changes in rural land use, in particular stemming from agricultural intensification as well as land abandonment in mountains and wet regions,

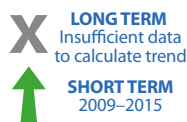


**Between 2000
and 2015,
grassland
butterfly
populations
in Europe
shrank by
23.2 %**

mainly in eastern and southern Europe. The loss of semi-natural grasslands has been particularly detrimental ⁽⁷³⁾. However, over the short term between 2012 and 2017, the grassland butterfly index has grown by 2.7%.

In June 2018, the European Commission adopted the first-ever EU [Initiative on Pollinators](#) ⁽⁷⁴⁾. The initiative sets the framework for an integrated approach to address the problem of declining pollinators in the EU and for a more effective use of existing tools and policies. The initiative aims to (a) improve knowledge of pollinator decline (both wild and domesticated pollinator species), its causes and consequences; (b) tackle these causes of pollinator decline; and (c) raise awareness, engage society at large and promote stakeholder collaboration ⁽⁷⁵⁾.

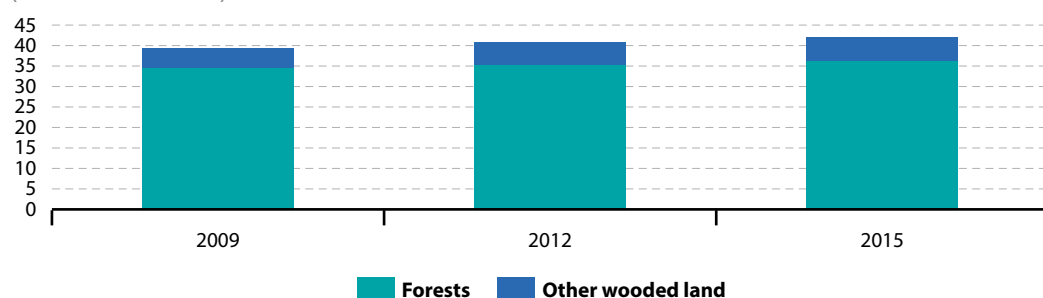
Presentation of the main indicators



Share of forest area

Forest area as a proportion of total land area provides information on the extent of forest ecosystems in the EU in comparison to other land cover classes; it does not provide any information about the condition of these areas. Data are derived from the [Land Use and Cover Area frame Survey \(LUCAS\)](#) collected by Eurostat every three years ⁽⁷⁶⁾.

Figure 15.1: Share of forest area, EU, 2009, 2012 and 2015
(% of total land area)



Note: Data refer to an EU aggregate without Bulgaria, Croatia, Cyprus, Malta and Romania; 2009 data are provisional.

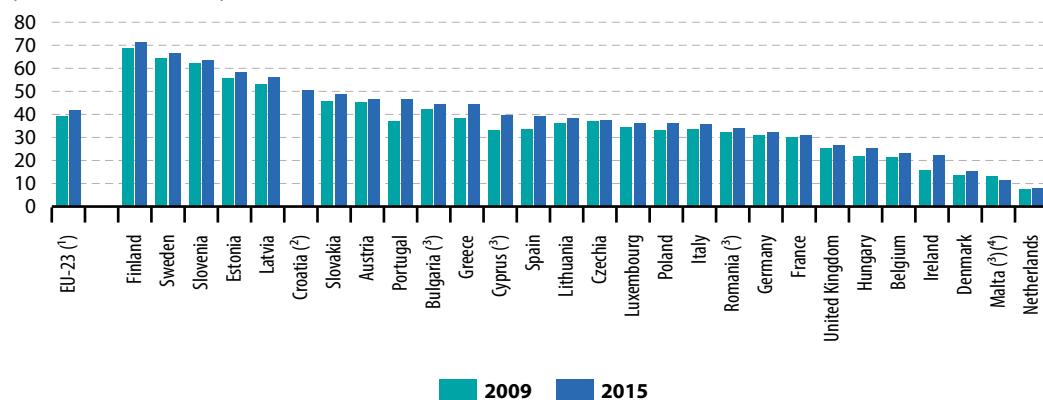
Source: Eurostat (online data code: [sdg_15_10](#))

Table 15.3: Compound annual growth rate (CAGR) of the share of forest area, EU

EU aggregate	Period	Growth rate
EU	2009–2015	1.1 % per year

Source: Eurostat (online data code: [sdg_15_10](#))

Figure 15.2: Share of forest area, by country, 2009 and 2015
(% of total land area)



Note: 2009 data are provisional for all countries.

⁽¹⁾ Not including Bulgaria, Cyprus, Croatia, Malta and Romania. ⁽³⁾ 2012 data (instead of 2009).

⁽²⁾ No data for 2009.

⁽⁴⁾ Data have low reliability.

Source: Eurostat (online data code: [sdg_15_10](#))

Soil sealing index

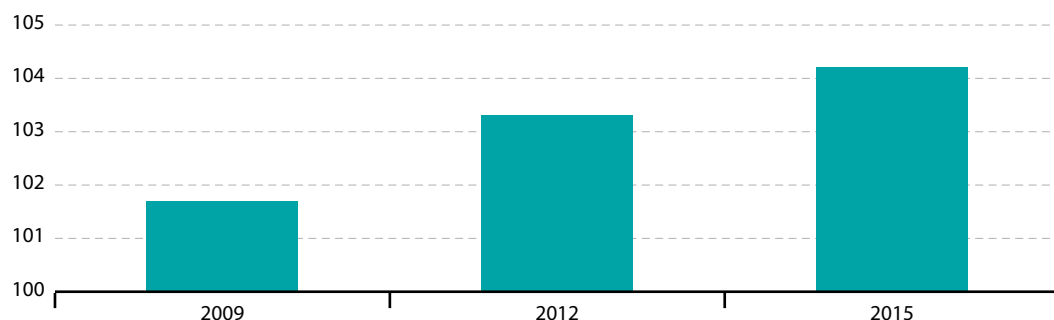
This indicator estimates the increase in sealed soil surfaces with impervious materials due to urban development and construction (for example, buildings, constructions and laying of completely or partially impermeable artificial material, such as asphalt, metal, glass, plastic or concrete). This provides an indication of the rate of soil sealing, when an area's land use changes towards artificial and urban land use ⁽⁷⁷⁾. The indicator builds on data from the imperviousness High Resolution Layer (a product of the Copernicus Land Monitoring Service). Imperviousness is mapped at a 20-metre resolution and with a 20-metre minimum mapping unit.

X **LONG TERM**
Insufficient data
to calculate trend

SHORT TERM
2009–2015

Figure 15.3: Soil sealing index, EU-28, 2006–2015

(index 2006 = 100)



Source: EEA (Eurostat online data code: [sdg_15_41](#))

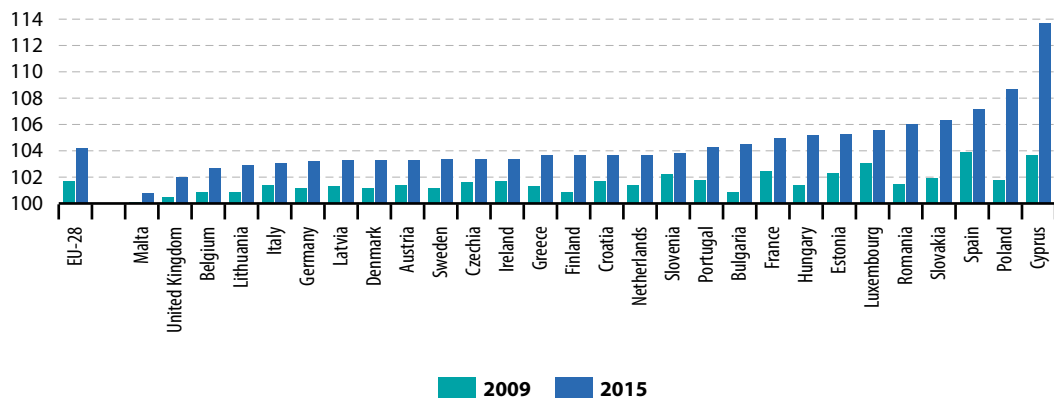
Table 15.4: Compound annual growth rate (CAGR) of the soil-sealing index, EU

EU aggregate	Period	Growth rate
EU-28	2009–2015	0.4% per year

Source: EEA (Eurostat online data code: [sdg_15_41](#))

Figure 15.4: Soil sealing index, by country, 2009 and 2015

(index 2006 = 100)



Source: EEA (Eurostat online data code: [sdg_15_41](#))



LONG TERM
2000–2012

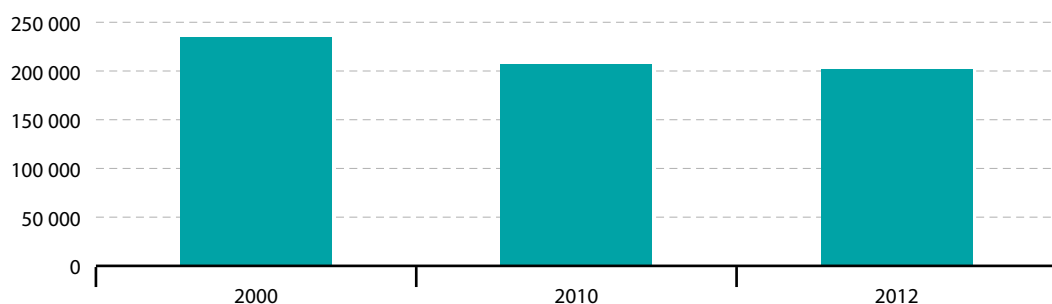


SHORT TERM
Insufficient data
to calculate trend

Estimated soil erosion by water

This indicator estimates the amount of soil lost by water erosion, such as from rain splash, sheet-wash and rills. This provides an indication of the area affected by a certain rate of soil erosion, although these numbers are estimated from soil-erosion susceptibility models and should not be taken as measured values ⁽⁷⁸⁾. Data presented in this section stem from the JRC's soil erosion database and focus on severe soil erosion (erosion rates higher than 10 t/ha/yr).

Figure 15.5: Estimated severe soil erosion by water, EU-28, 2000, 2010 and 2012
(km²)



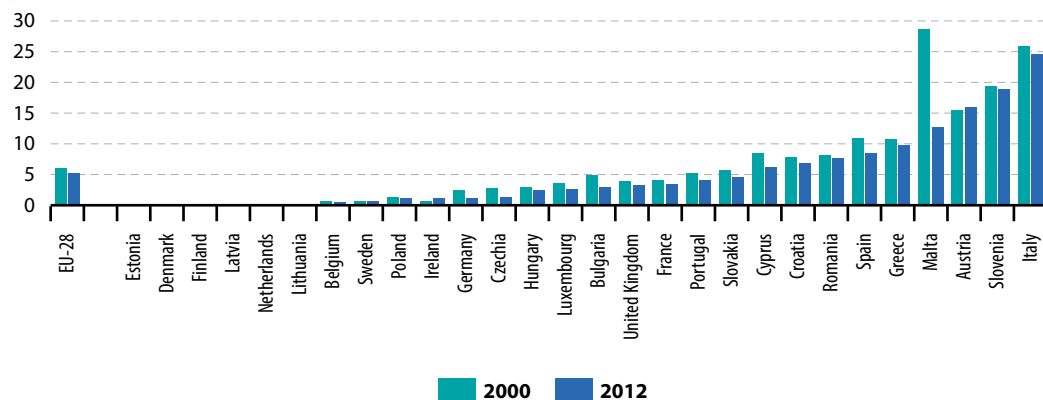
Source: Joint Research Centre (Eurostat online data code: [sdg_15_50](#))

Table 15.5: Compound annual growth rate (CAGR) of the estimated severe soil erosion by water, EU

EU aggregate	Period	Growth rate
EU-28	2000–2012	– 1.3% per year

Source: Joint Research Centre (Eurostat online data code: [sdg_15_50](#))

Figure 15.6: Estimated severe soil erosion by water, by country, 2000 and 2012
(% of the non-artificial erosive area)



Source: Joint Research Centre (Eurostat online data code: [sdg_15_50](#))

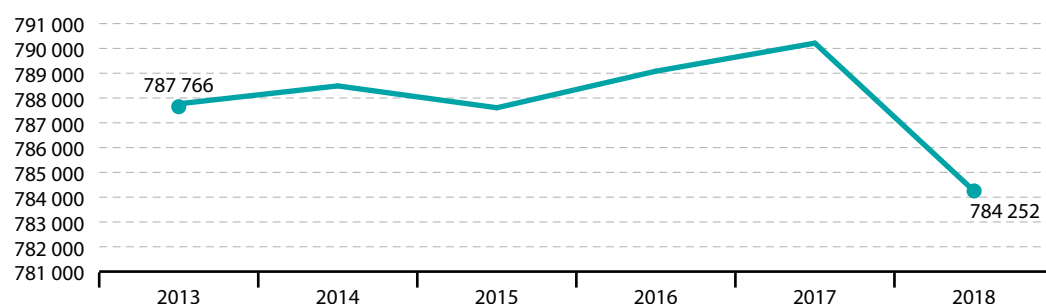
Surface of terrestrial sites designated under Natura 2000

Terrestrial sites designated under the Natura 2000 network, constituting Special Protected Areas (SPAs) and Sites of Community Importance (SCIs), help protect habitats and species that are important for the EU. The area of these sites can provide an indication of the implementation of the Natura 2000 network, and the 'completeness' of its coverage within Member State territories. Data presented in this section stem from the European Environment Agency (EEA) and the European Topic Centre for Biodiversity (ETC/BD).

X LONG TERM
Insufficient data
to calculate trend

SHORT TERM
2013–2018

Figure 15.7: Surface of terrestrial sites designated under Natura 2000, EU-28, 2013–2018 (km²)



Source: European Commission services, EEA (Eurostat online data code: [sdg_15_20](#))

Table 15.6: Compound annual growth rate (CAGR) of the surface of terrestrial sites designated under Natura 2000, EU

EU aggregate	Period	Growth rate
EU-28	2013–2018	– 0.1 % per year

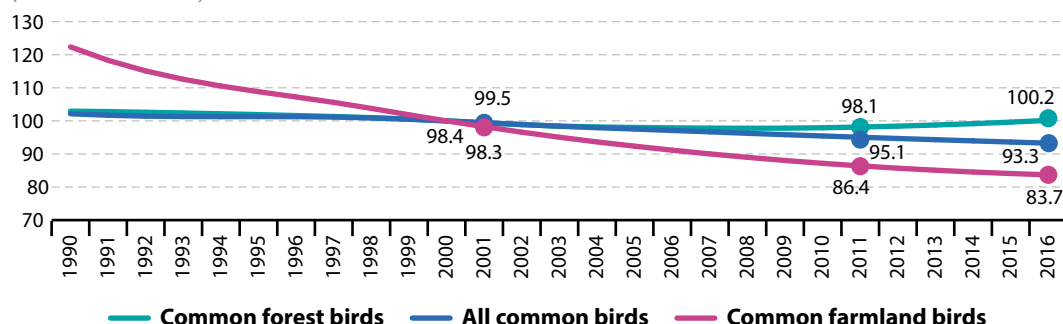
Source: European Commission services, EEA (Eurostat online data code: [sdg_15_20](#))



Common bird index

This indicator is an index and integrates the abundance and the diversity of a selection of common bird species associated with specific habitats. Rare species are excluded. Three groups of bird species are represented: common farmland species (39 species), common forest species (34 species) and all common bird species (167 species; including farmland and forest species). The index draws from data produced by the European Bird Census Council and its Pan-European Common Bird Monitoring Scheme programme. Data coverage has increased from 9 to 22 EU Member States over the period 1990 to 2010, with 25 countries covered as of the reference year 2011 ⁽⁷⁹⁾.

Figure 15.8: Common bird index by type of species, EU, 1990–2016
(index 2000 = 100)



Note: The EU aggregate changes depending on countries joining the Pan-European Common Birds Monitoring Scheme.

Source: European Bird Census Council (EBCC)/BirdLife/Statistics Netherlands (Eurostat online data code: [sdg_15_60](#))

Table 15.7: Compound annual growth rate (CAGR) of the indices for all common birds and common farmland birds, EU

EU aggregate	Period	Growth rate
EU (all common birds)	2001–2016	– 0.4 % per year
EU (all common birds)	2011–2016	– 0.4 % per year
EU (common farmland birds)	2001–2016	– 1.1 % per year
EU (common farmland birds)	2011–2016	– 0.6 % per year

Source: European Bird Census Council (EBCC)/BirdLife/Statistics Netherlands (Eurostat online data code: [sdg_15_60](#))

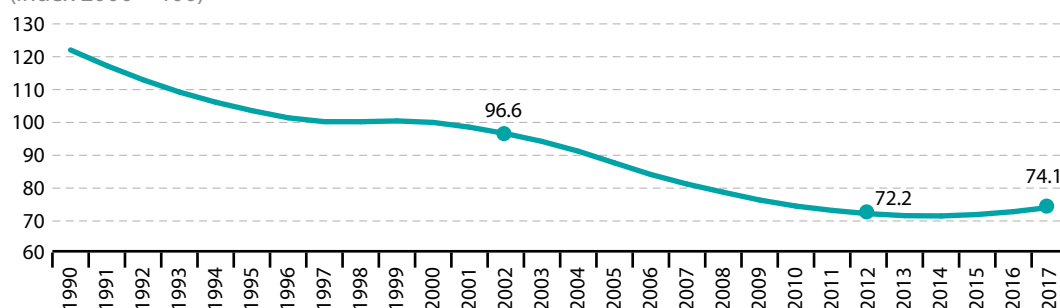
Grassland butterfly index

The grassland butterfly index is a status indicator on pollinators in Europe. It is based on data from 15 EU Member States (Belgium, Estonia, Finland, France, Germany, Ireland, Lithuania, Luxembourg, the Netherlands, Portugal, Romania, Slovenia, Spain, Sweden and the United Kingdom), measuring the population trends of 17 butterfly species ⁽⁸⁰⁾. Data presented in this section stem from the European Environment Agency, the European Butterfly Monitoring Scheme partnership and the Assessing Butterflies in Europe (ABLE) project ⁽⁸¹⁾.



Figure 15.9: Grassland butterfly index, EU, 1990–2017

(index 2000 = 100)



Source: EEA, Butterfly Conservation Europe, European Butterfly Monitoring Scheme partnership, Assessing Butterflies in Europe (ABLE) project (Eurostat online data code: [sdg_15_61](#))

Table 15.8: Compound annual growth rate (CAGR) of the grassland butterfly index, EU

EU aggregate	Period	Growth rate
EU	2002–2017	– 1.7 % per year
EU	2012–2017	0.5 % per year

Source: EEA, Butterfly Conservation Europe, European Butterfly Monitoring Scheme partnership, Assessing Butterflies in Europe (ABLE) project (Eurostat online data code: [sdg_15_61](#))

Further reading on life on land

Butterfly Conservation Europe (BCE)

European Commission (2016), *Fitness check of the EU Nature Legislation (Birds and Habitats Directives)*, SWD(2016) 472 final, Brussels.

European Commission (2015), *The Mid-Term review of the EU Biodiversity Strategy to 2020*, COM(2015) 478 final, Brussels.

European Commission (2011), *Report on best practices for limiting soil sealing and mitigating its effects*, Technical Report — 2011 — 050, Brussels.

EEA (2016), *The direct and indirect impacts of EU policies on land*, EEA Report No 8/2016, European Environment Agency, Copenhagen.

EEA (2016), *European forest ecosystems — State and trends*, EEA Report No 5/2016, European Environment Agency, Copenhagen.

EEA (2015), *European Briefings: Biodiversity, in SOER 2015 — The European environment — state and outlook 2015*, European Environment Agency, Copenhagen.

EEA (2015), *State of Nature in the EU*, Technical report No 2/2015, European Environment Agency, Copenhagen.

EEA (2015), *European Briefings: Land Systems, in SOER 2015 — The European environment — state and outlook 2015*, European Environment Agency, Copenhagen.

Díaz et al. (2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services* of the Intergovernmental Science-Policy Platform on biodiversity and Ecosystem Services (IPBES).

FAO and ITPS (2015), *Status of the World's Soil Resources (SWSR): Technical Summary*, Food and Agriculture Organization of the United Nations and Intergovernmental Technical Panel on Soils, Rome, FAO.

FAO and ITPS (2018), *Soil pollution— a hidden reality*, Food and Agriculture Organization of the United Nations and Intergovernmental Technical Panel on Soils, Rome, FAO.

PECBMS (2019), *State of common European breeding birds 2018*, CSO, Prague.

Further data sources on life on land

EEA, [Forest: growing stock, increment and fellings](#).

EEA, [Land take](#).

EEA, [Ecosystem coverage](#).

EEA, [Species of European interest](#).

EEA, [Habitats of European interest](#).

European Commission, [European Soil Data Centre \(ESDAC\): Soil Threats Data](#).

Notes

- (¹) See e.g. European Commission (2015), *The Mid-term review of the EU Biodiversity Strategy to 2020*, COM(2015) 478 final, Brussels; and European Environment Agency (2015), *The European Environment — state and outlook 2015*, Copenhagen.
- (²) Diaz et al. (2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on biodiversity and Ecosystem Services*.
- (³) Ibid.
- (⁴) European Environment Agency (2018), *Oxygen consuming substances in European rivers*.
- (⁵) FAO (2012), *Agriculture and water quality interactions: a global overview*, SOLAW Background Thematic Report — TR08, Food and Drug Administration, p.15.
- (⁶) Ibid.
- (⁷) European Environment Agency (2017), *Nitrates in groundwater by country*.
- (⁸) European Commission (2014), *Judgment of the Court (Second Chamber) 4 September 2014*, Info-Curia — Case-law of the Court of Justice.
- (⁹) European Commission (2016), *Water: Commission refers GERMANY to the Court of Justice of the EU over water pollution caused by nitrates*, European Commission Press Release Database.
- (¹⁰) European Commission (2018), *Commission report on the implementation of the nitrates directive*, COM(2018) 257 final, p. 5.
- (¹¹) European Parliament and Council of the European Union (2010), *Directive 2000/60/EC establishing a framework for Community action in the field of water policy*.
- (¹²) Council of the European Union (1998), *Directive 98/83/EC on the quality of water intended for human consumption*.
- (¹³) Council of the European Communities (1991), *Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources*.
- (¹⁴) European Environment Agency (2018), *Nutrients in freshwater in Europe*.
- (¹⁵) Council of the European Communities (1991), *Directive 91/271/EEC concerning urban waste water treatment*.
- (¹⁶) European Environment Agency (2018), *Nutrients in freshwater in Europe*.
- (¹⁷) World Bank (2017), *Atlas of Sustainable Development Goals 2017: World Development Indicators*, Washington, DC: World Bank, p. 90; European Commission (2013), *A New EU Forest Strategy: for forests and the forest-based sector*, COM(2013) 659 final, p. 2.
- (¹⁸) European Environment Agency (2016), *European forest ecosystems — State and trends*, EEA Report No 5/2016, Copenhagen.
- (¹⁹) Data refer to an EU aggregate without Bulgaria, Croatia, Cyprus, Malta and Romania.
- (²⁰) Data stem from Eurostat's Land Use and Cover Area frame Survey (LUCAS) but apply the FAO forest categories.
- (²¹) FAO (2015), *FRA 2015 — Terms and Definitions*, Rome, Food and Agriculture Organisation of the United Nations.
- (²²) European Commission (2013), *A new EU Forest Strategy: for forests and the forest-based sector*, COM(2013) 659 final, Brussels.
- (²³) European Commission (2011), *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*, COM(2011) 244 final, Brussels.
- (²⁴) Council of the European Communities (1992), *Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora*.
- (²⁵) European Commission (2010), *Europe 2020: A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.
- (²⁶) European Environment Agency (2017), *Forest: growing stock, increment and fellings*.
- (²⁷) Ibid.
- (²⁸) European Environment Agency (2016), *European forest ecosystems — State and trends*, EEA Report No 5/2016, Copenhagen; note that data for growing stock figures stems from various years, as explained in Annex 1 of the report.
- (²⁹) European Environment Agency (2017), *Forest: growing stock, increment and fellings*.
- (³⁰) European Environment Agency (2016), *The direct and indirect impacts of EU policies on land*, EEA Report No 8/2016, Copenhagen.
- (³¹) European Commission (2012), *The implementation of the Soil Thematic Strategy and ongoing activities*, COM(2012) 46 final; FAO (2015), *Status of the World's Soil Resources*, Food and Drug Administration, Rome, Food and Agriculture Organization of the United Nations.
- (³²) European Environment Agency (2017), *Imperviousness and imperviousness change*.
- (³³) European Environment Agency (2018), *Land take*.
- (³⁴) Data stem from the 'Land take and net land take indicator' that — at the time of writing — is still under development by the EEA. Data for 2018 are therefore preliminary.
- (³⁵) European Commission (2006), *Thematic Strategy for Soil Protection*, COM(2006) 231 final, Brussels.
- (³⁶) European Commission (2011), *Roadmap to a Resource Efficient Europe*, COM(2011), 571 final, Brussels.
- (³⁷) Data stem from the 'Land take and net land take indicator' that — at the time of writing — is still under development by the EEA. Data for 2018 are therefore preliminary.
- (³⁸) European Environment Agency (2018), *Land take*.
- (³⁹) European Environment Agency (2017), *Landscapes in transition: An account of 25 years of land cover change in Europe*, EEA Report No 10/2017.
- (⁴⁰) European Commission Directorate General for the Environment (2016), *Soil sealing*.

- (⁴¹) 2009 data refer to an EU aggregate without Bulgaria, Croatia, Cyprus, Malta and Romania; 2015 data refer to the EU-28.
- (⁴²) European Environment Agency (2018), *Land take*; European Commission (2011), *Overview of best practices for limiting soil sealing or mitigating its effects in EU-27*, Ch. 2.
- (⁴³) Eurostat (2017), *Statistics Explained: Land cover statistics*.
- (⁴⁴) European Commission Directorate General for the Environment (2016), *Soil*.
- (⁴⁵) European Soil Data Centre (ESDAC) (2017), *Erosion by water*.
- (⁴⁶) Panagos, P., Borrelli, P., Poesen, J., Ballabio, C., Lugato, E., Meusburger, K., Montanarella, L. and Alewell, C. (2015), *The new assessment of soil erosion by water in Europe*, *Environmental Science & Policy* 54, 438–447.
- (⁴⁷) Ibid.
- (⁴⁸) Matthews, A. (2013), *Greening agricultural payments in the EU's Common Agricultural Policy*, *Bio Based and Applied Economics*, 2 (1) (2013), pp. 1–27.
- (⁴⁹) Eurostat (2018), *Statistics Explained: Agri-environmental indicator — soil erosion*.
- (⁵⁰) European Commission (2006), *Thematic Strategy for Soil Protection*, COM(2006) 231 final, Brussels.
- (⁵¹) European Parliament and European Council (2013), *Decision No 1386/2013/EU on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'*.
- (⁵²) European Commission (2011), *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, Brussels.
- (⁵³) European Commission (2018), *Soil Organic Carbon Content*.
- (⁵⁴) European Commission (2018), *Soil Organic Carbon Content*.
- (⁵⁵) European Environment Agency (2018), *Natura 2000 Barometer*.
- (⁵⁶) European Environment Agency (2019), *Species of European interest*.
- (⁵⁷) European Environment Agency (2018), *Habitats of European interest*.
- (⁵⁸) European Environment Agency (2015), *State of Nature in the EU*.
- (⁵⁹) European Commission (2011), *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*, COM(2011) 244 final, Brussels.
- (⁶⁰) Council of the European Communities (1992), *Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora*.
- (⁶¹) European Parliament and Council of the European Union (2009), *Directive 2009/147/EC on the conservation of wild birds*.
- (⁶²) European Commission (2015), *Report from the Commission to the European Parliament and the Council — The mid-term review of the EU Biodiversity Strategy to 2020*, COM(2015) 478 final, Brussels.
- (⁶³) European Commission (2011), *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*, COM(2011) 244 final, Brussels.
- (⁶⁴) Eurostat (2018), *Statistics Explained, Biodiversity Statistics*.
- (⁶⁵) BirdLife International (2017), *The Vanishing: Europe's farmland birds*, published online by Iván Ramírez on 12 February 2017.
- (⁶⁶) European Parliament and Council of the European Union (2009), *Directive 2009/147/EC on the conservation of wild birds*.
- (⁶⁷) Council of the European Communities (1992), *Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora*.
- (⁶⁸) European Commission (2011), *Our life insurance, our natural capital: an EU biodiversity strategy to 2020*, COM(2011) 244 final, Brussels.
- (⁶⁹) European Commission (2015), *Report from the Commission to the European Parliament and the Council — The mid-term review of the EU Biodiversity Strategy to 2020*, COM(2015) 478 final, Brussels.
- (⁷⁰) European Commission (2017), *An Action plan for nature, people and the economy*, COM(2017) 198 final, Brussels.
- (⁷¹) European Parliament and Council of the European Union (2013), *Regulation (EU) No 1305/2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005*.
- (⁷²) European Environment Agency (2018), *Common birds and butterflies*.
- (⁷³) European Environment Agency (2013), *The European Grassland Butterfly Indicator: 1990–2011, Technical Report No 11/2013*, Copenhagen, EEA.
- (⁷⁴) European Commission (2018), *EU Pollinators Initiative*, COM(2018) 395 final, Brussels.
- (⁷⁵) European Commission (2018), *The EU approach to tackle pollinator decline*.
- (⁷⁶) See Eurostat, *Statistics Explained: LUCAS — Land use and land cover survey*.
- (⁷⁷) European Environment Agency (2017), *Imperviousness and imperviousness change*.
- (⁷⁸) Eurostat (2018), *Statistics Explained, Agri-environmental indicator — soil erosion*.
- (⁷⁹) Eurostat (2018), *Metadata Biodiversity (env_biodiv)*.
- (⁸⁰) European Environment Agency (2013), *The European Grassland Butterfly Indicator: 1990–2011, Technical Report No 11/2013*, Copenhagen, EEA.
- (⁸¹) See <http://www.bc-europe.eu/index.php?id=504>

16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

SDG 16 calls for peaceful and inclusive societies based on respect for human rights, protection of the most vulnerable, the rule of law and good governance at all levels. It also envisions transparent, effective and accountable institutions.











eurostat 
supports the SDGs

The European Union has been one of the most successful peace projects in the world. Under the guidance of the Treaty of Rome (1), signed in 1957, the Union can look back on 60 years of peace, democracy and solidarity. In 2012, the EU was awarded the Nobel Peace Prize for advancing the causes of peace, reconciliation, democracy and human rights in Europe. Effective justice systems play a crucial role in upholding the rule of law and the EU's fundamental values. At the EU level, a number of instruments and mechanisms are used by the Commission to promote and uphold the EU's fundamental values, in particular the rule of law. Nevertheless, crime still remains a threat to European citizens, businesses, state institutions and to society as a whole. In particular, one of the biggest challenges for European societies is corruption, which compromises trust in democratic institutions and weakens the accountability of political leadership. The European Commission has been given a political mandate to monitor the fight against corruption and to develop a comprehensive EU anti-corruption policy.



Table 16.1: Indicators measuring progress towards SDG 16, EU-28






Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Peace and personal security			
Death rate due to homicide	 ⁽¹⁾		page 320
Population reporting occurrence of crime, violence or vandalism in their area	 ⁽²⁾		page 321
Physical and sexual violence to women experienced within 12 months prior to the interview (*)	:	:	SDG 5, page 121
Access to justice			
General government total expenditure on law courts	 ⁽¹⁾		page 322
Perceived independence of the justice system	:	:	page 323
Trust in institutions			
Corruption Perceptions Index	:	:	page 324
Population with confidence in EU institutions			page 325

(*) Multi-purpose indicator.

(1) Past 13-year period.

(2) Past 10-year period, data refer to EU without Croatia.

Table 16.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Peace, justice and strong institutions in the EU: overview and key trends

Monitoring SDG 16 in an EU context focuses on the areas of peace and personal security, access to justice and trust in institutions. While the indicators for which EU time series data are available paint a favourable picture for the past few years, a comprehensive assessment of the EU progress towards SDG 16 is not possible due to several data gaps.

Peace and personal security

Safety is a crucial aspect of people's lives. Insecurity is a common source of fear and worry, and negatively affects quality of life. Physical insecurity includes all the external factors that could potentially put an individual's physical integrity in danger. Criminal actions are one of the most obvious causes of insecurity. Analyses of physical insecurity usually combine two aspects: the subjective perception of insecurity and the objective lack of safety. Available time series on both objective and subjective measures of personal safety show a favourable trend in the EU over the past decade. A look at gender-related aspects, however, reveals that some important issues of concern remain.

The EU has become a safer place to live

Homicide is one of the most serious crimes. In the EU, deaths due to homicide have fallen steadily since 2002, reaching a rate of 0.7 deaths per 100 000 people in 2015. This corresponds to a reduction of 46.9% over a 13-year period. The decline in homicides in the EU has gone hand in hand with improvements in people's perception of crime, violence or vandalism. Since 2007, the share of people reporting the occurrence of such



problems in their area has generally fallen in the EU. In 2017, 12.0% of the population felt affected by these issues, which is 3.9 percentage points less than in 2007.

The perception of being affected by crime, violence or vandalism differs across socio-demographic sub-groups of the EU population. While 14.6% of the population living below the poverty threshold — set at 60% of the median [equivalised income](#) — felt affected by such problems in 2017, this was only the case for 11.4% of the population above the poverty threshold. The differences are more pronounced across the sub-groups by the degree of urbanisation. With a reporting rate of 18.0% in 2017, almost every fifth person living in cities felt affected by crime, violence or vandalism in the neighbourhood. In the more sparsely populated towns and suburbs and in rural areas, reporting rates were much lower at 9.9% and 5.8% of the population, respectively (2).



The fear of victimisation paradox: when objective and subjective measures of physical insecurity do not match

National figures show that perceived exposure to crime, violence or vandalism in 2017 was almost eight times higher in the most affected country (23.6% of the population in Bulgaria) than in the least affected country (3.0% in Croatia). However, country differences in this subjective indicator need to be treated with caution. Previous research suggests crime rates from police registers and the subjective exposure to crime may differ, as population groups with low victimisation rates may be particularly afraid of crime (the so-called fear of victimisation paradox) (3). This is, for instance, the case in the United Kingdom, which had the

lowest death rate due to homicide across the EU, but one of the highest shares of people reporting occurrence of crime or other problems in their area (see Figures 16.2 and 16.4). In contrast, death rates due to homicide were among the highest in the Baltic countries, while they had rather low shares of people reporting crime, violence or vandalism in their neighbourhood. It should, however, be acknowledged that this comparison may not capture the full picture, as other forms of crime than homicide also contribute to perceived insecurity.

The European Agenda on security ⁽⁴⁾ sets out the main actions envisaged to ensure an effective EU response to terrorism and security threats in the European Union over the period 2015 to 2020. The Agenda identified three priorities: tackling terrorism and preventing radicalisation, disrupting organised crime, and fighting cybercrime. Other areas of EU intervention include the fight against trafficking in human beings and firearms, and the fight against corruption, financial crime and counterfeiting crime.

Men are more likely to die from homicide, while women are more likely to be victims of physical or sexual violence in their homes

Deaths due to homicide in the EU show a remarkable [gender gap](#). While death rates due to homicide have fallen for both sexes, they remain about twice as high for men (0.9 deaths per 100 000 persons in 2015, compared with 0.5 deaths per 100 000 persons for women). However, while men have a higher overall risk of being killed, women have a significantly higher risk of being killed by their intimate partners or family members. A study by the United Nations Office on Drugs and Crime (UNODC) shows that globally intimate partner- or family-related homicides accounted for 58 % of women who

were killed in 2017, while this was only the case for 18 % of male homicides in 2012 ⁽⁵⁾.

Overall, according to the UNODC report, almost a quarter (24 %) of homicides in Europe in 2017 (compared with 18 % globally) were at the hands of an intimate partner or were family-related. Additionally, while the total homicide rate has fallen, it has remained remarkably stable in this category ⁽⁶⁾. This is an issue of concern, given that women are at a much higher risk of being killed by their partners or family members (globally, 64 % of victims of intimate partner/family-related homicide were women), and especially when considering the broader concept of violence against women, encompassing all forms of physical, sexual and psychological violence.

Gender-based violence is a brutal form of discrimination, related to inequalities between women and men. Physical and [sexual violence](#) against women does not only affect their health and well-being, but can also hamper their access to education and employment, negatively affecting their financial independence, as well as the economy overall. In 2012, every third woman reported to have experienced some form of physical or sexual violence since the age of 15, and 8 % had experienced such violence in the 12 months prior to the survey ⁽⁷⁾.



8%
of women in the EU in 2012 had experienced physical or sexual violence during the past 12 months

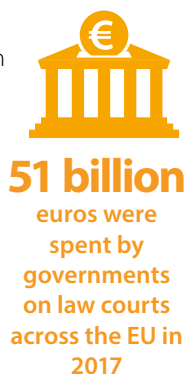
Access to justice

Well-functioning justice systems are an important structural condition on which EU Member States base their sustainable growth and social stability policies. Whatever the model of the national justice system or the legal tradition in which it is anchored, quality, independence and efficiency are among the essential parameters of an 'effective justice system'. As there is no single agreed way of measuring the quality of justice systems, the budget actually spent on courts is

used here as a proxy for the quality of the justice system. Moreover, judges need to be able to make decisions without interference or pressure from governments, politicians or economic actors, to ensure individuals and businesses can fully enjoy their rights. The perceived independence of the justice system is used for monitoring this aspect. Data for the EU show a generally favourable trend over the past few years in both areas: the financial resources spent on law courts have increased — although at a slower pace than **gross domestic product** (GDP) — and the perceived independence of the justice system has improved.

EU expenditure on law courts has grown slower than GDP

In the EU, general government expenditure on law courts rose by 26.3 % between 2004 and 2017, reaching almost EUR 51 billion in 2017. In per capita terms, this corresponds to an increase from EUR 81.9 per inhabitant in 2004 to EUR 99.5 per inhabitant in 2017, a 21.5 % rise. However, putting these figures in relation to total government expenditure reveals that spending on law courts has remained stable at 0.7 % since 2012, a level slightly lower than the 0.8 % reported between 2004 and 2008. In relation to GDP, expenditure on law courts amounted to 0.4 % of GDP over the same period, but has stayed at 0.3 % since 2015 ⁽⁸⁾. The dynamics in government expenditure on law courts therefore do not reflect a stronger focus on the financing of law courts but merely mirror an increase in total government spending, which was slightly outperformed by growth in nominal GDP. This development can be attributed to governments consolidating their budgets following the financial crisis.



More than half of the EU population consider the justice system to be sufficiently independent

In 2019, 56 % of EU inhabitants rated the independence of the courts and judges in

their country as 'very good' or 'fairly good'. This represents an increase of four percentage points compared with 2016. At the same time, the perception of 'very bad' or 'fairly bad' fell by three percentage points, from 36 % to 33 %. The most common reason for respondents rating the independence of their justice system as good was that the status and position of judges sufficiently guaranteed their independence. In contrast, interference or pressure from government and politicians were the main reasons for a bad rating of perceived independence of courts and judges ⁽⁹⁾.



56 %
of the EU
population
rated the
independence
of courts and
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or fairly good in
2019

Younger and higher-educated people, as well as those who have not been to court, have a better perception of the justice system's independence

Age seems to have a notable effect on the perception of the independence of the justice system. The share of respondents' rating their country's justice system as good decreases with older age: while 61 % of 15- to 24-year old respondents gave a good rating in 2019, only 54 % of respondents aged 55 or over had the same perception. Even more notable differences were visible in terms of the length of time respondents had been in education. Those who had finished school at the age of 15 were more likely to have a negative perception of the independence of the justice system (43 % good, 39 % bad). In contrast, respondents studying until the age of 20 or beyond had a more positive perception (62 % good, 30 % bad). Moreover, employees (62 %) were more likely to give a good rating than self-employed people (52 %), manual workers (50 %) or people who were not employed (53 %). Notably, respondents who had been involved in a dispute that had gone to court were more evenly split between those who rated their system as good (50 %) and bad (45 %) than those who had not been to court (56 % good, 32 % bad) ⁽¹⁰⁾.

Improving the effectiveness of justice systems in Member States has been identified as a key component for structural reforms in the [European Semester](#), the annual cycle for the coordination of economic policies at EU level. With the help of the [EU justice scoreboard](#), the EU monitors the efficiency, quality and independence of the Member State's justice systems.

Trust in institutions

Effective justice systems are a prerequisite for the fight against corruption. Corruption generally comprises illegal activities, which are deliberately hidden and only come to light through scandals, investigations or prosecutions. Corruption inflicts financial damage by lowering investment levels, hampering the fair operation of the internal market and reducing public finances. It also causes social harm as organised crime groups use corruption to commit other serious crimes, such as trafficking in drugs and humans. In the European Commission Communication from 2011, corruption was estimated to cost the EU economy EUR 120 billion per year, equivalent to about 1 % of the Union's GDP at that time ⁽¹¹⁾. Corruption can also undermine trust in democratic institutions and weaken the accountability of political leadership. Available data on corruption and trust in institutions show that the EU has remained among the least corrupt regions in the world. Trust levels in the main EU institutions have nevertheless deteriorated since the early 2000s, although a turnaround was observed in the past few years.

EU Member States are among the least corrupt countries in the world

As there is no meaningful way to assess absolute levels of corruption in countries or territories on the basis of hard empirical evidence, capturing perceptions of corruption of those in a position to offer assessments of public-sector corruption is currently the most reliable method of comparing relative corruption levels

across countries. According to Transparency International's [Corruption Perceptions Index](#) (CPI), EU countries continued to rank among the least-corrupt ones globally in 2018 and made up more than a half of the global top 20 least-corrupt countries. Within the EU, northern European countries achieved the best scores, with Denmark, Sweden and Finland leading the ranking. At the other end of the scale, Bulgaria and Greece showed the highest levels of perceived corruption across the EU. On the global list (comprising 180 countries in total), these two countries were ranked 77th and 67th, respectively ⁽¹²⁾.



55 %
of the 20
least corrupt
countries in the
world in 2018
were in the EU

The country ranking in the CPI largely corresponds to analogous answers collected in late 2017 through a [Eurobarometer survey](#) ⁽¹³⁾, in which Finland, Denmark and Sweden were identified as the countries where corruption was the least widespread. The responses collected through this survey, however, paint a more pessimistic picture than the CPI regarding the levels of corruption across the EU. In all but five countries, more than half of respondents considered corruption to be a widespread national problem. For the EU as a whole, this translates into an average of 68 % of respondents sharing this perception in late 2017. The perception of corruption as being a widespread phenomenon was generally higher for people in economically disadvantageous situations: those who were unemployed or who were struggling to pay their household bills were significantly more likely to think that corruption was widespread.

There also exists a notable relationship between the CPI and the perceived independence of the justice system. Countries that score high in the CPI (such as Denmark, Finland or Austria) also show a high share of the population rating the independence of the justice system as 'good' (see Figures 16.8 and 16.9). Conversely, countries with less optimistic ratings of the justice system's independence also tend to have lower CPI scores, for example Bulgaria, Slovakia and Croatia. As

both indicators are based on people's perceptions, however, a causal relationship between the effectiveness of the justice system and the occurrence of corruption cannot be implied based on these data. Effective justice systems are nevertheless considered as a prerequisite for fighting corruption ⁽¹⁴⁾.

Globally, the CPI reports a high corruption burden in more than two-thirds of countries

Globally, out of the 180 countries included in the CPI 2018, more than two-thirds scored below 50 on the scale from 0 (highly corrupt) to 100 (very clean). Looking at regional aggregates, western European countries and the EU were perceived to be the cleanest in 2018 (average score of 66). Countries in Africa (average score of 32) and from eastern Europe and central Asia (average score of 35) were among the most corrupt. The 12 best countries on the global list had a score between 80 and 90 out of the maximum of 100, with Denmark (score of 88), New Zealand (score of 87) and Finland, Singapore, Sweden and Switzerland (each scoring 85) in the lead. In contrast, the three most corrupt countries according to the CPI were Somalia, Syria and South Sudan, with scores of 10, 13 and 13, respectively ⁽¹⁵⁾.

The deterioration of trust in EU institutions observable since the early 2000s has stopped in recent years

Confidence in political institutions is key for effective democracies. On the one hand, citizens' confidence increases the probability that they vote in democratic elections. On the other hand, it provides politicians and political parties with the necessary mandate to take decisions that are accepted in society.

Since the early 2000s, the EU has seen a considerable decline in levels of trust in three of

its main institutions, the European Parliament, the European Commission and the European Central Bank. While in 2001 at least half of the EU population expressed their confidence in each of these three institutions, trust levels fell below 40% for all three of them by 2013 and remained at low levels until 2016. More recent data, however, indicate a turnaround in this trend, with trust levels increasing between 7 and 9 percentage points, depending on the institution, over the short term period between 2013 and 2018.

The economic crisis may have played a role in the strong decline in trust in EU institutions observed between 2007 and 2013. A financial crisis can be seen as test of the EU's governance mechanisms. However, citizens tend to be much less acquainted with EU institutions compared with their own national or regional governments, making confidence in the EU much more dependent on extrinsic factors, such as contextual information, than on actual governance ⁽¹⁶⁾.

Throughout the years, the European Parliament has remained the most trusted of the three institutions surveyed. In 2018, 48% of the EU population expressed confidence in the European Parliament, followed by 43% for the European Commission and 41% for the European Central Bank. Across EU Member States, the European Parliament was the most trusted of the surveyed EU institutions in all countries except for Finland and Malta, where the European Central Bank was the most trusted, and Lithuania, where the European Commission and the European Parliament were equally trusted.



48 %
of the EU
population
expressed trust
in the European
Parliament in
2018, making it
the most trusted
of the main EU
institutions

Presentation of the main indicators



LONG TERM
2002–2015



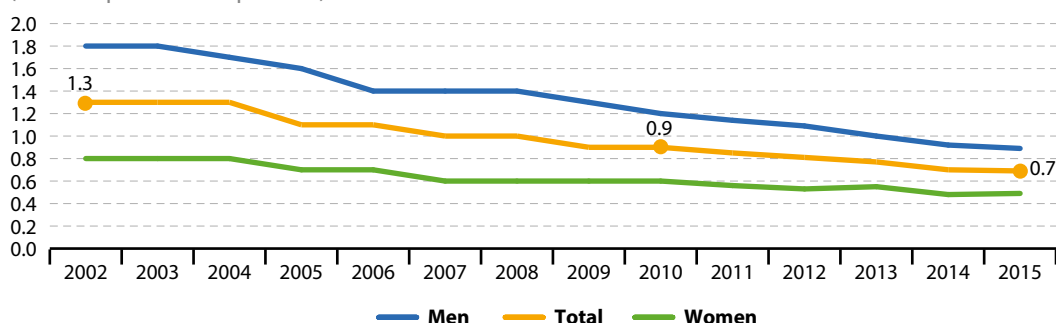
SHORT TERM
2010–2015

Death rate due to homicide

The indicator tracks deaths due to homicide and injuries inflicted by another person with the intent to injure or kill by any means, including 'late effects' from assault (International Classification of Diseases (ICD) codes X85 to Y09 and Y87.1). It does not include deaths due to legal interventions or war (ICD codes Y35 and Y36). The data are presented as standardised death rates, meaning they are adjusted to a standard age distribution so they can be measured independently of the population's age structure.

Figure 16.1: Death rate due to homicide, by sex, EU-28, 2002–2015

(number per 100 000 persons)



Source: Eurostat (online data code: [sdg_16_10](#))

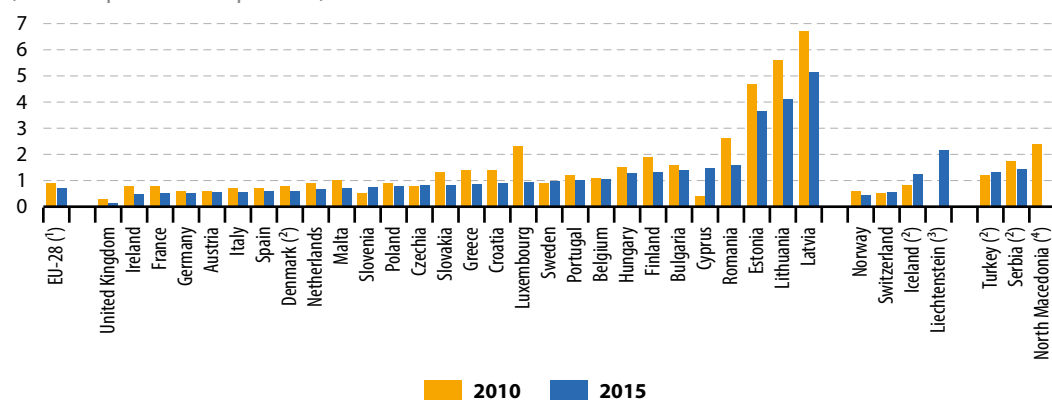
Table 16.3: Compound annual growth rate (CAGR) of the death rate due to homicide, EU

EU aggregate	Period	Growth rate
EU-28	2002–2015	– 4.8 % per year
EU-28	2010–2015	– 5.2 % per year

Source: Eurostat (online data code: [sdg_16_10](#))

Figure 16.2: Death rate due to homicide, by country, 2010 and 2015

(number per 100 000 persons)



(†) 2010 data are estimates.

(‡) 2014 data (instead of 2015); no data for 2010.

(*) 2011 data (instead of 2010)

(†) No data for 2015.

Source: Eurostat (online data code: [sdg_16_10](#))

Population reporting occurrence of crime, violence or vandalism in their area

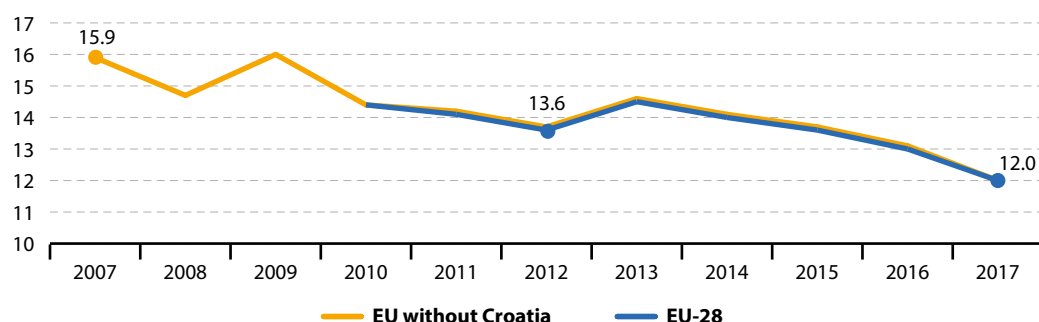
This indicator shows the share of the population who reported they face the problem of crime, violence or vandalism in their local area. This describes the situation where the respondent feels these problems affect their household, although this perception is not necessarily based on personal experience. The data stem from the [EU Statistics on Income and Living Conditions \(EU-SILC\)](#).

↑ **LONG TERM**
2007–2017

↑ **SHORT TERM**
2012–2017

Figure 16.3: Population reporting occurrence of crime, violence or vandalism in their area, EU, 2007–2017

(% of population)



Source: Eurostat (online data code: [sdg_16_20](#))

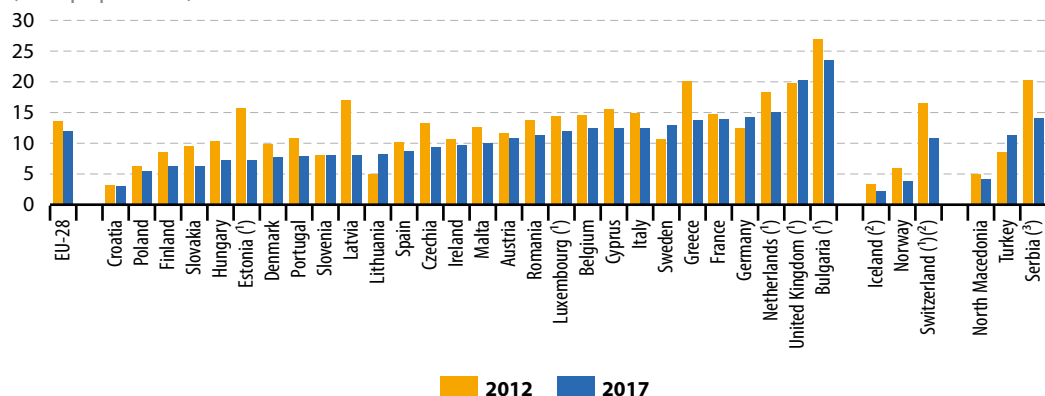
Table 16.4: Compound annual growth rate (CAGR) of the share of population reporting occurrence of crime, violence or vandalism in their area, EU

EU aggregate	Period	Growth rate
EU without Croatia	2007–2017	– 2.8 % per year
EU-28	2012–2017	– 2.5 % per year

Source: Eurostat (online data code: [sdg_16_20](#))

Figure 16.4: Population reporting occurrence of crime, violence or vandalism in their area, by country, 2012 and 2017

(% of population)



⁽¹⁾ Break(s) in time series between the two years shown.

⁽³⁾ 2013 data (instead of 2012).

⁽²⁾ 2016 data (instead of 2017).

Source: Eurostat (online data code: [sdg_16_20](#))



LONG TERM
2004–2017

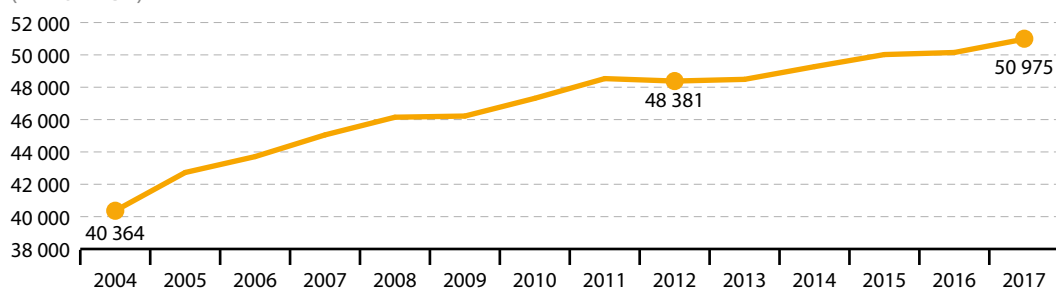


SHORT TERM
2012–2017

General government total expenditure on law courts

This indicator refers to the general government total expenditure on law courts. It includes expenditure on the administration, operation or support of civil and criminal law courts and the judicial system, including enforcement of fines and legal settlements imposed by the courts. The operation of parole and probation systems, legal representation and advice on behalf of government or on behalf of others provided by government in cash or in services are also taken into account. Law courts include administrative tribunals, ombudsmen and the like, but excludes prison administrations.

Figure 16.5: General government total expenditure on law courts, EU-28, 2004–2017
(million EUR)



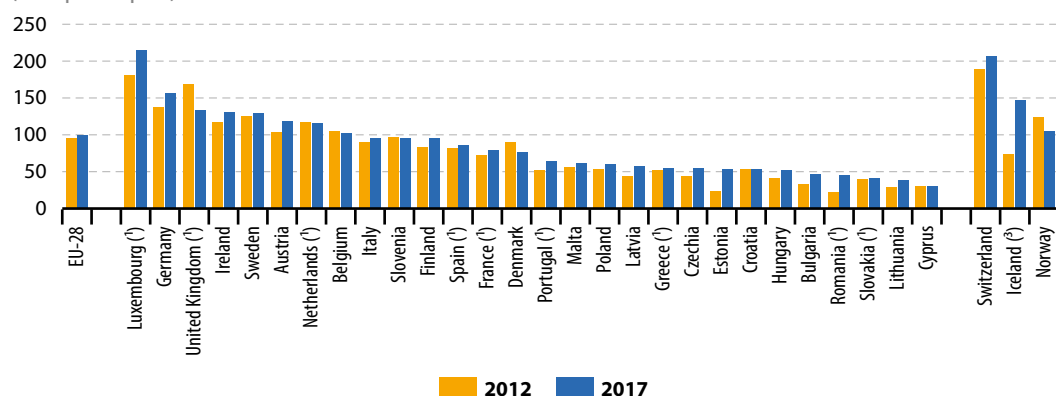
Source: Eurostat (online data code: [sdg_16_30](#))

Table 16.5: Compound annual growth rate (CAGR) of the general government total expenditure on law courts, EU

EU aggregate	Period	Growth rate
EU-28	2004–2017	1.8 % per year
EU-28	2012–2017	1.1 % per year

Source: Eurostat (online data code: [sdg_16_30](#))

Figure 16.6: General government total expenditure on law courts, by country, 2012 and 2017
(EUR per capita)



(*) 2017 data are provisional and/or estimated.

(*) 2013 data (instead of 2012).

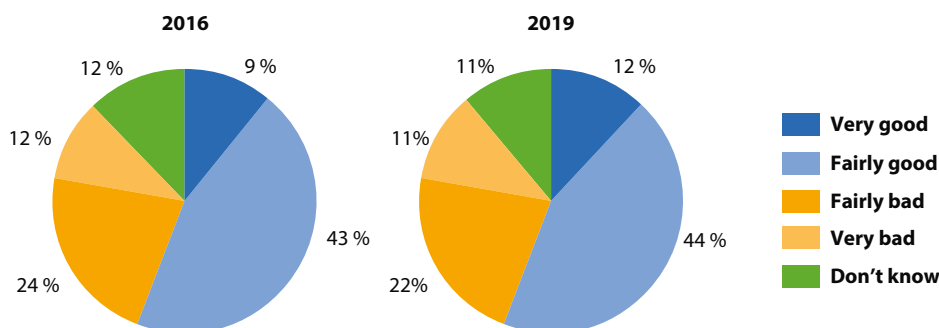
Source: Eurostat (online data code: [sdg_16_30](#))

Perceived independence of the justice system

This indicator is designed to explore respondents' perceptions about the independence of the judiciary across EU Member States, looking specifically at the perceived independence of the courts and judges in a country. Data on the perceived independence of the justice system stem from annual Flash Eurobarometer surveys, which started in 2016 on behalf of the European Commission's Directorate-General for Justice and Consumers.

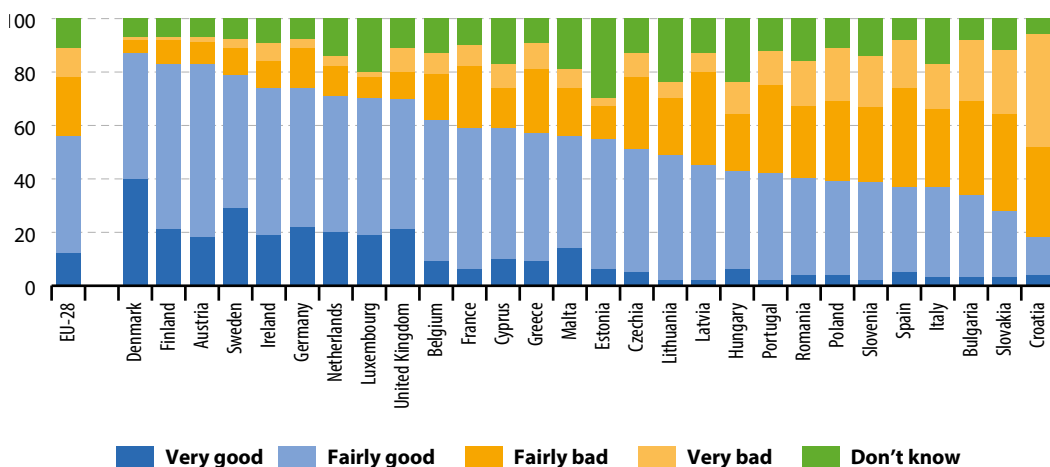
X Insufficient data to calculate trends

Figure 16.7: Perceived independence of the justice system, EU-28, 2016 and 2019
(% of population)

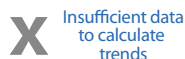


Source: European Commission services (Eurostat online data code: [sdg_16_40](#))

Figure 16.8: Perceived independence of the justice system, by country, 2019
(% of population)



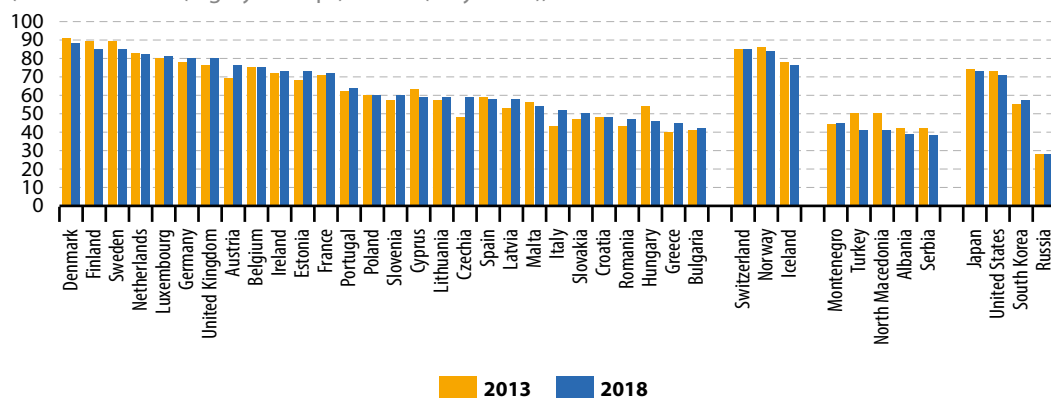
Source: European Commission services (Eurostat online data code: [sdg_16_40](#))



Corruption Perceptions Index

This indicator is a composite index based on a combination of surveys and assessments of corruption from 13 different sources and scores. It ranks countries based on how corrupt their public sector is perceived to be, with a score of 0 representing a very high level of corruption and a score of 100 representing a very clean country. The sources of information used for the [Corruption Perception Index](#) (CPI) are based on data gathered in the 24 months preceding the publication of the index. The CPI includes only sources that provide a score for a set of countries/territories and that measure perceptions of corruption in the public sector. For a country/territory to be included in the ranking it must be included in a minimum of three of the CPI's data sources. The CPI is published by [Transparency International](#).

Figure 16.9: Corruption Perceptions Index, by country, 2013 and 2018
(score scale of 0 (highly corrupt) to 100 (very clean))



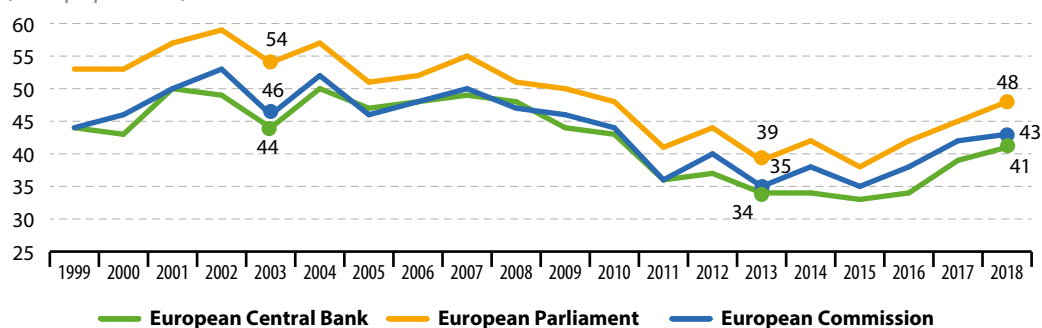
Source: Transparency International (Eurostat online data code: [sdg_16_50](#))

Population with confidence in EU institutions

This indicator measures confidence among EU citizens in three EU institutions: the European Parliament, the European Commission and the European Central Bank. It is expressed as the share of positive opinions (people who declare that they tend to trust) about the institutions. Citizens are asked to express their confidence levels by choosing the following alternatives: 'tend to trust', 'tend not to trust' and 'don't know' or 'no answer'. The indicator is based on the [Eurobarometer](#), a survey which has been conducted twice a year since 1973 to monitor the evolution of public opinion in Member States. The indicator only displays the results of the autumn survey.



Figure 16.10: Population with confidence in EU institutions, by institution, EU-28, 1999–2018
(% of population)



Note: 1999–2003 data refer to EU-15.

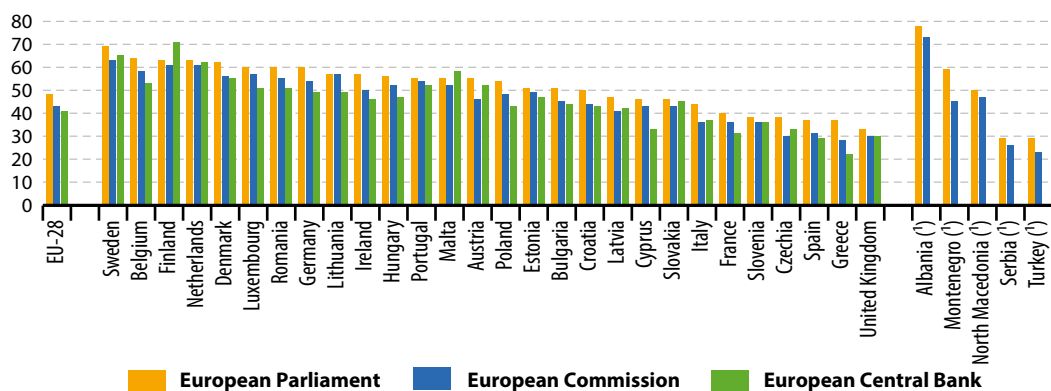
Source: European Commission services, Eurobarometer (Eurostat online data code: [sdg_16_60](#))

Table 16.6: Compound annual growth rate (CAGR) of the share of population with confidence in EU institutions, EU

EU institution	EU aggregate	Period	Growth rate
European Commission	EU-28	2003–2018	– 0.4% per year
	EU-28	2013–2018	4.2% per year
European Central Bank	EU-28	2003–2018	– 0.5% per year
	EU-28	2013–2018	3.8% per year
European Parliament	EU-28	2003–2018	– 0.8% per year
	EU-28	2013–2018	4.2% per year

Source: European Commission services, Eurobarometer (Eurostat online data code: [sdg_16_60](#))

Figure 16.11: Population with confidence in EU institutions, by institution and country, 2018
(% of population)



(¹) No data for European Central Bank.

Source: European Commission services, Eurobarometer (Eurostat online data code: [sdg_16_60](#))

Further reading on peace, justice and strong institutions

European Commission (2019), *The 2019 EU Justice Scoreboard*, COM(2019) 198/2.

European Commission (2019), *Flash Eurobarometer 474 Report on Perceived independence of the national justice systems in the EU among the general public*.

European Commission (2017), *Fight against corruption*, European Semester thematic factsheet.

European Research Centre for Anti-Corruption and State-Building (ERCAS) & Hertie School of Governance (2015), *Public integrity and trust in Europe*, Berlin.

UNODC (2014), *Global study on homicide 2013*, United Nations Office on Drugs and Crime, Vienna.

UNODC (2018), *Global study on homicide 2018: Gender-related killing of women and girls*, United Nations Office on Drugs and Crime, Vienna.

Further data sources on peace, justice and strong institutions

Eurostat, *Crime and criminal justice statistics*.

UNODC, *Global statistics on crime, criminal justice, drug trafficking and prices, drug production, and drug use*.

World Bank, *Worldwide Governance Indicators*.

Notes

- (¹) Signed in Rome in 1957 as the Treaty establishing the European Economic Community, it is now known as *Treaty on the Functioning of the European Union*.
- (²) Source: Eurostat (online data code: [ilc_mddw06](#)).
- (³) See for example: Rader, N. (2017), *Fear of Crime*, *Oxford Research Encyclopedia of Criminology*.
- (⁴) European Commission (2015), *The European Agenda on Security*, COM(2015) 185 final, Strasbourg.
- (⁵) UNODC (2018), *Global study on homicide 2018, Gender-related killing of women and girls*, United Nations Office on Drugs and Crime, Vienna, p. 10.
- (⁶) Ibid.
- (⁷) European Union Agency for Fundamental Rights (FRA), *Violence against women survey*.
- (⁸) Source: Eurostat (online data code: [gov_10a_exp](#)).
- (⁹) European Commission (2019), *Flash Eurobarometer 474 Report on Perceived independence of the national justice systems in the EU among the general public*, p. 4.
- (¹⁰) European Commission (2019), *Flash Eurobarometer 474 Report on Perceived independence of the national justice systems in the EU among the general public*, p. 9.
- (¹¹) European Commission (2011), Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, *Fighting Corruption in the EU*, COM(2011) 308 final.
- (¹²) Transparency International (2019), *Corruption Perceptions Index 2018*.
- (¹³) European Commission (2017), *Special Eurobarometer 470 on Corruption*, p. 16ff.
- (¹⁴) Also see European Commission (2016), *European Semester Thematic Factsheet on Effective Justice Systems*.
- (¹⁵) Transparency International (2019), *Corruption Perceptions Index 2018*.
- (¹⁶) European Research Centre for Anti-Corruption and State-Building (ERCAS) & Hertie School of Governance (2015), *Public integrity and trust in Europe*, Berlin, p. 19.

17

Strengthen the means of implementation and revitalise the global partnership for sustainable development

Goal 17 calls for a global partnership for sustainable development. The goal highlights the importance of global macroeconomic stability and the need to mobilise financial resources for developing countries from international sources, as well as through strengthened domestic capacities for revenue collection. It also highlights the importance of trade for developing countries and equitable rules for governing international trade.














eurostat 
supports the SDGs

The world today is more interconnected than ever before. The SDGs can only be realised with a strong commitment to global partnership and cooperation. Coordinating policies to help developing countries manage their debt, as well as promoting investment for the least developed ones, is vital to achieving sustainable growth and development. The EU has long been committed to global partnership by supporting less-developed economies through official development assistance. Over the past decade, there has been a shift in the balance of roles, from donor–recipient towards a more equal partnership. The EU has been strongly involved in processes such as the Busan Partnership for Effective Development Cooperation and the Nairobi High-Level Meeting of the Global Partnership. However, to help others, the EU also has to ensure its own financial stability and make efforts to ensure good financial governance of its Member States.








Table 17.1: Indicators measuring progress towards SDG 17, EU-28

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Global partnership			
 Official development assistance as share of gross national income	 ⁽¹⁾		page 337
EU financing to developing countries			page 339
EU Imports from developing countries			page 340
Financial governance within the EU			
General government gross debt			page 341
Shares of environmental and labour taxes in total tax revenues	 ⁽²⁾	 ⁽²⁾	page 342

⁽¹⁾ Past 13-year period.

⁽²⁾ Calculation of trend based on shares of environmental taxes in total tax revenues only.

Table 17.2: Explanation of symbols for indicating progress towards SD objectives and targets

Symbol	With quantitative target	Without quantitative target
	Trends for indicators marked with this 'target' symbol are calculated against an official and quantified EU policy target. In this case the arrow symbols should be interpreted according to the left-hand column below. Trends for all other indicators should be interpreted according to the right-hand column below.	
	Significant progress towards the EU target	Significant progress towards SD objectives
	Moderate progress towards the EU target	Moderate progress towards SD objectives
	Insufficient progress towards the EU target	Moderate movement away from SD objectives
	Movement away from the EU target	Significant movement away from SD objectives
:	Calculation of trend not possible (for example, time series too short)	

Note: The two methods for calculating progress used in this report are explained in more detail in the introduction and in the annex; for an overview of the considered policy targets see Table II.18 in the annex.

Partnership for the goals in the EU: overview and key trends

Monitoring SDG 17 in an EU context focuses on global partnership and financial governance within the EU. The EU has made progress in the area of global partnership, with increasing financial flows to and trade with developing countries over the past few years. Trends in the sphere of financial governance within the EU have been mixed.

Global partnership

To achieve the ambition of the 2030 Agenda, cooperative and strong partnerships are necessary at all levels and between different governments, the private sector, civil society and other parties. The EU has taken steps in this direction with the creation of a multi-stakeholder platform on the SDGs ⁽¹⁾, with the aim to support and advise the European Commission on the implementation of SDGs at the EU level.

Wealthier economies such as the EU can support the implementation of the 2030 Agenda in developing countries through the mobilisation of public and private, domestic and international resources. These resources can be both financial and non-financial ⁽²⁾. This chapter focuses on the former. Overall, the trends shown by the global partnership indicators paint a rather favourable picture of the EU over the past few years.

The EU supports country-led development through a range of financial support mechanisms

In 2015, in the Addis Ababa Action Agenda, all countries, including EU Member States, recognised that international public finance plays an important role in complementing countries' domestic efforts to mobilise public resources, especially in the poorest and most vulnerable countries with limited domestic resources. **Official development assistance** (ODA), other official flows (OOFs), private flows, such as **foreign direct investment** (FDI), grants by non-governmental organisations (NGOs) and officially supported

export credits ⁽³⁾ are some of the different types of financial flows from the EU and its Member States to developing countries. They support the implementation of the 2030 Agenda by helping reduce poverty and improve well-being and development.

There has been a positive trend regarding the total volume of financial flows from the EU to developing countries over the past two decades. The **OECD** estimates that total EU financing to developing countries, comprising flows from the public and private sector, amounted to EUR 155.2 billion in 2017. This is almost four times higher than in 2002, when financing to developing countries experienced a trough, at only EUR 38.8 billion. However, this still constitutes a decrease compared with the levels reached in 2014 and 2015.

While OOFs and grants by NGOs have remained at a rather marginal level, ODA and private flows combined have accounted for more than 90 % of total estimated EU financing for development since 2006. Private flows, however, have experienced a huge variation over the years, ranging from only 0.8 % of total financing in 2002 to 69.0 % in 2007. Therefore, ODA can be seen as the most reliable and steady financial flow from the EU to developing countries ⁽⁴⁾.

Official development assistance: a long struggle to meet targets

The idea that donor countries should contribute 0.7 % of their **gross national income** (GNI) to ODA has been on the international agenda for nearly half a century ⁽⁵⁾. This target, originally set for 1975, was only met by four EU Member States in 2018. As a whole, the EU spent 0.47 % of its GNI on ODA in 2018, after having stagnated close to 0.4 % of GNI for the period 2005 to 2014. The increase between 2014



155
billion EUR were
spent by the EU
on financing
to developing
countries in
2017

and 2016 by 0.12 percentage points is partly linked to the recent refugee crisis, as donor countries are allowed to count certain expenses for refugees for the first year after the refugees' arrival as ODA. Thus, on the one hand, the extent of the recent refugee crisis is one reason why ODA saw such an increase in 2015 and 2016. However, after reaching a peak in 2016 of 0.50 % of GNI, the EU's collective ODA declined by 2.4 % from 2016 to 2017 ⁽⁶⁾ and again by 1 % from 2017 to 2018 ⁽⁷⁾. A decline in in-donor refugee costs contributed to this recent fall in EU collective ODA ⁽⁸⁾.

The amount of ODA is linked to the EU's economic situation. This became particularly visible when overall flows fell during the economic downturn in 2008 and its aftermath, while the actual ratio of ODA to GNI did not change significantly. With several developments expected in the years ahead (for example, the withdrawal of the United Kingdom from the EU), there may be further negative effects on progress. Despite these challenges, the EU continues to commit itself to the 0.7 % target. Building on the [EU Council Conclusions](#) from 2015 ⁽⁹⁾, the new [European Consensus on Development](#) ⁽¹⁰⁾, signed in June 2017, reaffirms the EU target of providing 0.7 % of its GNI as ODA by 2030. However, with only four EU countries having achieved this target in 2017, additional efforts will be needed from a majority of Member States to meet the renewed collective commitment. The Consensus takes a comprehensive approach to implementation, combining aid with other resources, with sound policies and a strengthened approach to Policy Coherence for Development. It puts emphasis on better-tailored partnerships with a broader range of stakeholders and partner countries.



0.47 %
of the EU's gross
national income
was spent on
ODA in 2018

EU Member States acknowledged in the [Addis Ababa Action Agenda](#) ⁽¹¹⁾ in 2015 that international financial support could help mobilise financial resources domestically.

The EU remains the world's biggest ODA donor

In 2018, the EU maintained its position as the biggest ODA donor globally, providing EUR 74.4 billion ⁽¹²⁾. This figure refers to the combined ODA provided by all EU Member States and spending by the EU institutions themselves.

Additionally, with 0.47 % in 2018, the overall EU ODA/GNI ratio was significantly higher than for most other OECD donors such as Canada, Japan or the United States. At the same time, aid from emerging donors is increasing. For example, the United Arab Emirates spent 1.03 % of its GNI on ODA, which was the highest ratio for a country reporting to the [Development Assistance Committee](#) (DAC) in 2017 ⁽¹³⁾.

The EU particularly supports least developed countries

To target resources where they are most needed — [least developed countries](#) (LDCs) and countries in states of fragility and conflict — the EU also has a target to collectively provide 0.15–0.20 % of GNI to LDCs in the short term, reaching 0.20 % within the timeframe of the 2030 Agenda. Yet, between 2002 and 2017, assistance to LDCs has varied between 0.11 % and 0.12 % of GNI; therefore further efforts will be needed from a majority of Member States to meet the collective commitment by 2030.

The [European Consensus on Development](#) ⁽¹⁴⁾, signed in June 2017, outlines the need to dedicate a high proportion of official development assistance to least developed countries and other low-income countries (OLICs). Hence, 0.15 % of gross national income in the short term, rising to 0.20 % by 2030, should be allocated to least developed countries. This commitment is also set out in [EU Council Conclusions from 2018](#) ⁽¹⁵⁾.

The EU seeks coherence between all financial flows to developing countries

The EU seeks to pursue a coherent approach so that developing countries can combine aid, investment and trade with domestic resources and policies to build capacity and become self-reliant. ODA, for example, can be used to mobilise other financial resources such as domestic tax revenues or resources from the private sector. Other innovative instruments have been developed, such as blending grants with loans or equity from public and private financiers. Resources can also come from developing countries' national tax systems; the EU provides support to improve the mobilisation of these domestic resources.

The financial support offered by the EU, combined with domestic financial flows, can provide a basis for achieving the 2030 Agenda's goals, allowing for investment in social services, clean energy, sustainable infrastructure, transport and information and communications technologies. In the best-case scenario, developing countries could leapfrog some of the unsustainable modes of production and consumption that industrialised countries continue to use.

The fastest growing type of bilateral ODA between 2002 and 2017 was for humanitarian aid, with an annual growth rate as high as 10.9%, followed by ODA for economic infrastructure and services, increasing by 9.9% per year over this period. The strongest decrease was in bilateral ODA for

action related to debt, which decreased by 16.4% annually during the same time period, making up only 0.6% of total bilateral ODA in 2017, although a growing number of countries are facing debt distress ⁽¹⁶⁾. ODA related to social infrastructure and services has made up the largest share of bilateral ODA since 2006, accounting for 32.2% in 2017.

EU imports from developing countries have more than doubled

The potential contribution of trade to sustainable development has long been acknowledged.

This is also reflected in the EU's trade and investment strategy 'Trade for All' ⁽¹⁸⁾, adopted in 2015. Exports can create domestic jobs and allow developing countries to obtain foreign currency, which they can use to import other goods needed either for consumption or production. Better integration of developing countries into world markets may thus reduce the need for external public flows such as ODA. Several of the SDGs refer to the importance of trade for sustainable development, with SDG 8 calling on



The value of EU imports from developing countries amounted to
1 014
billion EUR
in 2018

The EU places an emphasis on coherence between all financial flows to developing countries, trying to bring together aid, investment, trade, domestic resource mobilisation and effective policies. For instance, the EU has a flagship [Domestic Resource Mobilisation support programme](#), which aims to establish efficient, effective, transparent and fair tax systems in developing countries. The EU also uses its blending facilities and its [External Investment Plan](#) to help mobilise private-sector financing and maintains 'duty free and quota free' market access to LDCs as

set out in the [Addis Ababa Action Agenda \(AAAA\)](#) ⁽¹⁷⁾. Both the 2030 Agenda and the AAAA underscore the importance of science, technology and innovation as powerful drivers of sustainable development. International cooperation in these areas is indispensable for achieving all SDGs. Recent examples also show that developing Integrated National Financing Frameworks can help a country to bring together various financing policies and instruments in an integrated manner and to prioritise actions and resources to achieve long-term goals.

countries to increase aid for trade, particularly for LDCs, and SDG 17 calling, among others, on countries to 'significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020'.

The EU's unilateral preferential trade arrangement, *Generalised Scheme of Preferences*' (GSP) ⁽¹⁹⁾ allows developing countries to pay less or no duties on their exports to the EU. The Everything But Arms (EBA) arrangement, which is part of the GSP, grants full duty-free, quota-free access for all LDC products except arms and ammunition. The EU also provides significant amounts of *aid for trade* ⁽²⁰⁾, with the aim of supporting trade-related infrastructure and building productive capacity.

Since 2003, EU imports from developing countries almost tripled, from EUR 372 billion to EUR 1 014 billion in 2018. In the long term, EU imports from developing countries grew by 6.9% per year on average. In the short term, since 2013, imports still grew, but less intensely so, with a growth rate of 4.4% per year. The share of imports from developing countries to the EU in imports from all countries outside the EU increased from 39.8% in 2003 to 51.2% in 2018. China (excluding Hong Kong) alone accounted for 38.9% of EU imports from developing countries in 2018. The share of imports from least developed countries also increased between 2003 and 2018. Overall, the almost 50 countries classified as least developed by the UN accounted for only 2.0% of all imports to the EU in 2018 ⁽²¹⁾.

In 2018, the EU accounted for 19% of LDC exports. This made it an important export destination for LDCs, after China (25%) and before the United States (6%). The EU's share of global LDCs' exports was the same as in 2013. The composition of EU imports from LDCs has significantly changed, however, shifting progressively from fuel and

mining products to manufactured goods. This shift is typically positive from a sustainable development point of view because countries' economies tend to be more robust when they are less reliant on exporting raw materials. Between 2013 and 2018, EU imports of manufactured goods from LDCs grew by 69.7% to EUR 29.2 billion, accounting for 69.6% of total imports from LDCs in 2018, compared with 45.8% in 2013 ⁽²²⁾.

'Aid for trade' is a part of ODA that is targeted at trade-related projects and programmes. It aims to build trade capacity and infrastructure in developing countries, particularly least developed countries, so they can benefit more from trade. The EU and its Member States were the leading global providers of aid for trade in 2016, accounting for 32% of total aid for trade provided globally ⁽²³⁾. In total, their aid for trade increased from EUR 9.7 billion in 2011 to EUR 13.5 billion in 2016 ⁽²⁴⁾.

Despite the rather positive trends in the EU's trade-related indicators, it must be acknowledged that they do not provide insights on whether the products in question are produced in an environmentally and socially sustainable manner. They also do not enable conclusions about the EU's *trade balance* with developing countries, as exports are not taken into account.

The EU updated its *Aid for Trade Strategy* ⁽²⁵⁾ in 2017 to reflect the significant changes in the political context, both globally — in particular, the 2030 Agenda — and at the EU level, including the new *European Consensus on Development* ⁽²⁶⁾ and *Trade for All* ⁽²⁷⁾. The updated strategy aims to enhance the coherence of aid for trade with other EU policies and instruments including trade policy, notably EU trade agreements and unilateral preference schemes. The focus on LDCs remains a key part of the updated strategy.

Financial governance within the EU

To help others to advance their economies, it is pivotal to keep the EU's own economies on a sustainable development path. Maintaining macroeconomic stability in the EU is therefore one pillar of the Union's contribution to implementing the SDGs. In addition to achieving financial stability, the EU seeks to transform its economy to make it greener, for example through the Europe 2020 strategy for smart, sustainable and inclusive growth. In a global context, where consumption patterns in one region can severely impact production patterns elsewhere in the world, it is particularly important that prices reflect the real costs of consumption and production. They should therefore also include payments for negative externalities of polluting or other damaging activities to human health and the environment. To facilitate this, the EU calls for a shift from labour taxes to environmental taxes.

The overall trends at the EU level, based on the selected indicators, look considerably less favourable than those describing its interaction with developing countries: shares of environmental taxes have fallen since the early 2000s, and public debts have increased.

Financial stability: recovering after the economic crisis

Government debt should be limited to a manageable level; the Treaty on the Functioning of the European Union stipulates that it shall not exceed 60 % of GDP in EU Member States. However, with the onset of the economic crisis in 2008, debt-to-GDP ratios have risen considerably in many EU Member States. The year 2015 was the first since the economic crisis in which governments' debts fell slightly compared with the previous year, and this decrease continued



In 2018, general government gross debt in the EU as a share of GDP amounted to 80.0 %

between 2016 and 2018. At 80.0 % of GDP in 2018, the debt-to-GDP ratios of Member States nevertheless remained far above pre-crisis levels, when the ratio was close to the 60 % reference level.

The Treaty on the Functioning of the European Union (TFEU) requires that the ratio of a Member State's planned or actual annual government deficit to gross domestic product at market prices should not exceed 3 %, and that cumulated government debt as a ratio of gross domestic product at market prices should be limited to 60 %. The TFEU is complemented by Regulation 1176/2011 on the prevention and correction of macroeconomic imbalances ⁽²⁸⁾ as well as Regulation 1174/2011 on enforcement action to correct excessive macroeconomic imbalances in the euro area ⁽²⁹⁾. Both regulations aim to detect fiscal imbalances in the EU and allow, among other things, for sanctions. The Economic Reform Programmes, which were introduced in 2015, form an equivalent system for EU candidates and potential candidates.

Across the EU, debt-to-GDP ratios ranged from more than 181 % to less than 10 %.

Fourteen Member States reported debts above 60 % of GDP at the end of 2018. Between 2013 and 2018, 21 countries managed to reduce their debt-to-GDP ratios, resulting in a decline in the EU's overall debt level.

'Greening' the taxation system remains a challenge

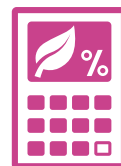
In principle, prices of products and services should include the payments for negative externalities, such as pollution or otherwise damaging human health and the environment. If products and services reflected the real costs of their production, sustainable products and services would become more competitive and demand for them would be likely to increase. However,

prices that reflect the real costs of production and consumption are a challenge, in particular when goods and services are traded internationally and the entire supply chain needs to be considered. Therefore, EU policies such as Europe 2020 call for taxation systems to shift away from labour towards [environmental taxes](#), meaning that revenues from environmental taxes should increase relative to labour taxes. The indicator 'shares of environmental and labour taxes in total tax revenues' presents the shares of these taxes in total revenues from taxes and social contributions.

Overall, the data show that no such shift in taxation has occurred in the EU: in 2017, environmental taxes accounted for only 6.1 % of total tax revenues, while the share of labour taxes was almost eight times higher at 49.7 %. Both shares of labour and environmental taxes have fallen slightly since 2012, but the decline was slightly stronger for environmental taxes.

The Europe 2020 strategy ⁽³⁰⁾ calls for a major shift from labour to energy and environmental taxes as part of a 'greening' of taxation systems. The EU has a process for monitoring progress towards the objectives laid down in the Europe 2020 strategy, the [European Semester](#).

In 2017, the shares of environmental taxes in total tax revenues ranged from 4.4 % to 11.2 % across Member States. The ratio of labour to environmental taxes shows how much higher the shares of labour tax revenues were compared to the shares of environmental taxes in a country. In 2017, this ratio ranged from 3.9 to 12.3 across Member States. In the same year, six Member States had ratios above 10, while seven had ratios below 5. In 2017, the highest share of labour taxes in total tax revenues in a Member State was 58.5 % and the lowest one was 34.5 %, showing the importance of these types of taxes for public budgets. For environmental taxes, the respective highest figure was 11.2 % and the lowest was 4.4 %. Across the EU, the ratio of labour to environmental taxes has increased since 2004, indicating an increase in the relative importance of labour tax revenues compared with environmental taxes.



In 2017, the share of environmental taxes in total tax revenues in the EU was

6.1 %

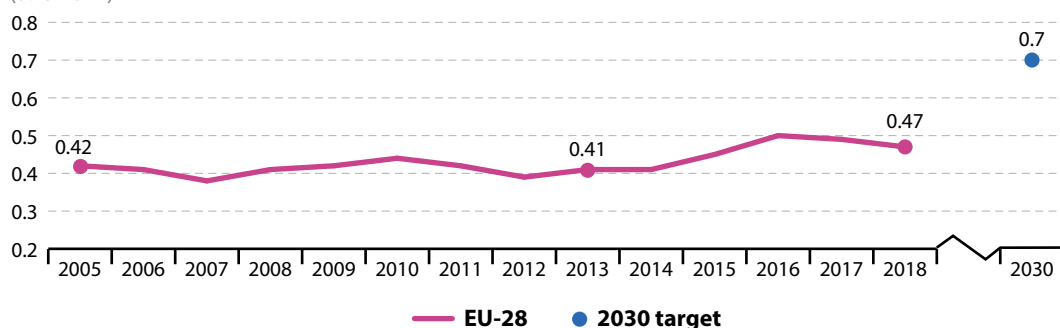
Presentation of the main indicators

Official development assistance as share of gross national income

Official development assistance (ODA) is provided by governments and their executive agencies to support economic development and welfare in developing countries. ODA must be concessional in character, having a certain grant element that varies in proportion depending on the recipient. Eligible countries are named in the Organisation for Economic Development and Cooperation's (OECD) Development Assistance Committee (DAC) official list of ODA recipients. ODA disbursements and their purpose are reported by donors to the OECD. Data stem from the OECD (DAC).



Figure 17.1: Official development assistance as share of gross national income, EU-28, 2005–2018 (% of GNI)



Source: OECD (Eurostat online data code: [sdg_17_10](#))

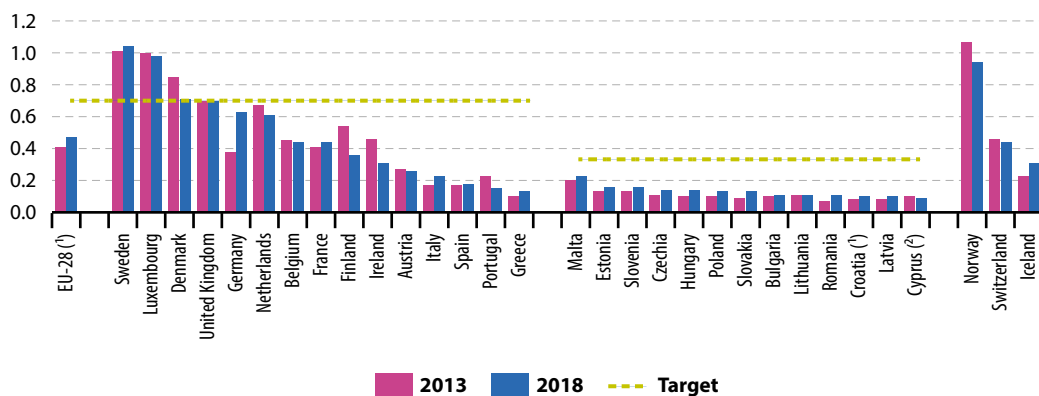
Table 17.3: Compound annual growth rate (CAGR) of the official development assistance as share of gross national income, EU

EU aggregate	Period	Growth rate	
		Observed	To meet target
EU-28	2005–2018	0.9 % per year	2.1 % per year
EU-28	2013–2018	2.8 % per year	3.2 % per year

Source: OECD (Eurostat online data code: [sdg_17_10](#))

Figure 17.2: Official development assistance as share of gross national income, by country, 2013 and 2018

(% of GNI)



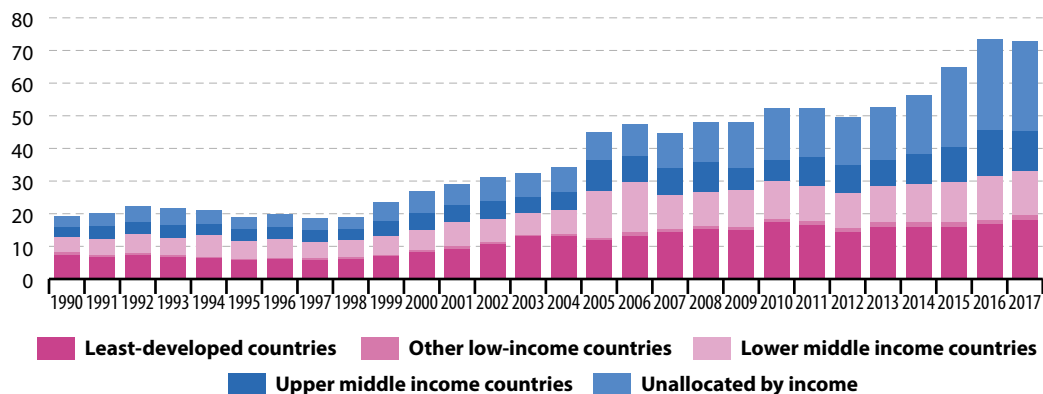
(¹) 2017 data (instead of 2018).

(²) 2015 data (instead of 2018).

Source: OECD (Eurostat online data code: [sdg_17_10](#))

Figure 17.3: Official development assistance, by recipient income group, EU-28, 1990–2017

(EUR billion, current prices)



Note: Data include the 28 Member States and EU institutions.

Source: OECD

EU financing to developing countries

EU financing to developing countries takes a number of forms. These, as documented by the OECD, include: ODA (public grants or concessional loans with the aim of supporting economic development and welfare); other official flows (OOFs) (public flows that are not focused on development or with a grant element of less than 25 %); private flows (direct investment, bonds, export credits and multilateral flows); grants by non-governmental organisations (from funds raised for development assistance and disaster relief), and officially supported export credits. Data stem from the OECD (DAC).



Figure 17.4: EU financing to developing countries, by financing source, EU-28, 2000–2017
(billion EUR, current prices)



Source: OECD (Eurostat online data code: [sdg_17_20](#))

Table 17.4: Compound annual growth rate (CAGR) of the EU financing to developing countries, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	9.7 % per year
EU-28	2012–2017	1.0 % per year

Source: OECD (Eurostat online data code: [sdg_17_20](#))



LONG TERM
2003–2018



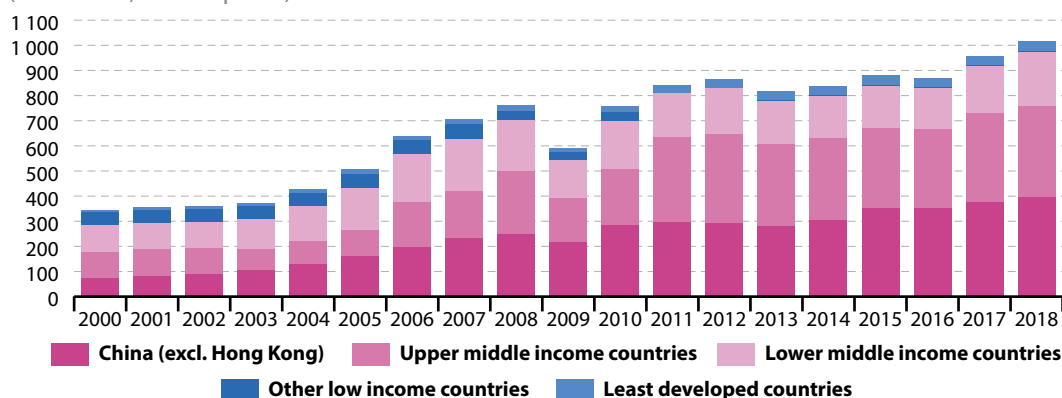
SHORT TERM
2013–2018

EU imports from developing countries

This indicator is defined as the value (at current prices) of EU imports from the countries on the DAC list of ODA beneficiaries. It indicates to what extent products from these developing countries access the EU market. Information for this indicator is provided by enterprises with a trade volume above a set threshold and is collected on the basis of customs declarations. This information is then adjusted by Member States to account for the impact of trade under this threshold.

Figure 17.5: EU Imports from developing countries, by country income groups, EU-28, 2000–2018

(billion EUR, current prices)



Source: Eurostat (online data code: [sdg_17_30](#))

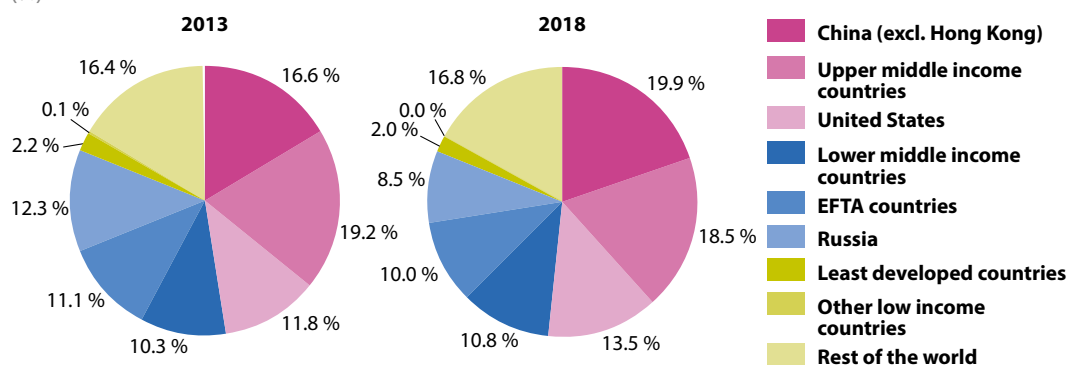
Table 17.5: Compound annual growth rate (CAGR) of the EU imports from developing countries, EU

EU aggregate	Period	Growth rate
EU-28	2003–2018	6.9% per year
EU-28	2013–2018	4.4% per year

Source: Eurostat (online data code: [sdg_17_30](#))

Figure 17.6: Extra-EU-28 imports, by trading partner, EU-28, 2013 and 2018

(%)



Source: Eurostat (online data code: [sdg_17_30](#) and [ext_lt_maineu](#))

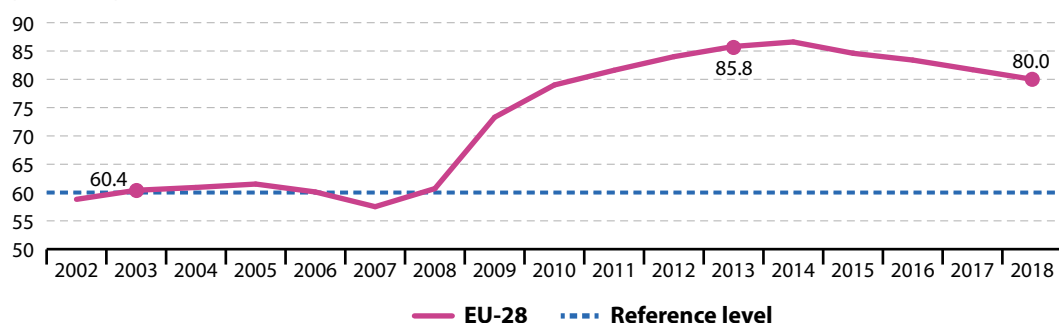
General government gross debt

The Treaty on the Functioning of the European Union defines this indicator as the ratio of government debt at the end of the year to gross domestic product at current market prices. For this calculation, government debt is defined as the total consolidated gross debt at nominal value in the following categories of government liabilities (as defined in ESA 2010): currency and deposits (AF.2), debt securities (AF.3) and loans (AF.4). Central government, state government, local government and social security funds are included.



Figure 17.7: General government gross debt, EU-28, 2002–2018

(% of GDP)



Source: Eurostat (online data code: [sdg_17_40](#))

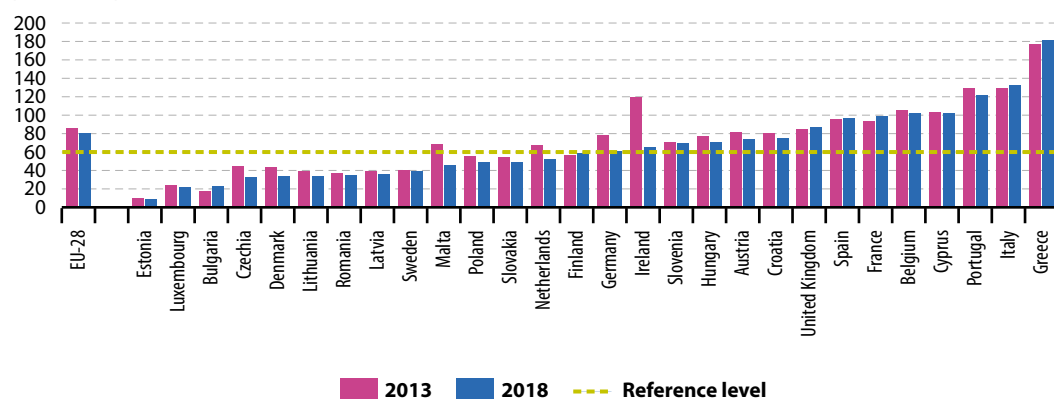
Table 17.6: Compound annual growth rate (CAGR) of the general government gross debt, EU

EU aggregate	Period	Growth rate
EU-28	2003–2018	1.9% per year
EU-28	2013–2018	– 1.4% per year

Source: Eurostat (online data code: [sdg_17_40](#))

Figure 17.8: General government gross debt, by country, 2013 and 2018

(% of GDP)



Source: Eurostat (online data code: [sdg_17_40](#))

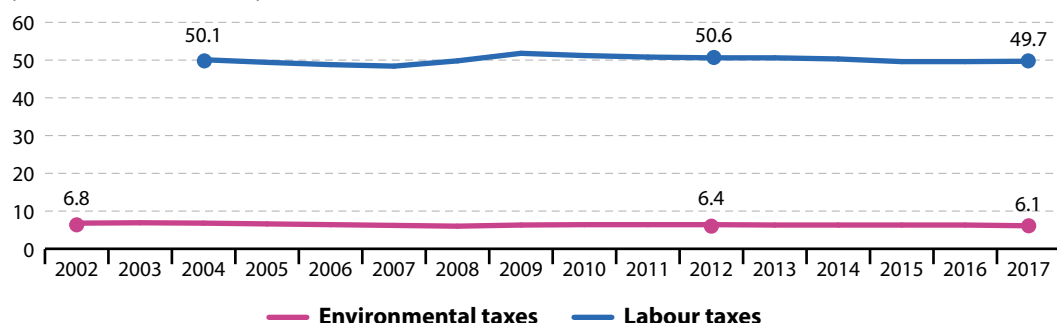
LONG TERM
2002–2017

SHORT TERM
2012–2017

Shares of environmental and labour taxes in total tax revenues

Environmental taxes are defined as taxes that are based on a physical unit (or proxy of it) of something that has a proven, specific negative impact on the environment. There are four types of environmental taxes: energy taxes (which in the EU contribute around three-quarters of the total), transport taxes (about one-fifth of the total) and pollution and resource taxes (about 4%). Taxes on labour are generally defined as all personal income taxes, payroll taxes and social contributions of employees and employers that are levied on labour income (both employed and non-employed).

Figure 17.9: Shares of environmental and labour taxes in total tax revenues, EU-28, 2002–2017 (% of total tax revenues)



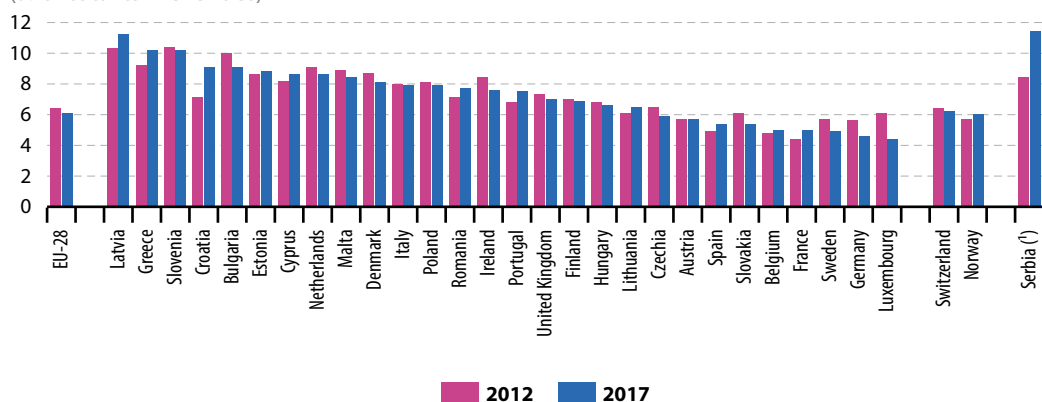
Source: Eurostat (online data code: [sdg_17_50](#))

Table 17.7: Compound annual growth rate (CAGR) of the share of environmental taxes in total tax revenues, EU

EU aggregate	Period	Growth rate
EU-28	2002–2017	– 0.7 % per year
EU-28	2012–2017	– 0.7 % per year

Source: Eurostat (online data code: [sdg_17_50](#))

Figure 17.10: Shares of environmental taxes in total tax revenues, by country, 2012 and 2017 (% of total tax revenues)



Source: Eurostat (online data code: [sdg_17_50](#))

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United Nations, Inter-agency Task Force on Financing for Development (2019), *Financing for Sustainable Development Report 2019*, United Nations, New York.

Further data sources on partnership for the goals

IMF, Direction of Trade Statistics (DOTS).

OECD (2018), Table 1: DAC members' official development assistance in 2018 on a grant equivalent basis, preliminary 2018 data.

Notes

- (¹) European Commission, [Multi-stakeholder platform on SDGs](#).
- (²) Non-financial resources include domestic policy frameworks, effective institutions and support for good governance, democracy, rule of law, human rights, transparency and accountability; see also the [Addis Ababa Action Agenda](#) (AAAA).
- (³) The OECD defines export credits as loans for the purpose of trade and which are not represented by a negotiable instrument. They may be extended by the official or the private sector. If extended by the private sector, they may be supported by official guarantees; see http://www.oecd.org/dac/dac-glossary.htm#Export_Credits.
- (⁴) A new statistical measurement is being developed, TOSSD (Total Official Support for Sustainable Development) which aims to support the Addis Ababa Action Agenda by providing a more comprehensive picture of resources for sustainable development, including, among others, mobilised resources from the private sector, emerging donors' flows, and south-south cooperation.
- (⁵) In 1970 the UN General Assembly ratified a Resolution which officially introduced the goal that 'Each economically advanced country will progressively increase its official development assistance to the developing countries and will exert its best efforts to reach a minimum net amount of 0.7% of its gross national product at market prices by the middle of the Decade'. UN (1970), *International Development Strategy for the Second United Nations Development Decade*, UN General Assembly Resolution 2626 (XXV), 24 October 1970, paragraph 43.
For a summarising background, see also OECD (2003), *Papers on Official Development Assistance (ODA)*, OECD Journal on Development, Vol. 3/4.
- (⁶) European Commission (2018), *EU remains the world's leading donor of development assistance*, Brussels, press release, 10 April 2018.
- (⁷) European Commission (2019), *Europe remains the world's biggest development donor — €74.4 billion in 2018*; Brussels, press release, 11 April 2019.
- (⁸) European Commission (2019), *Publication of preliminary figures on 2018 Official Development Assistance*, Brussels, fact sheet, 11 April 2019.
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Annexes

Annex I

Geographical aggregates and countries

EU-28	The 28 Member States of the European Union since 1 July 2013 (BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, HR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK)
EU without Croatia	The 27 Member States of the European Union from 1 January 2007 to 30 June 2013 (BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK)
EU-15	The 15 Member States of the European Union from 1 January 1995 to 30 April 2004 (BE, DK, DE, IE, EL, ES, FR, IT, LU, NL, AT, PT, FI, SE, UK)
EEA	The member countries of the European Environment Agency (EEA) are the EU-28 Member States plus IS, LI, NO, CH and TR
G20	Group of 20 (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, the United States and the European Union)

Note that EU aggregates are back-calculated when enough information is available — for example, data relating to the EU-28 aggregate is presented when possible for periods before Croatia joined the EU in 2013, as if it had always been an EU Member State. The abbreviation 'EU' used in texts is usually referring to the current composition (EU-28). Deviations from this principle are pointed out in each individual case.

European Union Member States

BE	Belgium
BG	Bulgaria
CZ	Czechia
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
HR	Croatia
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	United Kingdom

European Free Trade Association (EFTA)

IS	Iceland
LI	Liechtenstein
NO	Norway
CH	Switzerland

EU candidate countries

ME	Montenegro
MK	North Macedonia
AL	Albania
RS	Serbia
TR	Turkey

Potential candidates

BA	Bosnia and Herzegovina
XK	Kosovo ⁽¹⁾

Units of measurement

%	per cent
°C	degree Celsius
µg	microgram
dB	decibel
EUR	euro
g	gram
ha	hectare
kg	kilogram
kgoe	kilograms of oil equivalent
km	kilometre
km ²	square kilometre
L	litre
m ²	square metre
m ³	cubic metre

⁽¹⁾ This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

mg	milligram
Mt	million tonnes
Mtoe	million tonnes of oil equivalent
pH	pH value (measurement of acidity/basicity)
pkm	passenger-kilometre
pp	percentage point
PPS	purchasing power standard
tkm	tonne-kilometre
USD	US dollar

Abbreviations

AAAA	Addis Ababa Action Agenda
AIDS	Acquired immune deficiency syndrome
ANED	Academic Network of European Disability Experts
AWU	Agricultural factor income per annual Work Unit
BAP	Benzo(a)pyrene
BMI	Body Mass Index
bn	Billion
BOD	Biochemical oxygen demand
BOD5	5-day Biochemical Oxygen Demand
BTRIGGER	Value of spawning stock biomass (SSB) that triggers a specific management action
BWD	Bathing Water Directive
CAGR	Compound annual growth rate
CAP	Common Agricultural Policy
CARE	Community database on Accidents on the Roads in Europe
CBD	Convention on Biological Diversity
CEOS	Committee on Earth Observation Satellites
CFP	Common Fisheries Policy
CH ₄	Methane
CMU	Circular material use
CO ₂	Carbon dioxide
COD	Chemical oxygen demand

COSME	Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises
CPI	Corruption Perceptions Index
DAC	Development Assistance Committee
DDT	Dichlorodiphenyltrichloroethane
DG	Directorate-General
DG AGRI	Directorate-General for Agriculture and Rural Development
DMC	Domestic material consumption
DRMKC	Disaster Risk Management Knowledge Centre
EAA	Economic Accounts for Agriculture
EAFRD	European Agricultural Fund for Rural Development
EAP	Environmental Action Programme
EaSI	Employment and Social Innovation Programme
EBCC	European Bird Census Council
EC	European Commission
ECEC	Early Childhood Education and Care
ECDC	European Centre for Disease Prevention and Control
ECHA	European Chemicals Agency
EEA	European Environment Agency
EFTA	European Free Trade Association
EFSD	European Fund for Sustainable Development
EFSI	European Fund for Strategic Investments
EHIS	European Health Interview Survey
EIB	European Investment Bank
EIP	External Investment Plan
EIGE	European Institute for Gender Equality
ELET	Early leavers from education and training
EMODnet	European Marine Observation and Data Network
EPO	European Patent Office
ERCAS	European Research Centre for Anti-Corruption and State-Building
ESA	European System of Accounting
ESA	European Space Agency
ESAC	European Statistical Advisory Committee

ESAW	European Statistics on Accidents at Work
ESDAC	European Soil Data Centre
ESDN	European Sustainable Development Network
ESF	European Social Fund
ESF+	European Social Fund Plus
ESS	European Statistical System
ET 2020	'Education and Training 2020' Framework
ETC/ACM	European Topic Centre on Air pollution and Climate change Mitigation
ETC/BD	European Topic Centre on Biological Diversity
ETC/ICM	The European Topic Centre on Inland, Coastal and Marine waters
EU	European Union
EU LFS	EU Labour Force Survey
EU SILC	EU Statistics on Income and Living Conditions
EXPH	Expert Panel on effective ways of investing in health
F	Fishing mortality
FAO	Food and Agriculture Organisation of the United Nations
FDI	Foreign direct investment
FEAD	Fund for European Aid to the most Deprived
F_{MSY}	Fishing mortality at maximum sustainable yield
FP	Framework Programme
FRA	Fundamental Rights Agency
GBAORD	Government budget appropriations or outlays for research and development
GCCA	Global Climate Change Alliance
GDP	Gross domestic product
GERD	Gross domestic expenditure on R&D
GFCF	Gross fixed capital formation
GFCM	General Fisheries Commission for the Mediterranean
GHG	Greenhouse gas
GIC	Gross inland consumption
GNI	Gross national income
GSP	Generalised Scheme of Preferences

GWP	Global warming potential
HCB	Hexachlorbenzol
HELCOM	Baltic Marine Environment Protection Commission — Helsinki Commission
HIV	Human immunodeficiency virus
HLPF	High-level Political Forum
HLY	Healthy life years
HOT	Hawaiian Ocean Time-series
ICD	International Classification of Diseases
ICES	International Council for the Exploration of the Sea
ICPD	International Conference on Population and Development
ICT	Information and Communications Technology
IDD	Income Distribution Database
IHD	Ischemic heart diseases
ILO	International Labour Organisation
ISCED	International Standard Classification for Education
JAHEE	Joint action on health inequalities
JRC	Joint Research Centre
LDCs	Least-developed countries
Lden	Day-evening-night level
LHPAD	Long-standing health problem or an activity difficulty
LRTAP	Long-range transboundary air pollution
LTAA	Long-term annual average
LUCAS	Land Use/Cover Area frame Survey
LULUCF	Land use, land-use change and forestry
MFF	Multiannual Financial Framework
MMR	Monitoring Mechanism Regulation
MPA	Marine Protected Area
MS	Member States
MSFD	Marine Strategy Framework Directive
MSY	Maximum sustainable yield
N	Nitrate/ammonia
N ₂ O	Nitrous oxide

NACE	Statistical classification of economic activities in the European Community
NEDC	New European Driving Cycle
NEET	Not in education, employment or training
NF ₃	Nitrogen trifluoride
NGOs	Non-governmental organisations
NH ₃	Ammonia
NO ₃	Nitrate
O ₂	Oxygen
ODA	Official development assistance
OECD	Organisation for Economic Co-operation and Development
OLICs	Other low-income countries
OOFs	Other official flows
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
P	Phosphorous
PCB	Polychlorinated biphenyl
PCT	Patent Cooperation Treaty
PIAAC	Programme for the International Assessment of Adult Competencies
PISA	Programme for International Student Assessment
PM	Particulate matter
PO ₄	Phosphate
POP	Persistent organic pollutant
R&D	Research and development
REACH	Registration, Evaluation, Authorisation and restriction of Chemicals
SCI	Sites of Community Importance
SCP	Sustainable consumption and production
SD	Sustainable development
SDGs	Sustainable Development Goals
SDIs	Sustainable Development Indicators
SEAP	Sustainable Energy Action Plan
SECAP	Sustainable Energy and Climate Action Plans

SES	Structure of Earnings Survey
SF ₆	Sulphur hexafluoride
SIP	Sustainable Industrial Policy
SRIP	Science, Research and Innovation Performance of the EU
SSB	Spawning stock biomass
STECF	Scientific, Technical and Economic Committee for Fisheries
SWD	Staff Working Document
SWSR	Status of the World's Soil Resources
TEA	Tertiary educational attainment
TEN-T	Trans-European Transport Network
TFEU	Treaty on the Functioning of the European Union
UAA	Utilised agricultural area
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNHCR	United Nations High Commissioner for Refugees
UNODC	United Nations Office on Drugs and Crime
UOE	UIS, OECD and Eurostat
VNRs	Voluntary National Reviews
WCED	World Commission on Environment and Development
WEI	Water Exploitation Index
WEI+	Water Exploitation Index plus
WHO	World Health Organization
WLTP	Worldwide harmonized Light vehicles Test Procedure
WTO	World Trade Organisation

Annex II

List of indicators included in this report

The tables below show the complete list of indicators included in the respective thematic chapters of the 2018 edition of 'Sustainable development in the European Union — monitoring report on progress towards the SDGs in an EU context'. Indicators used in multiple themes (so-called 'multi-purpose' indicators) are marked with an asterisk (*). Indicators marked with a 'target' symbol (🎯) are assessed against a quantified EU policy target. These targets are listed in Table II.18 below.

Table II.1: Indicators for SDG 1 'No poverty', by sub-theme

Sub-theme	Indicator
Multidimensional poverty	🎯 People at risk of poverty or social exclusion
	People at risk of income poverty after social transfers
	Severely materially deprived people
	People living in households with very low work intensity
	In work at-risk-of-poverty rate
Basic needs	Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor
	Self-reported unmet need for medical care (*)
	Population having neither a bath, nor a shower, nor indoor flushing toilet in their household (*)
	Population unable to keep home adequately warm (*)
	Overcrowding rate (*)

Table II.2: Indicators for SDG 2 'Zero hunger', by sub-theme

Sub-theme	Indicator
Malnutrition	Obesity rate
Sustainable agricultural production	Agricultural factor income per annual work unit (AWU)
	Government support to agricultural research and development
	Area under organic farming
	Gross nitrogen balance on agricultural land
Environmental impacts of agricultural production	Ammonia emissions from agriculture
	Nitrate in groundwater (*)
	Estimated soil erosion by water (*)
	Common farmland bird index (*)

Table II.3: Indicators for SDG 3 'Good health and well-being', by sub-theme


Sub-theme	Indicator
Healthy lives	Life expectancy at birth
	Share of people with good or very good perceived health
Health determinants	Smoking prevalence
	Obesity rate (*)
	Population living in households considering that they suffer from noise (*)
	Exposure to air pollution by particulate matter (*)
Causes of death	Death rate due to chronic diseases
	Death rate due to tuberculosis, HIV and hepatitis
	People killed in accidents at work (*)
	 People killed in road accidents (*)
Access to healthcare	Self-reported unmet need for medical care

Table II.4: Indicators for SDG 4 'Quality education', by sub-theme







Sub-theme	Indicator
Basic education	 Early leavers from education and training
	 Participation in early childhood education
	 Underachievement in reading, maths and science
	Young people neither in employment nor in education and training (*)
Tertiary education	 Tertiary educational attainment
	 Employment rate of recent graduates
Adult education	 Adult participation in learning

Table II.5: Indicators for SDG 5 'Gender equality', by sub-theme

Sub-theme	Indicator
Gender-based violence	Physical and sexual violence to women experienced within 12 months prior to the interview
Education	Gender gap for early leavers from education and training (*)
	Gender gap for tertiary educational attainment (*)
	Gender gap for employment rate of recent graduates (*)
Employment	Gender pay gap in unadjusted form
	Gender employment gap
	Inactive population due to caring responsibilities
Leadership positions	Seats held by women in national parliaments
	Positions held by women in senior management

Table II.6: Indicators for SDG 6 'Clean water and sanitation', by sub-theme

Sub-theme	Indicator
Sanitation	Population having neither a bath, nor a shower, nor indoor flushing toilet in their household
	Population connected to at least secondary wastewater treatment
Water quality	Biochemical oxygen demand in rivers
	Nitrate in groundwater
	Phosphate in rivers
	Inland water bathing sites with excellent water quality (*)
Water use efficiency	Water exploitation index

Table II.7: Indicators for SDG 7 'Affordable and clean energy', by sub-theme




Sub-theme	Indicator
Energy consumption	 Primary energy consumption
	 Final energy consumption
	Final energy consumption in households per capita
	Energy productivity
	Greenhouse gas emissions intensity of energy consumption (*)
Energy supply	 Share of renewable energy in gross final energy consumption
	Energy import dependency
Access to affordable energy	Population unable to keep home adequately warm

Table II.8: Indicators for SDG 8 'Decent work and economic growth', by sub-theme


Sub-theme	Indicator
Sustainable economic growth	Real GDP per capita
	Investment share of GDP
	Resource productivity (*)
Employment	Young people neither in employment nor in education and training
	 Employment rate
	Long-term unemployment rate
	Inactive population due to caring responsibilities (*)
Decent work	People killed in accidents at work
	In work at-risk-of-poverty rate (*)

Table II.9: Indicators for SDG 9 'Industry, innovation and infrastructure', by sub-theme



Sub-theme	Indicator
R&D and innovation	 Gross domestic expenditure on R&D
	Employment in high- and medium-high technology manufacturing and knowledge-intensive services
	R&D personnel
	Patent applications to the European Patent Office (EPO)
Sustainable transport	Share of buses and trains in total passenger transport
	Share of rail and inland waterways in total freight transport
	 Average CO ₂ emissions per km from new passenger cars (*)

Table II.10: Indicators for changes in SDG 10 'Reduced inequalities', by sub-theme

Sub-theme	Indicator
Inequalities within countries	Relative median at-risk-of-poverty gap
	Income distribution
	Income share of the bottom 40% of the population
	People at risk of income poverty after social transfers (*)
Inequalities between countries	Purchasing power adjusted GDP per capita
	Adjusted gross disposable income of households per capita
	EU financing to developing countries (*)
	EU imports from developing countries (*)
Migration and social inclusion	Asylum applications

Table II.11: Indicators for SDG 11 'Sustainable cities and communities', by sub-theme



Sub-theme	Indicator
Quality of life in cities and communities	Overcrowding rate
	Population living in households considering that they suffer from noise
	Exposure to air pollution by particulate matter
	Population living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames or floor (*)
	Population reporting occurrence of crime, violence or vandalism in their area (*)
Sustainable mobility	 People killed in road accidents
	Share of busses and trains in total passenger transport (*)
	Settlement area per capita
Adverse environmental impacts	 Recycling rate of municipal waste
	Population connected to at least secondary wastewater treatment (*)

Table II.12: Indicators for SDG 12 ‘Responsible consumption and production’, by sub-theme




Sub-theme	Indicator
Decoupling environmental impacts from economic growth	Consumption of toxic chemicals
	Resource productivity
	 Average CO ₂ emissions per km from new passenger cars
	Energy productivity (*)
Energy consumption	 Energy consumption (*)
	Primary energy consumption
	Final energy consumption
Waste generation and management	 Share of renewable energy in gross final energy consumption (*)
	Circular material use rate
	Generation of waste excluding major mineral wastes
	Recycling rate of waste excluding major mineral waste

Table II.13: Indicators for SDG 13 ‘Climate action’, by sub-theme





Sub-theme	Indicator
Climate mitigation	 Greenhouse gas emissions
	Greenhouse gas emissions intensity of energy consumption
	 Energy consumption (*)
	Primary energy consumption
	Final energy consumption
	 Share of renewable energy in gross final energy consumption (*)
Climate impacts	 Average CO ₂ emissions per km from new passenger cars (*)
	Mean near surface temperature deviation
	Climate-related economic losses
	Mean ocean acidity (*)
Support to climate action	Contribution to the international 100bn USD commitment on climate related expending

Table II.14: Indicators for SDG 14 ‘Life below water’, by sub-theme

Sub-theme	Indicator
Ocean health	Coastal water bathing sites with excellent water quality
	Mean ocean acidity
Marine conservation	Surface of marine sites designated under Natura 2000
Sustainable fisheries	Estimated trends in fish stock biomass
	Assessed fish stocks exceeding fishing mortality at maximum sustainable yield (F_{MSY})


Table II.15: Indicators for SDG 15 'Life on land', by sub-theme

Sub-theme	Indicator
Ecosystem status	Share of forest area
	Biochemical oxygen demand in rivers (*)
	Nitrate in groundwater (*)
	Phosphate in rivers (*)
Land degradation	Soil sealing index
	Estimated soil erosion by water
	Settlement area per capita (*)
Biodiversity	Surface of terrestrial sites designated under Natura 2000
	Common bird index
	Grassland butterfly index

Table II.16: Indicators for SDG 16 'Peace, justice and strong institutions', by sub-theme

Sub-theme	Indicator
Peace and personal security	Death rate due to homicide
	Population reporting occurrence of crime, violence or vandalism in their area
	Physical and sexual violence to women experienced within 12 months prior to the interview (*)
Access to justice	General government total expenditure on law courts
	Perceived independence of the justice system
Trust in institutions	Corruption Perceptions Index
	Population with confidence in EU institutions

Table II.17: Indicators for SDG 17 'Partnership for the goals', by sub-theme

Sub-theme	Indicator
Global partnership	 Official development assistance as share of gross national income
	EU financing to developing countries
	EU imports from developing countries
	General government gross debt
Financial governance within the EU	Shares of environmental and labour taxes in total tax revenues

List of targets considered for assessing indicator trends

The table below shows which EU policy targets have been considered for assessing indicator trends over the long- and short-term periods, to give an indication whether the development observed over those periods has been on track towards meeting the respective target in the target year. For details on the assessment method for indicators with quantitative targets, see the introduction and Annex III.

Table II.18: EU policy targets considered for assessing indicator trends

Indicator	Target	Policy reference
People at risk of poverty or social exclusion (SDG 1)	Lifting 20 million people out of the risk of poverty or social exclusion by 2020, compared with 2008 ⁽¹⁾	Europe 2020 strategy ⁽²⁾
People killed in road accidents (SDG 3, SDG 11)	Halving the overall number of road deaths in the European Union by 2020 starting from 2010	Towards a European road safety area: policy orientations on road safety 2011–2020 ⁽³⁾
Early leavers from education and training (SDG 4)	By 2020, the share of early leavers from education and training should be less than 10 %	Education and training 2020 ⁽⁴⁾
Participation in early childhood education (SDG 4)	By 2020, at least 95 % of children between 4 years old and the age for starting compulsory primary education should participate in early childhood education	Education and training 2020
Underachievement in reading, maths and science (SDG 4)	By 2020, the share of low-achieving 15-year-olds in reading, mathematics and science should be less than 15 %	Education and training 2020
Tertiary educational attainment (SDG 4)	By 2020, the share of 30–34-year-olds with tertiary educational attainment should be at least 40 %	Education and training 2020
Employment rate of recent graduates (SDG 4)	The share of employed graduates (20–34-year-olds) having left education and training no more than three years before the reference year should be at least 82 %	Education and training 2020 ⁽⁵⁾
Adult participation in learning (SDG 4)	By 2020, an average of at least 15 % of adults should participate in lifelong learning	Education and training 2020
Primary and final energy consumption (SDG 7, SDG 12, SDG 13)	20 % increase in energy efficiency; for the purpose of monitoring this target has been translated into absolute levels of primary and final energy consumption, to be met by 2020	Europe 2020 strategy
Share of renewable energy in gross final energy consumption (SDG 7, SDG 12, SDG 13)	Increase the share of renewable energy sources in final energy consumption to 20 %	Europe 2020 strategy
Employment rate (SDG 8)	The employment rate of the population aged 20–64 should increase to at least 75 %	Europe 2020 strategy

Indicator	Target	Policy reference
Gross domestic expenditure on R&D (SDG 9)	Increasing combined public and private investment in R&D to 3 % of GDP	Europe 2020 strategy
Average CO ₂ emissions per km from new passenger cars (SDG 9, SDG 12, SDG 13)	Reduce CO ₂ emissions from new passenger cars to 95 grams of CO ₂ per km in 2021	Regulation (EU) No 333/2014 ⁽⁶⁾
Recycling rate of municipal waste (SDG 11)	Increase the preparing for re-use and the recycling of municipal waste to a minimum of 60 % by weight by 2030	Directive (EU) 2018/851 ⁽⁷⁾
Greenhouse gas emissions (SDG 13)	Reduce greenhouse gas emissions by 20 % compared to 1990	Europe 2020 strategy
Official development assistance as share of gross national income (SDG 17)	Provide 0.7 % of gross national income (GNI) as ODA within the timeframe of the 2030 Agenda	The new European Consensus on Development ⁽⁸⁾

⁽¹⁾ Due to the structure of the survey on which most of the key social data is based (European Union Statistics on Income and Living Conditions), a large part of the main social indicators available in 2010, when the Europe 2020 Strategy was adopted, referred to 2008 data for the EU without Croatia as the most recent data available. This is why monitoring of progress towards the Europe 2020 poverty target uses EU without Croatia data from 2008 as a baseline (see European Commission (2013), *Social Europe — Current challenges and the way forward. Annual Report of the Social Protection Committee* (2012), Luxembourg, Publications Office of the European Union, p. 12).

⁽²⁾ European Commission (2010), *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels.

⁽³⁾ European Commission (2010), *Towards a European road safety area: policy orientations on road safety 2011–2020*, COM(2010) 389 final, Brussels.

⁽⁴⁾ Council of the European Union (2009), *Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training ('ET 2020')* (2009/C119/02).

⁽⁵⁾ European Commission (2012), *Education and Training Monitor*, Luxembourg, Publications Office of the European Union.

⁽⁶⁾ European Parliament and Council of the European Union (2014), *Regulation (EU) No 333/2014 amending Regulation (EC) No 443/2009 to define the modalities for reaching the 2020 target to reduce CO₂ emissions from new passenger cars*.

⁽⁷⁾ European Parliament and Council of the European Union (2018), *Directive (EU) 2018/851 on waste*.

⁽⁸⁾ European Union (2017), *The new European Consensus on Development 'Our World, Our Dignity, Our Future'*, Joint statement by the Council and the representatives of the governments of the Member States meeting within the Council, the European Parliament and the Commission. 2017/C 210/01. Official Journal of the European Union, Volume 60.

Annex III

Method for assessing indicator trends

This section describes the formulas applied for assessing indicator trends in this report. For an overview of the assessment approach and a description of the data basis and the time periods for which the assessment is done, please see the Introduction chapter.

Method 1: Indicators without quantitative targets



The assessment of trends for indicators without quantitative targets, both for the long-term (past 15 years) and short-term (past 5 years) periods, is based on the compound annual growth rate (CAGR), using the following formula:

$$(1) \quad CAGR = \left(\frac{y_t}{y_{t_0}} \right)^{\frac{1}{t-t_0}} - 1$$

where: t_0 = base year, t = most recent year, y_{t_0} = indicator value in base year, y_t = indicator value in most recent year

The table below shows the applied thresholds and the resulting symbols.

Table III.1: Thresholds for assessing trends of indicators without quantitative targets

Growth rate (CAGR) in relation to desired direction	Symbol
$\geq 1\%$	
$< 1\%$ and $\geq 0\%$	
$< 0\%$ and $\geq -1\%$	
$< -1\%$	

Method 2: Indicators with quantitative targets

The assessment of trends for indicators with targets is based on the CAGR described above and also takes into account concrete targets set in relevant EU policies and strategies. For this type of indicator, the actual (observed) growth rate is compared with the (theoretical) growth rate that would have been required up to the most recent year for which data are available in order to meet the target in the target year. This comparison is done for both the long-term (past 15 years) and short-term (past 5 years) periods and does not take into account projections of possible future developments of an indicator. The calculation of actual and required indicator trends is based on the CAGR formula and includes the following three steps:

Actual (observed) growth rate:

$$(2a) \text{CAGR}_a = \left(\frac{y_t}{y_{t_0}} \right)^{\frac{1}{t-t_0}} - 1$$

where: t_0 = base year, t = most recent year, y_{t_0} = indicator value in base year, y_t = indicator value in most recent year

Required (theoretical) growth rate to meet the target:

$$(2b) \text{CAGR}_r = \left(\frac{x_{t_1}}{y_{t_0}} \right)^{\frac{1}{t_1-t_0}} - 1$$

where: t_0 = base year, t_1 = target year, y_{t_0} = indicator value in base year, x_{t_1} = target value in target year

Ratio of actual and required growth rate:

$$(2c) R_{a/r} = \frac{\text{CAGR}_a}{\text{CAGR}_r}$$

The table below shows the thresholds applied for the $R_{a/r}$ ratio and the resulting symbols.

Table III.2: Thresholds for assessing trends of indicators with quantitative targets

Ratio of actual and required growth rate	Symbol
$\geq 95\%$	
$< 95\%$ and $\geq 60\%$	
$< 60\%$ and $\geq 0\%$	
$< 0\%$	

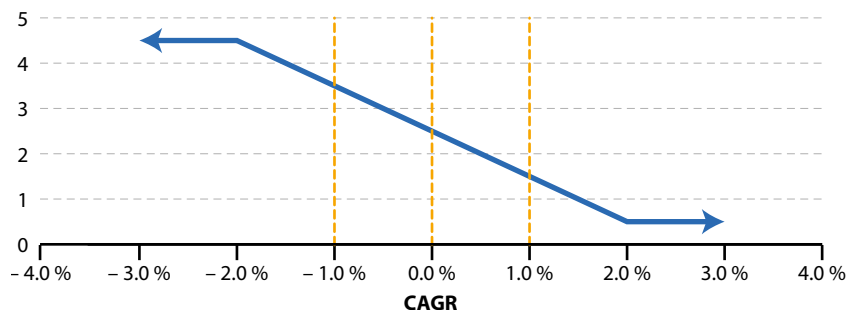
Method for calculating average scores at the goal level

The calculation of average scores on the level of the individual SDGs is based on the calculations described above for the indicators that have been chosen to monitor the respective SDG. For indicators without quantitative targets, the CAGR (see formula (1) above) is used. For indicators with quantitative targets, the ratio of actual to required growth (see formula (2c) above) is used. These values are inserted into a scoring function (which is different for indicators with and without quantitative target) in order to calculate a score ranging from 0.5 (best score) to 4.5 (worst score) for each indicator. In this 2018 edition of the EU SDG monitoring report, these indicator scores are only calculated for the short-term (past 5 years) period. The average scores on the goal level are then calculated as the arithmetic mean of the individual scores of the indicators chosen for monitoring the respective goal (including both main and multipurpose indicators). Consequently, these goal-level scores can also range from 0.5 (best score) to 4.5 (worst score).

Note that the scoring functions use broader cut-off points than the thresholds shown in Tables III.1 and III.2 in order to allow for larger variability in the scores (an indicator with a CAGR of, for example, 1.1 % per year receives a different score than an indicator with a CAGR of, for example, 5.0 % per year, although they both fall into the same assessment category of Table III.1). However, the scores at the threshold points in Tables III.1 and III.2 are harmonised (the threshold values shown in both Tables result in scores of 1.5, 2.5 and 3.5, respectively) to ensure that indicators with and without quantitative targets have the same 'weight' when calculating the average score at the goal level

Scoring function for indicators without quantitative targets

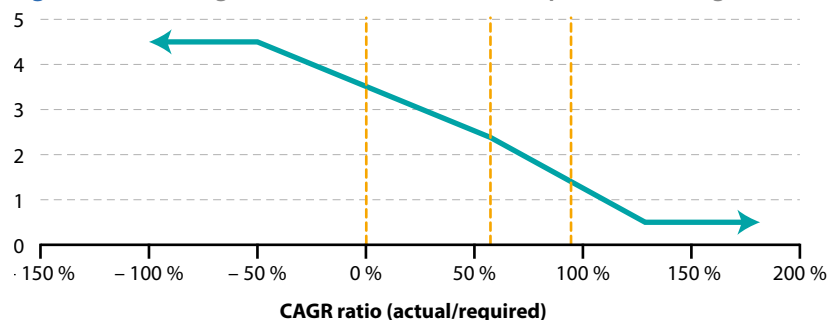
Figure III.1 below shows the scoring function for indicators without quantitative targets. In this case, the scoring function is a linear transformation, with cut-off points set at growth rates (CAGR) of 2.0 % and – 2.0 %. Indicators with a growth rate of exactly 0.0 % receive a score of 2.5. Indicators with growth rates of 2.0 % or above in the desired direction receive a score of 0.5, indicators with growth rates of 2.0 % or above in the wrong direction receive a score of 4.5.

Figure III.1: Scoring function for indicators without quantitative target

Note: The orange dotted lines represent the thresholds used for defining the assessment category of the indicator, as shown in Table III.1 above.

Scoring function for indicators with quantitative targets

Figure III.2 below shows the scoring function for indicators with quantitative targets. The scoring function is not linear in this case, with cut-off points set at CAGR ratios (actual to required growth) of 130% and -60% (ratios below zero indicate a movement away from the target). Indicators with a CAGR ratio of 60% receive a score of 2.5. Indicators with CAGR ratios of 130% or above receive a score of 0.5, indicators with CAGR ratios of -60% or below receive a score of 4.5.

Figure III.2: Scoring function for indicators with quantitative target

Note: The orange dotted lines represent the thresholds used for defining the assessment category of the indicator, as shown in Table III.2 above.

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Sustainable development in the European Union

Monitoring report on progress towards the SDGs in an EU context

Sustainable development is firmly anchored in the European Treaties and has been at the heart of European policy for a long time. The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), adopted by the UN General Assembly in September 2015, gives a new impetus to global efforts for achieving sustainable development. The EU is fully committed to playing an active role to maximise progress towards the Sustainable Development Goals.

This publication, titled ‘Sustainable development in the European Union — 2019 monitoring report on progress towards the SDGs in an EU context’, is the third in the series of Eurostat’s reports monitoring progress towards the SDGs in an EU context. The analysis in this publication builds on the EU SDG indicator set, developed in cooperation with a large number of stakeholders. The indicator set comprises around 100 indicators and is structured along the 17 SDGs. For each SDG, it focuses on aspects relevant from an EU perspective.

The monitoring report provides a statistical presentation of trends relating to the SDGs in the EU over the past five years (‘short-term’) and, when sufficient data are available, over the past 15 years (‘long-term’). Indicator trends are assessed based on a set of specific quantitative rules, visualised by arrow symbols. The publication also takes an aggregated look at EU progress on the level of the 17 SDGs.

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