Synopsis

Sustainable development objectives have been at the heart of European policy-making 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 polices.

The von der Leyen Commission has made sustainability an overriding political priority for its mandate. All SDGs feature in one or more of the six headline ambitions for Europe, announced in the Political Guidelines ([2]), making all Commission work streams, policies and strategies conducive to achieving the SDGs. Each Commissioner is responsible for ensuring that the policies under his or her oversight reflect and contribute to the SDGs, while the college of Commissioners is jointly responsible for implementing the 2030 Agenda. The current COVID-19 crisis has highlighted the interconnectedness of the social, economic and environmental spheres, alerting us to the importance of achieving SDGs.

In December 2019, the Commission presented 'The European Green Deal' ([3]), the new EU growth strategy. The European Green Deal aims to transform the Union into a modern, resource-efficient and competitive economy where climate and environmental challenges are addressed and turned into opportunities, while making the transition just and inclusive for all. It includes a roadmap with actions to move toward a circular economy, stop climate change, revert biodiversity loss and cut pollution. Moreover, it outlines investments needed and financing tools available.

In line with the Political Guidelines, SDGs have also been integrated into the European Semester. The 2020 annual cycle started with the Annual Sustainable Growth Strategy ([4]), based on promoting competitive sustainability to build an economy that works for people and the planet. The SDGs were also reflected in the European Semester country reports and the Communication ([5]) accompanying the country specific recommendations, adopted in May.

This publication, entitled 'Sustainable development in the European Union — Monitoring report on progress towards the SDGs in an EU context (2020 edition)', is the fourth 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 2019 (see Annex II on page 348 for the complete set of indicators used in this report).

The SDG monitoring report is now also more closely linked to the European Semester. Therefore, a new chapter on status and progress of EU Member States towards the SDGs has been integrated in this edition (see page 321).

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.

The ongoing COVID-19 pandemic is likely to have negative implications for the EU's overall progress towards the SDGs ([6]). However, the 2020 SDG monitoring report only describes the situation in the EU and its Member States up to the year 2019 at the most, the year before COVID-19 containment measures were widely introduced by EU Member States. As a consequence, first findings of any COVID-19 related implications will only be possible in the 2021 edition of the report, with the full scale of the crisis being revealed in later editions only.

How is the progress assessed?

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 ([7]), 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 26).

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 26).

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. It also needs to be noted that the overall assessment of EU progress towards the SDGs presented in this report is not fully comparable with the assessment presented in previous editions of Eurostat's SDG monitoring report. This is due to changes in the selection of indicators (including the use of multi-purpose indicators) for a number of goals and the switch from EU-28 (including the UK) to EU-27 (excluding the UK) data as a consequence of Brexit.

How has the EU progressed towards the SDGs?

The figure on the next page shows a statistical summary of EU progress towards the SDGs over the most recent five years of available data, 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. For two goals — SDG 13 'Climate action' and SDG 5 'Gender equality' — the aggregation of the individual indicator trends shows stagnation or a moderate movement away of the EU from the respective SD objectives over the past five years. A more detailed description of individual indicator trends can be found in the 17 thematic chapters of this report.

As the figure on the next page shows, the EU has made strong progress towards fostering peace and personal security, access to justice as well as trust in institutions (SDG 16) over the past five years. Progress towards the other goals was markedly slower. Out of the remaining goals, good progress over the past five years was visible in reducing certain aspects of poverty (SDG 1) and in improving the health situation of the EU population (SDG 3). The advances in these areas have also helped to increase the quality of life in cities and communities (SDG 11). These favourable trends can be seen against the background of a

continued improvement of the EU's economic situation up to 2019, which was also reflected in the labour market (SDG 8). Improvements were also visible in the viability and sustainability of the EU's agriculture sector (SDG 2), although some of its environmental impacts have further intensified.

In contrast, the figure on the previous page shows that goals dealing with environmental aspects of sustainability are positioned at the other end of the spectrum, indicating overall slow or no EU progress over the past few years. Progress towards the EU's climate and energy targets (SDG 7 and SDG 13) as well as the shift towards a circular economy (SDG 12) have slowed to varying degrees. Meanwhile, ecosystems and biodiversity (SDG 15) remain under pressure from human activities.

The goals on education (SDG 4), innovation (SDG 9) and global partnerships (SDG 17) show an equally slow overall EU progress, which is a result of mixed trends during the past five years. The slow progress towards reducing inequalities (SDG 10) reflects a growing divide between EU nationals and non-EU citizens in relation to poverty and employment. Similarly, in relation to gender equality (SDG 5), the gap between men and women in acquiring education and on the labour market has been widening. Since SDG 5 shows more unfavourable than favourable trends for the EU, the aggregate past five-year progress has been moderately unsustainable.

In the case of two goals — SDG 6 'clean water and sanitation' and SDG 14 'life below water' — overall EU trends cannot be calculated due to insufficient data for the past five years.

Summary at goal level

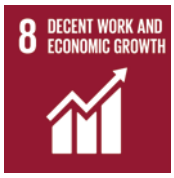
The goals are presented in order of average indicator trend assessments, from best to worst.

All of the indicators for **SDG 16 'Peace, justice and strong institutions'** show clearly favourable trends for the EU over the past five years, putting the goal on top of the ranking. Life in the EU has become safer over the past few years, as 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, as has the perceived independence of the justice system. In addition, citizen's confidence in EU institutions — the European Commission, the European Parliament and the European Central Bank — has grown considerably since 2014.

The EU's situation regarding **SDG 1 'No poverty'** is characterised by considerable reductions in certain forms of poverty and an increasing share of people being able to meet their basic needs. In particular, 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, 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 income 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 towards meeting its target of lifting at least 20 million people out of this situation by 2020.

SDG 3 'Good health and well-being' continues to be characterised by rather strong EU progress over the past five years. EU citizens suffer less from external health determinants such as noise and air pollution and seem to increasingly let go of lifestyle-related risk factors such as smoking. These improvements are also reflected in the reduction of avoidable mortality, referring to both preventable and treatable causes of death. In addition, deaths due to HIV, tuberculosis and hepatitis have fallen continuously over the past five years, and fewer people have 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 the 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.

Because there are no major issues regarding food security within the EU, monitoring **SDG 2 'Zero hunger'** in an EU context mainly focuses on the sustainability of agricultural production and its environmental impacts. Past five-year trends concerning the viability and sustainability of agricultural production have been favourable. 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, and risks related to pesticide use decreased. 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, the EU land area at risk of severe soil erosion by water has decreased slightly since 2010. EU trends regarding malnutrition cannot be assessed due to the lack of a robust time series.



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 decreases 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 in 2019 was close to 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. 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.

The improvements in poverty (SDG 1) and health (SDG 3) described above are also reflected in the overall assessment of **SDG 11 'Sustainable cities and communities'**. Trends concerning the quality of life in cities and communities — referring to issues such as overcrowding, poor dwelling conditions, exposure to noise and air pollution, and the occurrence of crime, violence and vandalism in the neighbourhood — have been clearly favourable. Developments are less clear-cut for other aspects of SDG 11. Progress towards more sustainable transport modes has slowed 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, due to the continued increase in recycling of municipal waste, the EU is on track to meeting its respective target by 2030.

As regards **SDG 4 'Quality education'**, the EU has already achieved one of its six 2020 benchmarks for education and training and is close to meeting three others. 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 2019. In addition, the EU is well on track to meeting its 2020 benchmarks for early leavers from education and training and for early childhood education and care. The share of employed recent graduates has also increased over the past five years. However, 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 moving away from the respective EU target. Moreover, due to the stagnation in the proportion of adults participating in learning, the benchmark of raising this share to 15 % by 2020 will be missed.

EU developments regarding **SDG 17 'Partnerships for the goals'** have been mixed. While imports from developing countries continued to grow, the financial support the EU provides to these countries has fallen in recent years. This decrease is mainly a result of strong annual fluctuations in private flows, while official development assistance (ODA) has grown slowly but steadily. Nevertheless, the EU's ratio of ODA to gross national income (GNI) has fallen since 2016, putting the EU off track towards reaching its target of dedicating a share of 0.7 % of GNI to ODA by 2030. 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 ([8]). The already low share of environmental taxes in total tax revenues has declined even further, and a shift of taxation from labour towards environmental taxes has not been visible in the EU.

Trends have also been mixed concerning **SDG 12 'Responsible consumption and production'**. For both energy and material use, only relative decoupling from economic growth has been visible over the past five years. This means that the recent increases in the EU's resource and energy productivity have mainly been a result of strong GDP growth and do not reflect more sustainable patterns regarding consumption of natural resources. This trend is evidenced by the stagnation in the circular material use rate and the growth in total waste generation (excluding mineral wastes). Additionally, the consumption of toxic chemicals has grown slightly since 2013. Furthermore, the decrease in CO_2 emissions from new passenger cars has come to a halt, meaning the EU is not on track to meeting its respective target for 2021. Trends in the environmental goods and services sector have been positive, with the sector's value added increasing considerably since 2012.

The overall assessment of **SDG 7 'Affordable and clean energy'** is mixed. On the one hand, the increase in energy consumption since 2014 has put the EU off track towards meeting its energy efficiency target 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 2018. On the other hand, the share of renewable energy in electricity, heating, cooling and transport has been rising steadily, putting the EU within reach of its respective target for 2020. Furthermore, favourable developments are visible for people's home energy use: both per capita energy consumption of households and the proportion of people who are unable to keep their home adequately warm have decreased. In addition, energy appears to be used more and more efficiently in the EU, as evidenced by the increase in energy productivity and the decrease in the greenhouse gas emissions intensity of energy consumption.

Developments in the area of **SDG 10 'Reduced inequalities'** reveal a diversified picture. Trends regarding inequalities within Member States show an overall stagnation in income inequalities between different groups of society, although the urban–rural gap in the risk of poverty or social exclusion is closing. Past five-year trends were generally favourable for inequalities between countries, showing a continued convergence of EU Member States as regards GDP per capita and household income. The EU SDG indicator set now contains new indicators on the social inclusion of migrants, looking at the differences between EU nationals and non-EU citizens in the areas of poverty, education and employment. Past five-year trends in these areas have been mixed, with the citizenship gap narrowing for early school leavers and young people neither in employment nor in education and training. The gap has, however, been widening for income poverty and employment rates.

The indicators selected for **SDG 15 'Life on land'** show a mixed picture. While the area protected under the Natura 2000 network has increased, pressures on biodiversity from land take, including soil sealing by impervious materials, continued to intensify. The resulting habitat loss is one of the reasons for the long-term declines in common birds and grassland butterflies, although short-term trends indicate a slight recovery of populations. More favourable developments are visible for the status of the EU's water bodies and forests. Pollutant concentrations (phosphate and biochemical oxygen demand) in rivers decreased, and forest area increased in the EU. In addition, the EU land area at risk of severe soil erosion by water has shrunk slightly since 2010. 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 ([9]).

SDG 9 'Industry, innovation and infrastructure' is characterised by divergent developments in the monitored areas. As regards R&D and innovation, the EU's R&D intensity has increased only slightly since 2013, making the achievement of the respective 2020 target of raising R&D expenditure to 3 % of GDP rather unlikely. Other trends in R&D and innovation have however been clearly favourable, with continued increases in human resources in science and technology and in R&D personnel. Also, patent applications to the European Patent Office rose considerably over the past five years. In contrast, unfavourable developments are visible in relation to the efforts of making EU transport patterns more sustainable. For both passenger and freight transport a shift away from environment-friendly modes towards passenger cars and road freight transport has taken place over the past five years. In addition, the decrease in CO_2 emissions from new passenger cars has come to a halt, putting the EU off track its respective target for 2021.

The overall assessment of progress towards **SDG 13 'Climate action'** remains neutral, meaning that over the past few years, progress has been made in some areas, while negative developments occurred in others. While according to provisional estimates for 2018 ([10]) the EU has already reached its 20 % greenhouse gas emissions reduction target for 2020, a slight growth in emissions between 2014 and 2017 has put the EU off track towards its 40 % reduction target for 2030. This assessment based on past progress does not take into account further developments such as the pathways and the planned measures contained in Member States' National Energy and Climate Plans, which indicate the EU will meet its 2030 target. Despite this, the EU's greenhouse gas emissions intensity of energy consumption has been improving, and the EU remains on track towards its 2020 target for renewable energies. Nevertheless, EU countries are 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 by 0.2 °C when compared with the preceding decade. Influenced by global warming, monetary losses from weather- and climate-related disasters continue to rise. Moreover, due to the absorption of CO_2 into the world's oceans, mean ocean acidity continues to increase and in 2018 reached an unprecedented high over pre-industrial levels. In reaction to these trends, support for climate action is increasing, as evidenced by the growing number of signatories to the Covenant of Mayors for Climate and Energy.

SDG 5 'Gender equality' shows more unfavourable than favourable trends for the EU over the past five years, making the overall assessment of the goal moderately negative. On the plus side, women's hourly earnings are slowly catching up with those of men, and the shares of women in national parliaments and in senior management positions of the largest listed companies have grown considerably. On the other hand, however, inequalities between men and women in the area of education and the labour market have been increasing. Many more women than men still remain economically inactive due to caring responsibilities, and this gender gap has widened even further. In addition, the gender employment gap — both in total (20 to 64 age group) and for recent graduates (aged 20 to 34) — has widened over the past few years. Concerning education, men continued to fall behind women in relation to early school leaving and tertiary education, resulting in a widening of the (reversed) gender gap in both areas.

For the following two 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. The share of people without appropriate 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. Moreover, pollutant concentrations in rivers (phosphate and biochemical oxygen demand) have decreased since 2010. The trend for nitrate in groundwater is inconclusive, and 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.

Available data for **SDG 14 'Life below water'** are still somewhat limited in 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 do not 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 fisheries 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 CO_2 into the world's oceans, the mean ocean acidity continues to increase, and in 2018 reached a new unprecedented high over pre-industrial levels.

Introduction

1. About this publication

Sustainable development objectives have been at the heart of European policy-making 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.

The von der Leyen Commission has made sustainability an overriding political priority for its mandate. All SDGs feature in one or more of the six headline ambitions for Europe announced in the Political Guidelines ([2]), making all Commission work streams, policies and strategies conducive to achieving the SDGs. In December 2019, the Commission presented 'The European Green Deal' ([3]) — the new EU growth strategy. The European Green Deal aims to transform the Union into a modern, resource-efficient and competitive economy where climate and environmental challenges are addressed and turned into opportunities, while making the transition just and inclusive for all. It includes a roadmap with actions to move to a circular economy, stop climate change, revert biodiversity loss and cut pollution. Moreover, it outlines investments needed and the financing tools available.

In line with the Political Guidelines, the SDGs have also been integrated into the European Semester. The 2020 annual cycle started with the Annual Sustainable Growth Strategy ([4]), based on promoting competitive sustainability to build an economy that works for people and the planet. The SDGs were also reflected in the European Semester country reports and the Communication ([5]) accompanying country specific recommendations, which cover the four dimensions of competitive sustainability: stability, fairness, environmental sustainability and competitiveness.

Eurostat supports this process through regular monitoring and reporting on progress towards the SDGs in an EU context. This publication, which is also closely linked to the European Semester, is the fourth 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 at

both the European Union and Member State levels. 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 among them.

This 2020 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 the global and EU levels and the way the SDGs are monitored at the 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 2020 edition also includes for the first time a chapter on the status and progress of EU Member States towards the SDGs. The Annexes contain a section on the spillover effects ([6]) resulting from EU actions for achieving the SDGs, as well as the complete set of indicators used in this publication, and notes on methods and sources (see page 348).

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' ([7]). This is the definition of sustainable development that was first introduced in the Brundtland report ([8]) by the World Commission on Environment and Development (WCED) in 1987, and it is the most widely used nowadays. Following this report, 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 outcome ([9]) 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 for the 2030 Agenda ([10]).

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

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

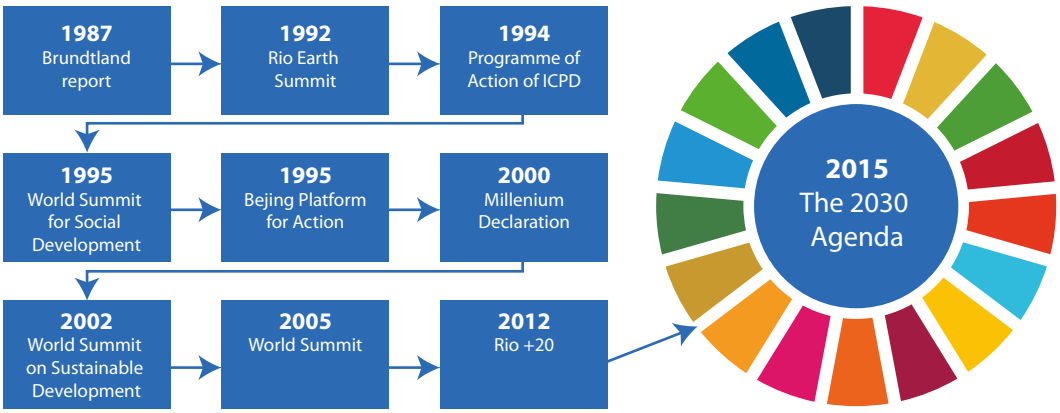


Figure 0.2: The UN Sustainable Development Goals

document ([11]). 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 which 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 reviews of progress towards the SDGs ([12]). 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 ([13]). In view of this, many countries are updating their national sustainable development strategies based on the 2030 Agenda ([14]).

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 (IAEG-SDGs) under the supervision of the UN Statistical Commission ([15]).

In July 2017, the UNGA adopted a global SDG indicator list, including 232 different indicators ([16]). However, only for about half of those indicators data are available and published in the context of global SDG monitoring (these are classified as tier 1 by the UN). For a further 41 % of indicators data are available only for less than 50 % of countries worldwide (tier 2), and for the remaining ones the data availability review is pending. There are data 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. In order to

continuously improve the global SDG monitoring, annual refinements of indicators are included in the indicator framework as they occur. In addition, the Statistical Commission conducted a comprehensive review of the indicator framework in early 2020. This resulted in the approval of 36 major changes to the global SDG indicator list in the form of replacements, revisions, additions and deletions by the 51st session of the Statistical Commission in March 2020. Therefore, the revised global indicator framework consists now of 231 different indicators. Another such review is planned for 2025.

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 ([17]).

Achieving the SDGs around the world critically depends on a global partnership to mobilise the 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 element of 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 ([18]).

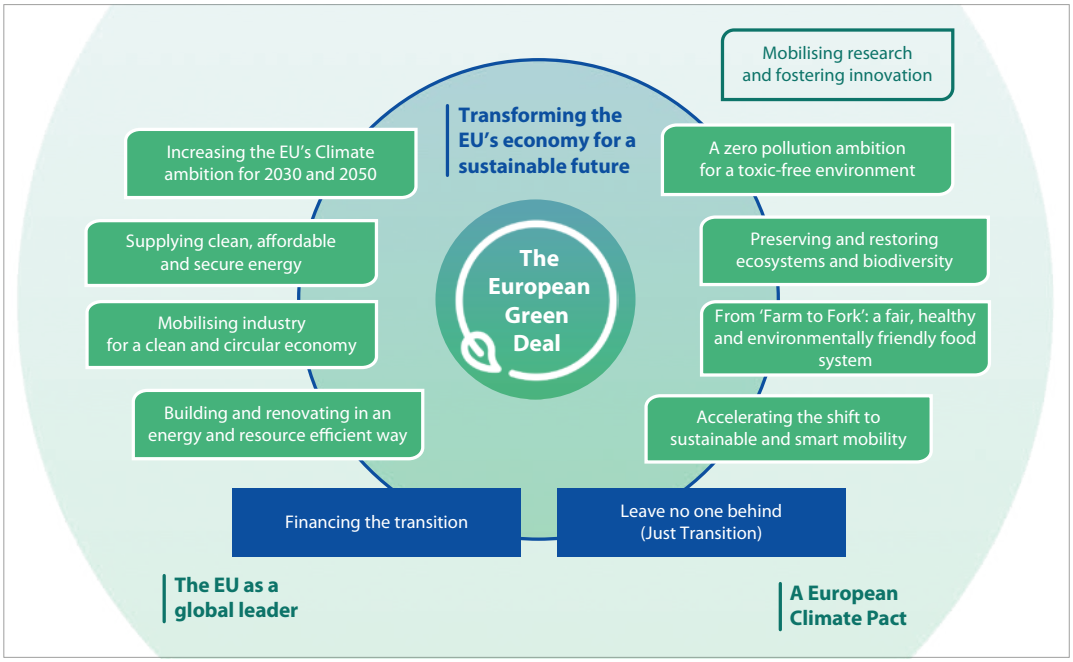
The global indicator framework to monitor the implementation of the 2030 Agenda is complemented by indicators at the level of UN world regions and at national level. For example, indicator sets have been developed for the Asia-Pacific region ([19]), for Africa ([20]), and for Latin America and the Caribbean ([21]). At the European level, the UN Economic Commission for Europe (UNECE) selected 80 indicators from the global list based on relevance for the region and data availability for a newly developed UNECE SDG Dashboard ([22]). The UNECE also published a Roadmap on Statistics for Sustainable Development Goals in July 2017 ([23]). The roadmap includes six 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 ([24]). 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 European Union, 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 ([25]). The Europe 2020 strategy put forward the three mutually reinforcing key priorities of smart, sustainable and inclusive growth, steered by the European Semester process. 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 ([26]).

The work leading up to the adoption of the UN 2030 Agenda for Sustainable Development in 2015 spurred new momentum for policy action in this area, 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

Figure 0.3: The European Green Deal



sustainable European future: European action for sustainability' ([27]) in November 2016, announcing a two-step approach towards the implementation of the SDGs. The first work stream has been the full integration of the SDGs into the European policy framework and Commission priorities. The second work stream has been a reflection on further developing the EU's longer-term vision after 2020. In this respect, the Commission presented in January 2019 a reflection paper 'Towards a Sustainable Europe by 2030' ([28]).

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 next section) and the launch of annual EU SDG monitoring reports in November 2017.

The reflection paper 'Towards a Sustainable Europe by 2030' built its assessment of EU performance with regard to the SDGs ([29]) on the 2018 EU SDG monitoring report ([30]), and other relevant sources. It identifies competitive advantages of the EU that give the EU 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 environment standards. The paper also highlights the complex and interlinked challenges the EU is facing, in particular related to climate change and ecological debt, technological and demographic change, inequality and social cohesion. Many elements of this reflection paper were taken up in the Political Guidelines of the von der Leyen Commission and the mission letters of individual Commissioners.

In spring 2019, the European Parliament ([31]) and the Council ([32]) 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' ([33]).

The von der Leyen Commission has made sustainability an overriding political priority for its mandate. All SDGs feature in one or more of the 'six headline ambitions for Europe' announced in the Political Guidelines. Each Commissioner is responsible for ensuring that

the policies under his or her oversight reflect the Sustainable Development Goals, while the college of Commissioners is jointly responsible for implementing the 2030 Agenda. The President set out a 'whole-of-government approach' towards the implementation of the Goals.

In December 2019 the European Commission presented the European Green Deal ([34]) — a set of policy initiatives that aim to make Europe the first climate-neutral continent by 2050 (see Figure 0.3). The document is accompanied by an Annex that includes a roadmap with key actions to implement the Deal.

The European Green Deal is the new European growth strategy that intends to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases by 2050 and where economic growth is decoupled from resource use. It also aims to protect, conserve and enhance the EU's natural capital, and protect the health and well-being of citizens from environment-related risks and impacts. At the same time, this transition aims to be just and inclusive. It is also seen as an integral part of the Commission's strategy to implement the 2030 Agenda and the SDGs.

The policy initiatives in the European Green Deal, among others, include cuts in greenhouse gas emissions, a new circular economy action plan, a Just Transition Mechanism to leave no one behind, building renovations to achieve energy efficiency, a strategy for sustainable and smart mobility, a sustainable food strategy ('Farm to Fork' strategy), a new biodiversity strategy, a zero pollution action plan and a European Climate Pact that will allow Member States, stakeholders and citizens to better coordinate their actions. According to the roadmap, most policy initiatives will be implemented starting from early 2020.

In line with the Political Guidelines, the SDGs have also been integrated into the European Semester with the 2020 annual cycle. The refocusing of the European Semester already started through the broader economic narrative put forward in the Annual Sustainable Growth Strategy adopted in December 2019, focusing on the concept of competitive sustainability. The European Semester's 2020 country reports reflect this new approach by integrating a dedicated analytical chapter on environmental sustainability and a new annex setting out the individual Member States' performance on SDGs compared with the EU average. The data of the SDG annex in the country reports reflects the EU SDG indicator set selected for this monitoring report.

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 State 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 on 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 ([35]) and the main indicators of the Social Scoreboard for the European Pillar of Social Rights ([36]). 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' ([37]), accompanying the Communication COM (2016) 739 'Next steps for a sustainable European future: European action for sustainability' ([38]). 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. They have been selected to reflect the SDGs' broad objectives and ambitions. Thirty-six 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. Sixty-five of the current EU SDG indicators 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 like the EEA, Member States organisations in the ESS and external stakeholders.

The reviews have also produced 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 ([39]). 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 level. Due to Brexit, these data generally refer to the situation of the 27 EU Member States, not including the UK. In a few exceptional cases, the UK is still included in the aggregated EU-level data; these cases are marked with footnotes. This mainly applies to data provided by external sources for which a calculation or estimation of EU (without UK) aggregates is not possible for Eurostat, usually due to a lack of country-level data; examples include the 'climate-related economic loses' (SDG 13) or the 'grassland butterfly index' (SDG 15).

In addition to the EU Member States, data for the UK, the 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. Brexit influenced the data availability for a number of indicators, in particular those based on the EU Statistics on Income and Living Conditions (EU-SILC). As a result, long-term trends cannot be assessed for a number of indicators.

The data presented in this report were extracted in early May 2020. 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 (EIGE), the 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 ([40]). The website also includes a section called 'Statistics Explained' ([41]), 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 times 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 times 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' ([42]) 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 the indicators is applied to avoid ad hoc value judgments. The two approaches are explained in more detail in sections 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

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: Growth rate tables showing observed and required rates of change

EU aggregate	Period	Growth rates	
		Observed	To meet target
EU-27	2004–2019	– 3.0 % per year	– 2.9 % per year
EU-27	2014–2019	– 1.7 % per year	– 1.7 % per year

detailed description of the calculation method, see Annex III (page 356).

3.3.2 How are the assessment results presented?

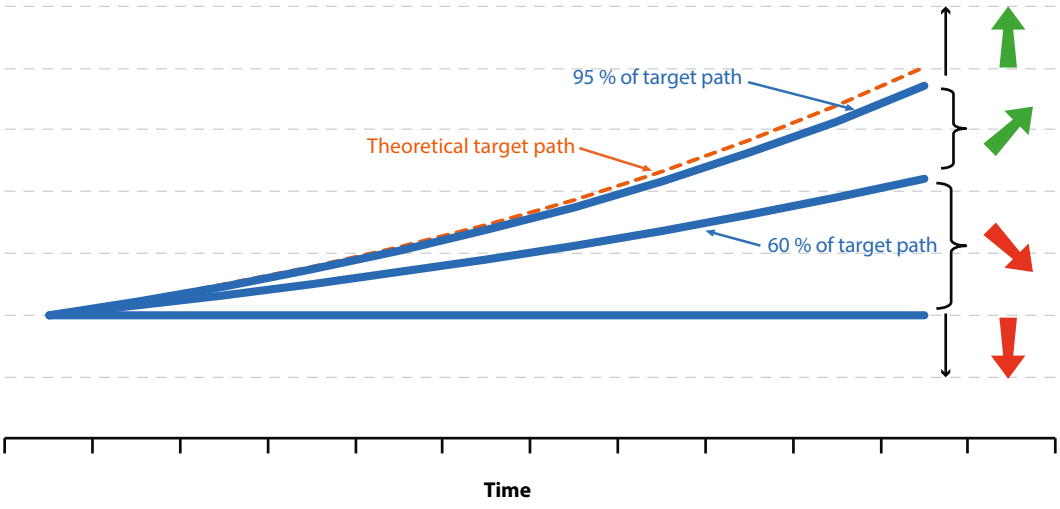
The assessment of indicator trends is visualised in the form of arrows (see Table 0.1). The direction of the arrows shows whether the indicators are moving in a sustainable direction or not. This direction does not necessarily correspond to the direction in which an indicator is moving. For example, a reduction of the long-term 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 whether 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 2003 to 2018 or 2004 to 2019). The long-term trend is also calculated for shorter time series if data are available for at least 10 consecutive years.
- The **short-term trend**, which is based on the evolution of the indicator during the past five-year period (usually 2013 to 2018 or 2014 to 2019). 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 consecutive years.

Figure 0.4: Thresholds for assessing indicators against a quantitative target (example of a target that requires the indicator to increase)



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.

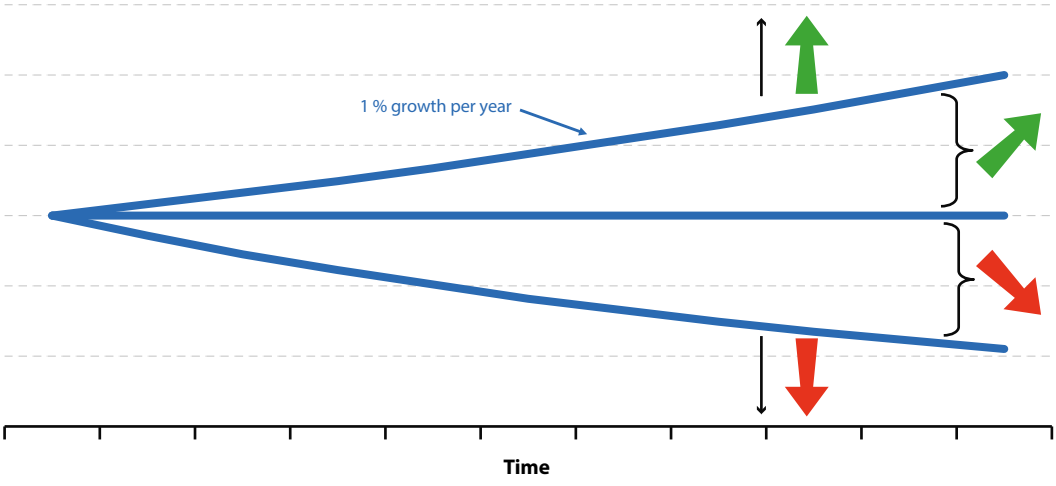
The growth rates (CAGR) upon which the arrow symbols are based are provided in tables for all main indicators of a chapter. Table 0.2 shows an example of this presentation for the indicator 'early leavers from education and training'. It shows the average annual growth rates observed for the two assessment 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 a 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 0.4 shows the thresholds for assessing an indicator trend 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.

Figure 0.5: Thresholds for assessing indicators without quantitative targets (example of an indicator where the desired direction is an increase)



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 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 which is less than 1 % (including 0 %) per year is considered 'moderate progress towards SD objectives', and a change in the wrong direction which 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 the presentation of a nuanced picture, with a sufficient number of indicators falling in all four categories ([43]). The threshold should not be confused with the level of EU ambition on a given topic. It should also be noted that for some indicators, such as loss of biodiversity, any movement away from the SD objectives might be irreversible and lead to environmental, economic and social changes, thus affecting many SDGs simultaneously.

Figure 0.5 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 long-term 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 towards the SDGs. 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 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 two goals (SDG 6 and SDG 14).

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 EU SDG monitoring report makes use of the multi-purpose indicators of the EU SDG indicator set.

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 achieving another target, such as reducing greenhouse gas (GHG) emissions.

Several attempts have been made to capture interlinkages, synergies and trade-offs by international organisations and academics. A study by the European Commission's Joint Research Centre (JRC) applied an operational method to identify trade-offs and co-benefits in a systemic way by analysing literature on interlinkages, identifying the main approaches and indicating the 'agreed' interlinkages from the literature ([44]). The study found five main approaches to identify interlinkages between the SDGs: linguistic, literature review, expert judgment, quantitative analysis, and modelling complex system interactions. The International Council for Science published 'A Guide to SDG interactions', which, based on expert judgment, explored the nature of interlinkages between the SDGs and found more synergies than trade-offs between the goals ([45]).

Furthermore, the Interlinkages Working Group of the IAEG-SDGs also conducted a study that identified positive interlinkages between goals and targets in order to help countries focus on those targets with the greatest potential for positive externalities ([46]). The Italian National Institute of Statistics based their analysis of interlinkages on the aforementioned work of the IAEG-SDGs and compared the identified interlinkages with the statistical information contained in the Istat-SDGs Information System ([47]). The National Institute of Statistics and Economic Studies in France applied Principal Component Analysis (PCA) to the EU SDG indicators to identify correlations between the SDGs ([48]). A study by E. Barbier and J. Burgess identifies trade-offs among the SDGs, using an economic model ([49]). Some academic studies also use integrated assessment models to identify interaction, synergies and trade-offs between the SDGs ([50]).

Overall, all these studies agree that there are many more interlinkages between the SDGs than trade-offs, and that it is important to identify the interlinkages in order to design the most efficient policy actions. However, no common picture concerning the identified interlinkages can be drawn from the studies. The interlinkages strongly depend on the method and data used (expert judgment or quantitative analysis) and on the geographical scope of the report (meaning whether the interlinkages are analysed on country, region or world level).

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. Instead, this report attempts to provide an overview of the interconnectedness of the SDGs and to shed light on overlapping areas by focusing on those indicators of the EU SDG set that are used to monitor more than one goal. 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 0.6. Although these connections do not necessarily cover the full complexity of interlinkages between the 17 goals, they illustrate the interconnected nature of the SDGs.

Not surprisingly, the network of Figure 0.6 reveals that the way we live, produce and consume is strongly interconnected with many other areas, both acting as a driving force for, as well as being impacted by, other developments. Cities and human settlements (SDG 11) are essential for Europeans' well-being and quality of life as they are a source of economic, environmental, territorial 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, housing and mobility issues, food supply and waste generation. Safe collection,

Figure 0.6: Multi-purpose indicators within the EU SDG indicator set

Note: The connections shown are based on the multi-purpose indicators, i.e. 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 that exist between two goals, the thicker the line that connects them.

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 ([51]) and energy efficiency ([52]) and thus directly impact on a number of energy-related aspects (SDG 7) as well as on biodiversity and ecosystem services (SDG 15) ([53]). 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 strongly interconnected with 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) impact resource and material consumption (SDG 7, SGD 12) as well as 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, pressures 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, for example, recognised by the indicator on the population connected to waste water treatment, connecting SDG 6 and SDG 11. Water quality (SDG 6) measured by pollutants in rivers is also closely linked to overall ecosystem status (SDG 15). Furthermore, sustainable agriculture (SDG 2) contributes to protecting biodiversity and managing soil sustainably (SDG 15).

As indicated above, the way we live is a driving force for other (potentially negative) developments, however, these developments can also in turn impact on the ability of society to maintain a good quality of life for its citizens in the future. 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 directly impact people's quality of life. However, health not only affects a person's well-being and social participation, it is also a prerequisite for development, thus linking it with SGD 8 on 'Decent work and economic growth'. Decent employment opportunities in turn allow people to afford certain living standards and achieve life goals, thus amongst others 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 health care 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.

The goals on education (SDG 4) and innovation (SDG 9) are only sparsely linked to other goals when looking at the multi-purpose indicators of the EU SDG set only. However, there is a wide agreement that both goals are cross-cutting topics that are crucial for meeting the 2030 Agenda as a whole. With regards to SDG 4, 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. As regards SDG 9, enhancing science, technology and innovation leads to productivity increases, while development of infrastructure contributes to ensuring access to economic, health-related and educational resources and services ([54]).

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 bearing in mind differences in the socio-economic situation across EU Member States. Nevertheless, the interlinkages show that for a transition towards more sustainable and resilient societies, citizens and all stakeholders in the different policy areas, sectors and levels of decision-making have important roles and share the same responsibility.

1 End poverty in all its forms everywhere

SDG 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 people's opportunities to achieve their full potential, to participate actively in society and to access quality services. It is usually associated with poor health, low salaries, unemployment and low educational outcomes. Poverty is a multidimensional phenomenon and has a tendency to persist over time and to be transmitted across generations. This means that 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 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 an ongoing 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 with the year 2008 ([3]).

Table 1.1: Indicators measuring progress towards SDG 1, EU-27

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 42
People at risk of income poverty after social transfers	↘ (1)	↘	page 45
Severely materially deprived people	↑ (1)	↑	page 46
People living in households with very low work intensity	↑ (1)	↑	page 47
In work at-risk-of-poverty rate	:	↘	page 48
Basic needs			
People living in households with poor housing conditions (such as leaking roof, damp walls or foundation, etc.)	:	↑	page 49
Self-reported unmet need for medical care (*)	:	↑	SDG 3, page 83
People living in households without basic sanitary facilities (such as bath, shower, indoor flushing toilet) (*)	:	↑	SDG 6, page 128
Population unable to keep home adequately warm (*)	:	↑	SDG 7, page 150
Overcrowding rate (*)	:	↑	SDG 11, page 210

(*) Multi-purpose indicator.
(1) Past 13-year period; trend refers to the EU with UK but without HR because the Europe 2020 target (20 million people lifted out of the risk of poverty or social exclusion by 2020) was adopted before Croatia joined and before the UK left the EU.
(2) Trend refers to the EU with UK but without HR.

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 factors related to multidimensional poverty and basic needs. In recent years, the EU has made progress in most aspects of poverty tracked in this chapter, except for in-work poverty and income poverty, as shown in Table 1.1.

Multidimensional poverty

SDG 1 not only calls for the eradication of extreme poverty but also for poverty in all its dimensions to be halved by 2030. This universal approach to reducing poverty is directly relevant to the EU, which already employs a multidimensional measure of poverty in its Europe 2020 strategy and, more recently, in the European Pillar of Social Rights.

The poverty and social exclusion indicator is based on three sub-dimensions: income poverty, low work intensity and material deprivation. Through this multidimensional approach, the indicator shows which share of the population is at risk of exclusion and marginalisation from economic, social and cultural activities.

Poverty in the EU has been declining since 2012

In 2018, 94.8 million people, or 21.6 % of the EU population (without the UK), were at risk of poverty or social exclusion, a decrease of 12.5 million people, or 3 percentage points, since 2013. The Europe 2020 strategy's goal to 'lift at least 20 million people out of the risk of poverty or social exclusion' by 2020 compared with the year 2008 is based on the EU's composition at the time the strategy was adopted: including the United Kingdom, but excluding Croatia. In 2018, there were 108.9 million people in the EU (with the UK, but without HR) at risk of poverty or social exclusion, which is a decrease of 7.2 million people compared with 2008. It is worth noting that the EU's at-risk-of-poverty-or-social-exclusion rate increased between 2009 and 2012 because of the delayed social effects of the economic crisis ([4]), but it has been in decline since that period. However, with 12.8 million people still needing to be lifted out of the situation of being at risk of poverty or social inclusion, the EU is likely to miss its 2020 target.

94.8
million people in the EU were at risk of poverty or social exclusion in 2018

Severe material deprivation and in-work poverty are on the retreat

The three dimensions 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 73.8 million, or 16.8 % of EU citizens, income poverty was the most prevalent form of poverty in the EU in 2018 ([5]). 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 — referring to people living in households where the adults worked no more than 20 % of their potential — which affected 28.2 million people or 8.8 % of the EU population aged 0 to 59. At the same time, 6.1 % of the EU population, or 26.7 million people, were affected by severe material deprivation, meaning they were unable to afford four or

73.8
million people in the EU were at risk of income poverty in 2018

26.7
million people were affected by severe material deprivation in the EU in 2018

more items out of a list of nine items considered by most people to be desirable or even necessary for an adequate life (see page 46 for the full list).

More than one quarter (29.8 %) — 28.2 million people — of all people at risk of poverty or social exclusion, were affected by more than one dimension of poverty in 2018. Out of these, 5.7 million people (5.9 %) were affected by all three forms ([6]).

The European Commission, the European Council and the European Parliament jointly proclaimed the European Pillar of Social Rights in November 2017 ([7]). 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. In January 2020, the Commission published a Communication ([8]) to prepare the way for an Action Plan to implement the European Pillar of Social Rights by launching a broad discussion with all EU countries, regions and partners on how to deliver progress at EU, national, regional and local level.

As Figures 1.5, 1.7 and 1.9 show, the three sub-indicators of poverty and social exclusion have followed different paths since 2005. Trends in the number of people living in households with very low work intensity and those affected by severe material deprivation experienced ups and downs in the years before and after the economic crisis, but have seen considerable declines in recent years. On the other hand, income poverty has increased almost continuously since 2005.

Such diverging trends can arise because of the different natures of the indicators and the three related but distinct concepts of poverty they represent. Income poverty is a relative measure and reflects whether someone's income is much lower than the median income in their country. 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 during times of increasing average or median income, the relative poverty rate can remain stable (or even increase) depending on changes in the distribution of income across the overall population. Rates of severe material deprivation (indicating a lack of resources to cover certain material needs) and people living in households with very low work intensity (jobless or quasi-jobless households) are likely to decrease during economic recoveries when people are generally better off financially and the labour market situation has improved.

28.2

million people in the EU were living in households with very low work intensity in 2018

The implementation of the European Pillar of Social Rights ([9]) is 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 ([10]).

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, excluding pensions. In the EU, social transfers reduced the share of people at risk of poverty by 8.2 percentage points in 2018, from 25.0 % ([11]) to 16.8 %.

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 at-risk-of-poverty-or-social-exclusion rates in 2018 ranged from 12.2 % to 32.8 %.

Overall, the share of EU citizens living in income poverty (16.8 % in 2018) is relatively low compared with other major economies worldwide. Most non-EU OECD countries had higher values, roughly between 19 % and 25 % ([12]). Commonwealth countries in the OECD outside the EU (Australia, Canada and New Zealand) were at the bottom end of this range, followed by Japan (21.7 %). Income poverty was more prevalent in the Latin American OECD countries (Chile and Mexico) as well as South Korea and Israel. The highest shares of income poverty among non-EU OECD countries were reported by the United States and Turkey (25.0 % and 25.2 % respectively).

Single-parent households, migrants, children and people with disabilities are often at risk of poverty or social exclusion

Identifying especially vulnerable groups is an important key to creating sound policies to fight poverty. Figure 1.4 shows which sub-groups of people were most at risk of poverty or social exclusion in 2018. The most vulnerable groups included unemployed people, of which almost two-thirds were at risk (64.5 %), children of parents with at most secondary educational attainment (61.6 %), citizens from non-EU countries living in the EU (45.6 %), and single-parent households with one or more dependent children (42.8 %). Other relevant sub-groups are adults born in non-EU countries (38.8 %), people with severe disabilities (34.7 %), people with at most secondary educational attainment (33.6 %), young people aged 18 to 24 (28.2 %), people living in rural areas (23.6 %) and women (22.5 %) ([13]).

The Youth Guarantee Programme ([14]) 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.

The EU is currently also exploring the feasibility of a Child Guarantee to help ensure every child in Europe that is at risk of poverty has access to free healthcare, free education, free childcare, decent housing and adequate nutrition.

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

Poverty or social exclusion can also affect employed people. The share of people unable to escape the risk of poverty despite being employed, the so-called working poor, increased almost continuously from 2010 to 2016 but fell in the following two years. At 9.2 %, the in-work poverty rate in 2018 was only slightly above the 2013 level of 9.1 %. Across EU countries, the shares varied considerably in 2018, between 3.1 % and 15.3 %.

9.2 %
of employed people in the EU were at risk of income poverty in 2018

The share of working poor varies across different groups of society. In general, groups with a higher share of people at risk of poverty or social exclusion are also more often affected by in-work poverty. In addition, the extent to which someone is affected by in-work poverty is also significantly higher for people working part-time or on temporary contracts ([15]).

The European Social Fund (ESF) [16] is Europe's main funding tool for promoting employment and social inclusion. It helps people to gain access to training and to secure a job, as well as trying to integrate disadvantaged people into society and aiming to ensure fairer life and job opportunities for all. With an EU budget allocation of EUR 88 billion for the period 2014 to 2020, the ESF works by investing in Europe's human capital — its workers, its young people, its vulnerable people and all those seeking a job. From 2021 to 2027, the ESF will be followed-up by the European Social Fund Plus, which will be the main financial instrument to strengthen Europe's social dimension.

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 [17], is necessary for active inclusion in society. For example, in many cases an address is a precondition to getting a job or even to obtaining 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. People suffering from poverty are far more often restricted to sub-optimal housing than the overall population.

13.6%
of the EU population lived in poor dwelling conditions in 2018

Inadequate housing — marked by a leaking roof, damp walls, floors or foundation, or rot in window frames or floors — affected 13.6 % of the EU population in 2018, a 2.0 percentage point improvement compared with 2013. Among people living in income poverty, 21.6 % were affected by a leaking roof, damp walls, floors or foundation, or rot in window frames or floors.

1.9%
of the EU population lacked sanitary facilities at home in 2018

Regarding basic sanitary facilities, living conditions in European countries have improved. In 2018, 1.9 % of the overall EU population lived in a house or apartment equipped neither with a bath, nor with a shower, nor with an indoor flushing toilet. While the situation has improved by 1.3 percentage points since 2013, 6.0 % of people living below the income poverty threshold were still exposed to these housing deficiencies in 2018.

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 earmarked EU budget of EUR 3.8 billion for the period 2014 to 2020, it 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. This is particularly important in the transition to a carbon-neutral society, during which energy prices are expected to increase ([18]). In 2018, 7.6 % of the overall EU population were unable to keep their home adequately warm, which is an improvement of 3.2 percentage points compared with 2013. Among people affected by income poverty in 2018, the rate was 19.0 %, which is a 5.5 percentage point improvement compared with 2013.

7.6 %
of the EU population were unable to keep their home adequately warm in 2018

Furthermore, many EU citizens also share a dwelling with more people than there is space for and face overcrowding ([19]) within their household. Such living conditions can significantly affect quality of life by restricting opportunities for movement, rest, sleep, privacy and hygiene. In 2018, 17.1 % of the EU population lived in an overcrowded household, which means the overcrowding rate has continued to fall (from 18.3 % in 2013). At 28.9 %, the incidence of overcrowding was considerably higher for people with an income below the poverty threshold.

17.1 %
of the EU population lived in an overcrowded household in 2018

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

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 2018, 1.8 % of the EU population aged 16 and above reported unmet needs for medical care, which is a distinct improvement of 2.2 percentage points compared with 2013. Cost was the main reason given for impeded access to health care services, indicated by 1.1 % 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, this was the case for 2.4 % of people in the poorest population quintile ([20]).

1.8 %
of the EU population reported unmet needs for medical care in 2018

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

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

eurostat supports the SDGs

Achieving healthy diets and ensuring agricultural systems remain productive and sustainable are the key challenges associated with SDG 2 in the EU. Unlike many areas of the world that face hunger, the EU's central nutritional issue is obesity, which can also harm health and well-being and have adverse impacts on health and social systems, governmental budgets and economic productivity and growth. Furthermore, sustainable and productive agricultural systems are essential for ensuring a reliable supply of nutritious food, 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 the 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-27

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Malnutrition			
Obesity rate	:	:	page 61
Sustainable agricultural production			
Agricultural factor income per annual work unit	↑ (1)	↑	page 62
Government support to agricultural R&D	↗ (2)	↑	page 63
Area under organic farming	:	↑	page 64
Harmonised risk indicator for pesticides (HRI 1)	:	↑	page 65
Environmental impacts of agricultural production			
Ammonia emissions from agriculture	↗	↘	page 66
Nitrate in groundwater (*)	:	:	SDG 6, page 131
Estimated severe soil erosion by water (*)	↗ (3)	↗ (4)	SDG 15, page 281
Common farmland bird index (*)	↘	↘	SDG 15, page 283

(*) Multi-purpose indicator.
(1) Past 14-year period.
(2) Past 11-year period.
(3) Past 16-year period.
(4) Past 6-year period.

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 adverse impacts of agricultural production. As Table 2.1 shows, the EU has made progress in making agricultural production more sustainable over the past few years. However, there is still room for improvement in terms of the environmental impacts of agriculture, where the picture is mixed.

Malnutrition

Good nutrition means an adequate, well-balanced diet suitable for the body's dietary needs. Combined with regular physical activity and the avoidance of excessive alcohol consumption and tobacco use, good nutrition is a cornerstone of good health. Whereas hunger is the main challenge related to malnutrition in many parts of the world, 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 related to changing consumption and activity habits. Combining a balanced nutritional diet with an adequately active lifestyle poses a challenge for many people. While the causes of obesity vary for each person, the problem is generally attributed to poor diets 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 almost 15 % of the adult population in 2017. It also disproportionately affects people with lower levels of education and generally tends to increase with age until late in life.

14.9 %
of the EU's adult population were obese in 2017

When considered together with pre-obesity, the situation looks even more severe, affecting more than half of the adult 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 (36.9 % of the adult population) in 2017.

Between 2014 and 2017, the share of obese and pre-obese people hardly changed. At the Member State level, 11 of the 22 EU countries for which data for 2014 and 2017 are available show a rise in the obesity rate.

The European Commission supports the Member States in the implementation of the 2007 Strategy on Nutrition, Overweight and Obesity-related Health Issues ([1]) through the High Level Group on Nutrition and Physical Activity and the EU Platform for Action on Diet, Physical Activity and Health.

The EU Action Plan on Childhood Obesity 2014–2020 ([2]) aims to help halt 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 ([3]) 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.

Sustainable agricultural production

Sustainable agricultural production is a key element in the fight against hunger and malnutrition. A concerted effort is needed to create a food production system that is based on sustainable agricultural practices and produces an adequate supply of food. Four indicators are used to monitor the strong interlinkages that agricultural production has with the social, economic and environmental dimensions of sustainability. These indicators are: agricultural income and labour productivity; investment in agricultural research and innovation; organic farming; and pesticide risk.

24.5%
growth in EU agricultural factor income per annual work unit between 2010 and 2019

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 to 2027. Collectively, the nine future CAP objectives address the economic, social and environmental dimensions of sustainability.

The EU Farm to Fork Strategy for sustainable food is a key component of the European Green Deal. The strategy aims to significantly reduce the use and risk of chemical pesticides, as well as the use of fertilisers and antibiotics. In addition, it will contribute to achieving a circular economy by reducing the environmental impact of food processing and retail sectors. The strategy will also promote affordable healthy food for all and stimulate sustainable food consumption in the EU.

Labour productivity in the European agricultural sector 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 2019 was 24.5 % above 2010 levels. This is mainly due to strong growth between 2009 and 2011 and again between 2016 and 2017, 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.

Investment in agricultural research and innovation is crucial for decoupling agricultural productivity from environmental impacts. Such investments also helps keep farmers competitive and able to adapt to challenges such as climate change and feeding a rising population. Overall in the EU, national government support to agricultural research and development has risen in the short term, growing by 10.0 % between 2013 and 2018, reaching EUR 2.8 billion in 2018.

2.8
billion EUR in government support was spent on agricultural R&D in 2018

Several EU initiatives contribute to innovation for sustainable agriculture. In 2012, the agricultural European Innovation Partnership (EIP-AGRI) [4] was launched to foster competitive and sustainable farming and forestry. In autumn 2016, the Commission launched the FOOD 2030 initiative [5]. 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.

Organic farming is on the rise across Europe while pesticide risks decline

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.

8.0 %
of the EU's utilised agricultural area was farmed organically in 2018

Organic farming is on the rise across the EU. The share of organic agriculture in total agricultural area grew by 2.1 percentage points between 2013

and 2018, rising to 8.0 %. Austria leads the EU with more than 24 % of its agricultural area farmed organically in 2018, followed by Estonia and Sweden with levels slightly above 20 %. In all other Member States, organic farming was practised on less than 16 % of the agricultural land.

20%
decline in pesticide-related risks in the EU compared with 2011–2013 average

Growth in organic farming has corresponded with a decline in risks related to pesticides use in the EU and its Member States. The harmonised risk indicator for pesticides captures the trend in both the amount of active substances sold in plant protection products (as a proxy for pesticide use) and the differing risk levels of these active substances. Data for 2017 show a 20 % reduction in the risk to human health and the environment from pesticides in the EU compared with the 2011 to 2013 average.

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 have contributed to the degradation of environmental conditions. Environmental impacts of agriculture include nutrient-related pollution, soil erosion and loss of biodiversity.

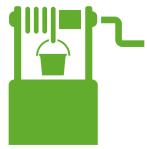
Excessive nutrient inputs are threatening the environment and water quality

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.

3.4
million tonnes of ammonia were emitted from agriculture in the EU in 2017

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 3.29 million tonnes in 2012, emissions started to increase again, reaching 3.39 million tonnes in 2017. Note that the national and EU totals might mask considerable variations in fertiliser application and livestock densities at regional and local levels.

Ammonia 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, Belgium and Germany, are also struggling the most with high nitrates levels in groundwater. The amount of nitrates in EU groundwater has remained fairly stable since 2000, with an average concentration of 19.1 milligrams per litre in 2017.



An average of
19.1
milligrams of nitrates were in each litre of groundwater in the EU in 2017

The National Emission Ceilings Directive (NEC Directive) ([6]) sets national emission reduction commitments for Member States and the EU for five important air pollutants, including ammonia. Annex III of the NEC Directive specifies measures that Member States must undertake to control ammonia emissions.

The Nitrates Directive ([7]) 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 good farming practices. It has helped to improve the nitrogen balance, but major efforts are still needed to restore optimal water quality across the EU.

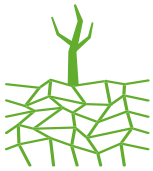
The agricultural sector is also responsible for considerable quantities of greenhouse gas (GHG) emissions ([8]), accounting for about 10 % of total GHG emissions in the EU in 2018 ([9]). While total emissions have been falling in the EU (see the chapter on SDG 13 'Climate action' on page 235), GHG emissions from the agricultural sector had been falling for many years but started slowing rising again in 2013. They reached almost 400 million tonnes of CO_2 equivalent in 2018, although this figure is still far below 1990 levels ([10]).

Soil erosion remains 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 of soil per hectare per year).

In the EU, 196 853 square kilometres (km²) of land were at risk of severe soil loss from water erosion in 2016 — an area equal to about 1.5 times Greece's total land area. 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 decreased from 6.1 % to 5.3 % between 2000 and 2016.



5.3 %
of EU land was estimated to be at risk of severe soil erosion by water in 2016

The Soil Thematic Strategy ([11]) 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 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, and rehabilitation projects have been funded, for example, through the Cohesion Policy ([12]).

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, biodiversity will suffer under growing pressure in the race to increase productivity. Species related to agroecosystems are likely to 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 ([13]).

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 with the 2000 base year for 39 farmland bird species. Between 2003 and 2018, the EU saw considerable declines of 12.3 % for common farmland birds. Intensive agricultural practices and the use of pesticides have contributed to loss of wildlife habitats as well as falling populations of insects, which are an important food source for many farmland birds.

Between 2003 and 2018, common farmland birds in the EU declined by

12.3 %

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

SDG 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.

eurostat
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 healthcare, 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 death, such as unhealthy lifestyles or accidents, improving the external health determinants and ensuring access to healthcare for all.

Table 3.1: Indicators measuring progress towards SDG 3, EU-27

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 78
People with good or very good self-perceived health	:	↗	page 79
Health determinants			
Smoking prevalence	↑ (1)	↗	page 80
Obesity rate (*)	:	:	SDG 2, page 61
Population living in households suffering from noise (*)	:	↑	SDG 11, page 211
Exposure to air pollution by particulate matter (*)	↗	↑	SDG 11, page 212
Causes of death			
Standardised death rate due to tuberculosis, HIV and hepatitis	↑ (2)	↑	page 81
Standardised avoidable mortality	:	↑	page 82
People killed in accidents at work (*)	:	↑	SDG 8, page 165
🎯 People killed in road accidents (*)	↗	↘	SDG 11, page 213
Access to health care			
Self-reported unmet need for medical care	:	↑	page 83

(*) Multi-purpose indicator.
(1) Past 11-year period.
(2) Past 14-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 healthcare. As shown in Table 3.1, the EU has made significant progress over the past few years in almost all health-related spheres analysed in this chapter.

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 monitoring cycle 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

The worldwide surge in life expectancy over the past century is a result of various factors, including reduced infant mortality, rising living standards, improved lifestyles and better education, as well as advances in healthcare and medicine ([3]). While life expectancy gives an objective assessment of how long people can expect to live, it does not show whether they live their lives in good health. Thus, indicators providing insights into individuals' subjective views of their own well-being are used to complement the information on life expectancy.

Life expectancy at birth and perceived health have increased over the past few years

A child born in the EU in 2018 could on average expect to live 81.0 years, which is 3.3 years longer than in 2003. However, the period this child could expect to live in a healthy condition — that is, without limitation in functioning and without disability — was 64.0 years ([4]), 17 years shorter than their overall life expectancy. Across Member States, life expectancy at birth varied by up to 8.5 years in 2018, from 83.5 years to 75.0 years.

A child born in 2018 could on average expect to live

81.0 years

Improvements in life expectancy at birth appear to have slowed in the EU in recent years, with an increase of only 0.5 years between 2013 and 2018. This might be connected to a slowdown in mortality improvements, as a recent publication identified ([5]). A slowdown in improvements in cardiovascular diseases and an increase in mortality from dementia and Alzheimer's disease particularly contributed to the trend. In addition, mortality rates have been erratic in some years, for example in winter 2015, because of influenza, pneumonia and other respiratory diseases.

The gains in EU life expectancy have been accompanied by improvements in self-perceived health. Between 2013 and 2018, the share of people perceiving themselves to be in good or very good health increased by 2.1 percentage points. In 2018, 68.6 % of people in the EU judged their health as being either good or very good. However, this share varied strongly between Member States, ranging from 84.1 % to 44.0 % in 2018.

Member States hold the main responsibility for their healthcare policies and for organising their healthcare systems. However, EU cohesion policy ([6]) 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 ([7]) and the European Green Deal ([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 a higher life expectancy than men, but they are less likely to assess their health as being good or very good

Between 2013 and 2018, life expectancy of women increased by 0.4 years, from 83.3 years to 83.7 years. During the same period, the figure for men rose by 0.7 years, from 77.5 years to 78.2 years. This slightly stronger improvement by men indicates a closing of the life expectancy gender gap, which stood at 5.5 years in 2018, compared with 6.4 years in 2003. This can at least partly be 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]).

68.6%
of the EU population perceived themselves to be in good or very good health in 2018

Although women are generally expected to live longer than men, women were less likely than men to rate their health as being good or very good. In 2018, 66.1 % of women and 71.3 % of men considered their health to be good or very good (a gender gap of 5.2 percentage points). An inverted gender situation also becomes apparent when looking at how much of their life expectancy people can expect to live in a healthy condition. Although girls born in 2018 could expect to live longer than boys, they could expect to only live about three quarters of their life span (64.2 out of 83.7 years) without limitation in functioning and without disability, while boys could expect to live around four-fifths (63.7 out of 78.2 years) of their life span in good health ([11]).

Health determinants

Many factors affect the health of individuals and populations. These include socio-economic aspects, the state of the environment, city design, access to and use of health services, and a person's individual characteristics and behaviour ([12]). Lifestyle-related risk factors, such as an unhealthy diet, physical inactivity, alcohol consumption and smoking, directly affect citizens' quality of life and life expectancy. They also have a negative impact on national health and social systems, government budgets and the productivity and growth of our economy. The health determinants discussed in the following sections are obesity rate, smoking prevalence, noise and air pollution. Roughly speaking, the first two determinants focus on a person's individual characteristics and behaviours and the second two look at external factors. However, multi-dimensional aspects such as consumption patterns or mobility influence all the determinants considered.

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

Obesity is a serious public health problem because 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 healthcare and social resources.

In 2017, 14.9 % of people over the age of 18 in the EU were obese ([13]) and another 36.9 % were pre-obese. This means more than half of the population above the age of 18 in the EU were overweight. While the share of obese people fell by 0.5 percentage points between 2014 and 2017, the share of people who were pre-obese increased by 1.2 percentage points. The total share of overweight people therefore grew slightly over this period, from 51.1 % in 2014 to 51.8 % in 2017.

14.9 %
of the adult population in the EU were obese in 2017

The obesity rate generally increases with age, peaking at 65 to 74 years in 2017 and decreasing again for people aged 75 and older. Obesity and pre-obesity rates appear to be decreasing as the level of education increases. In 2017, there was still a considerable difference between Member States, with values ranging from 10.4 % to 25.7 % for obese 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 ([14]).

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' ([15]). Many types of cancer and cardiovascular and respiratory diseases are linked to tobacco use. Around half of all smokers die prematurely, depriving their families of income and increasing the burden on healthcare systems.

27 %
of the EU population aged 15 and over were smokers in 2017

Smoking prevalence among the population aged 15 or over fell between 2006 and 2017, from 31 % to 27 %. Nevertheless, this still means that more than a quarter of adults in the EU smoked in 2017. More men were smoking than women in 2017 (32 % versus 23 %). However, the gender gap has slightly narrowed over time, from 12 percentage points in 2006 to 9 percentage points in 2017. This development can partially explain the decreasing gender gap in life expectancy ([16]).

The Tobacco Products Directive ([17]), 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.

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 ([18]). It can lead to or aggravate many chronic and acute respiratory and cardiovascular diseases. 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 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 ([19]).

Exposure to air pollution by fine particulate matter ($PM_{2.5}$) — one of the most harmful components of air pollution for human health ([20]) — had been increasing in the EU until 2011. Since then, the trend has reversed, falling by more than 14 % from 17.5 µg/m³ in 2012 to 15.0 µg/m³ in 2017. However, progress appears to have stalled in 2017 compared with the previous year. Considerable differences within the EU remain, with values ranging between 4.9 µg/m³ and 23.8 µg/m³ in 2017. However, this range is smaller than it was in 2012. The annual mean for $PM_{2.5}$ is below the EU target of 25 µg/m³, but it continues to be above the WHO's recommended annual mean of 10 µg/m³.

In 2017, the concentration of fine particulate matter in atmosphere in the EU reached

15.0 µg/m³

In 2013, the European Commission adopted the Clean Air Policy Package ([21]) (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 ([22]), 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 ([23]). The European Green Deal of 2019 — the EU's roadmap to making its economy sustainable — is further expected to help protect the health and well-being of EU citizens from environmental-related risks and impacts ([24]).

Exposure to noise also reduces life satisfaction and perception of well-being. The WHO ([25]) identified noise as the second most significant environmental cause of ill health in western Europe after air pollution ([26]). 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 decline in sleep quality, among other interrelated mechanisms. These can lead to premature mortality ([27]). In Europe, environmental noise is estimated to cause more than 10 000 premature deaths per year ([28]). Road traffic is the dominant source of environmental noise, but railways, airports and industry are also important sources ([29]).

The EU has made progress towards reducing noise pollution over the past eight years, with the share of population feeling affected by noise from neighbours or from the street falling from 20.6 % in 2010 to 18.2 % in 2018. However, in 2018, the share has slightly increased compared with 2017, indicating that progress is stalling. Since 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 ([30]).

Referring to the noise indicator levels set by the EU Environmental Noise Directive (2002/49/EC) and based on modelling calculations from 2019, 78.2 million people in EU urban areas were estimated to be exposed to noise from road traffic of 55 decibels (dB) or higher on an annual average for day, evening and night. Another 10.3 million people were estimated to be subjected to excessive noise from railways, 3.0 million from airports and 0.8 million from industry ([31]).

18.2 % of the EU population were affected by noise from neighbours or from the street in 2018

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 ([32]). For example, groups of lower socioeconomic 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 air pollution.

In addition to these two major environmental factors, the exposure to and possible health impact of toxic chemicals and pesticides found in the environment and food are under increasing scrutiny by scientific and regulatory communities worldwide (see the chapters on SDG 2 'Zero hunger' on page 53 and SDG 12 'Responsible consumption and production' on page 219 as well as the further reading section on page 84).

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 investment in research might increase a population's life expectancy. The indicators selected for this sub-theme look at deaths due to communicable diseases, avoidable mortality, and fatal accidents on roads and at work.

Developments on preventable and treatable mortality as well as selected communicable diseases are positive

Avoidable mortality refers to preventable and treatable causes of mortality, including injuries and drug-related diseases, but also to a range of respiratory and infectious diseases as well as some types of cancer. Developments for preventable and treatable mortalities have been positive in the short term: preventable mortality has fallen by 8.9 %, from 176.0 per 100 000 persons in 2011 to 160.4 per 100 000 in 2016. In a similar way, treatable mortality has fallen by 9.9 %, from 103.4 per 100 000 persons to 93.1 per 100 000 persons over the same period. While the developments were positive in almost all Member States, the gap of 367.4 persons per 100 000 between the highest and the lowest value shows there is still a great deal of heterogeneity within the EU.

253.5
per 100 000 people died prematurely in the EU due to avoidable causes of death in 2016

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 ([33]). In the EU, deaths due to these three diseases fell steadily: while 5.2 out of 100 000 people died as a result of one of them in 2002, the rate had fallen to 2.8 per 100 000 people by 2016. The trends were also positive for the three diseases individually: between 2002 and 2016, deaths per 100 000 people fell from 2.2 to 0.8 for tuberculosis, from 1.3 to 0.6 for HIV/AIDS and from 1.7 to 1.4 for hepatitis. It should be noted, however, that in the case of hepatitis, the current calculation of the indicator is likely to under-report deaths due to hepatitis B and C ([34]).

2.8
per 100 000 people died because of HIV, tuberculosis and hepatitis in the EU in 2016

While the number of deaths due to the three communicable diseases monitored here decreased, deaths due to other infectious and parasitic diseases tend to stall with fluctuations due to, for example, different severities of seasonal flu ([35]). In 2011, 12.6 out of 100 000 people died because of certain infectious and parasitic diseases. This number went up during the following years, peaking at a rate of 15.2 in 2015, but fell back to 13.5 in 2016 ([36]).

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 ([37]) 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 ([38]).

In addition, the European Commission is currently preparing a plan to support Member States in improving cancer prevention and care. Besides actions in five areas (prevention, early detection and diagnosis, treatment and care, quality of life for cancer patients, survivors and carers, as well as knowledge, data and scientific evidence), the plan will also address areas that are expected to positively impact on other major non-communicable diseases sharing common risk factors. The so-called 'Europe's Beating Cancer Plan' is scheduled to be adopted by the end of 2020 ([39]).

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

Accidents were one of the most common causes of death within the EU, leading to almost 148 000 deaths or 3.3 % of all deaths in 2016 ([40]). 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 ([41]).

Halving the number of deaths from road-traffic accidents is not only a global goal, but also a goal of EU policies ([42]). Road safety was made a priority of the EU common transport policy in 2001, in response to the growing concern shown by European citizens ([43]). In 2018, 23 339 people were killed in road accidents (equalling 5.2 per 100 000 people), which is 50.7 % fewer than in 2003 and 3.6 % down from 2013. Nevertheless, the stagnation in road casualties since 2013 means the EU is no longer on track to reach its target to halve the number of people killed in road accidents by 2020 compared with 2010.

5.2
per 100 000 were killed in road accidents in the EU in 2018

Fatal accidents, leading to the death of the victim within one year, also occur at work. The EU made progress between 2012 and 2017, reducing the number of fatal accidents at work per 100 000 employed persons from 2.1 to 1.8. Although the total incidence rate for fatal accidents at work decreased in 2017, a considerable gender difference remained: the incidence rate of women (0.2) was negligible compared with the rate of men (3.2). 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 happened considerably more often than fatal accidents, with an incidence rate of 1 703.8 per 100 000 employed persons in 2017 ([44]).

1.8
per 100 000 people employed had fatal accidents at work in the EU in 2017

Access to health care

Access to healthcare — the timely access to affordable, preventive and curative healthcare — 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 ([45]). Limited access for some population groups may result in poorer health outcomes for that group and greater health inequalities ([46]). Reducing health inequalities is not only important for equality reasons, but also because it contributes to higher economic and social cohesion ([47]).

Only a few people report unmet need for medical care, but progress has stalled in recent years

In 2018, 1.8 % 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 4.0 %, but progress seems to have stalled recently with a slight increase of 0.2 percentage points in 2018 compared with the previous year. This indicates that access to healthcare remains a challenge.

1.8 %
of the EU population reported unmet need for medical care in 2018

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. Such out-of-pocket payments can pose a serious problem for low income households, in particular if combined with reduced financial resources for the healthcare system caused by economic crisis ([48]).

Access to healthcare 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 healthcare has also been a key element of health systems analyses since the Commission's policy was defined in 2014. The Commission Communication 'On effective, accessible and resilient health systems' ([49]) 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 healthcare gives EU citizens the right to access healthcare 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 healthcare to those left behind.

Indeed, financial constraints are the most common reason why people report unmet needs for medical examination. For 1.1 % of the total EU population in 2018, 'too expensive' was the most prominent reason for reporting unmet medical examination. A further 0.6 % 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 some countries, the majority of people reporting unmet medical examination named long waiting lists as the main reason.

Presentation of the main indicators

LONG TERM 2003–2018

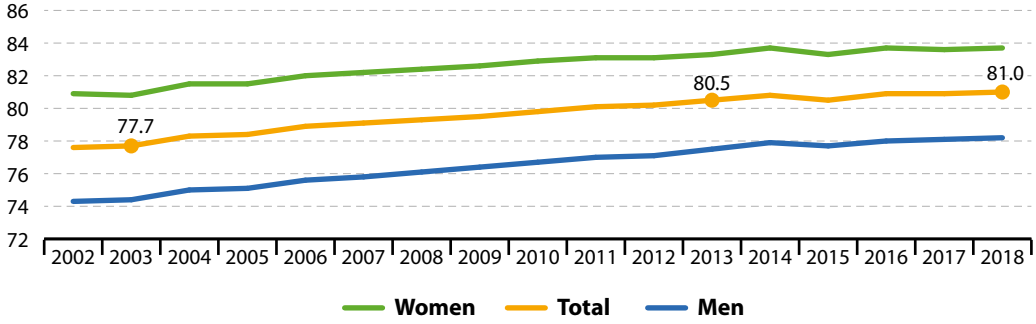
SHORT TERM 2013–2018

Life expectancy at birth

Life expectancy at birth is defined as the mean number of years that a new-born 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-27, 2002–2018

(years)



Note: Breaks in time series in 2010, 2011, 2012, 2014, 2015 and 2017; 2013–2014 and 2018 data are provisional and/or estimates.

Source: Eurostat (online data code: sdg_03_10)

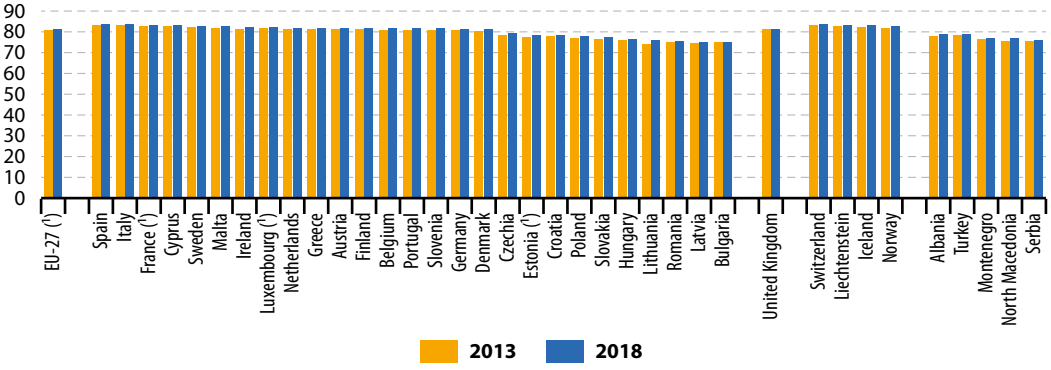
Table 3.3: Compound annual growth rate (CAGR) of life expectancy at birth

EU aggregate	Period	Growth rate
EU-27	2003–2018	0.3 % per year
EU-27	2013–2018	0.1 % per year

Source: Eurostat (online data code: sdg_03_10)

Figure 3.2: Life expectancy at birth, by country, 2013 and 2018

(years)



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

Source: Eurostat (online data code: sdg_03_10)

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

SDG 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 a 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 and 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.

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, and which 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 for them 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 it is of a 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.

Participation in early childhood education has nearly reached the ET 2020 benchmark

Early childhood education and care (ECEC) is usually the first step in a child's educational pathway. According to the EU Quality Framework for Early Childhood Education and Care ([4]), access to quality early childhood education and care for all children contributes to their development, well-being and educational success. It also helps to reduce social inequalities and narrows the competence gap between children from different socio-economic backgrounds. Equitable access is also essential for ensuring that parents, especially women, have the flexibility to (re)integrate into the labour market ([5]). In the EU, participation in early childhood education is defined as the share of the population — aged between four years and the age when compulsory education starts —

94.8%
of young children in the EU participated in early childhood education and care in 2018

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 obtaining 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.

who take part in early education. This share has steadily increased since 2003 but since 2016 it has stagnated close to the ET 2020 benchmark of 95 %, with a rate of 94.8 % in 2018, although cross-country differences persist ([6]).

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

People with low levels of education are particularly vulnerable as they are more likely to fall into poverty, suffer from health problems and make less-informed decisions affecting marriage, parenthood and retirement ([7]). The ET 2020 framework has consequently set a benchmark for the EU to reduce the share of early leavers from education and training (ELET) to below 10 % by 2020. Since 2002, the ELET rate has fallen continuously in the EU, albeit more slowly in recent years. Nevertheless, with a share of 10.2 % in 2019, the EU has almost reached its 2020 target. For further analyses of ELET trends by gender and by citizenship see the chapters on SDG 5 'Gender equality' and on SDG 10 'Reduced inequalities' on pages 105 and 183 respectively.

In 2019, the share of 18- to 24-year-olds in the EU who had left education and training early amounted to

10.2 %

Young people with disabilities show considerably 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 (LHPAD), such as sight, hearing, walking or communicating difficulties — appear extremely disadvantaged as far as ELET is concerned. In 2017, 19.6 % of people with disabilities had left education and training early, compared with 9.5 % of young people without disabilities ([9]).

Despite improved participation rates, education outcomes in reading, maths and science have further 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. Underachievers in the OECD's Programme for International Student Assessment (PISA) are those pupils who fail to reach the minimum proficiency level necessary to participate successfully in society.

22.5 %

of 15-year-old pupils in the EU showed insufficient reading skills in 2018

Across the EU, the European Social Fund ([8]) is financing initiatives to improve education and training and ensure young people complete their education and get the skills that make them more competitive in the labour market. Reducing early school leaving is a major priority here, along with improving vocational training and tertiary education opportunities. Its successor, the European Social Fund Plus, which is part of the EU's budget from 2021–2027, also supports measures to aid youth employment and activation of young people.

Therefore, failing to meet this basic proficiency level lowers a pupil's future chances both on a personal and professional level ([10]).

In 2018, for each of these basic skills, more than every fifth 15-year-old pupil showed insufficient abilities. Test results have aligned in the three categories since 2009, with a 22.3 % share of low achievers in science in 2018, followed by reading with 22.5 % and maths with 22.9 %. Compared with 2015, this is a further step backward, and therefore the 2020 benchmark of less than 15 % has not been reached in any of the three domains.

The New Skills Agenda for Europe ([11]), 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 Agenda's goals and actions are set out in the Commission Communication: A New Skills Agenda for Europe ([12]).

All EU countries have committed to implementing the Youth Guarantee ([13]) in a Council Recommendation of April 2013 ([14]). The Youth Guarantee aims to ensure all young people under the age of 25 years receive a good quality offer of employment, continued education, apprenticeship and traineeship within a period of four months of becoming unemployed or leaving formal education.

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 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 close to meeting its target for placing recent graduates in the labour market.

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

40.3 %
of the EU population aged 30 to 34 had attained a tertiary education in 2019

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 %. As a result of a 17.8 percentage point increase in the tertiary education attainment rate since 2002, the EU reached its target in 2019, with a share of 40.3 %. The share of 30- to 34-year-olds with tertiary education (International standard classification of education (ISCED) 2011 levels 5–8) 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 process ([15]) reforms. For further analyses of the trends in tertiary education by gender see the chapter on SDG 5 'Gender equality' on page 105.

The Europe 2020 strategy ([16]) 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 among its headline targets.

Employment rates rise with educational attainment

In addition to its goal to increase tertiary education, the ET 2020 framework acknowledges the important role of education and training in raising employability. It has set a benchmark for at least 82 % of recent graduates (20- to 34-year-olds) to have found employment no more than three years after 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 increased steadily between 2013 and 2018, reaching 80.9 % in 2018 and remaining at that level in 2019. For further analyses of trends in the employment rate of recent graduates by gender see the chapter on SDG 5 'Gender equality' on page 105.

80.9 %
of recent graduates in the EU were employed in 2019

Overall, employment rates rise with educational level, indicating that a person with a higher level of educational attainment has a comparative advantage on the labour market (see the chapter on SDG 8 'Decent work and economic growth' on page 153). In 2019, the employment rate of recent graduates with tertiary education (ISCED 2011 levels 5–8) was 9.1 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 11.5 percentage points ([17]).

Adult learning

Keeping skills up to date to support the ongoing quest for a high-quality labour force is one of the goals of adult learning. Adult education covers the longest period in a person's learning lifetime. 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 one's career or aid their return to the labour market (upskilling and reskilling).

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

The ET 2020 framework includes the target to increase the share of 25- to 64-year-old adults participating in learning to 15 %. In 2019, this rate stood at 10.8 %, having increased only slightly over the five preceding years. Pronounced increases were only observable between 2002 and 2005 and from 2012 to 2013. However, the most recent period of growth can mainly be attributed to a methodological change in the French Labour Force Survey in 2013 ([18]). Due to the slow increase in adult participation 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 ([19]).

10.8 %
of 25- to 64-year-old adults participated in learning in the EU in 2019

Available data on people's digital skills support the importance of adult learning by showing a clear relationship between age and the level of digital skills. While 80 % of 16- to 24-year-olds had basic or above-basic overall digital skills in 2019, this was only the case for 64 % of 25- to 54-year-olds. In particular older people struggle with the use of digital media, with only 33 % of people aged 55 to 74 having basic or above-basic digital skills ([20]).

Adult learning is the key subject of The Council Resolution on a renewed European agenda for adult learning ([21]). The Recommendation 'Upskilling Pathways: new opportunities for adults' ([22]) 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 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.

5 Achieve gender equality and empower all women and girls

SDG 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.

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The balanced participation of women and men in formal education, the labour market and in leadership positions is crucial for gender equality in the EU. 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 and 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 gender-based violence while protecting and supporting victims.

Table 5.1: Indicators measuring progress towards SDG 5, EU-27

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	:	:	page 112
Education			
Gender gap for early leavers from education and training (*)	↑	↓ (1)	SDG 4, page 96
Gender gap for tertiary educational attainment (*)	↓ (2)	↓ (2)	SDG 4, page 99
Gender gap for employment rate of recent graduates (*)	↗ (3)	↓	SDG 4, page 100
Employment			
Gender pay gap in unadjusted form	:	↑	page 113
Gender employment gap	↑	↘	page 114
Gender gap for inactive population due to caring responsibilities	↘ (3)	↓	page 115
Leadership positions			
Seats held by women in national parliaments	↑	↑	page 116
Positions held by women in senior management	↑	↑	page 117

(*) Multi-purpose indicator.
(1) Women aged 18–24 have a lower rate for early leaving from education and training than men, and the unfavourable assessment is due to their rate decreasing faster over the past five years than the rate for men.
(2) Women aged 30–34 have a higher tertiary education attainment rate than men, and the unfavourable assessment is due to their rate increasing faster over time than the rate for men.
(3) Past 13-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, while disparities between men and women have increased in the labour market (to the disadvantage of women) and in the area of education (to the disadvantage of men).

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 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 ([5]); 12 % of women aged 18 to 29 had experienced physical or sexual violence in the 12 months prior to the interview, whereas only 5 % of women aged 50 to 59 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 ([6]).

8%

of women in the EU in 2012 had experienced physical or sexual violence during the past 12 months

Gender equality is a core value of the EU, a fundamental right ([1]) and a key principle of the European Pillar of Social Rights ([2]). The EU Gender Equality Strategy 2020–2025 ([3]) thus presents policy objectives and actions to make significant progress towards a gender-equal Europe by 2025. The goal is that women and men, as well as girls and boys, are free to pursue their chosen path in life, have equal opportunities to thrive and can equally participate in and lead European society.

The European Commission supports Member States in improving gender equality by monitoring the situation and disseminating information, data and analysis of trends through its annual reports on equality between women and men in the EU and through the EU Gender Equality Index ([4]). In addition, there is a Mutual Learning Programme in Gender Equality to exchange good practices.

One of the key objectives of the EU Gender Equality Strategy 2020–2025 ([7]) is ending gender-based violence. The benchmark for international standards in this field is the Istanbul Convention, which the EU signed in 2017.

The EU also protects women and children from gender-based violence through awareness-raising as well as legislation and practical measures on victims' rights. The Commission will present a Victims' Rights Strategy in 2020, which will address the specific needs of victims of gender-based violence, including domestic violence, building on the Victims' Right Directive from 2012 ([8]).

The prevalence of violence varies greatly across the EU. However, caution is needed when comparing 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 ([9]). In addition, Member States that rank highest in terms of gender equality also tend to report a greater prevalence of violence against women. This may indicate a greater awareness and willingness of women in these countries to report violence to the police or to an interviewer ([10]).

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. Thus, having a tertiary education degree is becoming more important for both men and women. Tertiary education also plays an essential role in society by fostering innovation, increasing economic development and growth, and improving the general well-being of citizens. Although women are more likely to be highly educated, men still outperform them when it comes to the employment rate of young graduates.

Education and training 2020 (ET 2020) ([11]) 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 perspective. Several benchmarks are defined, for example, reducing the rates of early school leaving to below 10 %, raising the share of tertiary education attainment to at least 40% and aiming for a share of at least 82 % of employed graduates.

Reducing early school leaving and increasing youth employability is also a priority of the European Social Fund and its successor European Social Fund Plus, which supports measures in support of youth employment and activation of young people and is part of the EU's budget from 2021 to 2017.

Men are more likely to leave education and training early

Women overall tend to perform better than men when it comes to participation in education in the EU. In 2019, 11.9 % of men and 8.4 % of women aged 18 to 24 had left education and training with at most lower secondary education. Although this gap narrowed between 2002 and 2016, it has widened again over the past three years and in

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

3.5

percentage points in 2019

2019 it remained substantial, at 3.5 percentage point.

A major expansion in higher education systems has taken place in the EU since the introduction of the Bologna process ([12]). The share of the population aged 30 to 34 who completed tertiary education increased steadily between 2002 and 2019. The increase was particularly strong for women, whose tertiary educational attainment rate rose from 23.7 % in 2002 to 45.6 % in 2019. For men, the increase was slower, from 21.4 % to 35.1 %. This resulted in the gender gap surge, from 2.3 to 10.5 percentage points between 2002 and 2019.

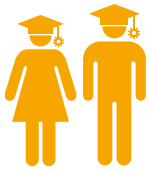
The tertiary education attainment rate of women in the EU was

10.5

percentage points higher than for men in 2019

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 gender gap flips as soon as young graduates move into the labour market, where male graduates are more likely to have found employment. This reversed gender gap compared with the education figures is remarkable, considering the important role that education and training play in raising employability. In 2019, 83.2 % 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 78.6 % of women. The gender gap has been fluctuating over time, between 2.9 and 5.2 percentage points. In 2019 the gap amounted to 4.6 percentage points, which is 0.8 percentage points more than five years earlier.



The employment rate of recent graduates in the EU was

4.6

percentage points higher for men than for women in 2019

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 tend to be more highly educated 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 sectors with low pay levels and under-represented in well-paid sectors. Because of the gender pay gap, as well as interrupted and shorter working lives, women earn less over their lifetimes than men. This results in lower pensions and a higher risk of poverty in old age.

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 ([13]). Parenthood and caring responsibilities, limited access to quality childcare, and monetary disincentives to participating in the labour market have a negative impact on the gender employment gap ([14]). In the EU, the employment rate for women grew from 58.1 % in 2004 to 67.3 % in 2019. For men, the rate grew more slowly from 74.5 % in 2004 to 79.0 % in 2019 (see the chapter on SDG 8 'Decent work and economic growth' on page 153 for more detailed analyses on employment rates). As a result, the gender employment gap narrowed by 4.7 percentage points between 2004 and 2019. The strongest reduction occurred during the economic crisis,

The gender employment gap (in favour of men) was

11.7

percentage points in the EU in 2019

partly because jobs were lost in traditionally male-dominated fields, such as construction and the automotive industry ([15]). The gap continued to shrink until 2014, but has since stagnated. In 2019, the proportion of men of working age in employment still exceeded that of women by 11.7 percentage points, which is 0.1 percentage points higher than five years earlier.

Closing gender gaps in the labour market by achieving equal participation across different sectors of the economy, addressing the gender pay and pension gap, and closing the gender care gap are among the key objectives of the recently adopted EU Strategy on Gender Equality 2020–2025.

The gender pay gap has decreased slightly in recent years but remains considerable

The gender pay gap has narrowed in the short term by 1.2 percentage points, but women's gross hourly earnings were still on average 14.8 % below those of men in the EU in 2018. 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.

Men earned **14.8 %** more than women in the EU in 2018

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 ([16]). Inactivity due to caring responsibilities was the main reason why women (aged 20 to 64) were not part of the labour force in 2019, with about one in three inactive women (32.2 %) reporting this reason. In contrast, only 4.5 % 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 2019. However, over the same period the share of inactive women due to caring responsibilities increased as well. As a result, the gender gap has increased by 3.0 percentage points since 2014, reaching 27.7 percentage points in 2019.

The gender gap (in favour of men) for inactivity due to caring responsibilities in the EU in 2018 was **27.7** 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. The Work-life Balance Directive ([17]) which entered into force on 2 August 2019 has been one of the Pillar's flagships. Its implementation will help women and men reconcile work and caring responsibilities and promote gender equality.

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 under-represented 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.

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

Women held 32.1 % 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, differences between Member States vary greatly, from 47.6 % seats held by women in Sweden to 12.2 % in Hungary. There was no single EU country in early 2019 where women held the most seats.

32.1 %
of seats in national parliaments in the EU were held by women in 2019

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 was still lower than for men at 31.2 % in 2019, although this was an increase from 22.6 % in 2003. Also showing an increase was the number of female presidents and prime ministers in EU countries. In 2019, there were four female heads of government (14.3 %) in comparison to none in 2003. However, during this 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 ([18]).

Achieving gender balance in decision-making and in politics is a priority area for the European Commission and another key objective of the EU Strategy of Gender Equality 2020-2025. To reach the aim of at least 40 % representation of the under-represented sex among non-executive members on company boards, the European Commission will push for the adoption of the 2012 proposal for a Directive on improving the gender balance on corporate boards ([19]).

In 2019, a quarter of board members of the largest listed companies were women

The share of women on boards of the largest listed companies was 28.4 % in 2019. Between 2003 and 2019, there was an almost steady increase of 20.2 percentage points. However, the numbers mean that three out of four board members of the largest listed companies are still men. The data nevertheless provide evidence of the positive impact of legislative action on the issue of female representation in boards ([20]).

28.4 %
of board positions in the largest listed companies in the EU were held by women in 2019

6 Ensure availability and sustainable management of water and sanitation for all

SDG 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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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 waste water, 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. Over 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 ensure their sustainable and efficient use.

Table 6.1: Indicators measuring progress towards SDG 6, EU-27

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Sanitation			
People living in households without basic sanitary facilities (such as bath, shower, indoor flushing toilet)	:	↑	page 128
Population connected to at least secondary waste water treatment	:	:	page 129
Water quality			
Biochemical oxygen demand in rivers	↑ (1)	↗ (1)	page 130
Nitrate in groundwater	:	:	page 131
Phosphate in rivers	↑ (1)	↗ (1)	page 132
Inland water bathing sites with excellent water quality (*)	:	↑	SDG 14, page 263
Water use efficiency			
Water exploitation index (WEI+)	:	:	page 133

(*) Multi-purpose indicator.
(1) Data refer to an EU aggregate based on 15 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 be assessed due to the seasonal variability of the balance between water abstraction and renewable fresh water resources.

Sanitation

Provision of drinking water and adequate sewage treatment are matters of public and environmental health. As a vital resource, water is considered a public good in the EU. 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 waste water treatment.

The vast majority of EU citizens have access to basic sanitation and are connected to secondary waste water treatment

Overall, connection rates and the quality of water services in the EU were already high more than 10 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 2.5 % in 2013 to 1.9 % in 2018. Data also show that between 2012 and 2017, the share of the population connected to secondary waste water treatment increased in most Member States.

1.9%
of the EU population lacked sanitary facilities at home in 2018

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 ([1]). The EU health and food safety policy also contributes to high water and sanitation standards in terms of preventing the spread of communicable diseases. The EU, through its external relations, 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 waste water treatment mainly removes suspended solids and only reduces organic water pollution by 20–30 %. Secondary treatment processes, which are typically applied after primary treatment, yield a reduction of organic pollution of at least 70 %. Growth in the share of people connected to secondary treatment indicates that the implementation of the Urban Waste Water Treatment Directive ([2]), which started in the 1990s, has made an important contribution to reducing pollution and improving water quality in Europe's rivers.

Different levels of access to water services and sanitation persist between Member States

Almost every household in the EU had basic sanitary facilities in 2018, and most countries reported that less than 1 % of their population was still living in households without a bath,

shower and a flushing toilet. However, in some countries, this share remains comparatively high, in particular in Romania with 25.6 % and Bulgaria, Latvia, Lithuania with around 9 % of households not having access to these facilities. These figures highlight the strong link between access to basic sanitary facilities and poverty, which can be seen across the EU. In 2018, 5.4 % of poor people in the EU lacked access to a bath, shower or toilet in their households, compared with only 0.9 % of those living above the poverty threshold ([3]).

Connection to secondary waste water treatment is another important facility for enhancing access to sanitation. Since 2012, connection rates to secondary treatment have increased in more than two-thirds of the reporting Member States. Among the 15 countries that, according to the most recent data, reported a connection rate of 80 % or more to at least secondary treatment are many of the early, or 'old' (EU-15) Member States. These countries had a head start on implementing the Urban Waste Water Treatment Directive. The lowest-scoring countries were in the Mediterranean and Black Sea region. It is important to note that the connection to secondary treatment is in most cases not expected to reach 100 %, as this would entail disproportionate costs, in particular for rural areas with a low population density. For this reason the Urban Waste Water Treatment Directive only obliges bigger agglomerations to introduce secondary treatment, while encouraging smaller agglomerations (below 2 000 person equivalents) to find alternative solutions to reach the same level of protection for waterbodies.

15

Member States reported that 80 % or more of their population were connected to at least secondary waste water treatment

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 not only water quality and waste water treatment, but also water management and flood prevention.

Water Quality

Diffuse pollution by agriculture, accidental spillage of harmful substances and discharge of insufficiently treated domestic and industrial waste water, as well as atmospheric deposition of pollutants such as mercury, can pose a threat to human and environmental health. These pressures, along with changes to the structure and flow of water bodies, create a barrier to sustainable development. Water quality monitoring distinguishes between chemical pollution ([4]) and pollution by nutrients and pathogens. In this report, water quality is monitored through four indicators looking at nutrients in freshwater and at bathing water quality. All these indicators show favourable trends for the EU over the past few years.

The Water Framework Directive ([5]) is the main European legislation aiming to prevent water pollution. It integrates several previously existing Directives, such as, for example, the Freshwater Fish Directive (which sets standards for P concentration). In addition, it is complemented by 'daughter' Directives: the Groundwater Directive (which sets a threshold for Nitrates) and the Quality Standards Directive (sets standards for certain priority pollutants of significant risk). According to the Water Framework Directive, EU Member States were obliged to achieve good status in all bodies of surface water and groundwater by 2015 or, with grounds for exemption, by 2027 at the latest. The Water Framework Directive recently underwent an evaluation (Fitness Check report, published in December 2019).

The 7th Environment Action Programme sets the policy agenda for the years from 2015 to 2020 and specifies nine priorities, of which six specifically address the status of water resources.

Improved waste water treatment is leading to less organic pollution in European rivers

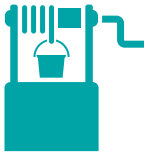
In 2017, the biochemical oxygen demand in European rivers amounted to

2.0 mg/L

Strong organic pollution, caused by municipal waste water, effluents from industry, or livestock, can lead to the deoxygenation of water, killing fish and invertebrates. Thanks to improved waste water treatment, organic pollution in European rivers has been decreasing, though the decline has slowed in recent years. A proxy for organic water pollution is the amount of oxygen needed for the microbial digestion of organic pollution under standard conditions, expressed as biochemical oxygen demand (BOD). BOD values of rivers in Europe range from below 1 milligram per litre (mg/L) (very clean) to above 15 mg/L (heavily polluted) and have declined on average from 2.75 mg/L in 2002 to 2.00 mg/L in 2017.

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 although nutrient pollution has fallen since the 1990s, it is still the main reason why 28 % of EU surface water bodies ([6]) have not achieved good water quality. In some regions, pollution of rivers with nitrate/ammonia (N) and phosphorous (P) is still causing severe eutrophication in coastal waters. Eutrophication can lead to algal blooms and oxygen depletion of surface waters, with potentially detrimental effects for fish, invertebrates and whole ecosystems.



In 2017, the concentration of nitrates in groundwater in Europe reached

19.1mg/L

The main sources of nutrient inputs are the application of fertilisers and animal waste in agriculture, as well as poorly treated waste water from industry ([7]). Nitrates (NO_3), among other chemicals, can

infiltrate and contaminate groundwater bodies. They are the most common pollutants to cause groundwater to have a poor chemical status in the EU (18 % of groundwater body area across 24 Member States is in poor status because of nitrates) ([8]). This is particularly problematic because groundwater is an important source of drinking water in Europe. Between 2002 and 2017, nitrate concentrations in groundwater in the EU on average remained below 20 milligrams per litre (mg/L), reaching 19.1 mg/L in 2017. However, over the period 2012 to 2015, 13.2 % of groundwater stations showed NO_3 concentrations above the threshold considered unfit for drinking, which is set by the Nitrates Directive (50 mg/L) ([9]).

The Nitrates Directive ([10]) 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 53). 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.

Average phosphate (PO_4) concentrations in European rivers improved significantly between 2002 and 2017, as they fell from 0.154 mg/L in 2002 to a low of 0.093 mg/L in 2017. This overall positive long-term trend is to some extent the result of measures implemented under the Urban Waste Water Treatment Directive over the past 25 years and especially the introduction of phosphate-free detergents. In the short term, however, phosphate reduction has slowed in most countries (or even reversed, for example in Latvia, Lithuania, France and Belgium). The country which made the most progress in reducing phosphate in the short term is Bulgaria.

0.09 mg/L
was the concentration of phosphates in European rivers in 2017

The vast majority of inland bathing waters show 'excellent' bathing water quality

Contamination of water by faecal bacteria continues to pose a risk to human health. This is especially the case when it is found at bathing water sites because swimming in contaminated beaches or lakes can cause illness. 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 ([11]), 80.9 % of inland water bathing sites showed excellent bathing water quality in 2018. The major sources of bathing water pollution are sewage and water draining from farmland. Such pollution increases during heavy rains and floods which wash sewage overflow and polluted drainage water into rivers and seas.

80.9 %
of inland water bathing sites in the EU showed excellent bathing water quality in 2018

The Bathing Water Directive ([12]) requires Members 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 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

SDG 6 also calls for a focus on water use efficiency in order to use freshwater resources sustainably and reduce water stress. The regionalised water exploitation index (WEI+) aims to illustrate the pressure on renewable freshwater resources due to water demand, which is largely affected by population trends and socio-economic developments, and climate conditions, which control the availability of renewable freshwater resources.

Water stress is low in most EU countries, but shows a strong seasonal variability

Water stress occurs when water demand exceeds renewable water resources at a specific place and time. Situations where the ratio between water abstraction and long-term average available water resources exceeds 20 % are commonly considered to be water stressed. A look at annual national mean WEI+ values shows water stress appears to be a local phenomenon in Europe. At the EU level, the annual WEI+ index is rather stable and only shows a slight increase from 8.0 in 2002 to 8.4 in 2017.

24
out of 27 reporting Member States reported sustainable water exploitation in 2017

In 2017, only two countries showed water stress with mean annual WEI+ values above 20 % (Spain and Portugal) and one country showed severe water stress reaching a mean annual WEI+ value of 70 % (Cyprus). However, annual national values can mask regional and seasonal water stress, which is in fact common in many regions of Europe.

This is particularly the case in a number of large metropolitan areas across the continent and in southern Europe, where more than half of the population regularly experiences water stress. In southern Europe, water stress is typically greatest over the summer months, when water demand from agriculture and tourism is at its highest and precipitation is low. In contrast, metropolitan areas with high energy production tend to face water stress during autumn and winter.

At the European level, an assessment of river basin districts for the period 1990 to 2015 by the European Environment Agency (EEA) came to the conclusion that, 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 European 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 ([13]).

The European Commission's 7th Environment Action Programme aims to improve resource efficiency and calls for a significant reduction in water stress. Ensuring water is used in appropriate quantities is also an objective of the Water Framework Directive. To reduce water stress and promote water resource efficiency, the Commission has proposed a regulation for safe water reuse in agriculture ([14]), which EU legislators reached an agreement on in late 2019.

7 Ensure access to affordable, reliable, sustainable and modern energy for all

SDG 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 to 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 contribute to achieving 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-27

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 144
	Final energy consumption	↗	↓	
Final energy consumption in households per capita		↗	↑	page 146
Energy productivity		↑	↑	page 147
Greenhouse gas emissions intensity of energy consumption (*)		↗	↗	SDG 13, page 245
Energy supply				
Share of renewable energy in gross final energy consumption		↑ (1)	↑	page 148
Energy import dependency		↘	↓	page 149
Access to affordable energy				
Population unable to keep home adequately warm		:	↑	page 150

(*) Multi-purpose indicator.
(1) Past 14-year period.

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, progress in these areas over the past few years has been mixed. While the EU improved its energy productivity and its greenhouse gas emission intensity of energy consumption, energy consumption itself has risen since 2014, making the 2020 energy efficiency target difficult to achieve. Regarding energy supply, the use of renewable energies further increased, while the dependence on energy imports from outside the EU has continued to rise. On a positive note, the share of people who are able to keep their homes adequately warm has risen continuously.

Energy consumption

Increasing the energy efficiency of the EU's economy 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 consequently aims to improve energy efficiency along the whole energy supply chain.

Recent increases in energy consumption have pushed the EU off track to meeting its 2020 energy efficiency target

The EU aims to increase its energy efficiency by at least 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-28 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])).

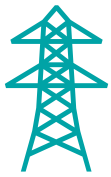
Primary energy measures a country's total energy needs excluding all non-energy use of energy carriers (for example, natural gas used for producing chemicals rather than combustion). It covers energy consumption by end users such as industry, transport, households, services and agriculture, plus consumption by the energy sector itself for production and transformation of energies, losses occurring 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 and only covers the energy consumed by end users, such as households, industry, agriculture and transport. It excludes energy used by the energy sector itself and losses incurred during energy transformation and distribution.

The EU aims to improve energy efficiency by 20 % by 2020, as set 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 Package ([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. In addition, the EU's Digital Single Market Strategy ([6]) aims to contribute to energy efficiency at the household level, for example, through support for smart metering and smart cities.

Between 2003 and 2018, primary energy consumption in the EU-28 fell by 147.3 Mtoe, amounting to a 8.7 % reduction, reaching 1 551.9 Mtoe in 2018. In comparison, final energy consumption fell by only 53.5 Mtoe or 4.5 %, reaching 1 124.1 Mtoe in 2018. Trends for the EU-27 (without the UK) have been quite similar; between 2003 and 2018, primary energy consumption decreased by 99.7 Mtoe, amounting to a 6.8 % reduction, reaching 1 375.7 Mtoe in 2018. In comparison, final energy consumption fell by only 36.2 Mtoe or 3.5 %, reaching 989.5 Mtoe in 2018.



1 551.9
Mtoe of primary energy were consumed in the EU-28 in 2018

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 indicate that lower energy intensity as a result of innovation, efficiency improvements and policy implementation was the most important driver of the reductions in primary and final energy consumption in the EU between 2005 and 2014 ([7]).

However, increases in primary and final energy consumption between 2014 and 2017 partly reflect a return to average heating demand after an exceptionally warm 2014 and stronger year-to-year economic growth, which could not be offset by energy savings ([8]) (see also chapter on SDG 8 'Decent work and economic growth' on page 153). Small reductions in primary energy consumption and stabilisation of final energy consumption in 2018 may be traced back to higher energy prices, mild weather and energy efficiency improvements, which were, for example, the main reasons for the positive change in Germany, the EU's biggest energy consumer ([9]).

1 124.1
Mtoe of final energy were consumed in the EU-28 in 2018

If the trend observed between 2014 and 2018 continues, the reduction targets for primary and final energy consumption will be missed.

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, the 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).

549
kgoe of final energy were consumed by each EU inhabitant at home in 2018

Over the past 15 years, the average household energy consumption per EU inhabitant has fallen from 613 kilograms of oil equivalent (kgoe) in 2003 to 549 kgoe in 2018 — a 10.4 % reduction. Over the same period, total household energy consumption also showed a slight downward trend, while the population grew by 3.4 % or 14.5 million ([10]). 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.

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. Since 2000, the EU has continuously increased its energy productivity, reaching EUR 8.1 per kgoe in 2018, with all Member States contributing to this positive trend. The steady rise in the EU's energy productivity up to 2018 is the result of falls in gross available energy, which declined by 6.1 % between 2003 and 2013 before stabilising, while GDP has grown by 23.4 % between 2003 and 2018 ([11]).

In 2018, the EU's energy productivity amounted to

EUR 8.1

per kgoe

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 inland consumption of energy. GHG intensity of available energy is thus expressed as the amount of CO_2 equivalent emitted per unit of gross inland consumption in a given economy. Between 2003 and 2018, the GHG emissions intensity of gross inland consumption fell by 13.2 % in the EU ([12]), in particular due to a rising share of renewable energy sources in the energy mix and falling consumption of primarily oil products and coal. The increased use of gas in some countries has also contributed to this trend as it tends to be less GHG intensive.

13.2 %

decline in the GHG intensity of EU gross available energy between 2003 and 2018

Energy supply

To achieve the SDG 7 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 contributing significantly to climate change. The EU highlights the importance of renewable energy sources to the goal of decarbonising the EU energy system (see also the chapter on SDG 13 'Climate Action' on page 235).

In addition, the EU must reduce its dependency on energy imports, which mostly comprise natural gas, crude oil and coal imports. Importing energy exposes the EU economy to significant costs as well as to the risk of supply shortages, for example, due to geopolitical conflicts. The risks increase as dependency on a single country grows. Therefore, the EU seeks to become more energy independent through increased domestic energy production (in particular from renewable energy sources), increased energy efficiency and moderation of demand, as well as through the implementation of infrastructure that will allow clean energy to be distributed across the EU.

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, with its share almost doubling since 2004 when renewables covered only 9.6 % of gross final energy consumption. By 2018, this figure had reached 18.9 %. Due to this steady growth, the EU is on track to meeting its target to increase the share of renewable energy to 20 % by 2020. A reduction in investment costs, more efficient technologies, supply chain improvements and competitive support schemes for renewable energy sources have driven this increase ([13]).

18.9 %

of the energy consumed in the EU in 2018 came from renewable sources

The share of renewables grew in all of the three application areas, namely electricity, heating and cooling, and transport. In 2018, the share of renewables was highest in electricity generation at 32.2 %, followed by heating and cooling at 21.1 %, and

transport at 8.3 %. Since 2004, the share of renewable energy in transport has increased fivefold, up from only 1.5 %. The second largest increase was realised in electricity generation where renewables doubled their share, closely followed by heating and cooling.

The Europe 2020 strategy ([14]) sets a target to increase the share of renewable energy sources in final energy consumption to 20 % by 2020. By 2030, the share should further increase to at least 32 % according to the revised Renewable Energy Directive ([15]). The Energy Union Package ([16]) highlights the aim of the EU to become a world leader in renewable energy sources. EU cohesion policy ([17]) invests EUR 29 billion in sustainable energy, including energy efficiency, renewable energy, smart energy infrastructure and low-carbon research and innovation.

In 2018, 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 54.6 % followed by Finland and Latvia with shares of 41.2 % and 40.3 %, 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 2003 to meet the EU's energy demand

Despite continuous growth of renewable energy sources over the past decade, fuel imports from non-EU countries have remained almost stable and the EU's energy dependence has not improved over the past two decades. In 2003, 56.9 % of the gross available energy within the EU was imported from outside. In 2018, the share increased to 58.2 %, mainly due to increased import shares of natural gas and solid fuels. Imports of fossil energy carriers, such as oil and petroleum products (94.6 % imported), natural gas (83.3 % imported) and solid fuels (predominately hard coal) (43.6 % imported), were primarily responsible for increased energy dependence since 2003, which can be explained by exhausted or uneconomic domestic sources ([18]). Imports of renewable energy including biofuels accounted for 8.3 % of gross available renewable energy in 2018 and just 1.4 % of total imports ([19]).

58.2 %
of the gross available energy in the EU in 2018 was imported

The Energy Security Strategy ([20]) 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 Package ([21]) highlights energy security as one of its five pillars.

Russia continued to be the main supplier of energy to the EU in 2018, accounting for 40.1 % of gas imports, 32.0 % of petroleum product imports and 42.3 % 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 21.2 % of gas imports. For oil and petroleum products, the Middle East was the next largest supplier after Russia, at 19.9 %. The second largest source for solid fuels was North America at 20.9 % ([22]). All percentages reported here refer to shares of total imports from outside the EU only, so do not account for energy traded between Member States.

In 2018, all Member States were net importers of energy, with 17 importing more than half their total energy consumption from other countries (EU countries and non-EU countries).

Countries with the highest shares of imports in 2018 were the island countries Malta (96.5%) and Cyprus (92.5 %), as well as Luxembourg (95.1 %), which covered virtually all of its energy needs with imports.

The greatest progress in reducing overall energy dependence 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. Ireland also reduced its dependency on fossil fuel imports by exploiting a new gas field and shifting to domestic renewable energies. Sweden also reduced its dependence 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 GHG emissions 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, therefore reducing overall poverty has the capacity to greatly improve access to affordable energy (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 as a result of the economic crisis

The EU has made some progress on improving access to affordable energy since the economic crisis, which impacted employment, wage levels and social payments. This, in turn, led to an intermittent increase in the rate of people who reported an inability to keep the home adequately warm. Since 2012, however, the share of people unable to keep their homes adequately warm has steadily decreased, reaching 7.6 % in 2018 — 3.2 percentage points lower than in 2013.

The EU cohesion policy ([23]) aims to provide about EUR 350 billion in investment in smart, sustainable and inclusive growth between 2014 and 2020. One of its objectives is to combat poverty through housing investments and the regeneration of deprived urban and rural areas.

At the start of 2018, the European Commission launched the EU Energy Poverty Observatory ([24]), 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 combatting energy poverty between countries.

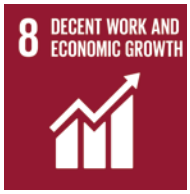
The Energy Union Package ([25]) was established to ensure Europe has access to secure, affordable and climate-friendly energy.

In 2018, 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. This distribution can be traced back mainly to: poor building energy efficiency, including the lack of suitable heating systems and insulation predominantly in southern countries, leading to low indoor temperatures during winter; general income level which affects housing standards and ability to pay for fuels; and the existence and design of financial interventions by the respective governments ([26]).

7.6 %
of the EU population were unable to keep their home adequately warm in 2018

8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

SDG 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 opportunities for full employment and decent work for all alongside the eradication of forced labour, human trafficking and child labour, and the promotion of 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 fulfilment of individuals. For economic growth to be truly sustainable, it needs to be accompanied by eco-efficiency improvements, climate action 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.

Decent work and economic growth in the EU: overview and key trends

Monitoring SDG 8 in the 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 still remains an issue.

Sustainable economic growth

While economic growth is an important driver of prosperity and society's well-being, it can also harm the environment it depends on. Therefore, to ensure the well-being of future generations, the present generation needs to pursue sustainable economic growth in a manner that sustains natural resources and the environment. The indicators selected to monitor this objective show that over the past few years, Europeans have been enjoying continuous economic growth, which has also become more sustainable.

The EU economy has shown continuous growth over the past few years

Citizens' living standards depend on the performance of the EU economy, which can be measured using several indicators. One of these is growth in gross domestic product (GDP). 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.

27 990
EUR of real GDP were on average created by each EU inhabitant in 2019

Real GDP per capita (GDP adjusted for inflation) in the EU in 2019 reached EUR 27 990, which was 18.1 % higher than in 2004. After the severe economic slump in 2009, real GDP per capita was slowly recovering, experiencing ups (from 2009 to 2011 and from 2013 onwards) and downs (from 2011 to 2013). Since 2014, per capita GDP has seen strong and continuous growth of 2.0 % per year on average. Both private consumption and investment have been the key drivers of economic expansion in the EU ([1]).

Investment is another indicator of economic growth as it enhances an economy's productive capacity. In 2019, the total investment share of GDP in the EU was 22.4 %. The level of investment had experienced a setback during the economic crisis, which interrupted a period of steady growth observed between 2004 and 2007. After periods of decline and stagnation, the indicator has grown by 2.1 % per year on average since 2014. This growth is mainly attributable to an increase in business investment.

22.4%
of GDP was invested in the EU in 2019

In 2015 the European Commission launched an Investment Plan for Europe ([2]). In 2017, the initial timeline was extended to 2020 and the investment target increased to at least EUR 500 billion ([3]).

The EU Capital Markets Union aims to tackle investment shortages head-on by increasing and diversifying business funding and investment financing.

The EU launched an External Investment Plan ([4]) in 2016 to encourage investment in partner countries in Africa and the EU neighbourhood region, to strengthen partnerships and contribute to the achievement of the Sustainable Development Goals, with the aim of addressing some root causes of migration.

With the European Green Deal ([5]), the European Commission set out the Sustainable Europe Investment Plan (SEIP) as an investment pillar to mobilise at least EUR 1 trillion in sustainable investments. The InvestEU Programme is part of and complementary to the SEIP and also dedicates at least 30 % to combating climate change.

An Action Plan to implement the European Pillar of Social Rights ([6]) will be issued by the European Commission in 2021. It will outline a set of recommendations aimed at providing further support to social economy stakeholders in their effort to contribute to sustainable economic development in Europe.

Economic growth in the EU has become more sustainable

Using natural resources more efficiently reduces pressure from production and consumption and increases an economy's competitiveness. 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 ([7]). Hence, it depicts an aggregate measure of an economy's material efficiency.

The EU has increased its resource productivity by 29.6 % since 2003, reaching EUR 1.9 per kilogram in 2018. This favourable development can be attributed to GDP growth accompanied by a 4.8 % decrease in DMC, which reflects such factors as the EU's long-term shift towards a service economy, globalisation and increasing reliance on imports ([8]). 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 ([9]). Indeed, the past five years have seen a 6.8 % growth in the EU's material consumption alongside the strong economic expansion reported above.

1.9
EUR of GDP were produced in the EU for each kilogram of DMC used in 2018

Employment

Decent employment for all — including women, people with disabilities, youth, the elderly and migrants — is a cornerstone of socio-economic development. Apart from generating the resources needed for decent living standards and achieving life goals, work provides opportunities for meaningful engagement in society, which promotes a sense of self-worth, purpose and social inclusion. Higher employment rates are a key condition for making societies more inclusive by reducing poverty and inequality in and between both regions and social groups.

73.1 %
of 20 to 64 year olds were employed in the EU in 2019

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 a growing trend over the past 15 years (with some interruptions in the aftermath of the economic crisis): it has grown by 6.8 percentage points compared with 2004 and by 4.9 percentage points compared with 2014, reaching a record high of 73.1 % in 2019. Despite this improvement, the EU might still fall short on meeting the Europe 2020 employment target of 75 % ([10]). 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 ([11]).

The EU supports growth, job creation and competitiveness through funding instruments such as the European Fund for Strategic Investments, the European Social Fund and its successor, the European Social Fund Plus, the European Structural and Investment Funds, Horizon 2020, the Programme for Employment and Social Innovation (EaSI) ([12]), 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.

The Council Recommendation on the integration of the long-term unemployed into the labour market, proposed by the European Commission in 2015 and adopted by the Council in 2016, puts forward assistance to help long-term unemployed people re-enter the labour market.

Unemployment and long-term unemployment have decreased since 2014

The EU's unemployment situation has also improved following the economic recovery. In 2019, the unemployment rate stood at 6.7 %, which is a 4.2 percentage point improvement from 2014 ([13]). Long-term unemployment usually follows the trends in unemployment, but with a delay.

2.8 %
of the active population had been long-term unemployed in 2019

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 2019, 2.8 % of the EU's active population had been unemployed for a year or more, which is 2.7 percentage points less than at the peak of the long-term unemployment rate in 2014.

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 51.5 % of 20- to 24-year-olds being employed in 2019, which is 1.3 percentage points below their pre-crisis level ([14]). Despite the strong decrease in youth unemployment since 2014, the unemployment rate of 20- to 24-year-olds amounted to 14.0 % in 2019, which is still significantly higher than for older age groups ([15]).

12.6 %
of young people aged 15 to 29 were not employed nor in education and training in the EU in 2019

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 2004 and 2019, the NEET rate for 15- to 29-year-olds in the EU closely followed the economic cycle, improving from 15.6 % to 12.6 % over the period.

The European Social Fund ([16]) 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 ([17]) to help young people with their school-to-work transitions. As part of the EU's budget for 2021 to 2027, the European Social Fund Plus (ESF+) ([18]) further prioritises young people. Member States with NEET rates exceeding the Union average in 2019 are required to dedicate at least 10 % of their ESF+ allocations to targeted action and structural reforms fostering youth employment.

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 and reached a new record high of 67.3 % in 2019. However, despite declining by 4.7 percentage points since 2004, the gender employment gap continues to persist and has stagnated over the short term since 2014. In 2019 it amounted to 11.7 percentage points, despite women increasingly becoming well qualified and even outperforming men in terms of educational attainment (see the chapter on SDG 4 'Quality education' on page 89).

32.2 %
of economically inactive women in the EU were in this situation because of caring responsibilities in 2019

The lower employment rates for women might be related to the fact that women of working age are more likely to be inactive than men. In 2019, 32.2 % of inactive women aged 20 to 64 were in this situation because they were caring for children or incapacitated adults, compared with only 4.5 % of men. This gender gap has increased by 1.2 percentage points since 2006.

Decent work

For a society's sustainable economic development and well-being it is crucial that economic growth generates not just any kind of jobs but also 'decent' ones. This means that work should deliver fair income, workplace security and social protection, and allow flexibility of working arrangements and 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 few decades, the EU and its Member States have put considerable effort into ensuring minimum standards in occupational safety and health. In 2017, the rate of fatal accidents at work amounted to 1.8 fatalities per 100 000 employed persons. While there has been a significant decrease since 2010, the gender gap persists. In 2017, the rate of fatal accidents at work for men was 13.7 times higher than for women.

1.8
per 100 000 people employed in the EU had a fatal accident at work in 2017

Besides safety at work, fair income and social protection are other 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 ([19]). Wage growth remains subdued, below what could be expected given the positive labour market and economic performance, and lagged behind average productivity growth in most Member States ([20]). Furthermore, the share of the so-called 'working poor' (aged 18 and over) increased almost continuously from 2010 to 2016 in the EU. However, the share has declined since then, affecting 9.2 % of employed people in 2018, which is only slightly above the 2013 level of 9.1 %.

A new Directive on transparent and predictable working conditions in the European Union was agreed between the Commission, the Council and the European Parliament in 2019. It complements and modernises existing obligations to inform each worker of his or her working conditions. In addition, the proposal creates new minimum EU standards on working conditions for all workers, including those on atypical contracts.

9.2 %
of employed people in the EU were at risk of income poverty in 2018

9 Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation

SDG 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.

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To combat the wide range of political, economic and sustainability challenges that 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-27

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 175
Science and technology personnel	↑	↑	page 176
R&D personnel	↑	↑	page 177
Patent applications to the European Patent Office	↑	↑	page 178
Sustainable transport			
Share of buses and trains in total passenger transport	↘	↘	page 180
Share of rail and inland waterways in total freight transport	↘ (1)	↓	page 180
Average CO_2 emissions from new passenger cars (*)	↗ (2)	↘	SDG 12, page 229

(*) Multi-purpose indicator.
(1) Past 13-year period.
(2) Past 11-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 research and development (R&D) and innovation, and sustainable transport. As Table 9.1 shows, R&D and innovation in the EU has progressed in terms of human resources in science and technology, R&D personnel and patent applications over the past few years. Trends for sustainable transport on the other hand have generally been unfavourable, especially in the short term. For both freight and passenger transport, no progress towards more sustainable modes appears to have occurred, and the reduction in car CO_2 emissions has stalled.

R&D and innovation

R&D expenditure is a key enabling factor for smart, sustainable and inclusive growth. Introducing new ideas to the market promotes job creation, labour productivity and efficient use of resources. Highly skilled human resources are imperative for keeping the EU's research and innovation capacity and competitiveness up to date. Innovative products and services, often as a result of R&D activities, contribute to smart growth and sustainable industrialisation. R&D and innovation are also essential for finding solutions to societal and environmental challenges such as climate change and clean energy, security, and active and healthy ageing.

EU expenditure on R&D has shown only modest growth

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 greater investment in R&D. However, EU gross domestic expenditure on R&D in relation to GDP (R&D intensity) has shown only modest growth over the past 15 years. R&D intensity reflects both growth in spending on R&D and growth in GDP. After prolonged stagnation between 2000 and 2007, R&D intensity has increased slowly and has stabilised at slightly above 2.0% since 2011, reaching 2.19% in 2018. In absolute terms, this corresponds to an R&D expenditure of about EUR 295 billion in 2018 ([1]). With a gap of 0.81 percentage points, the EU nevertheless remains far from its 3% target for 2020.

2.19%
of GDP was spent on R&D in the EU in 2018

The Europe 2020 strategy sets the target of 'improving the conditions for innovation, research and development' ([2]), 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 two-thirds of total R&D expenditure

An analysis of gross domestic expenditure on R&D by sector of performance shows that the two biggest spenders in 2018 remained the business enterprise sector (66.2% of total R&D expenditure) and the higher education sector (21.5%). The share of the government sector was about 11.4%, while

the private non-profit sector accounted for less than 1.0 % of the total R&D expenditure.

The business enterprise sector accounts for the lion's share of total R&D expenditure and has increased its R&D intensity from 1.16 % of GDP in 2003 to 1.45 % in 2018, showing growth of 0.29 percentage points over 15 years. In contrast, the R&D intensities of the three other sectors — higher education, government and private non-profit — have more or less stagnated at lower levels.

Steady growth in the number of patent applications submitted to the European Patent Office

66 459
patent applications from within the EU were submitted to the European Patent Office in 2019

Patent applications provide a valuable measure of the inventiveness of countries, regions and companies and of the economic exploitation of research results. In 2019, 66 459 patent applications from within the EU were submitted to the European Patent Office. Since 2004, when 51 508 applications were submitted, the number of patent applications has increased almost continuously. The only year to record a strong drop in patent applications compared with the previous year was 2009 as a result of the economic crisis ([3]).

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, for example in the renewables, manufacturing, high-tech services or construction sectors ([4]). This type of structural change will help to accommodate and stimulate the development of a highly skilled labour force.

The share of R&D personnel in the economically active population — including researchers and other staff employed directly in R&D — has increased steadily since 2003, from 0.91 % to 1.35 % in 2018 (full-time equivalent). This trend was mainly driven by the business enterprise sector, which provided jobs for more than half of the R&D workforce in 2018.

1.35 %
of the economically active population in the EU worked in R&D in 2018

The indicator on human resources in science and technology (S&T) provides a broader picture than R&D personnel, encompassing people who have either successfully completed a tertiary-level education or who are employed in an S&T occupation where such education is normally required. Similar to R&D personnel, the share of human resources in S&T has grown continuously in the EU since 2002. In 2019, it reached 46.9 % of the EU's economically active population.

46.9 %
of the economically active population could be associated with human resources in science and technology in 2019

Sustainable transport

Well-functioning and efficient transport and mobility systems are key elements for a competitive economy. 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. 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 235), sustainable transport is an essential ingredient in sustainable development strategies. Rethinking future mobility includes optimising the use of all means of transport, promoting car sharing and the integration between different modes of collective transport such as train, tram, metro, bus and taxi (multimodal transport).

17.1 %
of total inland passenger-km in the EU were covered by buses and trains in 2017

EU legislation sets mandatory emission reduction targets for new cars ([6]). 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.

Cars remain the dominant mode for passenger transport and progress in reducing their CO_2 emissions has halted

The composition of passenger transport has not changed substantially since 2000, with passenger cars still accounting for almost 83 % of total land passenger transport in the EU in 2017 ([5]). The share of buses and trains has fallen slightly over the same period, from 17.5 % in 2002 to 17.1 % in 2017, with a short period of moderate improvement, resulting in a peak of 18.2 % in 2013. In the short term, between 2012 and 2017, the share of these transport modes decreased by 0.6 percentage points.

119.6
grams of CO_2 per km were emitted by new passenger cars on average in the EU in 2018

New car fleets are becoming cleaner: average carbon dioxide (CO_2) emissions from new passenger cars have fallen since 2007, reaching 119.6 g CO_2 per km in 2018. However, a slight increase in CO_2 emissions since 2016 has pushed the EU further away from its target of 95 g CO_2 per km set for 2021.

The EU's freight transport system still relies on road transport

Similar to 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, next page), 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). The share of rail and inland waterways in total freight transport in the EU accounted for 24.7 % in 2018. Between 2013 and 2018 this share decreased by 1.4 percentage points.

24.7 %
of total inland freight tonne-km in the EU was carried out via rail and inland waterways in 2018

Considerable differences do exist at the country level though. In 2018, three countries (Latvia, Lithuania and Romania) had higher freight transport shares for rail and inland waterways than for road. Particularly high shares of rail transport were reported from the Baltic countries Latvia, Lithuania and Estonia ([7]). In the Netherlands, freight transport via inland waterways still plays a very important role (modal split of 43.2 % in 2018) ([8]).

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.

Within the framework of the European Green Deal, the European Commission aims to accelerate the shift to sustainable and smart mobility. By 2021 the Commission is planning to propose measures to boost multimodal transport, for example, by increasing the capacity of railways and inland waterways. In addition, the Commission strives to encourage the implementation of measures such as supporting new sustainable mobility services and the production of sustainable alternative transport fuels ([9]).

10 Reduce inequality within and among countries

SDG 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.

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It is widely agreed that economic prosperity alone will not achieve social progress. Research suggests that 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 the effective functioning of a market economy, as 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 those 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 universal access to quality education, health and other key services, as well as 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-27

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	:	↘	page 191
Income distribution	:	↗	page 192
Income share of the bottom 40 % of the population	:	↗	page 193
Urban–rural gap for risk of poverty or social exclusion*	:	↑ (1)	page 197
Inequalities between countries			
Disparities in GDP per capita	↗ (2)	↗ (2)	page 194
Disparities in household income per capita	↑ (2)	↑ (2)	page 195
Migration and social inclusion			
Asylum applications	:	:	page 196
Citizenship gap for risk of income poverty after social transfers (*)	:	↘ (3)	page 199
Citizenship gap for early leavers from education and training (*)	↑ (3)(4)	↗ (3)	page 199
Citizenship gap for young people neither in employment nor in education and training (NEET) (*)	↗ (3)(4)	↗ (3)	page 200
Citizenship gap for employment rate (*)	↓ (3)(4)	↓ (3)	page 200

(*) Multi-purpose indicator.
(1) Trend refers to evolution of gap between cities and rural areas.
(2) Calculation of trend based on coefficient of variation.
(3) Trend refers to evolution of gap between citizens of reporting EU countries and non-EU citizens.
(4) Past 13-year period.

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 stagnated. In addition, while the number of asylum applications has fallen in recent years, the EU still faces challenges regarding migrant integration, monitored here by analysing differences in social and labour market inclusion between home-country nationals and non-EU citizens.

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]). Among other factors, technological innovation and financial globalisation, by favouring people with specific skills or accumulated wealth, have been important driving forces behind rising inequality within countries ([2]). Similarly, the transition to a climate-neutral society will have to be managed well to prevent a rise in inequalities ([3]).

In 2018, 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 large

Analysing 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 with that received by the 20 % with the lowest equivalised disposable income. The higher this ratio, the bigger the income inequality. In the EU, this ratio has increased slightly since 2010, reaching 5.1 in 2018. This means that the income of the richest 20 % of households was about five times as much as that of the poorest 20 %.

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 21.2 % in 2018. According to the 2019 Annual Review of Employment and Social Developments in Europe ([4]), 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 ([5]).

21.2 %

Share of total income earned by the bottom 40 % of the EU population in 2018

The European Pillar for Social Rights [6] 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 and inequality of opportunities: from wage-setting to social-protection systems, 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 coordinates economic and fiscal policies of EU Member States. As part of its Green Deal, the European Commission has announced that the European Semester will be refocused to integrate the SDGs and to put sustainability and the well-being of citizens at the centre of economic policy.

The Commission also proposed the Just Transition Mechanism [7] to support those who will be most affected by the transition to the climate-neutral society in terms of reskilling, training and job assistance, but also through investment in energy efficiency.

The extent and depth of poverty in the EU remain significant

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 2018, 94.8 million people were at risk of poverty or social exclusion. However, these 94.8 million people were not equally distributed over cities and rural areas. In 2018, 21.4 % of people living in cities were in this situation, compared with 23.6 % of people living in rural areas. With a 2.2 percentage point difference, the gap between cities and rural areas at EU level has therefore almost closed compared with 2010, when it amounted to 7.8 percentage points, mainly due to much higher poverty or social exclusion rates in rural areas (30.0 % in 2010). However, the overall EU figure masks the full scope of the broad variations among Member States' gaps, with several countries reporting higher poverty rates in cities than in rural areas. Reasons for the higher risk of poverty in rural areas include an exodus and ageing of the population, remoteness, limited access to education and inefficient labour markets [8].

The share of people at risk of poverty or social exclusion in rural areas was

2.2

percentage points higher than in cities in 2018

24.5 %

median distance from the poverty threshold for those at risk of poverty in 2018

Furthermore, the median income distance of people at risk of poverty from the poverty threshold — the poverty gap — has increased. In 2018, this gap amounted to 24.5 % in the EU, which means the median income of those below the threshold was 24.5 % lower than the threshold itself. This represents a 1.4 percentage point widening of the gap since 2010, indicating an increase in the 'depth' of income poverty in the EU.

The European Social Fund (ESF) is the EU's main instrument for investing in people since the Treaty of Rome. It 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 a budget 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 or migration — are rarely confined to one country or region. Therefore, combating inequalities between countries 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) ([9]).

Despite an overall reduction in economic disparities, north–south and west–east divides between EU countries remain

Not only have economic performances, 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 show that inequalities between EU countries have decreased over the past 15 years.

The coefficient of variation in gross domestic product (GDP) per capita in purchasing power standards (PPS) — expressed as the ratio of the standard deviation to the mean — shows that economic disparities in GDP per capita between Member States have narrowed slightly since 2003, reaching 42.1 % in 2018. According to the 2018 Annual Review of Employment and Social Developments in Europe ([10]), this improvement was mainly the 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. At Member State level, purchasing power-adjusted GDP per capita was between 51 % and 263 % of the EU average in 2018.

42.1 %
variation in GDP per capita between Member States in 2018

While GDP per capita is used to measure a country's economic performance, adjusted gross household disposable income provides an indication of the average material well-being of people. 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 Member States has decreased over time, reaching 25.2 % in 2018. This figure is 4.7 percentage points less than in 2013 and a 14.9 percentage point improvement since 2003. At Member State level, the index of purchasing power-adjusted per capita household income ranged from 50 % to 148 % of the EU average.

25.2 %
variation in household disposable income across the EU in 2018

A clear north–south and west–east divide is evident when looking at the geographical distribution of GDP per capita and household income in the EU in 2018. 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 below the EU average.

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. In 2018, the Commission proposed a modernisation of cohesion policy ([11]) for the next long-term EU budget 2021–2027.

Migration and social inclusion

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. The successful integration of migrants is decisive for the future well-being, prosperity and cohesion of European societies. To ensure the social inclusion of immigrants and their children, it is essential to strengthen the conditions for their participation in society, including their active participation in education and their integration into the labour market ([12]).

The number of asylum applications in the EU has fallen considerably since 2015

The urge to seek international protection is one of the main reasons forcing people to cross borders. In 2019, the EU received 612 685 first-time asylum applications (equalling 1 371 applications per million EU inhabitants), which is about half as many than at the height of the refugee crisis in 2015, but still a five-fold increase compared with 2008. During 2019, 206 015 people were granted protection status at the first instance in the EU.

612 685
first-time asylum applications were submitted in the EU in 2019

Despite a decline in the number of first-time asylum seekers applying for international protection between 2017 and 2018, the most recent figure for 2019 showed an increase of 11.6 % compared with the previous year. The total number is again close to the level recorded in 2017, which marked a significant drop of 46.8 % compared with 2016. Such a rapid fall might be connected to the overall reduction in the number of arrivals to the EU due to stricter border controls ([13]). This has partly been influenced by the closure of the Western Balkans route ([14]) and the EU–Turkey Statement in 2016 ([15]), which made the irregular flow of people towards central and northern Europe more difficult and forced migrants to use different routes across the Mediterranean ([16]).

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 Fund for European Aid to the Most Deprived (FEAD) may support asylum seekers by providing them with immediate relief 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.

Significant differences between the level of social inclusion of non-EU citizens and those of home-country nationals persist

The social integration of migrants is monitored here by comparing the situation of non-EU citizens with citizens of EU Member States that reside in their home country — in the following referred to as 'home-country nationals' — in the areas of poverty, education and the labour market. In all these areas, people from outside the EU face much harsher conditions than EU nationals. However, the differences between these two groups have developed quite differently over time across the different areas.

In relation to poverty and employment, the gap between home-country nationals and non-EU citizens has widened over the past few years. In 2018, nearly 40 % of non-EU citizens were at risk of income poverty after social transfers, compared with only 15.3 % of home-country nationals. Poverty rates have remained quite stable for both groups since 2013.

The income poverty rate for non-EU citizens was

23.5

percentage points higher than for home-country nationals in the EU in 2018

The short-term trend in employment has been more favourable, with rising employment rates for both groups. Nevertheless, the employment growth for home-country nationals was slightly stronger than for people from outside, resulting in a widening of the employment gap from 13.0 percentage points in 2014 to 13.8 percentage points in 2019. 73.8 % of home-country nationals were employed in 2019, compared with only 60.0 % of non-EU citizens.

In contrast to income poverty and employment, a narrowing of the gap between home-country nationals and non-EU citizens since 2014 has been visible in the area of education. While the shares of early leavers from

The employment rate for non-EU citizens was

13.8

percentage points lower than for home-country nationals in the EU in 2019

education and training and of young people not engaged in employment nor in education and training (NEET) have fallen for both groups, the improvement has been more pronounced for non-EU citizens. Despite this, the gap between the two groups for both indicators remains significant, with the NEET share of non-EU citizens amounting to 24.2 % in 2019. Meanwhile, the corresponding share for home-country nationals was only 11.8 %. For early school leavers, the gap has narrowed by 0.4 percentage points since 2014, but in 2019, 27.0 % of non-EU citizens were still leaving education and training early, compared with 8.9 % of young home-country nationals. Because early school leaving and unemployment both have an impact on people's future job opportunities and their lives in general, further efforts are needed to fully integrate young migrants into European society.

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 European Commission's Action Plan on the Integration of Third-Country Nationals ([17]) sets out actions that support migrants' inclusion in education and employment. It also coordinates, through the European Integration Network, the various actors working on integration at national, regional and local level.

11 Make cities and human settlements inclusive, safe, resilient and sustainable

SDG 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-27

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	:	↑	page 210
Population living in households suffering from noise	:	↑	page 211
Exposure to air pollution by particulate matter	↗	↑	page 212
People living in households with poor housing conditions (such as leaking roof, damp walls or foundation, etc.) (*)	:	↑	SDG 1, page 49
Population reporting crime, violence or vandalism in their area (*)	:	↑	SDG 16, page 296
Sustainable mobility			
People killed in road accidents	↗	↘	page 213
Share of buses and trains in total passenger transport (*)	↘	↘	SDG 9, page 179
Environmental impacts			
Settlement area per capita	:	↓ (1)	page 214
Recycling rate of municipal waste	↑	↑	page 215
Population connected to at least secondary waste water treatment (*)	:	:	SDG 6, page 129

(*) Multi-purpose indicator.
(1) Past 3-year period.

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 developments in the quality of life in cities and communities, sustainable mobility and adverse environmental impacts. 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, negative trends can be observed in safe and sustainable transport systems, 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 activity, 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 a population's quality of life.

The European Handbook for SDG Voluntary Local Reviews, elaborated by the European Commission, gives policymakers, researchers and practitioners a framework to set up Voluntary Local Reviews (VLRs). VLRs are an effective instrument to monitor progress towards the achievement of SDGs through a local monitoring system specifically designed for European cities.

Quality of housing in the EU has improved over the past eight 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 lower life chances, health inequalities, increased risks of poverty and environmental hazards. In 2018, 13.6 % of EU residents 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 2.7 percentage points lower than the share of the population reporting such deficiency in living conditions in 2010, indicating that the perceived quality of the housing stock in the EU has improved. The overcrowding rate has also fallen since 2010, by 2.0 percentage points. However, in 2018, 17.1 % of the EU population were still living in an overcrowded home.

13.6 %
of the EU population lived in poor dwelling conditions in 2018

17.1 %
of the EU population lived in overcrowded homes in 2018

Between 2014 and 2020 more than EUR 115 billion from Cohesion policy funds, with the lion's share from the European Regional Development Fund, will have been 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. Out of these, EUR 17 billion are spent in cities through integrated urban development strategies managed directly by local authorities.

Europeans perceive their residential areas as quieter and safer

Noise disturbance, along with crime and vandalism, can negatively affect the quality of life and housing satisfaction in a residential area. Living in loud, unsafe environments can cause stress and anxiety. In 2018, 18.2 % of the EU population said their household suffered from noise disturbance, compared with 20.6 % in 2010. Crime, violence and vandalism were perceived in their area by 11.5 % of the EU population in 2018, compared with 13.1 % in 2010.

18.2 %
of the EU population experienced noise disturbance in 2018

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.

Despite recent improvements, the urban population's exposure to fine particular matter remains high

High concentrations of people and economic activities significantly increase exposure to air pollution, which represents a major environmental and health risk and influences the quality of life in cities. Pollutants such as fine particulate matter suspended in the air reduce people's life expectancy and perception of well-being, and can lead to or aggravate many chronic and acute respiratory and cardiovascular diseases ([3]).

15.0 µg/m³
Average concentration of fine particulate matter in 2017

The population-weighted annual mean concentration of fine particulate matter ($PM_{2.5}$) in urban areas dropped from 17.5 µg/m³ in 2012 to 15.0 µg/m³ in 2017. While 15.0 µg/m³ is below the limit set by the EU from 2015 onward (25 µg/m³ annual mean) ([4]), substantial air-pollution hotspots remain. According to recent EEA estimates, 8 % of the EU urban population ([5]) were exposed to levels above the EU $PM_{2.5}$ limit value in 2017. If the more stringent WHO air-quality guideline is considered (10 µg/m³ annual mean), approximately 77 % of people living in EU cities were estimated to be exposed to $PM_{2.5}$ concentration levels deemed harmful to human health ([6]).

The EU addresses the problem of air pollution through its specific air quality and emissions source legislation ([7]), such as the Clean Air Package, as well as through co-benefits that result from implementing certain climate policies.

The degree of urbanisation affects overcrowding rate and perception of noise pollution, crime and vandalism

Statistics on the degree of urbanisation provide an analytical and descriptive lens through which to view urban and rural communities. 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' ([8]). The prevalence of overcrowding in the EU was bigger in cities (18.7 %) than in rural areas (16.7 %) in 2018 ([9]). One possible explanation for this is that dwellings in rural areas tend to be larger ([10]). The EU population living

17.4 %
of people living in EU cities reported occurrence of crime and vandalism in their area in 2018

in towns and suburbs experienced the lowest overcrowding rate (15.4 %).

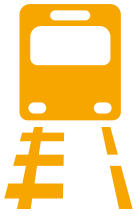
The perceived level of noise pollution varies a lot depending on the degree of urbanisation of the area of residence. In 2018, people living in EU cities were more likely to report noise from neighbours or from the street (24.2 %) compared with those living in towns and suburbs (17.2 %) or in rural areas (10.9 %) ([11]). Similarly, the perceived occurrence of crime and vandalism in cities (17.4 %) was three times higher than in rural areas (5.8 %), and also above the level observed in towns and suburbs (9.2 %) ([12]).

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 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. 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.



17.1 %
of total inland passenger-km were covered by buses and trains in 2017

Since 2000, the share of buses and trains in total passenger transport has stagnated well below 20 %, accounting for only 17.1 % in 2017. Both long- and short-term trends show that these public transport modes are losing shares (– 0.4 percentage points since 2002 and – 0.6 percentage points since 2012) in favour of passenger cars. This means most passenger journeys in the EU are still undertaken by car.

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.

Despite good progress since 2000, a slow-down 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, 1.6 % of the EU population reported they had been in a road accident resulting in injuries ([13]), and it is estimated that around 135 000 people are seriously injured each year ([14]). In 2018, about 64 people lost their lives on EU roads every day. This corresponds to 23 339 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 23 992 over the past 15 years, which means that around 51 % less people died in road accidents in 2018 compared with 2003. 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, when 29 576 people died.

23 339
people were killed in road accidents in the EU in 2018

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 actions. At the 3rd Global Ministerial Conference on Road Safety in Stockholm in February 2020, Sweden presented the Stockholm Declaration which paves the way for further global political commitment, including a new reduction target for 2030. In this regard, the EU has already taken the lead and set itself a 50 % reduction target for deaths and for serious injuries by 2030. This was set out in the new road safety policy framework for 2021–2030 and the strategic action plan on road safety as part of the 2018 'Europe on the Move' package. The EU's long-term goal is to move close to zero fatalities and serious injuries by 2050 ('Vision Zero') ([15]).

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 ([16]). EU progress in reducing environmental impacts of cities and communities is monitored by three indicators looking into the management of municipal waste, waste water treatment and artificial land cover.

There are now more environmentally friendly modes of municipal waste management in the EU

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. Waste management activities promote recycling, which reduces the amount of waste going to landfills and leads to higher resource efficiency. Although municipal waste accounts for less than 10 % of total waste generated in the EU ([17]), it is highly visible and closely linked to consumption patterns. Sustainable management of this waste stream reduces the adverse environmental impact of cities and communities, which is why the EU has set the target of 60 % of municipal waste in the EU to be recycled by 2030 ([18]).

47.4 %
of total municipal waste generated in the EU was recycled in 2018

Sustainable urban development is a cross-cutting 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 2018, each EU inhabitant generated on average 1.35 kilograms (kg) of municipal waste per day, which was just 0.06 kg below the 2000 figure ([19]). Although the EU has not substantially reduced its municipal waste generation, it has clearly shifted to more recycling. Since 2000, the recycling rate of municipal waste has increased continuously from 27.3 % to 47.4 % in 2018.

Connection rates to waste water treatment are increasing

Urban areas also place significant pressure on the water environment through waste water from households and industry that contains organic matter, nutrients and hazardous substances. Between 2014 and 2017, 15 Member States reported that 80 % or more of their population were connected to at least secondary waste water treatment plants, which use aerobic or anaerobic micro-organisms to decompose most of the organic material and retain some of the nutrients. In nine Member States, more than 90 % of the population were connected to such services. The shares increased in all Member States between 2002 and 2017. However, it may not be suitable to connect 100 % of the population to a sewerage collection system, either because it would produce no environmental benefit or would be too costly.

15
Member States reported that 80 % or more of their population were connected to at least secondary waste water treatment

Settlement area per capita has increased

Offering numerous cultural, educational and job opportunities, an urban lifestyle is increasingly attractive to Europeans, leading to a growing urban population. However, certain demographic and lifestyle trends hinder the efficient use of land in urban areas ([20]), leading to settlement areas expanding more quickly than populations have grown. Since the mid-1950s, the total surface area of EU cities has increased by 78 % compared with a 33 % growth in the size of the population. The loss of land and ecosystem services that this land could otherwise offer remains one of the major environmental challenges Europe is facing ([21]).

703.4
square metres of land was covered by settlement area per capita in 2018

Despite EU efforts to halt land degradation, settlement area per capita has increased over the past few years. In 2018, for each EU inhabitant 703.4 square metres of land were covered by settlement area (comprising both sealed and non-sealed surfaces — for example, buildings, industrial and commercial area, infrastructure but also parks and sportsgrounds), which is 3.3 % more than in 2015.

12 Ensure sustainable consumption and production patterns

SDG 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 to increase overall well-being, keep the environment clean and healthy, and safeguard the needs of future generations. The rise in living standards and 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 these resources 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 safe management of chemicals and a shift 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-27

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 226
Resource productivity and domestic material consumption (DMC)	↑	↗	page 227
Average CO_2 emissions from new passenger cars	↗ (2)	↘	page 229
Energy productivity (*)	↑	↑	SDG 7, page 147
Green economy			
Gross value added in the environmental goods and services sector	↑	↑	Page 230
Waste generation and management			
Circular material use rate	↑ (3)	↗	page 231
Generation of waste excluding major mineral wastes	↗ (4)	↘ (5)	page 232

(*) Multi-purpose indicator.
(1) Past 14-year period.
(2) Past 11-year period.
(3) Past 13-year period.
(4) Past 12-year period.
(5) 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; the green economy; and waste generation and management. As Table 12.1 shows, the EU has made some progress towards decoupling environmental impacts from economic growth, increasing the value added from green products and services, and managing waste. However, waste generation as well as the consumption of toxic chemicals have increased over the past few years and average CO_2 emissions from new cars are not falling fast enough to meet the target.

Decoupling environmental impacts from economic growth

Economic growth improves people's well-being but has long been associated with increasing resource and energy consumption. Increasing consumption can harm the environment and contributes to climate change. To tackle this challenge, the EU has launched a new growth strategy — the European Green Deal — that aims to transform the EU into a fair and prosperous climate-neutral society, with a modern, resource-efficient and competitive economy where economic growth is decoupled from resource use ([1]). It focuses on improving resource- and energy-use efficiency by restructuring economies so they produce more from the same resource and energy inputs.

1.92
EUR of GDP were produced in the EU for each kilogram of DMC in 2018

The EU's progress in this area is monitored using four indicators. Two look at the ratio of resource use (materials and energy) to gross domestic product (GDP) while the other two look at the harmful environmental impacts of consumption of toxic chemicals and CO_2 emissions related to transport.

Resource and energy productivity 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 used materials or energy. Between 2003 and 2018, the EU increased its resource productivity by 29.6 % (from EUR 1.48 per kg to EUR 1.92 per kg) and its energy productivity by 31.4 %, (from EUR 6.2 per kilogram of oil equivalent (kgoe) in 2003 to EUR 8.1 per kgoe in 2018). 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 2003 to 2018, the EU economy grew (in terms of GDP) by 23.4 % ([4]), while GAE fell by 6.0 % ([5]) and DMC fell by 4.8 %.

In 2018, the EU's energy productivity amounted to

8.1
EUR per kgoe

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 likely that the drop in DMC from 2008 onwards was strongly influenced by the economic crisis. Since the beginning of the economic recovery in 2013, DMC has increased by 6.8 %. However, despite the recent increase, in 2018 total DMC was still 15.1 % lower than in 2007, the year before the economic crisis began. This development was mostly caused by ups and downs 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]).

The 7th Environment Action Programme ([7]), 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 particular 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. The evaluation of the programme ([8]), 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.

The new Circular Economy Action Plan ([9]) is one of the main blocks of the European Green Deal, Europe's new agenda for sustainable growth. The new Action Plan announces initiatives along the entire life cycle of products, targeting for example their design, promoting circular economy processes, fostering sustainable consumption, and aiming to ensure that the resources used are kept in the EU economy for as long as possible. As a part of the new Circular Economy Action Plan, the staff working document 'Leading the way to a global circular economy: state of play and outlook' provides a comprehensive account of the state of play as regards ongoing and forthcoming actions related to the international dimension of circular economy, which are placed in the context of key trends in resource use and the challenges and opportunities for various actors across the globe.

Consumption of toxic chemicals have fallen moderately in both the long and the short terms

Most everyday products used by businesses and consumers are produced with the help of chemicals. This makes them a significant contributor to the EU economy, with sales worth EUR 565 billion in 2018 ([10]). 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 consumption volumes of industrial chemicals that are hazardous to human and environmental health is, therefore, used as a proxy for human exposure ([11]).

220.7
million tonnes of chemicals hazardous to health were consumed in the EU in 2018

In 2018, 220.7 million tonnes of toxic chemicals were consumed in the EU. Since 2004, the total consumption of toxic chemicals has declined by 8.8 %. However, this trend has reversed over the past five years and consumption increased by 1.9 % between 2013 and 2018.

The REACH framework ([12]) 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 of 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.

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 CO_2 emissions per km for newly registered passenger cars has stalled in recent years

In 2017, cars were responsible for around 14 % of total EU-28 emissions of carbon dioxide (CO_2), the main greenhouse gas ([13]). To reduce the negative impact of passenger cars on the environment, the EU has set mandatory targets for fleet-wide average emissions of new passenger cars of 130 grams of CO_2 per kilometre in 2015 and 95 grams of CO_2 per kilometre in 2021 ([14]). 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 the above overall targets for the EU's average fleet emissions are met.

119.6
grams of CO_2 per km were emitted by new passenger cars in the EU in 2018

Average CO_2 emissions per km from new passenger cars in the EU have fallen by 5.4 % since 2013, reaching 119.6 grams of CO_2 per km in 2018.

While the 2015 target has been met two years early, a recent slowdown in emission reductions has been observed since 2015 and in 2018 average emissions even increased by 1.6 grams of CO_2 per km compared with 2017. This means that further progress will be needed to reach the 2021 target, set at 95 grams of CO_2 per km.

EU legislation sets mandatory CO_2 emission reduction targets for new vehicles. In addition to existing targets for 2021, new stricter CO_2 emission standards for cars and vans ([15]) and, for the first time, CO_2 emission standards for heavy-duty vehicles ([16]) 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. CO_2 emission targets for new passenger cars will require a further 15% reduction by 2025 compared with 2021, and a reduction of 37.5% from 2030 onwards ([17]).

It should also be noted that under real-world driving conditions, new passenger cars in the EU in 2015 emitted on average around 40 % more than in the laboratory ([18]). In recognition of these shortcomings, in September 2017 the EU introduced the Worldwide Harmonised Light Vehicles Test Procedure (WLTP), which should yield more realistic CO_2 emission values ([19]). The new emission targets for 2025 and 2030 have been set on the basis of the WLTP emission values.

Green Economy

Growing the share of the green economy can also help to decouple environmental impacts from economic growth. The environmental goods and services sector (EGSS) is the part of the economy engaged in producing goods and services that are used in environmental protection activities and resource management. Such goods and services can include, for example, products to prevent, measure, control, limit, minimise or correct environmental damage and resource depletion. Increasing the market share of green technologies in the EU can have important socio-economic benefits in terms of value added and employment ([20]). The recently adopted EU industrial strategy ([21]) aims to make industry greener and more digital.

268.1
billion EUR of gross value added were generated by the EU's environmental goods and services sector in 2017

Strong growth in value added has been recorded in the environmental goods and services sector over the past 15 years

Over the past 15 years, the gross value added in the EGSS has grown by 57.9 % in the EU, from EUR 169.9 billion in 2002 to EUR 268.1 billion in 2017. This can be attributed to growth in the renewable energy and energy efficiency sectors, as well as an increase in spending on green infrastructure ([22]).

In relation to the whole economy, the gross value added in the EGSS grew from 1.7 % of GDP in 2002 to 2.2 % in 2017. Over the same period, employment (in full-time equivalent) in the EGSS increased by 18.6 % and reached nearly 4.1 million employees in 2017 ([23]).

Waste generation and management

Production and consumption patterns characterised by products being made, used and disposed of in an accelerated fashion are not sustainable. Reducing both the input of materials and the output of wastes by closing economic and ecological loops of resource flows is the essence of a circular economy. Waste should be seen as a resource and more recycling would put materials back into the economy and ensure they are kept in circulation to preserve the value embedded in them. Therefore, the EU aims to move towards a circular economy where materials and resources are kept in the economy for as long as possible, and waste is minimised.

In the short term, waste generation has increased, while circular material use rate has stagnated

In 2016, 786 million tonnes of waste, excluding major mineral waste, were generated in the EU, which corresponds to 1 765 kilograms (kg) of waste per inhabitant ([24]). 7.5 % of the generated waste (excluding major mineral wastes) — corresponding to 132 kg per resident — was hazardous to health or the environment ([25]). When not managed sustainably, all of this waste could have a huge impact on the environment, causing pollution and greenhouse gas emissions, as well as significant loss of materials ([26]). Over the long-

1 765 kg
of waste (excluding major mineral waste) were generated in the EU per inhabitant in 2016

term period, the EU has reduced the amount of waste, excluding major mineral waste, generated per capita by 1.9 % between 2004 and 2016. The short-term trend, however, has not been favourable, with the figure increasing by 2.6 % between 2012 and 2016.

Between 2004 and 2017, the EU circular material use (CMU) rate — indicating the share of used materials that came from collected waste — increased from 8.2 % to 11.2 % but has stagnated around this level since 2012.

Data for the recycling of waste excluding major mineral wastes show that 56 % of waste in the EU was recycled in 2016 ([27]). The difference between this relatively high end-of-life recycling rate and the CMU rate (11.2 % in 2017) 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 these materials is used to build and maintain buildings, infrastructure and other long-life goods and is not readily available for recycling. A second barrier is the large amount of material 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 ([28]).

11.2 %
of the materials used in the EU came from collected waste in 2017

The Sustainable Consumption and Production and Sustainable Industrial Policy (SCP/SIP) Action Plan ([29]) and the Circular Economy Package, adopted as a part of the first Circular Economy Action Plan in 2018, 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.

The new waste legislation, adopted as a part of the Circular Economy Package in 2018, introduced ambitious measures for the recycling of municipal and packaging waste, 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.

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), as well as 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 food supply chain, with the goal to reduce food waste by 30 % by 2025 and 50 % by 2030. To this end, Member States will 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.

On 11 March 2020, the European Commission adopted a new Circular Economy Action Plan ([30]) as one of the main blocks of the European Green Deal — Europe's new agenda for sustainable growth. The plan includes the ambition for a leading role of the EU for a global circular economy.

13 Take urgent action to combat climate change and its impacts

SDG 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 natural hazards and the resulting disasters with a special focus on supporting least-developed countries.

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Climate change already has observable effects, such as increased average global air and ocean temperatures, changes in precipitation patterns, a rising global average sea level and increasing 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. The European Green Deal is a set of policy initiatives brought forward by the European Commission which aim to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050. Interim targets for 2020 and 2030 for reductions in greenhouse gas (GHG) emissions and energy consumption and an increase in the share of renewable energy should help the EU realise its vision for a GHG emission neutral economy. Moreover, the EU works to increase the climate resilience of its Member States and the EU as a whole, and aims to step up its ambition by updating its 2013 Adaptation Strategy. Because climate change is a global, cross-border challenge that affects areas differently, tackling it requires international coordination and cooperation. The EU has taken a leading role in this context by engaging in international negotiations, pursuing the Paris Agreement goals and supporting climate initiatives around the world.

Table 13.1: Indicators measuring progress towards SDG 13, EU-27

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Climate mitigation			
Greenhouse gas emissions	↗ (1)	↘ (1)	page 243
Greenhouse gas emissions intensity of energy consumption	↗	↗	page 245
Share of renewable energy in gross final energy consumption (*)	↑ (2)	↑	SDG 7, page 148
Average CO_2 emissions from new passenger cars (*)	↗ (3)	↘	SDG 12, page 229
Climate impacts			
Mean near-surface temperature deviation	↓ (4)	:	page 246
Climate-related economic losses	:	↓	page 247
Global mean ocean acidity (*)	↘	↘	SDG 14, page 264
Support to climate action			
Contribution to the international 100bn USD commitment on climate-related expenditure	:	:	page 248
Population covered by the Covenant of Mayors for Climate and Energy signatories	:	↑	page 250

(*) Multi-purpose indicator.
(1) Assessed against the 40 % reduction target for 2030.
(2) Past 14-year period.
(3) Past 11-year period.
(4) Change over the two most recent decades (2009–2018 compared with 1999–2008); assessment is the same for global and European temperature.

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 initiatives that support climate action. While the EU has made 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, economic losses due to climate-related events have increased in recent years, although these remain subject to high year-to-year variability due to the natural variability of the underlying hazards.

Climate mitigation

Climate mitigation aims to reduce emissions of climate-harming greenhouse gases (GHG) that originate from human activity through measures such as promoting low-carbon technologies or encouraging sustainable forest management and land use that enhance GHG sinks. The EU wants to reach net-zero GHG emissions by 2050 alongside the pursuit of its climate adaptation and resilience objectives ([1]). Annual change in GHG emissions serves as the main indicator for tracking the success of its 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. However, all economic sectors must reach near-zero GHG emissions for the long-term climate target to be achievable.

The EU has reduced its GHG emissions by 20.6 % compared with 1990 levels, but based on past trends it is not on-track to meet its 2030 target

On its way to net-zero GHG emissions by 2050, the EU aims to reduce its GHG emissions by 20 % by 2020 and by 40 % by 2030, compared with 1990 levels (see box, next page). In 2018, provisional data suggest that EU emissions had already fallen by 20.6 % ([3]) and thus were below the 2020 target. A large proportion of these reductions have occurred over the past 15 years, with emissions falling by 16.2 % between 2003 and 2018. Electricity and heat generation activities achieved the largest absolute reductions ([4]), by consuming less fossil fuel ([5]) and increasing their use of renewable energies, which delivered a share of 18.9 % of total energy consumption in 2018 (see the chapter on SDG 7 'Affordable and clean energy' on p. 137).

The EU reduced its GHG emissions by

16.2 %

between 2003 and 2018

The short-term trend has been less favourable, with GHG emissions rising slightly between 2014 and 2017. Nevertheless, thanks to reductions between 2017 and 2018, EU emissions have shown a decline over the past five years (2013 to 2018), albeit by only 2.7 %. However, because of this slowdown in emissions reductions, the EU is currently not on-track to meeting its 40 % target by 2030. This assessment based on past progress does not take into account further developments such as the pathways and the planned measures contained in Member States' National Energy and Climate Plans which indicate the EU will meet its 2030 GHG target ([6]).

The EU aims to reduce its GHG emissions to net-zero — where GHG emissions sinks balance out emission sources — by 2050 ([7]) as part of the European Commission's 2050 long-term strategy ([8]). In 2019, the new Commission also published its vision for a European Green Deal ([9]), highlighting specific actions to achieve a climate-neutral EU and, as a follow-up, proposed a new climate law ([10]). The law should stipulate the 2050 climate-neutrality target and related trajectory as well as establish a framework for actions to enhance certainty for society.

Interim targets for 2020 and 2030 should help realise the vision for a GHG emission-neutral EU by 2050. In its Europe 2020 strategy ([11]), the EU committed to reducing its GHG emissions by 20 % compared with 1990, improving energy efficiency by 20 % and increasing the share of renewables in final energy consumption to 20 %. The 2030 Climate and Energy Framework ([12]) includes 2030 targets for GHG emissions, renewable energy and energy efficiency. The EU increased the ambition of the latter two targets in 2018 ([13]), which are now reflected in the revised Renewable Energy Directive and the revised Energy Efficiency Directive ([14]). The targets commit the EU to cutting GHG emissions by at least 40 % (from 1990 levels), achieving a minimum 32 % share for renewable energy, and improving energy efficiency by at least 32.5 % (compared with a projected business-as-usual scenario for 2030). In its European Green Deal ([15]), the Commission also proposed to increase the ambition of the 2030 GHG emission target to at least 50 % and towards 55 % compared with 1990 levels.

The Energy Union ([16]) 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) ([17]) 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. The new cohesion policy (2021 to 2027) includes a 'greener, carbon free Europe' as one of its five main objections ([18]).

A sectoral breakdown of the years 1990 and 2018 shows that all sectors of the economy contributed to GHG emissions reductions, except transport ([19]). Fuel combustion in the energy industries showed the strongest absolute decrease in emissions, although it remained the largest source of GHG emissions in 2018. In contrast, emissions from fuel combustion in transport (international aviation and shipping are not included in the calculations) were 23.7 % higher in 2018 than in 1990, despite reductions between 2007 and 2013. After 2007, reduced demand for freight transport in the wake of fuel price rises and the economic recession, as well as energy efficiency improvements as a result of carbon dioxide (CO_2) standards for new cars and vans, contributed to emissions reductions ([20]). However, these could not offset growth in overall traffic. In 2018, transport accounted for 21.3 % of total EU emissions and was therefore the second largest emitter in the EU after the energy industries (26.2 %). Emissions from international aviation were more than twice as high in 2018 compared with their 1990 levels. In total, domestic transport and international aviation accounted for a quarter (24.5 %) of the EU's GHG emissions in 2018.

18.9 %
of energy consumed in the EU in 2018 came from renewable sources

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 ([21]) as well as the Commission's European Green Deal ([22]) confirms the vital role that transport plays in reaching a climate-neutral Europe by 2050.

Additionally, the EU's Accelerating Clean Energy Innovation ([23]) initiative aims to facilitate the clean energy transition through targeted research and innovation.

The 2009 Fuel Quality Directive ([24]) sets standards for the quality of road transport fuels with a focus on reducing GHG emissions and improving air quality.

The EU CO_2 emission standards for cars ([25]) and vans ([26]) up to 2020/21 have contributed to emissions reductions from new vehicles since 2007. The new CO_2 emission standards for cars and vans ([27]) will start applying from 2025 and 2030. They are defined as a reduction of 15 % from 2025 on and a 37.5 % (31 % for vans) reduction from 2030, compared with 2021 levels. The EU also introduced emission standards for heavy-duty vehicles ([28]) for 2025 and 2030. All regulations include a mechanism to encourage the uptake of zero- and low-emission vehicles in a technology-neutral way.

Although overall GHG emissions from transport have not reduced in line with other economic sectors, CO_2 emissions per km for new passenger cars have been decreasing since 2007. Overall, between 2013 and 2018, CO_2 emissions per kilometre (km) decreased by 5.4 % or 6.8 grams per km, reaching 119.6 grams of CO_2 per km in 2018. However, after reaching a low of 117.6 grams in 2016, average CO_2 emissions have seen a slight upward trend for the second consecutive year in 2018 (see also chapter on SDG 12 'Responsible consumption and production' on page 219). Meeting the 2021 target of 95 grams of CO_2 per km driven will therefore require further progress.

119.6
grams of CO_2 per km were emitted by new passenger cars in the EU in 2018

Per capita emissions have continued to falls in most EU countries

Across the EU, per capita GHG emissions in 2018 ranged from 5.2 tonnes to 18.3 tonnes of CO_2 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 ([29]). Compared with 2013, per capita GHG emissions have fallen in 14 Member States and increased in the remaining 13. The strongest increase was reported by Hungary, with emissions growing by 13.3 % between 2013 and 2018 followed by Cyprus with emissions growing by 11.4 %. Malta and Luxembourg reported the strongest reductions, of 30.7 % and 19.3 % respectively.

GHG 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 2003 and 2018, GHG intensity of energy consumption fell almost continuously, by 13.2 %. Most progress was reported in Denmark (– 36.3 %) followed by Malta (– 34.8 %) and Finland (– 34.7 %) ([30]). These developments can be explained by a gradual shift away from GHG-intensive energy sources. Between 2003 and 2018, gross inland

Between 2003 and 2018, GHG intensity of energy consumption in the EU fell by
13.2%

consumption of coal (and other solid fuels) and oil decreased from 56.1 % of total energy consumption to 48.3 %. Simultaneously, renewable energy and natural gas — both less GHG-intensive — increased their shares in gross inland consumption, rising from 6.8 % to 15.0 % and from 21.5 % to 21.9 %, respectively, between 2003 and 2018 ([31]).

Climate impacts

Climate impacts refer to climate change-induced changes to environmental, social and economic systems. Three indicators are used to monitor climate impacts in the EU: average global and European temperature, ocean acidity, and the economic costs that arise as a result of weather- and climate-related disasters. These indicators indirectly provide an indication of trends in terms of climate change vulnerability.

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 ([32]) signed at the United Nations Framework Convention on Climate Change (UNFCCC) 21st Conference of the Parties (COP) in 2015.

Near-surface temperatures and ocean acidity have increased continuously over the past decades

Near-surface air temperature gives one of the clearest signals of global and regional climate change because 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 0.91° to 0.96° C when compared with pre-industrial levels. The data — especially global mean temperatures during the past five years — indicate that roughly half of the warming towards the 2 °C threshold has already occurred ([33]). 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 ([34]). For this reason, the average annual temperature over the European continent has increased by more than the global average. In addition, the decade from 2009 to 2018 was the hottest on record in Europe with an average temperature deviation of 1.6° to 1.7° C above pre-industrial times.

Europe's mean surface temperature for the decade 2009-2018 increased by

1.6–1.7

degrees Celsius compared with pre-industrial levels.

Ocean acidity is another important indicator of the environmental impacts of climate change: as CO_2 is absorbed into the world's oceans, it increases the water's acidity. In 2018, the average acidity was 8.06 pH, which is an unprecedented low over pre-industrial levels of 8.2 (lower pH values mean higher acidity) ([35]). Despite considerable annual variability, the decline in ocean pH has been consistent (for a more detailed discussion, see the chapter on SDG 14 'Life below water' on page 255).

In 2018, 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

Statistical attribution studies have shown that various weather- and climate-related extremes in Europe and beyond have become more severe and/or more frequent as a result of global climate change ([36]). Reported economic losses generally reflect monetised direct damages to certain assets and as such should be considered to be only partial estimates of damage. Losses related to mortality, cultural heritage or ecosystems services are not considered; their inclusion would considerably raise the estimate ([37]). According to the Intergovernmental Panel on Climate Change, the long-term increases in economic losses from weather and climate-related disasters has been mainly caused by increasing exposure of people and economic assets ([38]).

Over the period 1980 to 2017, weather- and climate-related economic losses in EU countries accumulated to

EUR 425.7 billion

Over the period 1980 to 2017, weather- and climate-related losses accounted for a total of EUR 425.7 billion at 2017 values ([39]). Still, recorded losses vary substantially over time — more than 70 % of the total losses have been caused by just 3 % of disaster events ([40]). The variability makes the analysis of historical trends difficult. However, a closer look at a 30-year moving average shows an almost steady increase in climate-related economic losses, from EUR 11.3 billion in 2012 to EUR 12.1 billion in 2017 ([41]), which corresponds to a 7.6 % increase over five years. The most expensive climate extremes during the period from 1980 to 2017 included the 2002 flood in Central Europe (more than EUR 21 billion), the 2003 drought and heatwave (almost EUR 15 billion), the 1999 storm Lothar and the 2000 flood in France and Italy (both EUR 13 billion), all at 2017 values ([42]).

Since 2013, the EU Adaptation Strategy ([43]) has encouraged national, regional and local adaptation action within EU borders. Good progress has been achieved up to 2019: 26 Member States now have an Adaptation Strategy (up from 16 in 2013) and the last country is working on developing theirs ([44]). In its European Green Deal the Commission announced it plans to adopt a new, more ambitious EU strategy on adaptation ([45]).

The EU has also been at the forefront of international efforts in particular with regards to the adoption of the Paris Agreement ([46]) on climate change and the Sendai Framework for Disaster Risk Reduction ([47]). The EU is highly committed to delivering on the commitments made in Paris ([48]) 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 ([49]) 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.

Multiple programmes have been established at the EU level to manage and respond to the risk of natural hazards and related disasters. For one, the European Union Civil Protection Mechanism ([50]) steps in to aid Member States in a state of emergency due to disaster when national capacities are lacking.

The European Climate Change and Adaptation Platform (Climate-ADAPT) ([51]) provides data, information and knowledge to support Europe in adapting to climate change. It is an online platform, managed jointly by the European Commission and the European Environment Agency.

Support for 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 ([52]) and climate mitigation and adaptation is also fully integrated in the Covenant of Mayors, with thousands of cities in Europe and worldwide being part of the initiative, which mobilises local governments and regions to make voluntary but ambitious climate commitments.

In the current EU Multiannual Financial Framework (MFF) for the period 2014 to 2020, 20 % of the budget — corresponding to EUR 206 billion — is 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 ([53]). In addition to the EU budget resources, the NER 300 programme ([54]) and the Innovation Fund ([55]) provide financing for innovative low-carbon energy demonstration projects and technology.

The EU's contribution to climate finance for developing countries has been increasing since 2014

In 2017, the EU contribution to the international USD 100 billion commitment amounted to EUR 19.4 billion

The EU and its Member States are committed to raising money to combat climate change, as part of the developed countries' goal to jointly mobilise USD 100 billion per year by 2020 through to 2025, from a wide variety of sources, instruments and channels ([56]).

Total EU public finance contributions (including all 27 Member States as well as the EU institutions) increased from about EUR 12.9 billion in 2014 to EUR 19.4 billion in 2017 — a 49.7 % increase in three years. The largest contributor in the 2014 to 2017 period was Germany, with contributions increasing from EUR 5.1 billion to EUR 6.7 billion, followed by France (see Table 13.6). The European Commission and the European Investment Bank (EIB) were the third and fourth largest donors in 2017, respectively.

In 2013, the EU launched the Global Climate Change Alliance (GCCA) ([57]), 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.

A growing number of local governments are committed to act on climate protection and adaptation

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 emission reduction targets in and outside the EU, 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 ([58]).

In 2019, Covenant of Mayors (CoM) signatories covered 186.0 million people in the EU, representing 41.6 % of the EU population. Since 2010, the population covered by CoM signatories has grown steadily. In eight EU Member States, CoM signatories represented more than half of the population in 2019. The highest share was reported by Belgium, with 91.3 % of the population, followed by Italy with 71.2 % and Spain with a share of 68.9 %.

14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development

SDG 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 at the same time function as a sink for land-and sea-based pollution.

eurostat supports the SDGs

EU Member States share four main marine regions: the Baltic Sea, the Mediterranean Sea, the Black Sea and the North-East Atlantic Ocean. While 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 the loss of biodiversity 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-27

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 263
Global mean ocean acidity	↘	↘	page 264
Marine conservation			
Surface of marine sites designated under Natura 2000	:	↑	page 265
Sustainable fisheries			
Estimated trends in fish stock biomass	:	:	page 266
Assessed fish stocks exceeding fishing mortality at maximum sustainable yield (F_{MSY})	:	:	page 267

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 trends 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

Accomplishing the goal of healthy and productive oceans will require further action to limit ocean acidification and prevent marine pollution. Indicators on bathing water quality and ocean acidification are presented to cover these issues.

Marine bathing water quality is affected by land-based pollution from sewage, farming-related fertilisers and chemicals, and surface run-off from coastal cities, which can carry litter. The resulting pollution exerts significant pressure on aquatic ecosystems and underwater life.

Ocean acidification occurs when increased levels of carbon dioxide (CO_2) from the atmosphere are absorbed by the ocean. Acidification reduces calcification and affects biochemical processes such as photosynthesis, with knock-on effects for entire ecosystems ([1]). Because cold water absorbs more CO_2, polar regions are disproportionately hard hit by acidification ([2]).

The EU is committed to improving water quality in its regional seas and coastal areas through a range of land-based and marine policies and through Regional Sea Conventions ([3]). As a result, some positive trends have been emerging for bathing water quality and the reduction of point-source pollution through improved waste water treatment. This chapter analyses the quality of coastal and transitional waters only. See the chapter on SDG 6 'Clean water and sanitation' on page 121 for a more detailed analysis of inland water quality.

European coasts offer an increasing number of bathing sites with excellent water quality

88.1%
of EU coastal water bathing sites had excellent water quality in 2018

Bathing water quality has improved steadily since 2013. The most important factors affecting the quality of these waters are microbiological and chemical contamination. Because the classification of bathing water quality takes into account the preceding four years ([4]), this indicator does not tend to fluctuate greatly from year to year. The number of European coastal bathing sites with an 'excellent' rating grew almost steadily between 2013 and 2018 ([5]). In 2018, 88.1 % of marine bathing sites had 'excellent' water quality. It should be noted though that the bathing water indicator provides only a limited view of pollution in European seas because it is focuses on 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. 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]).

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.

Excessive nutrient loads from agriculture and municipal waste water cause eutrophication, which can lead to problematic algal blooms and oxygen depletion with severe consequences for the marine trophic webs ([11]).

The European Environment Agency (EEA) monitors the winter mean levels of dissolved inorganic nitrogen, oxidised nitrogen and phosphate concentrations in Europe's regional seas ([12]). However, a lack of data for the Black and Mediterranean Seas make it difficult to assess trends. The Black Sea and the Baltic Sea are known to be 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 ([13]). 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 have been observed, despite some positive developments in nutrient reductions in the Greater North Sea.

To support the reduction of nutrient loads in European waters, the Nitrates Directive ([14]), the Water Framework Directive ([15]) and the Urban Waste Water Treatment Directive ([16]) 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 regulation on waste management and prevention ([17]), port reception facilities ([18]) for ship-generated waste and cargo residues. REACH ([19]), the EU framework for improving the protection of human health and the environment from the risks posed by chemicals, includes contaminants in seafood and marine litter.

In addition to organic pollution, chemical pollution from hazardous substances and marine litter also threatens 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. Of particular concern are persistent organic pollutants (POPs), which degrade slowly and can bio-accumulate in the food chain.

Estimates of plastic litter entering Europe's oceans are highly tentative due to a lack of data. However, the European Commission estimates that 150 000 to 500 000 tonnes of plastic enter the EU's oceans every year ([20]). Plastic pollution has many detrimental effects on the marine environment, for example by strangling and trapping marine species or being ingested by them. Marine plastic can come from both land- and sea-based sources. Single-use plastics pose a particular problem because they account for about 50 % of all marine litter on European beaches ([21]). A new European Directive targeting these single-use plastics and fishing gear alongside other plastic products was adopted in May 2019 ([22]).

Human-induced eutrophication, contaminant concentrations and marine litter are three of the 11 elements that must be minimised for marine and coastal waters to achieve good environmental status under the Marine Strategy Framework Directive (MSFD).

In January 2018, the European Commission published the European Strategy for Plastics in a Circular Economy ([23]), 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 ([24]), a 55 % target for the recycling of plastic packaging waste by 2030 and the promotion of research and innovation in the areas of 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 ([25]) and recently reported on its progress ([26]). 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

Increased acidity affects an ocean's capacity to regulate global CO_2 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 to increased acidity ([27]). Before industrialisation, pH levels varied between 8.3 and 8.2. These levels are declining at a steady rate, with global ocean surface water pH reaching an unprecedented low of 8.06 in 2018. EU leadership to mitigate climate change (see SDG 13) is of vital importance for reaching SDG 14's targets.

In 2018, the mean pH level of ocean water reached a new low of

8.06

In its International ocean governance Communication ([28]), 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 aiming to mitigate climate change and greenhouse gas (GHG) emissions, including CO_2. These include, for example, the Energy 2020 Strategy ([29]) to cut GHG emissions by 20 % compared with 1990, to ensure 20 % of energy comes from renewables and a 20 % increase in energy efficiency. The Circular Economy Package ([30]) also contributes to mitigation through greater resource and energy efficiency (also see the chapter on SDG 13 'Climate action' on page 235).

Marine conservation

European citizens depend in many ways on the services marine ecosystems provide, including fish and seafood, coastal protection, degradation of pollutants and climate regulation, 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 ([31]). A crucial step has been the designation of a network of marine protected areas (MPAs) ([32]), in which human activities are subject to stricter regulation. The degree of protection and hence the effectiveness of MPAs depends on the management plan regulating each protected area. Management measures range from a total ban on fishing, mining or wind power generation to a more moderate protection regime where economic development is handled in a restrictive way, for example, allowing only certain fishing methods.

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 under the EU Habitats and Birds Directives (54 %), complemented by nationally designated marine protected areas established under each Member State's national framework (46 %) ([33]). Data from 2019 show a clear increase in designated MPAs under Natura 2000 in the EU. Between 2014 and 2019, their spatial extent grew considerably, from 244 054 square kilometres (km^2) to 441 001 km^2.

In 2019, the spatial extent of marine protected areas under Natura 2000 in the EU reached

441 001 km²

The target for the spatial extent of protected areas in the EU is set by the EU Biodiversity Strategy 2020, which is linked to the Aichi Target 11 in the global Strategic Plan for Biodiversity 2011–2020 ([34]) under the Convention of Biological Diversity (CBD). Aichi target 11 stipulates that at least 10 % of marine and coastal areas must be conserved by 2020 through effectively and equitably managed, ecologically representative and well-connected systems of protected areas ([35]). In 2016, the coverage of MPAs in the EU was estimated as 10.8 % of the total marine and coastal surface area ([36]).

Compared with terrestrial protected areas, there were significant delays in the establishment of marine protected areas in the Natura 2000 network until 2013. Since then, a sharp expansion has taken place, as marine protected areas have climbed up political agendas and research efforts have accelerated, including through EU financial support.

The Birds ([37]) and Habitats Directives ([38]) make a substantial contribution to the implementation of the EU Biodiversity Strategy to 2020 ([39]) 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 ([40]). The protection of the marine environment also constitutes a key objective under the Maritime Spatial Planning Directive ([41]). On top of this, the EU is actively preparing for the negotiation of an international legally binding instrument on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction (BBNJ) under the United Nations Convention on the Law of the Sea ([42]).

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 of how well species and habitats are being protected. In fact, the EU currently has no overview, or assessment of the effectiveness, of management plans associated with the MPAs designated in EU regional seas. To gain a better picture, information on their connectivity, status and the implementation of conservation measures is needed. According to Aichi Biodiversity Target 11 of the global Strategic Plan for Biodiversity 2011–2020 ([43]), 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, however, limits the conclusions that can be drawn in this respect. An analysis by the EEA of the conservation status of marine habitats, based on data from 2007 to 2012 indicated that, despite a challenging data situation, in 2012 the conservation status of marine habitats and species was still unfavourable in most cases ([44]).

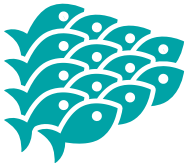
Sustainable fisheries

Besides pollution, the unsustainable use of living resources is the main threat to marine habitats and species in the EU ([45]). This means the prudent management of the European fishing fleet's activities is also necessary for biodiversity conservation.

Governance of fisheries in EU waters mainly focuses on fair access and sustainable supply. The European Common Fisheries Policy (CFP), which limits the total amount of fish catches, controls who is allowed to fish how, when and where, with a view to preventing damage to vulnerable marine ecosystems and preserving fish stocks. Thus, the CFP's ambition and implementation will directly affect whether SDG 14 is reached, in particular the aim of ending overfishing, destructive and/or illegal, unreported and unregulated fishing practices, and the subsidies that encourage these activities.

Improved sustainability of fisheries in the North-East Atlantic and adjacent seas (FAO 27 area)

European fisheries affect fish stock productivity and stock size through catches. However, because stock size also varies naturally, the management of fisheries is a complex exercise. Controlling fishing mortality is one way of managing fisheries. Fishing mortality (F) reflects 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 largest catch that can be taken from a fish stock over an indefinite period without harming it ([46]). 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.



38.2 %
of assessed stocks in the North-East Atlantic were overfished in 2018

There has been an improvement in the number of stocks fished at maximum sustainable yield (F_{MSY}) in the North-East Atlantic, where about three-quarters of the EU's catch originates. In 2003, less than 30 % of stocks in this region were fished at F_{MSY}, whereas in 2018, this figure had risen to almost 62 % ([47]). In turn, however, this means that about 38 % of stocks in the North-East Atlantic were still overfished.

The model based median 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 current fishing mortality 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 1.74 to 0.99 between 2003 and 2018. This means that overall stocks are on average fished sustainably in this region.

The EU's approach to sustainable fisheries is not limited to respecting MSY. The Marine Strategy Framework Directive (MSFD) ([48]) requires commercially exploited fish and shellfish populations to have a healthy distribution of age and size. Furthermore, because unsustainable

fisheries are a major threat to marine ecosystems ([49]), additional measures to regulate fisheries are required under the Birds and Habitats Directives. The CFP empowers Members States and the Commission to adopt such measures to fulfil obligations under these directives and the MSFD.

The status of stocks and their reproductive capacity can be measured and described by fish stock biomass and by spawning stock biomass. Biomass estimates are, however, associated with high levels of uncertainty due to the high annual variability of stock biomass. 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 ([50]). 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, there has been an estimated 48 % increase in biomass between 2003 and 2018.

Between 2003 and 2018, fish stock biomass in the North-East Atlantic increased by

48 %

The Common Fisheries Policy (CFP) ([51]) 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) ([52]) 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 Sea face greater threats to sustainability and have had an insufficient number of assessments

Beyond the North-East Atlantic, the picture is far less positive. Fishing pressure in the Mediterranean is on average two times as great as in the North-East Atlantic ([53]). Overexploitation remained at very high levels between 2011 and 2017, with a slight downward trend. The assessments indicate that in 2017 stocks were exploited on average at rates of around 2.4 times what would be sustainable according to CFP objectives. In addition, of the 44 stocks assessed up to 2017 in the Mediterranean and Black Sea, only three stocks (around 7 %) were not overfished ([54]). If the EU is to meet its own targets for sustainable fisheries, efforts need to be increased substantially.

With regards to reproductive capacity, spawning stock biomass (SSB) in the Mediterranean and Black Sea seem to have increased slightly between 2012 and 2017. However, any apparent trends relating to SSB in these seas should be viewed with caution, as data limitations make it difficult to gauge the true extent of overfishing ([55]).

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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

SDG 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 the health and functioning of ecosystems and 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 ecosystems are healthy and sustainably used and managed.

Table 15.1: Indicators measuring progress towards SDG 15, EU-27

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Ecosystem status			
Share of forest area	:	↗ (1)	page 279
Biochemical oxygen demand in rivers (*)	↑ (2)	↗ (2)	SDG 6, page 130
Phosphate in rivers (*)	↑ (2)	↗ (2)	SDG 6, page 132
Land degradation			
Soil sealing index	:	↘ (1)	page 280
Estimated soil erosion by water	↗ (3)	↗ (4)	page 281
Biodiversity			
Surface of terrestrial sites designated under Natura 2000	:	↗	page 282
Common bird index	↘ (5)	↗ (5)	page 283
Grassland butterfly index	↓ (2)	↗ (2)	page 284

(*) Multi-purpose indicator.
(1) Past 3-year period.
(2) Data refer to an EU aggregate based on 15 Member States.
(3) Past 16-year period.
(4) Past 6-year period.
(5) Data refer to an EU aggregate that changes over time depending on when countries joined the Pan-European Common Birds Monitoring Scheme.

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 status of ecosystems over the past few years. However, progress in halting and reversing land degradation and biodiversity loss has been mixed, and most indicators of biodiversity, including those beyond the ones featured in this 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 provision. 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 such as flooding 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, as a result, the provisioning 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 and the EU Forest Strategy help to ensure a healthy ecosystem status. They also aim to ensure that terrestrial ecosystems and the services they provide are sustainably used and managed. 'Ecosystem status' can be assessed by comparing the state of a habitat or ecosystem against legal targets and EU and international policy goals, such as the international Aichi biodiversity targets.

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 report provides a comprehensive assessment of how economic development pathways impact nature. Key findings of the report indicate that species extinction rates are accelerating. Declining trends in biodiversity and ecosystem services are expected to negatively impact progress towards Agenda 2030 and its SDG targets. As such, current global conservation and sustainability goals will not be met unless transformative change is implemented.

Overall, the indicators on ecosystem status in Europe only provide an indication of the health of forest ecosystems, which cover about 45 % of the total surface area, while other ecosystems (for example, wetlands, grassland, cropland, rivers and lakes) and pressures on ecosystems (such as other nitrate and phosphorous pollution, habitat fragmentation, noise and light pollution, water stress and invasive species) are not monitored. It is important to recognise this limitation in presenting a full and complete picture of Europe's terrestrial ecosystems, the status of which cannot be fully addressed with the currently available long-term datasets.

Organic and phosphate pollution in European rivers has decreased since 2000

The ecological status of European water bodies gives an important indication of how Europe's natural environment is faring in the face of pressures from human use. Two indicators monitor progress in this area: biochemical oxygen demand in rivers and phosphate in rivers. These indicators paint a rather favourable picture of the EU's progress over the past 17 years in making rivers cleaner.

In 2017, the biochemical oxygen demand in European rivers amounted to

2.00 mg/L

Biochemical oxygen demand in rivers is an indicator of organic water pollution and the effectiveness of water treatment ([4]). As such, measuring the amount of oxygen (O_2) required for microbiological decomposition of organic compounds in water indicates the state of a river system's overall health. In 2017, the EU levels of biochemical oxygen demand fell to 2.00 milligrams (mg) of O_2 per litre (L) of water, representing a 35.3 % reduction from 2000 levels of 3.09 mg/L. Between 2012 and 2017, 10 out of 15 reporting Member States saw reductions in biochemical oxygen demand in their rivers.

EU legislation on freshwater quality is mainly embodied within the Water Framework Directive ([5]). 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 ([6]) and Nitrates Directive ([7]), which also impose restrictions on levels of chemicals and minerals in Europe's freshwater resources.

Phosphate (PO_4) in rivers can originate from agricultural production, urban waste water and industrial discharges ([8]). Heavy loads of phosphate in rivers can harm the environment by causing biodiversity loss and water eutrophication. On average European phosphate concentrations have fallen by 42.2 % since 2000, reaching 0.093 mg/L in 2017. 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 ([9]), and the switch to phosphate-free detergents ([10]).

0.09 mg/L

of phosphates were present in European rivers in 2017

Phosphate in EU rivers has generally reduced over time, although individual levels vary by Member State and between regions within countries. However, progress in the EU overall has slowed since 2012 as phosphate levels have stagnated or even risen in a few Member States' rivers. The exception is Bulgaria, where phosphate levels have reduced considerably since 2012.

Share of forest area has continued to grow

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 employment in rural areas and help mitigate climate change and regulate the microclimate ([11]). Currently, forest ecosystems are affected by pressures from habitat degradation and loss, invasive alien species, pollutants and excessive nutrient loads, as well as climate change ([12]). This means that EU efforts to retain and sustainably manage its forested areas are becoming increasingly important.

In 2018, the share of forests in total EU land area reached

43.4 %

The EU Forest Strategy ([13]) from 2013 builds on the objectives stated under the EU Biodiversity Strategy to 2020 ([14]) 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 ([15]), showing their importance for biodiversity. The Europe 2020 strategy ([16]) recognises the importance of forests for reducing carbon dioxide emissions and combating climate change.

In 2019, the Commission adopted the Communication 'Stepping up EU Action to Protect and Restore the World's Forest' ([17]) with the goal to protect and improve the health of existing forests, especially primary forests, and increase sustainable and biodiverse forest coverage worldwide. At the start of 2020, within the framework of the International Conference on Forests for Biodiversity and Climate, the European Environment Agency in partnership with the Commission launched the FISE — Forest Information System for Europe in support of the EU Forest Strategy ([18]).

In 2018, forests and other wooded land covered 43.4 % 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 0.8 percentage points between 2015 and 2018. This increase can be largely allocated to the 'forests' land category, while the 'other wooded land' category increased to a lesser extent.

Land degradation

Land degradation is linked to the long-term biological productivity of land. It is a complex phenomenon that brings together several elements, including soil degradation and the capacity of land areas to support water resources, biodiversity and primary productivity ([19]). 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 ([20]). Not all of these threats to soil quality can be covered in this indicator set, so the analysis has been limited to imperviousness change and soil erosion by water.

Land take has increased in the EU, but at a slowing rate

Increases in the area of sealed land can be used to approximate land-use change for human use or intensification ([21]). The area of sealed soil has increased in all Member States since 2006. Between 2006 and 2015, the total EU area covered with impervious materials grew by 2 989 square kilometres (km^2) or 4.5 %. This means that on average, an area of 332 km^2 — more than the size of Malta — is converted to impervious surfaces each year. However, the pace of soil sealing between reporting periods appears to have slowed.

Between 2006 and 2015, the area of sealed soil surface in the EU grew by

4.5 %

Land take is described as the process of transforming agricultural, forest and other semi-natural and natural areas into artificial areas. Land take is monitored using the Copernicus CORINE land cover datasets ([22]), which have been published every six years between 2000 and 2018. In the EU-28, net land take has amounted to 12.779 km^2 over the whole time span. Even though the rate of land 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 ([23]).

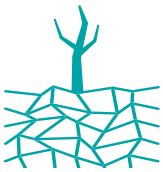
The EU has released guidelines containing best practices to limit, mitigate or compensate soil sealing. These guidelines aim to support the EU's Soil Thematic Strategy ([24]) and the goal of limiting average annual land take (the increase of artificial land) to less than 800 km² in the period 2000 to 2020 and no net land take by 2050, set in the Roadmap to a Resource-Efficient Europe ([25]). Between 2000 and 2018, the average annual land take was 780 km² in the EU-28 ([26]). If this trend continues, the EU could be on-track to reach the 2020 target.

In all three observation periods, agricultural areas were the most likely to be converted to artificial surfaces, reducing the amount of land available for food and feed production ([27]). This results in increased fragmentation and loss of natural habitats. Furthermore, the artificial areas create plots that are isolated from functional ecosystems and can lead to increased flood risk and more frequent rapid surface runoff ([28]). Moreover, sealed lands cannot store carbon and thereby contribute to greenhouse gas emissions and climate change.

Estimates for soil erosion by water indicate a slight decline in areas at risk of severe soil erosion in the EU

Soil is a resource that provides multiple benefits to society, including the provision of raw materials, food production, storage, filtration and the transformation of many substances, including water, carbon and nitrogen ([29]). 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. Removing fertile topsoil reduces soil productivity and threatens crop production, the quality of drinking water, habitats and biodiversity, and carbon stocks ([30]).

Even though there were signs of improvement in the EU during the period 2000 to 2010, the positive trend seems to have slowed since 2010. Efforts to address and mitigate soil erosion by water helped to reduce the estimated land area at risk of severe soil erosion (soil loss of over 10t/ha/yr) by water from 198 607 km² in 2010 to 196 853 km² in 2016 or by 0.9 % in the EU. Improvements due to the implementation of agro-environmental standards required under the Common Agricultural Policy (CAP) may have helped to reduce the mean rate of soil loss by water erosion. Overall, soil conservation and management measures have reduced the estimated soil loss in the EU by more than 9 % since 2003. Farming practices such as reduced tillage, preservation of a 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 have helped to reduce soil erosion ([31]). However, more than half of the EU's agricultural area remains at risk of being eroded at a rate that is faster than soils can be replaced naturally (more than 1 t/ha/yr) ([32]). Severe soil erosion is estimated to affect more than 5 % of land area and contribute to 52 % of total soil loss in Europe ([33]).



Between 2010 and 2016, the estimated land area at risk of severe soil erosion by water in the EU fell by

0.9 %

Erosion is a recognised threat to soil in the EU's Soil Thematic Strategy ([34]) and the 7th Environment Action Programme ([35]). The Roadmap to a Resource-Efficient Europe ([36]) 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, to contribute to preventing soil erosion.

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 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.

Despite being protected, many terrestrial habitats and species have not reached 'favourable conservation status' under the Habitats Directive

In 2019, the EU had protected 763 986 km² of terrestrial habitats through designated Natura 2000 sites, covering 18 % of the EU's terrestrial land area. Member States with the highest percentage of Natura 2000 areas in 2019 included Slovenia (38 %), Croatia (37 %) and Bulgaria (35 %), with the lowest percentage attributed to Denmark (8 %). The designation of additional terrestrial protected areas grew slowly between 2014 and 2019.

763 986

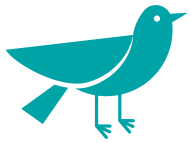
square kilometres of the EU land area was protected in 2019 under the Natura 2000 network

Assessments of the conservation status of species of European interest ([37]) and habitats of European interest ([38]) reveal that many species and habitats have not met favourable condition standards as set out within the Habitats Directive. Across the EU ([39]), 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). Fish, molluscs and amphibians have a particularly high proportion of species that show a deteriorating conservation status trend. Habitats showing a declining trend include bogs, mires and fens, followed by grasslands ([40]).

Common bird species and grassland butterfly species are in long-term decline in Europe

Changes in land use and the overuse of ecosystems can harm biodiversity. As biodiversity supports all ecosystem functions and contributes to their capacity to provide ecosystem services ([41]), monitoring is vital to preserving and restoring it. 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 ([42]).

The EU common bird index tracks the population abundance and diversity of a selection of common bird species in the EU, typified by common forest and farmland bird species. The index shows there has been a 6.4 % decline in common bird species and a dramatic 28.3 % fall in farmland bird species between 1990 and 2018. Forest bird species, on the other hand, appear to be recovering from losses in the early 2000s, with their index gaining 3.8 % over the whole period from 1990 to 2018. The decline in common farmland birds has largely been attributed to agricultural intensification, which has reduced natural nesting habitats such as hedges, wetlands, meadows and fallow fields. Agro-chemicals and changes in ploughing times for cereals have also affected common farmland birds, disrupting their breeding and decreasing available food sources ([43]). The situation is not improving for common farmland birds, despite losses slowing in recent years with a decline of 1.8 % between 2013 and



Between 2003 and 2018, common bird species in the EU declined by

2.4%

The EU Birds Directive ([44]) protects all wild bird species and their habitats across the EU. The Habitats Directive ([45]) introduces 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 ([46]), these two 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 ([47]), and in 2017 an Action plan on nature, people and the economy ([48]).

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 ([49]) to implement farming practices aimed at addressing biodiversity loss.

2018. Common forest birds have shown a positive trend, increasing by 6.1 % during the same period. Overall, the decline in common birds appears to come to a halt, showing a 2.4 % reduction since 2003 but a 0.5 % gain since 2013.

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 ([50]). 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. However, over the short term between 2012 and 2017, the grassland butterfly index grew by 2.7 %. Causes for this decline can be attributed to changes in rural land use, in particular stemming from agricultural intensification and land abandonment in mountains and wet regions, mainly in eastern and southern Europe. The loss of semi-natural grasslands has been particularly detrimental ([51]).

Between 2002 and 2017, grassland butterfly populations in Europe shrank by

23.2 %

In June 2018, the European Commission adopted the first-ever EU Initiative on Pollinators ([52]). 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 ([53]).

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 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-27

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more?
Peace and personal security			
Standardised death rate due to homicide	↑ (1)	↑	page 295
Population reporting crime, violence or vandalism in their area	:	↑	page 296
Access to justice			
General government total expenditure on law courts	↑	↑	page 297
Perceived independence of the justice system: very or fairly good	:	↑ (2)	page 298
Trust in institutions			
Corruption Perceptions Index	:	:	page 299
Population with confidence in EU institutions	↘	↑	page 300

(*) Multi-purpose indicator.
(1) Past 14-year period.
(2) Past 3-year period.

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. Over the past five years, all the indicators for which data are available show very strong progress towards SDG 16.

Peace and personal security

Safety is a crucial aspect of a person's life. 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. Crime is 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.

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 2016. This corresponds to a reduction of 50.7 % over a 14-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 2010, the share of people reporting the occurrence of such problems in their area has generally fallen in the EU. In 2018, 11.5 % of the population felt affected by these issues, which is 1.6 percentage points less than in 2010.

0.7
deaths per 100 000 people in the EU in 2016 were caused by homicides

The perception of being affected by crime, violence or vandalism differs across socio-demographic sub-groups of the EU population. While 14.1 % of the population who were living below the poverty threshold — set at 60 % of the median equivalised income — felt affected by such problems in 2018, this was only the case for 10.9 % of the population above the poverty threshold.

The fear of victimisation paradox: when objective and subjective measures of physical insecurity do not match

National figures show that the perceived exposure to crime, violence or vandalism in 2018 was more than eight times higher in the most affected country (21.8 % of the population in Bulgaria) than in the least affected country (2.6 % in Croatia). However, country differences in this subjective indicator need to be treated with caution. Previous research suggests that 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') ([2]). This is, for instance, the case in France, which has one of the lowest death rates due to homicide across the EU, but one of the highest shares of people who say they feel affected by crime or other problems in their area (see Figures 16.2 and 16.4). In contrast, death rates due to homicide were the highest in the Baltic countries, while they had rather low shares of people feeling affected by crime, violence or vandalism in their neighbourhood. It should,

11.5 %
of the EU population reported crime, violence or vandalism in their area in 2018

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 ([3]) 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 corruption, financial crime, counterfeiting crime and trafficking in human beings and firearms.

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 2016, 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 7.5 % of male homicides ([4]).

Overall, according to the UNODC report, almost a quarter (24 %) of homicides in Europe in 2017 (in comparison with 18 % globally) were at the hands of an intimate partner or were family-related ([5]). 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 (see also the chapter on SDG 5 'Gender equality' on page 105).

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 that 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.

EU expenditure on law courts has grown

In the EU, general government expenditure on law courts has risen by 46.3 % since 2003, reaching EUR 43.2 billion in 2018. In per capita terms, this corresponds to a 41.1 % increase from EUR 68.4 per inhabitant in 2003 to EUR 96.5 per inhabitant in 2018. However, putting these figures in relation to total government expenditure reveals that spending on law

43 billion

euros were spent by governments on law courts across the EU in 2018

courts has remained stable at 0.7 % since 2003. In relation to GDP, expenditure on law courts has also been stable since 2003, at 0.3 % of GDP ([6]). 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, 54 % of EU inhabitants rated the independence of the courts and judges in their country as 'very good' or 'fairly good', four percentage points higher than in 2016. At the same time, the perception of 'very bad' or 'fairly bad' fell by three percentage points, from 38 % to 35 %. Interference or pressure from government and politicians were the most likely reasons for a bad rating of perceived independence of courts and judges ([7]).

54 %
of the EU population rated the independence of courts and judges as very or fairly good in 2019

Age, employment status and experience with justice system seem to have a notable effect on the perception of the independence of the justice system. In 2019, 61 % of 15- to 24-year-old respondents in the EU gave a good rating, compared with 54 % of respondents aged 55 or over. 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) ([8]).

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 Member States' justice systems.

Trust in institutions

Effective justice systems are a prerequisite for the fight against corruption. 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. Corruption can also undermine trust in democratic institutions and weaken the accountability of political leadership.

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 2019 and made up a half of the global top 20 least-corrupt countries. Within the

50 %
of the 20 least corrupt countries in the world in 2019 were in the EU

EU, northern European countries achieved the best scores, with Denmark, Finland and Sweden leading the ranking. At the other end of the scale, Bulgaria, Hungary and Romania showed the highest levels of perceived corruption across the EU. On the global list (comprising 180 countries in total), Bulgaria ranked at position 74 and Hungary and Romania ranked equally at position 70 ([9]).

Country rankings in the CPI largely correspond to analogous answers collected in late 2017 through a Eurobarometer survey ([10]), in which Finland, Denmark and Sweden were identified as having the least widespread corruption. Responses to this survey, however, paint a more pessimistic picture of corruption levels across the EU than the CPI. In all but five countries, at least half of respondents considered corruption 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.

There also exists a notable relationship between the CPI and the perceived independence of the justice system. Countries with a high CPI ranking, such as Denmark, Finland or Sweden, 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 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 inferred based on these data. Effective justice systems are nevertheless considered to be a prerequisite for fighting corruption ([11]).

Trust in EU institutions has been increasing since 2016

Confidence in political institutions is key for effective democracies. On the one hand, citizens' confidence increases the probability that they will 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 2004, 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 2004 between 50 % and 60 % of the EU population expressed their confidence in each of these three institutions, trust levels fell to 35–40 % for all three by 2015. More recent data, however, indicate a turnaround in this trend, with trust levels increasing between 9 and 14 percentage points, depending on the institution, between 2015 and 2019.

54 %
of the EU population expressed trust in the European Parliament in 2019, making it the most trusted of the main EU institutions

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 a 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 ([12]).

Throughout the years, the European Parliament has remained the most trusted of the three institutions surveyed. In 2019, 54 % of the EU population expressed confidence in the European Parliament, followed by 47 % for the European Commission and 44 % for the European Central Bank. Across Member States, the European Parliament was the most trusted of the surveyed EU institutions in all countries except for Finland, where the European Central Bank and the European Parliament were equally trusted.

17 Strengthen the means of implementation and revitalise the global partnership for sustainable development

SDG 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 Sustainable Development Goals can only be realised with a strong commitment to global partnership and cooperation. Coordinating policies to help developing countries, particularly least developed countries, is vital to achieving sustainable growth and development. This includes supporting these countries in managing their finances, including debt, as well as promoting investment. The EU has long been committed to global partnership by supporting developing countries through official development assistance. Over the past decade, there has been a shift in the balance of roles, from donor–recipient towards cooperation based on a more equal partnership. The EU has been strongly involved in processes such as the Global Partnership for Effective Development Cooperation, which promotes country ownership, transparency and results, among other principles. 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-27

Indicator	Long-term trend (past 15 years)	Short-term trend (past 5 years)	Where to find out more
Global partnership			
Official development assistance	↘ (1)	↘	page 312
EU financing to developing countries	↑	↘	page 314
EU Imports from developing countries	↑	↑	page 315
Financial governance within the EU			
General government gross debt	↓	↑	page 316
Share of environmental taxes in total tax revenues	↘	↘	page 317

(1) Past 14-year period.

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's progress in the area of global partnership has been mixed: while imports from developing countries have increased, financial flows to these countries have declined in recent years. The picture is also mixed when it comes to financial governance within the EU: while debt-to-GDP ratios have fallen in the EU, a shift in the tax burden from labour to the environment has not taken place.

Global partnership

To achieve the SDGs, partnerships are necessary between governments, the private sector, civil society and other parties. For this purpose, the EU has created a multi-stakeholder platform on the SDGs ([1]), which advises the European Commission.

Wealthier economies such as the EU can support the implementation of the 2030 Agenda in developing countries through 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 global partnership indicators show a mixed picture for 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 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. 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 financial flows from the EU and its Member States to developing countries ([4]).

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 public and private EU financing to developing countries amounted to EUR 104.1 billion in 2018. This is more than two times the amount the EU provided in 2003, but considerably lower than the amounts given between 2014 and 2017. While OOFs and grants by NGOs have remained rather marginal, ODA and private flows combined have accounted for more than 90 % of total estimated EU financing for development since 2011. Overall, ODA has been the most reliable and steady financial flow from the EU to developing countries, while private flows have experienced a huge variation over the years. The sharp drop in total EU financing to developing countries by more than EUR 40 billion from 2017 to 2018 was caused by a decline in private flows of more than 50 %.

104
billion EUR were spent by the EU on financing to developing countries in 2018

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 half a century ([5]). The EU is committed to reaching the 0.7 % target by 2030, as affirmed in the European Consensus on Development ([6]). As a whole, the EU spent 0.41 % of its GNI on ODA in 2019, after reaching a peak of 0.49 % in 2016. This decrease is largely due to the lower amount

0.41 %
of the EU's gross national income was spent on ODA in 2019

of assistance that Member States provided to refugees in Europe and — to a lesser extent — a new data-reporting methodology introduced in 2018 ([7]).

The amount of ODA is typically linked to the EU's economic situation. This became visible when overall flows fell during the economic downturn in 2008 and its aftermath, while the ratio of ODA to GNI did not change significantly. With only three EU countries having achieved the 0.7 % target in 2019, additional efforts will be needed to meet the collective EU target by 2030.

The EU remains the biggest ODA donor in the world.

In 2019, the EU maintained its position as the biggest ODA donor globally, providing about EUR 58 billion. This figure refers to the combined ODA provided by the 27 EU Member States and EU institutions. Additionally, at 0.41 % in 2019, the overall EU ODA/GNI ratio was significantly higher than for most other OECD donors such as Canada, Japan and the United States. At the same time, aid from emerging donors is increasing. For example, Turkey spent 1.15 % of its GNI on ODA in 2019, which was the highest ratio for a country reporting to the Development Assistance Committee (DAC) ([8]).

The EU seeks to support least developed countries in particular

To target resources where they are most needed — least developed countries (LDCs) and countries in states of fragility and conflict — the EU 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. In 2018, the EU's official development assistance to LDCs reached EUR 19.8 billion, representing 0.125 % of GNI ([9]).

The European Consensus on Development ([10]) of 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 GNI should be allocated to LDCs in the short term, rising to 0.20 % by 2030. 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.

Coherence between EU financial flows to developing countries

The EU seeks to ensure 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.

EU financial support, combined with domestic revenues, can provide a basis for achieving the 2030 Agenda's goals, allowing for investment in social services, clean energy, infrastructure, transport and information and communications technologies. In the best case, developing countries could leapfrog some of the unsustainable modes of production and consumption that industrialised countries use.

The EU emphasises 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 Domestic Resource Mobilisation (DRM) support programme, which aims to establish efficient, effective, transparent and fair tax systems in developing countries. The EU also uses 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) ([11]).

The AAAA emphasises that public and private, international and domestic sources of financing as well as non-financial means of implementation are needed for purposes of sustainable development. This is why the EU supports the multilateral initiative of Integrated National Financing Frameworks (INFFs). INFFs are a planning and delivery tool to finance sustainable development at the national level. Country-led and country-owned, they help policymakers map the landscape for financing sustainable development. They lay out a financing strategy to leverage sustainable investments and implement policies to achieve the priorities of national sustainable development plans.

Both the 2030 Agenda and the AAAA underscore the importance of science, technology and innovation as powerful drivers for sustainable development. International cooperation in these areas is indispensable for the achievement of all SDGs.

EU imports from developing countries have almost tripled

The potential contribution of trade to sustainable development has long been acknowledged. This is also reflected in the EU's 2015 trade and investment strategy 'Trade for All' ([12]). Exports can create domestic jobs and allow developing countries to obtain foreign currency, which they can use to import necessary goods. Better integration of developing countries into world markets may reduce the need for external public flows. Several of the SDGs refer to the importance of trade for sustainable development. However, it needs to be noted that the EU's trade-related indicators do not provide insights on whether the products in question are produced in an environmentally and socially sustainable manner ([13]).

894

billion EUR was the value of EU imports from developing countries in 2018

The EU's unilateral preferential trade arrangement, 'Generalised Scheme of Preferences' (GSP) ([14]) allows developing countries to pay less or no duties on their exports to the EU. The Everything But Arms (EBA) arrangement grants duty-free, quota-free access for all LDC products except arms and ammunition. The EU also provides significant amounts of 'aid for trade', with the aim of supporting trade-related infrastructure and building productive capacity.

Since 2003, EU imports from developing countries almost tripled, from EUR 315 billion to EUR 894 billion in 2018. In the long term, EU imports from developing countries grew by 7.2 % per year on average. In the short term since 2013, imports have still grown, although only by 4.6 % annually. Imports from developing countries to the EU as a share of imports from all countries outside the EU increased from 33.6 % in 2003 to 46.9 % in 2018. China (excluding Hong Kong)

alone accounted for 38.1 % of EU imports from developing countries in 2018. However, overall, the almost 50 countries classified as least developed by the UN accounted for only 1.9 % of all imports into the EU in 2018 overall ([15]).

'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. The EU and its Member States were the leading global providers of aid for trade in 2017. They provided EUR 14.5 billion, or 31 %, of global aid for trade ([16]).

The EU updated its Aid for Trade Strategy ([17]) in 2017, to reflect the significant political changes both globally — in particular, the 2030 Agenda — and at the EU level, including the new European Consensus on Development ([18]) and Trade for All ([19]). The updated strategy aims to enhance the coherence of aid for trade with other EU policies and instruments, including 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 vital to keep the EU's own economies on a sustainable development path. Macroeconomic stability in the EU is therefore one pillar of the Union's contribution to implementing the SDGs. In addition, the EU seeks to make its economy greener. In a global context, where consumption patterns in one region can severely impact production patterns elsewhere, it is particularly important that prices reflect the real costs of consumption and production. They should include payments for negative externalities caused by polluting activities or other activities that damage human health and the environment. To facilitate this, the EU calls for a shift from labour to environmental taxes.

Financial stability: recovering after the economic crisis

According to the Treaty on the Functioning of the European Union, government debt shall not exceed 60 % of GDP in EU Member States. However, since the onset of the economic crisis in 2008, debt-to-GDP ratios have risen considerably in many EU Member States. The first year to show a slight fall in EU government debt ratios since the crisis was 2015. But despite continuing to fall, the EU's overall debt-to-GDP ratio remained above its pre-crisis level in 2019 at 77.8 %, with Member States' ratios ranging from more than 176 % to less than 9 %. Eleven Member States reported debt levels above 60 % of GDP at the end of 2019. Between 2014 and 2019, all EU Member States but one had reduced their debt-to-GDP ratios.

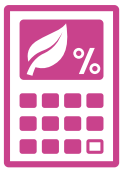
In 2019, general government gross debt in the EU as a share of GDP amounted to

77.8 %

The Treaty on the Functioning of the European Union (TFEU) requires the ratio of a Member State's planned or actual annual government deficit to gross domestic product at market prices to not exceed 3 %, and that government debt as a ratio of GDP at market prices should be limited to 60 %. The TFEU is complemented by Regulation 1176/2011 on the prevention and correction of macroeconomic imbalances ([20]) as well as Regulation 1174/2011 on enforcement action to correct excessive macroeconomic imbalances in the Euro area ([21]). Both aim to detect fiscal imbalances in the EU and allow, among other things, for sanctions.

'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 other damage to 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, reflecting these real costs in prices poses 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 the Europe 2020 strategy ([22]) call for a shift of taxation from labour towards environmental taxes, meaning that revenues from environmental taxes should increase relative to labour taxes. Environmental taxes can discourage behaviour that is potentially damaging for the environment and can provide incentives to lessen the burden on the environment and to preserve it by 'getting the prices right'.



In 2018, the share of environmental taxes in total tax revenues in the EU was

6.0%

In 2018, environmental taxes accounted for only 6.0% of total tax revenues in the EU, while labour taxes ([23]) accounted for 51.7%. Since 2013, shares of labour and environmental taxes have fallen only slightly, meaning a shift from labour to environmental taxes is not visible in the EU.

Across Member States, the share of environmental taxes in total tax revenues ranged from 4.4% to 10.9% in 2018. Compared with 2013, the share of environmental taxes has further declined in the majority of EU countries, most notably in Ireland and Luxembourg. In contrast, Croatia reported a 1.5 percentage point increase over the same period.

The ratio of labour to environmental taxes shows how much higher the shares of labour tax revenues are compared with the shares of environmental taxes in a country. In 2018, this ratio ranged from 3.7 to 12.8 across Member States. The ratio has furthermore increased in the majority of EU countries since 2013, indicating a relative shift of taxation from environment to labour.