Sustainable development in the European Union

Monitoring report on progress towards the SDGs in an EU context

2023 edition

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Foreword of Commissioner Gentiloni

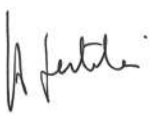
Ever since the current European Commission under President von der Leyen assumed office in 2019, the Sustainable Development Goals (SDGs) have been a fundamental part of our political programme. And monitoring progress towards the SDGs has become even more important since Russia's full-scale invasion of Ukraine. For peace and security are a prerequisite for sustainable development: no sustainable development is possible without peace and no peace without sustainable development.

Over the past few years, the European Commission has undertaken several concrete actions to progress towards the SDGs. Deeply transformative initiatives have been launched, such as the European Green Deal, the Climate Law and the European Pillar of Social Rights Action Plan. The SDGs have been progressively integrated into the European Semester, our annual cycle of economic policy coordination, an effort that continues to this day. Prompted by the COVID-19 pandemic, the EU adopted at record speed NextGenerationEU, an unprecedented common instrument intended to both respond to the downturn and build back better over the medium term, accelerating the green and digital transitions.

The Recovery and Resilience Facility (RRF), the heart of NextGenerationEU, offers an extraordinary opportunity for investment and reforms focused on our common European priorities. Two years after its creation, the RRF remains at the core of our efforts to make a success of the EU's transition to a net-zero economy and a fair and prosperous society. And in response to the global energy market disruption caused by Moscow's illegal and unjustifiable war, the European Commission also presented the REPowerEU plan to make the EU independent from Russian fossil fuels well before 2030.

The year 2023 is the half-way mark of the 2030 Agenda, which was adopted in 2015. This is why the EU has decided to present its first Voluntary Review at the United Nations' High-Level Political Forum in July this year, for which Eurostat provided the statistical basis. This SDG monitoring report will be a central element of the package to be presented at the High-Level Forum, reaffirming the EU's commitment toward the 2030 Agenda at this crucial moment.

Identifying the most pressing sustainability challenges, knowing where we stand and critically examining our performance: these are our aims as we seek to lead by example and work towards achieving the SDGs both in Europe and around the world.



Paolo Gentiloni,
European Commissioner for the Economy,
responsible for Eurostat

Foreword of Eurostat’s Director-General

This is the seventh edition of Eurostat’s monitoring report on the Sustainable Development Goals (SDGs). This 2023 edition assesses the progress of the European Union (EU) towards reaching the SDGs and is based on a set of around 100 indicators selected according to their policy relevance for the EU as well as their statistical quality. The EU SDG indicator set is aligned with — but not identical to — the UN list of global SDG indicators. Many of the selected indicators are already used to monitor existing policies, such as the European Pillar of Social Rights or the 8th Environment Action Programme. This allows the EU SDG indicators to monitor policies and phenomena particularly relevant in the EU context.

This report opens with a synopsis of the EU’s overall progress towards achieving the SDGs, followed by a presentation of the policy background at global and EU levels and the monitoring of the SDGs at EU level. The detailed monitoring results are presented in 17 chapters, one for each goal, showing the EU progress over the most recent years and pointing to areas where further effort is needed. In addition, for the first time, the short-term effects on the SDGs of the current crises, such as the energy crisis brought by Russia’s aggression against Ukraine and the aftershocks of the pandemic, are analysed with timely and high-frequency data. The report also features an improved analysis of the spillover effects in the world as a result of EU consumption.

I believe that this report will help European citizens, policy-makers, researchers and businesses to make informed decisions and undertake sound sustainable development actions so that European societies are better prepared to face current and future challenges.

Mariana Kotzeva
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Data coverage and direct links to Eurostat's database:

The data presented in this publication were extracted in early April 2023. Additionally, the release of EU Labour Force Survey (LFS) data for 2022 was taken into account as far as data were available by the end of April 2023.

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

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

For more information please consult:

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Synopsis

The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), adopted by the United Nations (UN) in September 2015, is the world's roadmap for achieving sustainable development in this decade. The European Union (EU) has fully committed itself to delivering on the 2030 Agenda, and the SDGs form an intrinsic part of the European Commission's work programme and the Political Guidelines of Commission's President Ursula von der Leyen ([1]). In this context, the EU will also present its first Voluntary Review on the implementation of the 2030 Agenda at the United Nations' (UN) High-Level Political Forum in July 2023.

Monitoring is an essential component in realising the 2030 Agenda's vision, both globally and in the EU, by assessing and visualising the progress made so far towards the 17 SDGs. Since 2017, Eurostat has been preparing annual reports monitoring the progress towards the SDGs in the EU context. This 2023 edition is the seventh report in this series, analysing the EU's progress towards the goals based on the official EU SDG indicator set.

Reflecting the timespan of the 2030 Agenda, this report aims to present an objective assessment of whether the EU — according to the selected indicators — has progressed towards the SDGs over the past 15-year period. Additionally, short-term trends over the most recent five-year period of available data are presented to provide an indication of whether a trend has been persistent or has shown a turnaround at a certain point in time. The report consequently focuses on the trends over the past five- and 15-year periods. Given the time lag of the available data, these mainly refer to the periods up to 2021 or 2022. While the impacts of the COVID-19 pandemic are thus largely visible for most of the indicators, more recent developments such as those caused by Russia's military aggression against Ukraine are only partly reflected in the available data.

How has the EU progressed towards the SDGs?

This synopsis chapter provides a statistical overview of progress towards the SDGs in the EU. Because a long-term assessment is not possible for a number of indicators due to limited data availability, the progress at goal-level presented in this chapter is assessed over the most recent five-year period ('short-term') based on the EU SDG indicators. The figure on the next page shows the pace at which the EU has progressed towards each of the 17 goals over this short-term period according to the selected indicators. The method for assessing indicator trends and aggregating them at the goal-level is explained in Annex I.

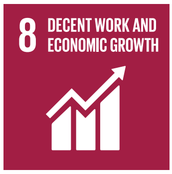
Over the five-year period assessed, the EU has made significant progress towards ensuring decent work and economic growth (SDG 8) and reducing poverty (SDG 1), as well as towards improving gender equality (SDG 5). Good progress has also been achieved towards reducing inequalities (SDG 10), ensuring quality education (SDG 4) and fostering peace and personal security within the EU's territory and improving access to justice and trust in institutions (SDG 16). The EU has also seen good progress towards the goals on health and well-being (SDG 3), despite setbacks caused by the COVID-19 pandemic, and on innovation and infrastructure (SDG 9).

Progress towards the remaining goals was less significant, as shown in the figure on the next page. Overall, the goal-level assessment in this year's SDG monitoring report shows that the EU has progressed strongly towards many socio-economic goals over the most recent five-year period of available data, while trends in the environmental domain have been less favourable.

More progress is expected for three goals — climate action (SDG 13), life on land (SDG 15) and global partnerships (SDG 17). Regarding climate action (SDG 13), the EU has set ambitious and unparalleled climate targets for 2030, which, as compared with past trends, will require more efforts. The EU has already put in place the policy measures to deliver these additional efforts, notably via the 'Fit for 55' package. In the area of energy, the EU has also set more ambitious targets for 2030 [2]. This implies that stronger progress is expected to be visible in the coming years in the area of energy efficiency and renewable energies in the EU. Concerning life on land (SDG 15), even though terrestrial protected areas have increased since 2013, additional efforts are needed to reverse the degradation of ecosystems. Regarding partnerships for the goals (SDG 17), the trend partially reflects cyclical effects, notably the increase in public debt resulting from the COVID-19 crisis.

For each of the goals, the following section provides a brief overview of the main indicator trends standing behind the goal-level assessment. The goals are presented in order of aggregated indicator trend assessments, from best to worst.

Summary at goal level



SDG 8 'Decent work and economic growth' shows continued signs of recovery after the pandemic's impact on the economy and the labour market, with further progress in 2022 despite the impacts of Russia's military aggression against Ukraine. After the economic recovery in 2021, GDP per capita continued to grow strongly in 2022, by 3.3 %, and investment reached a new peak of 23.2 % of GDP in that year. This favourable development is also reflected in the labour market, with the EU's employment rate reaching a new record high of 74.6 % in 2022. Similarly, both the EU's long-term unemployment rate and the share of young people neither in employment nor in education and training (NEET) fell to new record lows in 2022. The EU thus seems well on track to meeting its respective 2030 targets for employment and NEET rates. In the area of decent work, both the incidence of fatal work accidents and the share of 'working poor' have seen clearly favourable developments in the time period assessed. The EU's material footprint, however, had been rising until 2019, and most recent data still only reflect the reduced economic activity in 2020. Data on domestic material consumption suggest resource use had risen to almost pre-pandemic levels in 2021 alongside the economic recovery.

The EU's situation regarding **SDG 1 'No poverty'** is characterised by considerable improvements in all poverty dimensions monitored in this report as well as an increasing share of people being able to meet their basic needs. Most of these improvements took place in the period up to 2019, while poverty rates have remained rather stable in 2020 and 2021 [3]. In the area of multidimensional poverty, trends in the five-year period assessed show that fewer people were affected by monetary poverty, suffered from severe material and social deprivation or lived in (quasi-)jobless households. This resulted in a marked improvement concerning the overall risk of poverty or social exclusion across the EU, even

Overview of EU progress towards the SDGs over the past 5 years, 2023
(Data mainly refer to 2016–2021 or 2017–2022)

though stronger progress will be necessary to meet the target of lifting at least 15 million people out of poverty or social exclusion by 2030. In the area of basic needs, the share of people overburdened by their housing costs or facing severe housing deprivation has fallen since 2015. Additionally, the proportion of people reporting unmet needs for medical care was lower in 2021 than five years earlier, even though the rate has risen slightly since 2017.

SDG 5 'Gender equality' shows a quite favourable picture in most of the areas monitored. Regarding employment, women's hourly earnings are catching up with those of men, and the gap between men and women who are outside the labour force due to caring responsibilities has narrowed since 2017. Similarly, the gender employment gap has narrowed since 2017, even though stronger progress will be necessary for the EU to meet its target of halving this gap by 2030. Women also continue to increasingly occupy leadership positions, as shown by considerable growth in both the shares of women in national parliaments and in senior management positions of the largest listed companies. Despite these improvements, however, the gender situation remains far from parity in both areas. In the area of education, the gender gap is reversed, with more young women than men attaining secondary and tertiary education. While this gap has slightly narrowed since 2017 for early school leaving, men continue to fall further behind women in terms of tertiary educational attainment.

Developments in the area of **SDG 10 'Reduced inequalities'** reveal a quite favourable picture over the most recent five-year period of available data. Income inequalities within countries improved between 2016 and 2021, as shown by the narrowing of the income gaps between the richer and the poorer population groups. Similarly, the depth of poverty [4] reduced, and the poverty gap between rural and urban areas narrowed in the EU. Data on economic disparities between EU countries also paint a favourable picture, showing a continued convergence of Member States in terms of GDP per capita and household income, even though the trend for GDP per capita was temporarily interrupted by the repercussions of the COVID-19 pandemic. The labour market integration of migrants from outside the EU largely improved alongside the economic recovery in 2021 and 2022. The gap between non-EU citizens and EU home-country nationals has narrowed for monetary poverty (compared with 2016) as well as for the employment rate and for young people neither in employment nor in education and training (NEET), while it has slightly widened for the rate of early school leavers (all compared with 2017).

SDG 4 'Quality education' is characterised by mostly favourable developments over the five-year period assessed. Regarding participation in education, the EU is well on track to meet its 2030 targets for early leavers from education and training and tertiary educational attainment. Adult learning has also increased since 2017, showing particularly strong growth in 2022. However, the share of children participating in early childhood education has grown slowly in the EU since 2015, and stronger progress will be necessary in the coming years to meet the respective 2030 target. Moreover, trends have been quite unfavourable for educational outcomes. The proportion of low achieving pupils in reading, maths and science as measured in the OECD's PISA study increased between 2015 and 2018, moving the EU further away from its target of reducing these shares to 15 % by 2030. In addition, the share of adults with at least basic digital skills stood below 55 % in 2021 and thus remains far from the target of raising this share to 80 % by 2030.

The EU has continued to make good progress towards **SDG 16 'Peace, justice and strong institutions'**, even though some subjective measures of citizens' perceptions regarding the EU's and Member States' institutions have shown recent signs of deterioration. 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 fallen considerably. Furthermore, government expenditure on law courts has increased. However, the perceived independence of justice systems in Member States deteriorated slightly in 2022. Additionally, the EU's rating in the Corruption Perceptions Index has been stagnating, even though EU countries continue to rank among the least-corrupt globally. Citizens' confidence in the European Parliament and the European Commission has somewhat deteriorated compared with pre-pandemic levels, while the European Central Bank has slightly gained in trust.

The assessment of **SDG 3 'Good health and well-being'** is affected by the impacts of the COVID-19 pandemic. While the EU's healthy life expectancy was on the rise until 2019, it declined by 0.6 years in 2020, down to 64.0 years. People's self-perceived health also slightly declined in 2021, but remained above pre-pandemic levels. The pandemic's strongest impact is visible in the EU's avoidable mortality rate, which increased considerably in 2020 due to COVID-19 related deaths. Road traffic deaths have also risen in 2021 after the lockdown-induced reduction in mobility patterns, and stronger progress will be necessary for the EU to meet its respective 2030 target. The other causes of mortality monitored in this report — deaths due to HIV, tuberculosis and hepatitis, fatal work accidents and premature deaths due to exposure to fine particulate matter — have not (or to a lesser extent) been affected by the pandemic and continue to show favourable developments. The same is true for most of the health determinants monitored. The share of people suffering from noise disturbance has fallen slightly in recent years, as has the share of smokers. In contrast, the share of obese and overweight people has been growing in the EU. Trends in access to health care are still favourable, even though the share of people reporting unmet needs for medical care has increased slightly since 2017.

SDG 9 'Industry, innovation and infrastructure' is characterised by favourable trends in most of its indicators, with the main exception of the area of sustainable transport. As regards R&D and innovation, the EU has seen continued but slow growth in its R&D expenditure (both in absolute terms and in relation to GDP), and stronger efforts will be necessary for the EU to meet its respective 2030 target of dedicating 3 % of its GDP to R&D. The remaining indicators on patent applications to the European Patent Office, the share of R&D personnel in the labour force and the share of young people with tertiary education have improved considerably in recent years. As regards the sustainability transformation of the EU's industrial sector, the air emissions intensity of the manufacturing sector — referring to the sector's fine particulate matter emissions relative to its gross value added (GVA) — has improved, and the GVA of the environmental goods and services sector has continued to grow more strongly than the total economy. Developments are mixed in the area of sustainable infrastructure. While both passenger and freight transport have shifted further away from environmentally friendly modes such as buses, trains or inland waterways, the share of households enjoying high-speed internet connections has grown considerably since 2016.

Trends concerning **SDG 12 'Responsible consumption and production'** have been somewhat mixed over the past few years. The EU's material footprint, which estimates the demand for the global extraction of materials induced by the consumption of goods and services within the EU, had been on the rise until 2019, but fell temporarily in 2020 alongside the reduced economic activity caused by the pandemic. Data on domestic material consumption suggest resource use rose to almost pre-pandemic levels in 2021 following the economic recovery. Similarly, and despite a slight drop in 2020, consumption of hazardous chemicals has grown since 2016. While the average carbon dioxide (CO_2) emissions efficiency of new passenger cars had shown considerable improvement until 2020, a methodological change in the testing procedure prevents a comparison with the most recent data for 2021 ([5]). Trends in waste generation and management are also mixed. Similar to the material footprint, total waste generation had been on the rise in the EU until 2018 but fell in 2020, likely as a result of lower economic activity. The EU's circular material use rate has stagnated below 12 % over the past few years, meaning the EU is currently not on track to doubling this rate by 2030 relative to 2019. On a positive note, the environmental goods and services sector has continued to outperform other economic sectors in terms of growth in gross value added, and has continued its growing trend even in 2020, the first year of the pandemic in Europe.

The indicators used for monitoring **SDG 11 'Sustainable cities and communities'** show largely favourable developments concerning the quality of life in cities and communities, whereas the picture is more mixed as regards sustainable mobility and environmental impacts. Trends for severe housing deprivation, premature deaths due to exposure to fine particulate matter as well as the occurrence of crime, violence and vandalism in the neighbourhood have been clearly favourable over the past few years. Additionally, the perceived exposure to noise has slightly decreased. In the area of sustainable mobility, trends have been impacted by changes in mobility patterns due to the COVID-19 pandemic. Road traffic deaths increased in 2021 after reaching a lockdown-induced low in 2020, but remained below pre-pandemic levels. Yet, stronger efforts will be necessary for the EU to meet its respective 2030 target. Additionally, public passenger transport modes (buses and trains) had already been losing shares to cars before the pandemic, and 2020 saw a further strong drop as a result of changed mobility habits due to COVID-19 and related restrictions. 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. Additionally, the increase in the EU's recycling rate of municipal waste has slowed in recent years, putting the EU off track to meeting its respective target by 2030.

The EU has made only moderate progress towards **SDG 14 'Life below water'**, due to quite divergent developments in the areas monitored. Trends in marine conservation and sustainable fisheries are generally favourable. The extent of marine protected areas has grown considerably since 2012, and the EU thus appears on track towards meeting the target of 30 % of marine waters being under protection by 2030. However, it needs to be acknowledged that the available data do not provide an indication of the sites' conservation status nor the effectiveness of the protection they offer to species and habitats. Model-based indicators on sustainable fisheries provide an improving picture as regards the trends of fish stock biomass and fishing pressure in EU marine waters, referring to both the North-East Atlantic and the Mediterranean and Black Sea (although the situation in the latter remains less favourable). Trends in the area of ocean health are, however, less positive. Due to the absorption of CO_2 into the world's oceans, the mean surface seawater acidity is continuing to increase, and in 2021 reached another unprecedented high over pre-industrial levels. Moreover, the share of EU marine waters affected by eutrophication has risen strongly in recent years. On a more positive note, the share of coastal bathing sites with excellent water quality has increased slightly in the EU Member States since 2016.

Monitoring **SDG 2 'Zero hunger'** in an EU context focuses on malnutrition, the sustainability of agricultural production and its environmental impacts. Trends in the area of malnutrition remain unfavourable, with a clear increase in the share of obese people in the EU since 2014. In contrast, trends concerning the viability and sustainability of agricultural production have been favourable over the past five years. The labour productivity of the EU's agricultural sector has improved and public investments in agricultural R&D have increased. In addition, the area under organic farming has grown steadily, although stronger progress will be required to meet the target for 25 % of the EU's total farmland to be farmed organically by 2030.

However, some adverse impacts of agricultural production remain visible in the EU, most notably the continued and dramatic decline of common farmland birds. On a more positive note, the EU land area at risk of severe soil erosion by water has decreased slightly, as have the ammonia emissions from agriculture. Additionally, nitrate concentrations in EU groundwater bodies have shown a slight decreasing trend since 2015.

Available data for **SDG 6 'Clean water and sanitation'** paint a rather mixed picture for the EU. On the positive side, the share of people without appropriate sanitation facilities in their households has been steadily decreasing in the EU, and connectivity to at least secondary waste water treatment has been improving slowly. However, trends regarding water quality are less favourable in the EU. While the biochemical oxygen demand in rivers and the nitrate concentrations in European groundwater bodies have decreased since 2015, phosphate concentrations in rivers have risen more or less continuously since 2013. Additionally, the share of inland bathing sites with excellent water quality has been falling in the EU Member States since 2017. Trends in water scarcity are also somewhat unfavourable, with the EU's water exploitation index showing a slightly increasing trend in recent years.

The goal-level assessment of **SDG 7 'Affordable and clean energy'** is influenced by two main factors. Firstly, energy consumption in the EU has increased in 2021 alongside the economic recovery, after reaching a historic low in the pandemic year 2020. Secondly, the recent agreements between the Council and the Parliament on more ambitious energy targets for 2030 ([6]) mean that much stronger progress will be required in the coming years in the areas of energy efficiency and renewable energies than the one observed in the period assessed in this report (2016 to 2021). In 2021, both primary and final energy consumption increased from their 2020 low, even though consumption remained below pre-pandemic levels. Similarly, final energy consumption in households rose strongly in 2021. The increased energy demand pushed down energy productivity and the share of renewables in 2021, even though the trends since 2016 remain positive in both areas. Additionally, the EU has been able to reduce its energy import dependency since 2019, especially for natural gas and solid fossil fuels. Furthermore, access to affordable energy has kept improving in the EU, with ever fewer people being unable to afford keeping their home adequately warm. However, it is important to note that the strong increase in energy prices observed in 2022 is not yet reflected in these data.

The overall assessment of progress towards **SDG 13 'Climate action'** is characterised by slightly more negative than positive trends in the selected indicators. While according to provisional estimates for 2021, the EU has already reduced its net greenhouse gas emissions by about 30 % since 1990 ([7]), stronger progress will be required to meet the ambitious 55 % reduction target for 2030. Respective additional measures are already part of the Fit for 55 package. It is important to note that this assessment does not take into account further developments such as the pathways and planned measures outlined in the National Energy and Climate Plans (NECPs) of the Member States. Additionally, the carbon removals achieved by the land use and forestry sector (LULUCF) that contribute to the overall net GHG emissions have declined in recent years. Moreover, the share of renewable energy would need to rise much more strongly than it did during the period assessed (2016 to 2021) for the EU to meet its new, more ambitious 2030 target. While the average CO_2 emissions efficiency of new passenger cars had shown considerable improvement up to 2020, a methodological change in the testing procedure prevents comparison with the most recent data for 2021 ([8]). Concerning climate impacts and adaptation, the monetary losses from weather- and climate-related disasters rose sharply in 2021. On a positive note, the number of signatories to the Covenant of Mayors for Climate and Energy continues to grow, even though the trend stalled in 2022 compared with 2021. Moreover, the EU's contribution to climate finance for developing countries has increased almost continuously over the past few years.

The indicators selected for **SDG 15 'Life on land'** show some slight improvements combined with a few clearly negative developments that result in an overall slightly negative goal-level assessment. While the EU's forest area has increased, pollutant concentrations in European rivers have shown mixed trends, with improvements in the biological oxygen demand occurring alongside increases in phosphate concentrations. Regarding land degradation, pressures from land take, including soil sealing by impervious materials, have continued to intensify, while the EU land area at risk of severe soil erosion by water has shrunk slightly since 2010. Even though terrestrial protected areas have increased across Member States since 2013, the EU continues to face dramatic long-term declines in common bird and grassland butterfly populations. The overall assessment of SDG 15 in this report thus confirms the results of other stocktaking reports and evaluations, which conclude that the conservation status of ecosystems and biodiversity in the EU is unfavourable, and that the negative impacts of EU life-style patterns on (global) biodiversity are considerable [9].

The overall assessment of EU developments regarding **SDG 17 'Partnerships for the goals'** is moderately negative. Favourable developments are only visible in two areas. EU imports from developing countries grew strongly in 2021 and 2022 after the interruption to trade flows by the COVID-19 pandemic, and the share of households enjoying high-speed internet connections has increased sharply since 2018. Developments in the remaining indicators have been moderately or clearly unfavourable. Overall EU financing to developing countries has fallen strongly since 2016, and the EU's ratio of official development assistance (ODA) to gross national income (GNI) has not progressed towards the 0.7 % target set for 2030. Concerning financial governance within the EU, even though the EU's overall debt-to-GDP ratio has fallen after reaching a record high in 2020 as a consequence of the COVID-19 crisis and related public spending, it remained above pre-pandemic levels in 2022. Moreover, the already low share of environmental taxes in total tax revenues declined even further and reached a new low in 2021.

Summary of short-term impacts

Previous editions of the EU SDG monitoring report have shown that already before the COVID-19 crisis, progress towards the SDGs in the EU was uneven, with some areas requiring more attention and action. In the midst of the recovery from the pandemic, the EU was hit by the consequences of Russia's military aggression against Ukraine starting in early 2022. While the impacts of COVID-19 are now visible in most of the annual data used in the thematic chapters in this report, a dedicated section at the beginning of this report (see page 31) makes use of short-term (monthly and quarterly) data to show the more recent impacts of Russia's war of aggression through 2022 and early 2023.

The EU's response to the Russian invasion included humanitarian support by providing temporary protection to those fleeing Ukraine, financial support to Ukraine, and putting in place economic sanctions on the Russian government, companies and individuals. The majority of Europeans consider the EU's overall response to be satisfactory [10], even though the consequences of the Russian invasion are already clearly visible in the EU. Available short-term statistics show a considerable decline in Russia's share of EU energy imports alongside a reduction in the EU's overall demand for natural gas. Nevertheless, despite the EU's efforts to diversify its energy sources and reduce its dependence on Russia, the EU economy has seen a price hike for energy that has been influencing prices for housing and increasingly food products. As the Russian invasion continues even one year after it began, the long-term effects on the EU's economic and social fabric remain to be seen. With more data becoming available, future SDG monitoring reports might present a more detailed and nuanced picture on the consequences of Russia's military aggression against Ukraine.

Notes

([1]) See the introduction on page 19 for a more detailed overview of the EU policy context related to the SDGs. The relevant EU policies for a specific SDG are presented in the 'policy context' sections at the beginning of the respective thematic chapters.

([2]) The assessment in this report is based the (provisional) agreements reached by the Council and the Parliament in March 2023 regarding the energy efficiency directive (to reduce final energy consumption at EU level by 11.7 % in 2030) and the renewable energy directive (to raise the share of renewable energy in the EU's overall energy consumption to 42.5 % by 2030).

([3]) It needs to be noted that the trend assessment might be affected by a methodological change in the collection of data for the statistics on income and living conditions (EU-SILC) in 2020 in several countries, in particular Germany and France. Also, it needs to be noted that data on people's income collected in 2021 refer to the year 2020, and therefore to the situation at the onset of the COVID-19 pandemic in Europe.

([4]) The relative median at-risk-of-poverty gap (also referred to as depth of poverty) helps to quantify how poor the poor are and measures the distance between the median income of people living below the poverty threshold and the threshold itself.

([5]) Between 2007 and 2020, data on the average CO_2 emissions per km from new passenger cars were collected based on the NEDC (New European Driving Cycle) procedure. In 2021, the data collection was for the first time based on the WLTP (World Harmonised Light-vehicle Test Procedure) procedure. Compared with the former NEDC procedure, this leads to higher emission values, which are more representative of the emissions of the vehicles when used on the road.

([6]) The assessment in this report is based the (provisional) agreements reached by the Council and the Parliament in March 2023 regarding the energy efficiency directive (to reduce final energy consumption at EU level by 11.7 % in 2030) and the renewable energy directive (to raise the share of renewable energy in the EU's overall energy consumption to 42.5 % by 2030).

([7]) 2021 data for greenhouse gas (GHG) emissions presented in this report have been calculated based on the approximated estimates for GHG emissions published by the European Environment Agency: EEA (2022), *Approximated estimates for Greenhouse Gas emissions*. The data presented here cover GHG emissions produced inside the EU territory and do not take into account those that occurred outside the EU as a result of EU consumption.

([8]) Between 2007 and 2020, data on the average CO_2 emissions per km from new passenger cars were collected based on the NEDC (New European Driving Cycle) procedure. In 2021, the data collection was for the first time based on the WLTP (World Harmonised Light-vehicle Test Procedure) procedure. Compared to the former NEDC procedure, this leads to higher emission values, which are more representative of the emissions of the vehicles when used on the road.

([9]) See, for example, European Environmental Agency (2020), *State of nature in the EU. Results from reporting under the nature directives 2013–2018*; Maes, J., Teller, A., Erhard, M., Conde, S., Vallecillo Rodriguez, S., Barredo Cano, J.I., Paracchini, M., Malak, D.A., Trombetti, M., Vigiak, O., Zulian, G., Addamo, A., Grizzetti, B., Somma, F., Hagyo, A., Vogt, P., Polce, C., Jones, A., Carré, A. and Hauser, R. (2021), *EU Ecosystem Assessment*; and Díaz et al. (2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on biodiversity and Ecosystem Services*.

([10]) European Parliament (2023), *Standard Eurobarometer 98 — Winter 2022–023: The EU's response to the war in Ukraine*.

Introduction

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 a mainstream part of key projects, sectorial 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 to achieve sustainable development. The EU and its Member States are committed to this historic global framework agreement and to playing an active role in maximising 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, making all Commission work streams, policies and strategies conducive to achieving the SDGs. Key elements of the Commission's 'whole of government' approach for delivering on the 2030 Agenda include the design of deeply transformative policies such as the 'European Green Deal' and the integration of the SDGs into the European Semester. 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. The Commission's overall approach to implementing the SDGs is described in the staff working document (SWD) 'Delivering on the UN's Sustainable Development Goals — A comprehensive approach'.

Eurostat supports this approach through regular monitoring and reporting on progress towards the SDGs in an EU context. This publication is the seventh 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, 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-related policies at both EU and Member State levels. As part of this process, it promotes the ongoing assessment and monitoring of progress on implementing the SDGs, and helps to highlight their cross-cutting nature and the links between them.

This 2023 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 EU level (see the following pages in this chapter). The detailed monitoring results are presented in 17 chapters, one for each of the 17 SDGs. This is preceded by an analysis of how the recent crises, such as the COVID-19 pandemic and Russia's invasion of Ukraine, have influenced the EU on its way towards achieving the SDGs, followed by an analysis of spillover effects. The report closes with a 'country overviews' chapter on status and progress of EU Member States towards the SDGs. The Annexes contain notes on methods and sources.

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'. This is the definition of sustainable development that was first introduced in the Brundtland report by the World Commission on Environment and Development (WCED) in 1987, and it is the one most widely used nowadays. Following the Brundtland report were several important milestones in the international pursuit of sustainable development: 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 and the UN Conference on Sustainable Development (Rio+20) in 2012. Together, they paved the way for the 2030 Agenda.

In September 2015, the UN General Assembly (UNGA) adopted the 'Transforming our world: the 2030 Agenda for Sustainable Development' document. The 2030 Agenda is the current global sustainable development agenda. At the core of the 2030 Agenda is a list of 17 SDGs (see Figure I.1) 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 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 achieving the 17 goals.

Monitoring of the SDGs takes place at various levels: global, regional, national, local and thematic. The UN High-Level Political Forum (HLPF) is the UN's central platform for following up and reviewing 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 ([2]). Regular reviews by the HLPF are voluntary, state-led and undertaken by both developed and developing countries. In July 2023, the European Commission will present its first voluntary review, reflecting on the collective effort of the EU and its Member States regarding implementation of the SDGs. This will be the first time a voluntary review will be presented not by a country but by a supranational union, such as the EU.

In order to follow up and review the goals and targets, a set of global indicators was designed

Figure I.1: The UN Sustainable Development Goals

by an Inter-Agency and Expert Group (IAEG-SDGs) under the supervision of the UN Statistical Commission ([3]). In July 2017, the UNGA adopted a global SDG indicator list, including 232 indicators. A comprehensive review of the indicator framework in early 2020 resulted in the approval of 36 major changes to the global SDG indicator list, including additions and deletions. Therefore, the revised global indicator framework now consists of 231 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.

The global indicator framework used 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, for Africa and for Latin America and the Caribbean. 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. The UNECE also published a first edition of a Roadmap on Statistics for Sustainable Development Goals in July 2017 and a second edition in February 2022. The latest roadmap aims to provide guidance to members of national statistical systems and other stakeholders on how to best navigate the complex task of measuring the achievement of the 2030 Agenda's goals and targets. The roadmap covers different aspects such as national coordination, reporting on global SDG indicators, tracking progress at various levels, quality assurance, leave no one behind, communication, Voluntary National Reviews and capacity development. The EU SDG indicator set is in line with the UNECE roadmaps.

Sustainable development in the European Union

Sustainable development is not only a core principle for the European Union but also an overriding political priority for the von der Leyen Commission, which is reflected in the six headline ambitions for Europe announced in the Political Guidelines (see Figure I.2) and the investment priority areas of the Global Gateway strategy. 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 has set out a 'whole-of-government approach' towards implementing the SDGs (see Figure I.3).

Several major policy documents have shaped the EU's approach to implementing the SDGs. A communication from 2016 'Next steps for a sustainable European future: European action for sustainability' announced the integration of the SDGs into the European policy framework. As a

Figure I.2: The European Commission Priorities

Figure I.3: The Commission's 'Whole-of-Government approach' to implementing the Sustainable Development Goals

consequence, the EU has been monitoring the implementation of the SDGs since 2017 via annual SDG monitoring reports. In addition, a reflection paper 'Towards a Sustainable Europe by 2030' from 2019 highlighted the complex challenges the EU is facing and identified the competitive advantages that implementing the SDGs would offer the EU. Since late 2019, the von der Leyen Commission has presented many transformative policies aimed at delivering on the many aspects of sustainability in the EU and beyond. The EU's approach to implementing the 2030 Agenda is briefly summarised below and described in detail in a staff working document (SWD) 'Delivering on the UN's Sustainable Development Goals — A comprehensive approach'. For a complete overview of the European Commission's activities related to SDG implementation, see the Commission's website on the EU's holistic approach to sustainable development.

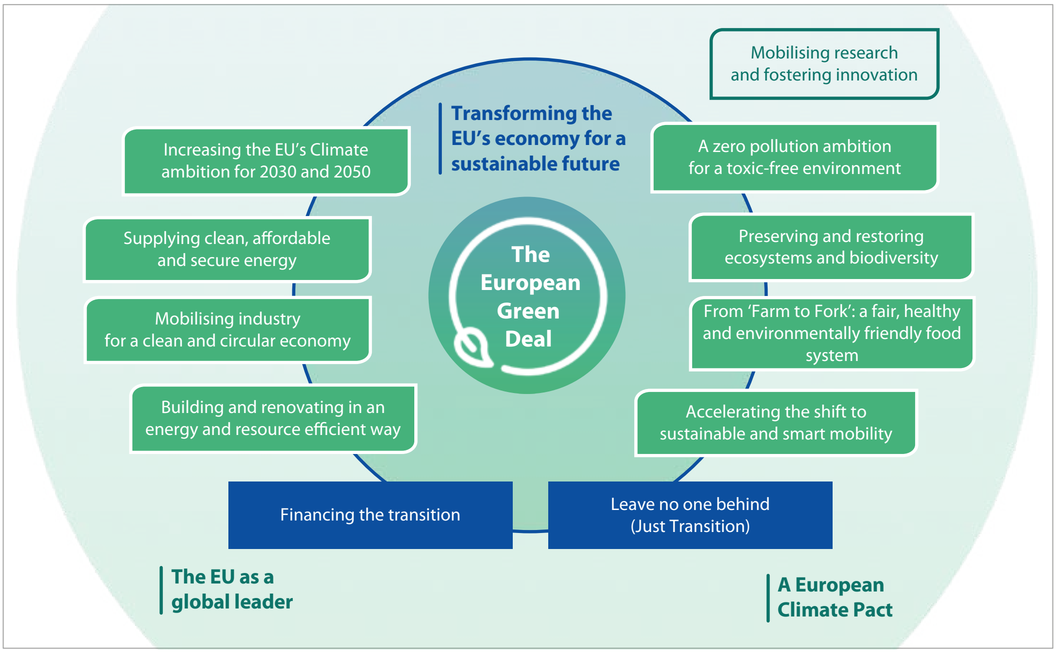
The European Green Deal, adopted in December 2019, is the EU's new growth strategy and aims to transform the Union into a climate neutral society while leaving no one behind (see Figure I.4). It aims to create a modern, resource-efficient, competitive and fair economy where there are no net emissions 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 to protect the health and well-being of citizens from environment-related risks and impacts. It is also an integral part of the Commission's strategy to implement the 2030 Agenda and the SDGs.

In March 2020, a new Circular Economy Action Plan was adopted by the European Commission, introducing measures along the entire life cycle of products. The new Plan focuses on design and production for a circular economy, with the aim of ensuring that the resources used are kept in the EU economy for as long as possible.

The EU Bioeconomy Strategy provides a cross-cutting framework to enable transformative innovations with regards to the use of biological resources, and to ensure that the supply of biomass for food and bio-based products fully respects the finite planetary boundaries. A sustainable circular bioeconomy contributes to the European Green Deal objectives, by mitigating against climate change through renewable products and energy, substituting fossil fuels and other carbon-intensive materials, and contributing to carbon storage in products and ecosystems.

In May 2020, another important initiative that lies at the heart of the European Green Deal

Figure I.4: The European Green Deal



was adopted — the Farm to Fork Strategy. The strategy aims to make food systems in the EU fair, healthy and environmentally friendly by ensuring sustainable food production, processing, distribution and consumption, and by minimising food loss.

The EU Biodiversity strategy for 2030, also adopted in May 2020 as a part of the Green Deal, aims to put Europe's biodiversity on a path to recovery by 2030, and contains specific actions and commitments, such as establishing a large EU-wide network of protected areas on land and at sea, launching an EU nature-restoration plan and introducing measures to tackle the global biodiversity challenge.

The 2030 Climate Target Plan from September 2020 envisions reductions in greenhouse gas emissions to at least 55 % below their 1990 level by 2030 and sets Europe on a responsible path to becoming climate-neutral by 2050. This ambition was legally enshrined in July 2021 with the adoption of the European Climate Law. Under the heading of 'Delivering the European Green Deal', the Commission put forward several legislative proposals, actions and targets for making Europe the first climate-neutral continent. These relate to the necessary transformation of our economies and societies, sustainable transport, clean energy, renovation of buildings, enhancing natural carbon sinks, and boosting global climate action. The Council Recommendation on ensuring a fair transition towards climate neutrality aims to ensure that the Union's transition towards a climate-neutral and environmentally sustainable economy by 2050 is fair and leaves nobody behind. It sets out specific guidance to help Member States devise and implement policy packages to address the employment and social aspects for promoting a fair transition across all policies, notably climate, energy and environmental policies, as well as for making optimal use of public and private funding.

The Sustainable and Smart Mobility Strategy, adopted in December 2020, lays the foundation for how the EU transport system can achieve its green and digital transformation and become more resilient to future crises.

The Chemicals Strategy for Sustainability published in October 2020 is part of the EU's zero pollution

Figure I.5: Global Gateway and its key areas of partnership

ambition. The Zero Pollution Action Plan released in May 2021 calls for air, water and soil pollution to be reduced to levels no longer considered harmful to health and natural ecosystems, respecting the boundaries within which the planet can cope, thereby creating a toxic-free environment.

The European Pillar of Social Rights Action Plan outlines concrete actions to further implement the 20 principles of the European Pillar of Social Rights as a joint effort by the Members States and the EU, with the active involvement of social partners and civil society. The revised Social Scoreboard, which is also linked to the SDGs, was presented as part of the Action Plan to monitor progress towards the implementation of the Social Pillar principles within the European Semester. The Action Plan also proposes employment, skills and poverty reduction headline targets for the EU to achieve by 2030. The new 2030 headline targets are consistent with the UN Sustainable Development Goals and set the common ambition for a strong Social Europe.

Meanwhile, the 2021 update of the EU's new Industrial Strategy supports the twin transition to a green and digital economy. It seeks to ensure that the European industry leads the way in delivering the EU's goals for a green, inclusive and resilient future. The strategy aims to boost support for the renewable energy and climate transition, while reinforcing the EU's strategic autonomy. In early 2023, the Commission moreover launched a Green Deal Industrial Plan to enhance the competitiveness of the EU's net-zero industry and support the transition to climate neutrality. The plan aims to provide a more supportive environment for scaling up the manufacturing capacity of the net-zero technologies and products that are required to meet the EU's climate targets. The Communication 'Long-term competitiveness of the EU: looking beyond 2030' complements the Green Deal Industrial Plan with a long-term and comprehensive approach to the competitiveness of the EU.

Building on the European Green Deal, the 8th Environment Action Programme (EAP), adopted in March 2022, anchors the Member States' commitment to environmental and climate action until 2030, guided by a long-term vision to 2050 of well-being for all, while staying within the Earth's planetary boundaries. The 8th EAP has six priority objectives related to climate neutrality, climate adaptation, circular economy, zero pollution, protecting and restoring biodiversity, and reducing environmental and climate pressures related to production and consumption. In addition, the programme sets out an enabling framework and a monitoring framework to measure progress towards the required systemic change.

Over the past few years, the EU has adopted numerous other policies covering topics related to the SDGs. The European Consensus on Development, adopted in 2017, defines the EU's shared vision and action framework for development cooperation. Global Gateway is the EU's strategy to support its partner countries in boosting smart, clean and secure links in digital, energy and transport sectors, and to strengthen health, education and research systems. Global Gateway is fully aligned with the 2030 Agenda and the SDGs as well as the Paris Agreement, and brings together the EU, its Member States and their financial and development institutions as Team Europe.

The Team Europe approach was initially launched in early 2020, as a package to support partner countries in the fight against the COVID-19 pandemic and its consequences, and to ensure a coordinated and comprehensive response between the EU and its Member States. The approach has quickly become the backbone of Global Europe (the main financial tool for EU international cooperation from 2021 to 2027) and its programming. It notably includes the conception of Team Europe Initiatives, which are the flagships of the Team Europe approach. The European Democracy Action Plan was adopted the same year to empower citizens and build more resilient democracies across the EU.

Furthermore, EU cohesion policy, including the European Regional Development Fund (ERDF), the European Social Fund+ (ESF+), the Cohesion Fund and the Just Transition Fund (JTF), is also strongly aligned with the SDGs. It contributes to strengthening economic, social and territorial cohesion in the EU and correcting imbalances between countries and regions. It delivers on the Union's political priorities, especially the green and digital transitions.

The EU research and innovation programme Horizon Europe aims to support researchers and innovators to drive the systemic changes needed to ensure a green, healthy and resilient Europe.

In line with the Political Guidelines, the SDGs have also been progressively integrated into the European Semester. This year, the SDG monitoring report is for the second time published at the same time as the Spring Package. Moreover, each European Semester country report includes an annex discussing the country's status, compared to the EU average, and progress in each SDG. The publication of the Annual Sustainable Growth Survey (ASGS) 2023 in November 2022 launched the 2023 European Semester cycle. This ASGS outlines an economic policy agenda to mitigate the negative impacts of energy shocks in the short term and to keep up efforts to support sustainable and inclusive growth and increase resilience in the medium term, while maintaining flexibility to tackle new challenges.

The national Recovery and Resilience Plans (RRP) are structured around six thematic pillars to which they contribute, as mentioned in the Regulation on the Recovery and Resilience Facility: green transition; digital transformation; economic cohesion, productivity and competitiveness; social and territorial cohesion; health, economic, social and institutional resilience; and policies for the next generation. In doing so, they also cover the four dimensions of competitive sustainability outlined in the 2023 ASGS: (1) environmental sustainability, (2) productivity, (3) fairness and (4) macroeconomic stability. Each of these dimensions relate to a set of SDGs and therefore the reforms and investments in the RRPs are also expected to contribute to progress towards them. In the context of Europe's climate ambitions and of the digital transformation, all RRPs need to focus strongly on both reforms and investments supporting the green and digital transitions. Each plan must commit a minimum of 37 % of the allocated funds to climate action and 20 % to digital spending. The plans approved have gone even beyond this and, on average, dedicate around 40 % of resources to climate-related measures and more than 26 % to the digital transition.

Monitoring sustainable development in the EU

The European Commission is committed to monitoring progress towards the SDGs in the EU context. Since the adoption of the first EU SDG indicator set in May 2017, Eurostat has led the further development of the indicator framework in close cooperation with other Commission services, the European Environment Agency and Member State organisations in the European Statistical System (ESS), involving also Council Committees and Working Parties as well as the civil society.

The EU SDG indicator 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 to six main indicators. They have been selected to reflect the SDGs' broad objectives and ambitions. Out of 100 indicators, 33 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-eight of the current EU SDG indicators are aligned with the UN SDG indicators.

The UN indicators are selected for global level reporting for countries at all levels of development and are therefore not always relevant in an EU context. The EU SDG indicators have been selected to take into account their policy relevance from an EU perspective, availability, country coverage, data freshness and quality. They have strong links with EU policy initiatives, which means that preference is given to indicators which are also part of a high-level scoreboard of EU policies such as the Social Scoreboard for the European Pillar of Social Rights Action Plan or the Monitoring Framework for the 8th EAP. 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 many Commission services, European agencies such as the European Environment Agency (EEA), Member State institutions in the ESS, Council Committees and Working Parties as well as the civil society.

Based on the most recent EU SDG indicator set, the SDG monitoring reports also provide an assessment of trends vis-à-vis SDG-related EU objectives and targets, visualised by arrow symbols. The assessment method considers

Table I.1: 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
→	[Category not applicable]	No 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)	

whether an indicator has moved towards or away from the sustainable development objective, as well as the speed of this movement. Two different approaches are used for this assessment, depending on whether an explicit quantified and measurable target exists for the EU (or not). These two approaches are explained in detail in Annex I (see page 345). The assessment is usually done for the past 15- and 5-year periods of available data, providing an indication of whether a trend has been persistent or has shown a turnaround at a certain point in time. Table I.1 shows the symbols used for the progress assessment and explains their meaning for the two approaches (indicators with and without quantitative targets).

The trend assessments presented in the EU SDG monitoring reports are based on the indicators selected for the EU SDG indicator set and the applied methodology. Depending on the scope of the report and the applied methodology, the assessment can differ from other reports of the European Commission or the EEA, for example, when these assessments also take into account planned measures or projections instead of past trends only.

Notes

(1) Articles 3 (5) ad 21 (2) of the Treaty on European Union (TEU).
(2) 'Conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven' (paragraph 79) of 'Transforming our world: the 2030 Agenda for Sustainable Development'. The UN Department of Economic and Social Affairs (DESA) has established an online platform to compile inputs from countries participating in the national voluntary reviews of the annual session of the HLPF. See: https://sustainabledevelopment.un.org/hlpf
(3) The United Nations Statistical Commission, established in 1947, is the highest body of the global statistical system. It brings together the Chief Statisticians from member states from around the world. It is the highest decision-making body for international statistical activities, especially the setting of statistical standards, the development of concepts and methods and their implementation at the national and international level.

Analysis of EU short-term progress towards the SDGs in the face of multiple crises

Sustainable development warrants a strong foundation supported by peace and security. However, 2022 was marred by multiple crises that affect the 2030 Agenda and the SDGs, threatening the achievement of the global goals. More than a year after the beginning of the Russian war of aggression against Ukraine, the consequent ripples of social and economic disruptions are still felt throughout the world. The ongoing humanitarian crisis in Ukraine has led to a mass displacement of people now seeking refuge in the EU and other neighbouring countries, thereby directly impacting several SDGs. The war is perceived as a fundamental change in the lives of people, with 61 % of Europeans being confident that their life will not continue unchanged ([1]). Further, the complex economic ties with Russia and their disruption as a result of war and sanctions have reverberations across the EU and beyond. Sharp rises in food and energy prices, combined with other impacts of the Russian invasion, hinder the implementation of the 2030 Agenda. These impacts further exacerbate the ongoing crises of climate change and environmental destruction and make achieving the SDGs even more challenging.

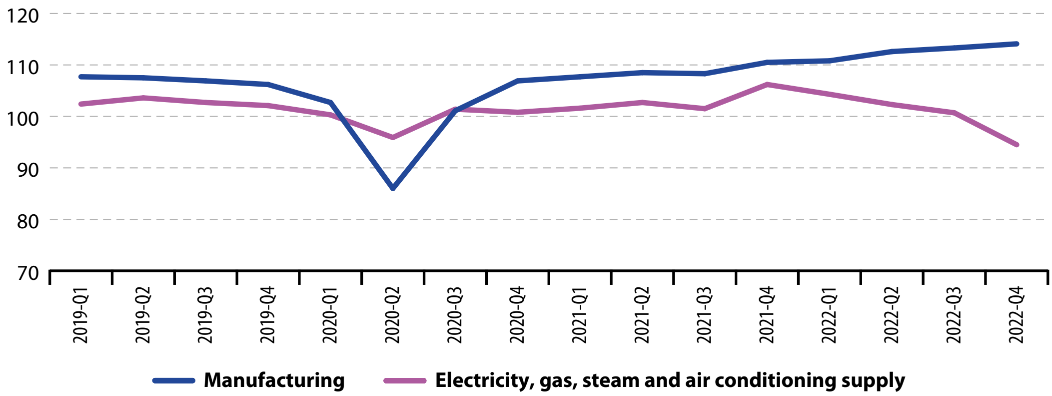
The analysis in this chapter is done in the context of SDG monitoring, using breakdowns of the EU SDG indicators and other short-term indicators, such as quarterly greenhouse gas emissions, for illustrating some short-term effects on the EU's progress towards the SDGs in the face of multiple crises, with a focus on the war in Ukraine. Many effects of the COVID-19 pandemic are discussed in the thematic SDG chapters of this report (see, for example, the chapters on SDG 3, SDG 7 and SDG 8).

While the EU economy has recovered after the COVID-19 pandemic, inflationary pressures have risen

The Russian invasion of Ukraine in February 2022 hit Europe at a time when it was just recovering from the economic disruptions caused by the COVID-19 pandemic. Previously, following the lockdown measures put in place by EU Member States to halt the spread of COVID-19, the EU's economy (SDG 8) experienced a considerable drop in real gross domestic product (GDP) per capita, by 5.7 % in 2020 compared with 2019. However, by 2021, many economic indicators had bounced back to almost pre-pandemic levels. Starting from the second quarter of 2021, GDP in the EU has increased continuously, resulting in an annual growth of real GDP per capita by 3.3 % in 2022 compared with 2021 ([2]).

While overall industrial production (in value added terms) (SDG 12) had fallen significantly in 2020 owing to the pandemic, it has since made a significant recovery and in 2022 exceeded pre-pandemic levels, leading to an annual increase of 3.0 % in 2022 compared with the previous year ([3]). However, this trend was largely driven by the manufacturing sector. In contrast, production (in value added terms) in electricity, gas, steam and air conditioning supply fell by 1.8 % in the first quarter of 2022 compared with the last quarter of 2021 and has since been gradually declining (see Figure II.1). In the fourth quarter of 2022, the production volume of this sector was around 11 % lower than in the last quarter of 2021 ([4]).

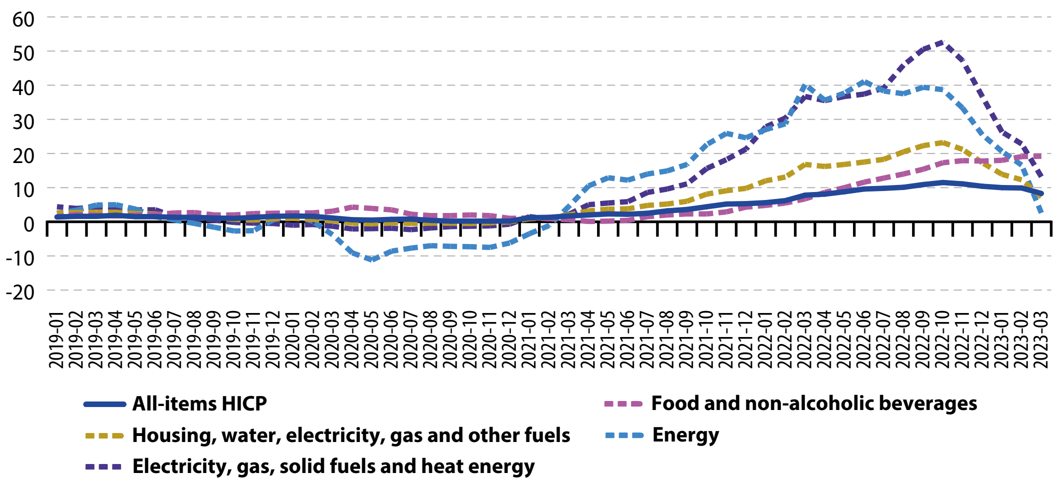
Figure II.1: Production in industry, EU, 2019–2022
(volume index of production, 2015 = 100)



Source: Eurostat (online data code: sts_inpr_q)

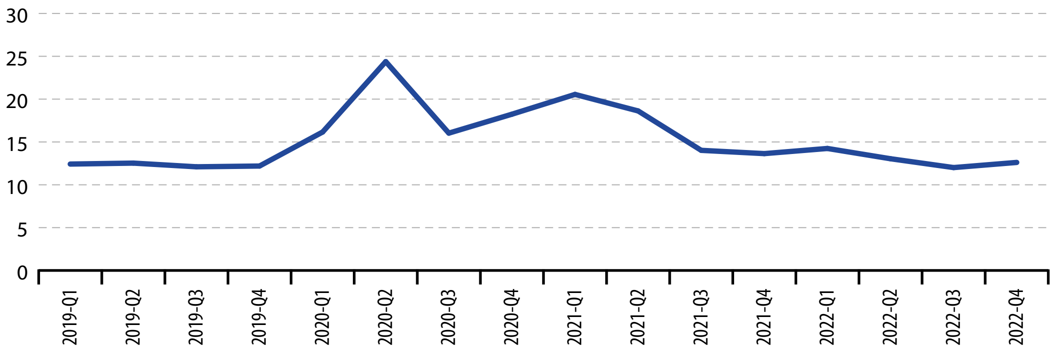
One of the most significant impacts of the recent crises is the rise in the EU's inflation rate since the start of 2021, reaching a peak of 11.5 % in October 2022 and affecting most goods and services. This increase in prices since 2021 can be attributed to a fast reopening of the economy after the pandemic and higher energy prices owing to lower oil and gas reserves from the previous year (5). The first quarter of 2022, which marked the beginning of Russia's military aggression towards Ukraine, exacerbated the price rise, particularly for electricity, gas, solid fuels and heat energy (SDG 7). The inflation rate continued to increase for all categories throughout 2022, peaking in October 2022, which marked the height of the energy crisis in the EU. In that month, consumer prices for electricity and gas were 52.6 % higher than in October 2021. However, this rate has fallen from October 2022 through March 2023, with values lower than at the start of 2022, but still significantly higher than pre-pandemic levels (6).

Figure II.2: Inflation rate (HICP), EU, 2019–2023
(annual rate of change in %)



Source: Eurostat (online data code: prc_hicp_manr)

Figure II.3: Gross household saving rate, EU, 2019–2022
(%)



Source: Eurostat (online data code: nasq_10_ki)

The inflation rate for the category of food and non-alcoholic beverages (SDG 2) has also been on the rise since 2021. However, unlike energy inflation, food price inflation has not shown a decline in recent months and continued to rise as of March 2023. Housing costs (SDG 1) followed the overall trend, showing an increase in 2021 and through most of 2022, with a decline towards the end of 2022 ([7]).

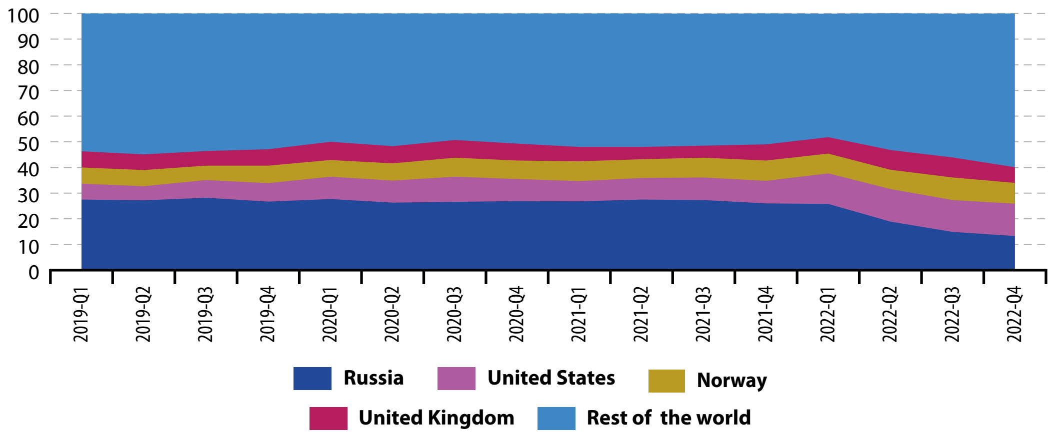
The economic disruptions brought about by the pandemic and Russia's invasion of Ukraine, which led to high energy prices and subsequent rise in the prices of goods and services, are also reflected in the evolution of the EU's gross household saving rate (see Figure II.3) (SDG 1). While the savings rate had remained stable at around 12.5 % in the year before the pandemic, it rose dramatically in the second quarter of 2020, reaching almost 25 %. Since 2021, however, the rate has shown a substantial decline, in parallel to the increase in the inflation rate described above. By the third and fourth quarters of 2022, the gross household saving rate had fallen back to the levels observed in 2019, at 12.0 % and 12.6 %, respectively ([8]).

The impact of rising prices on the standard of living are being felt by the public. According to the spring 2022 Eurobarometer survey, carried out by the European Parliament around the start of the Russian invasion, almost nine in ten Europeans have either already experienced a reduction in their standard of living (SDG 1) which they expect to continue (40 %), or expect such an impact to occur over the next year (47 %). Vulnerable socio-demographic groups in Europe were hit harder by the consequences of the invasion, including the elderly, citizens with lower formal education, those without employment, single parents, and those that otherwise have difficulties in making ends meet. In total, a majority of Europeans said they are not ready to face surging energy (58 %) or food prices (59 %). However, a similar majority of the Europeans surveyed (59 %) considered the defence of common European values such as freedom and democracy (SDG 16) to be more important than maintaining prices and the cost of living.

The EU's energy import dependency on Russia has fallen

Russia's invasion of Ukraine and the consequent sanctions have impacted the international trade in goods, both directly and indirectly, especially causing disruptions in the trade of oil, natural gas and coal (SDG 7). In 2021, the year before the invasion, more than half of the EU's energy demand was met by imports, with the import dependency being particularly high for oil and petroleum products (91.7 %) and natural gas (83.4 %) ([9]). For both energy carriers, Russia was the most important supplier in 2021, accounting for 28.4 % of extra-EU imports of oil and petroleum products and for 44.1 % of extra-EU imports of natural gas ([10]). Starting from the first and second quarters of 2022, however, the share of energy

Figure II.4: EU imports of energy products, by partner, 2019–2022
(% of extra-EU imports)



Source: Eurostat (online data code: ext_st_eu27_2020stic)

imports from Russia dropped significantly and continued to decline for the rest of the year. Between the first and the fourth quarters of 2022, the share of energy imports from Russia decreased from 25.8 % to 13.3 %. This relative reduction in dependence on Russia was substituted with increased imports from the United States, Norway and the United Kingdom, accounting for 12.6 %, 8.1 % and 6.1 % of the total energy imports in the fourth quarter of 2022, respectively ([11]).

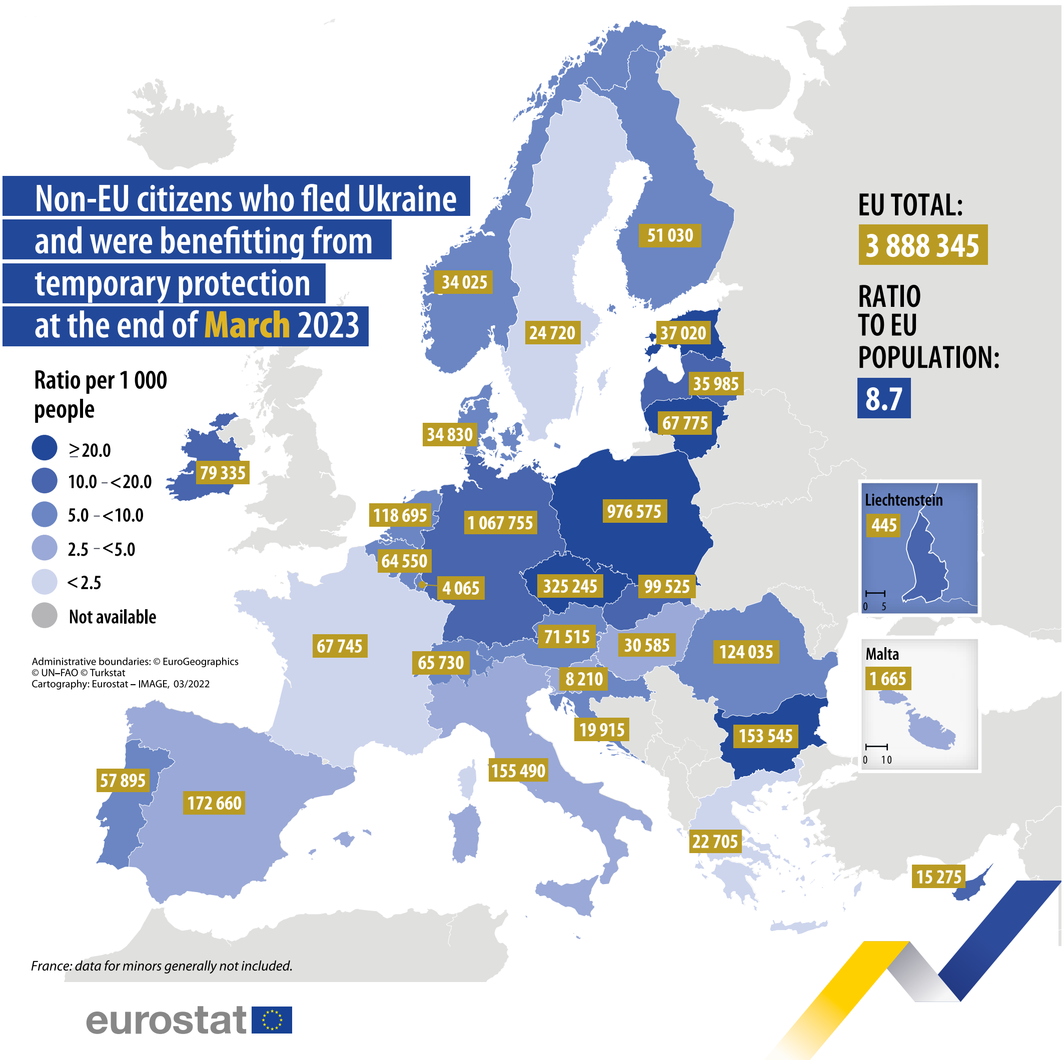
The gradual shift in trade partners away from Russia resulted in strong declines in the monetary value of Russia's share in extra-EU imports of natural gas, falling from 36 % in 2021 to 21 % in 2022 ([12]). The invasion also impacted EU's gas consumption, reducing it by 19.3 % in the period August 2022 to January 2023, compared with the average consumption for the same months between 2017 and 2022 ([13]).

At the start of 2022, Russia was also the largest supplier of crude oil to the EU, accounting for 31 % of imports, followed by the United States. The instability that came along with the Russian invasion was also reflected in the imports of crude oil from Russia, which first showed considerable fluctuations between February and April of 2022, followed by a significant decline from May 2022 onwards. In December 2022, crude oil imports from Russia were down to only 4 % of the total. This decline in imports from Russia was substituted with imports from the United States and Norway, amounting to 18 % and 17 % of the total imports of crude oil, respectively ([14]).

Temporary protection has been granted in the EU to those displaced by the Russian invasion of Ukraine

In addition to its effects on the economy and trade in energy, the Russian military aggression against Ukraine has left in its wake an influx of displaced people from the invasion (SDG 10) who have sought refuge in the EU and other neighbouring countries. Following the displacement caused, the Council Decision of March 2022 enabled non-EU citizens fleeing Ukraine to receive immediate and temporary protection. The Decision originally granted temporary protection for one year but this has now been extended until March 2024, with provisions made for further extension conditional on how the situation evolves ([15]).

Map II.1: Non-EU citizens who fled Ukraine and benefitted from temporary protection at the end of March 2023
(total number and number per 1 000 inhabitants)



Source: Eurostat (online data codes: migr_asytpsm and demo_gind)

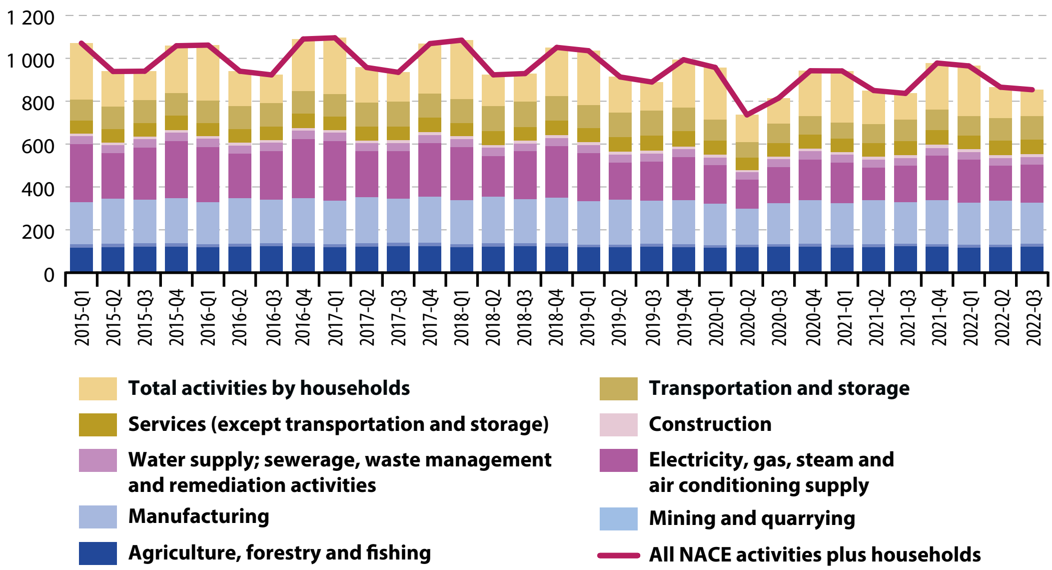
At the end of March 2023, about 3.9 million displaced people from Ukraine were beneficiaries of this temporary protection in the EU. Germany, Poland and Czechia hosted the highest absolute number of beneficiaries, providing temporary protection for around 61 % of all beneficiaries in the EU. Czechia, Estonia, Poland, Lithuania and Bulgaria provided the highest temporary protections relative to their populations. After the first half of 2022, the number of temporary protections sought decreased considerably, with the number of people granted temporary protection in the EU falling by about 65 % between the first and the last quarter of 2022. As of March 2023, a large proportion of temporary protection seekers were adult women (mainly aged 35 to 64 years), representing around 47 % of the total beneficiaries. The second largest group were children, amounting to about 35 % of the beneficiaries. Of the countries for which data is available, Belgium and Lithuania granted the most temporary protections to unaccompanied minors in the EU ([16]).

Greenhouse gas emissions have declined since the start of 2022

The more recent crises mentioned above also interfere with the EU's ambition of tackling the climate crisis. The COVID-19 pandemic and the related lockdown measures resulted in a short-term improvement in some indicators that are used as proxies to monitor climate change mitigation, such as energy use and greenhouse gas (GHG) emissions (SDG 7 and SDG 13). At the same time, there is evidence that the pandemic has caused harm to the environment (SDG 12 and SDG 15) in the form of increased pollution from single-use plastics (such as masks, gloves and take-away food containers) ([17]).

Given the revival of the economy after the COVID-19 pandemic, the EU's greenhouse gas (GHG) emissions increased by 2 % in the third quarter of 2022 compared with the same quarter of the previous year. However, relative to the pre-pandemic levels, GHG emissions remained 4 % below the level reported in the third quarter

Figure II.5: Quarterly greenhouse gas emissions, by economic activity, EU, 2015–2022
(million tonnes of CO_2-equivalent)



Note: Estimated data.
Source: Eurostat (online data code: env_ac_aigg_q)

of 2019. The highest increases in GHG emissions between the third quarters of 2021 and 2022 were observed in transportation and storage (9 %), electricity and gas supply (5 %), and services excluding transport and storage (4 %). Over the same period, GHG emissions from agriculture, manufacturing and water supply declined slightly by around 1 % or less. The EU's overall GHG emissions have declined since the start of 2022, indicating that despite the economic rebound, the EU managed to continue the long-term downward trend of GHG emissions trend ([18]).

Conclusions

The EU had already strayed off its path to achieving the 2030 Agenda and the SDGs as a result of the pandemic sweeping the world. Russia's military aggression against Ukraine and the consequent social and economic disruptions, in addition to the substantial loss of life and property, have been felt throughout the EU and other parts of the world. The invasion also highlighted the energy dependency of the EU, and other parts of the world, on Russia and impacted EU citizens directly through rising living costs. Combined with the ongoing climate crisis, these short-term crises have created significant hurdles for attaining the SDGs.

The EU's response has included humanitarian support by providing temporary protection to people fleeing Ukraine, financial support to Ukraine and placing economic sanctions on the Russian government, companies and individuals. The majority of Europeans consider the EU's overall response to be satisfactory ([19]), even though the consequences of the Russian invasion are already clearly visible in the EU. Despite the EU's efforts to diversify its energy sources and reduce its dependence on Russia, the EU economy has seen a price hike for energy that has influenced prices for housing and increasingly food products. Conversely, the household saving rate has fallen back to pre-pandemic levels, after peaking during the COVID-19 crisis. In the area of energy, available short-term statistics show a considerable decline in Russia's share of EU energy imports alongside a reduction in the EU's overall demand for natural gas. These developments might also help the EU to meet its long-term climate targets. While the available short-term data for 2022 suggest a slight increase in GHG emissions compared with 2021, EU emissions remain below pre-pandemic levels and appear to continue their long-term downward trend.

One year on from the onset of Russia's invasion, the long-term effects on the EU's economic and social fabric remain to be seen. With more data becoming available, future SDG monitoring reports might present a more detailed and nuanced picture of the consequences of Russia's military aggression against Ukraine.

Notes

(1) European Parliament (2022), *EP Spring 2022 Survey: Rallying around the European flag — Democracy as anchor point in times of crisis*.
(2) Source: Eurostat (online data codes: sdg_08_10 and namq_10_gdp).
(3) Source: Eurostat (online data code: sts_inpr_a).
(4) Source: Eurostat (online data code: sts_inpr_q).
(5) European Central Bank (2021), *Why is inflation currently so high?*
(6) Source: Eurostat (online data code: pcr_hicp_manr).
(7) Source: Eurostat (online data code: prc_hicp_midx).
(8) Source: Eurostat (online data code: nasq_10_ki).
(9) Source: Eurostat (online data code: sdg_07_50).
(10) Source: Eurostat (online data codes: nrg_ti_oil and nrg_ti_gas)
(11) Eurostat (2022), *EU international trade in goods — latest developments*.
(12) Eurostat (2023), *EU trade with Russia continues to decline*; and Eurostat (online data code: DS-045409).
(13) Eurostat (2023), *EU gas consumption decreased by 19 %*.
(14) Eurostat (2023), *Crude oil imports and prices: changes in 2022*.
(15) European Council (2023), *Infographic — EU temporary protection for displaced persons*.
(16) Source: Eurostat (online code: migr_asytpsm) and Eurostat (2023), *Statistics Explained: Temporary protection for persons fleeing Ukraine — monthly statistics.*
(17) EEA (2021), *Impacts of COVID-19 on single-use plastic in Europe's environment*.
(18) Eurostat (2023), *Quarterly greenhouse gas emissions in the EU*.
(19) European Parliament (2023), *Standard Eurobarometer 98 — Winter 2022–2023: The EU's response to the war in Ukraine*.

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.

Poverty harms people's lives and hampers social cohesion and economic growth. Monitoring SDG 1 in an EU context involves tracking aspects related to multidimensional poverty and basic needs. Over the assessed five-year period, the EU has made quite strong progress in all aspects of poverty monitored here. The share of the population affected by different forms of poverty, such as monetary poverty or material and social deprivation, has decreased. However, while the number of people at risk of poverty or social exclusion has fallen, stronger progress will be necessary to meet the 2030 target to lift at least 15 million people out of poverty or social exclusion, along with the complementary ambition that at least 5 million of these should be children. With regard to basic needs, significant progress has been made for all indicators, with fewer people now overburdened by housing costs, reporting an unmet need for medical care or living in an overcrowded household.

Table 1.1: Indicators measuring progress towards SDG 1, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Multidimensional poverty				
People at risk of poverty or social exclusion	Time series too short for long-term assessment		:	page 47
	2016–2021	Observed: – 1.6 % Required: – 2.1 %	↗	
People at risk of monetary poverty after social transfers	2010–2021	0.3 %	↘	page 49
	2016–2021	– 0.8 %	↗	
Severe material and social deprivation rate	Time series too short for long-term assessment		:	page 50
	2016–2021	– 6.5 %	↑	
People living in households with very low work intensity	Time series too short for long-term assessment		:	page 51
	2016–2021	– 2.4 %	↑	
In work at-risk-of-poverty rate	2010–2021	0.4 %	↘	page 52
	2016–2021	– 1.9 %	↑	
Relative median at-risk-of-poverty gap (*)	2010–2021	0.5 %	↘	SDG 10, page 194
	2016–2021	– 0.8 %	↗	
Basic needs				
Housing cost overburden rate	2010–2021	– 1.7 %	↑	page 53
	2016–2021	– 5.3 %	↑	
Self-reported unmet need for medical care (*)	2010–2021	– 5.0 %	↑	SDG 3, page 85
	2016–2021	– 6.5 %	↑	
Severe housing deprivation rate (*)	2010–2020	– 3.4 %	↑	SDG 11, page 211
	2015–2020	– 4.1 %	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.

Policy context

Multidimensional poverty

The European Pillar of Social Rights (EPSR) promotes upward convergence towards better living and working conditions in Europe. The EPSR Action Plan set a target to reduce the number of people at risk of poverty or social exclusion by 15 million by 2030, with the complementary ambition that at least 5 million should be children.

The reinforced Youth Guarantee strengthens prevention and activation of young people from vulnerable groups and will help reduce their poverty or social exclusion.

The European Child Guarantee helps to ensure that in Europe every child in need has effective and free access to quality early childhood education and care, education, school meals, healthcare, adequate housing and healthy nutrition.

The Directive on adequate minimum wages in the European Union from 2022 aims to improve living and working conditions, including through addressing in-work poverty.

The Council Recommendation on minimum income ensuring active inclusion from 2023 aims to combat poverty and social exclusion, and to pursue high levels of employment by promoting adequate income support, including by means of minimum income.

The Council Recommendation on ensuring a fair transition towards climate neutrality from 2022 provides policy guidance for addressing relevant employment and social aspects in the context of the green transition.

The Commission Communication on better assessing the distributional impact of Member States' policies calls for Member States to make the impact of planned measures and investments on the income of various groups more transparent.

The Strategy for the Rights of Persons with Disabilities 2021–2030 aims to reduce the risk of poverty for persons with disabilities through measures, for example in the field of employment, health, accessibility or education.

The European Social Fund Plus (ESF+) is a key financial instrument for implementing the European Pillar of Social Rights. It supports the most deprived people and marginalised communities, addresses child poverty and supports the social integration of people at risk of poverty.

Basic needs

The Fund for European Aid to the Most Deprived supports EU countries' initiatives to provide food, clothing and other essential goods as well as non-material social inclusion measures, to the poorest in society. In 2020, amendments to the fund's Regulation introduced specific measures for addressing the COVID-19 crisis.

The affordable housing initiative is part of the Commission's renovation wave strategy for Europe, which aims to promote greener buildings, create jobs and improve lives. The initiative should ensure that social and affordable housing facilities also benefit from the renovation wave.

No poverty in the EU: overview and key trends

Multidimensional poverty

SDG 1 does not only call for the eradication of extreme poverty but also for poverty in all its dimensions to be halved by 2030. This global goal has a universal approach to reducing poverty. The EU also employs a multidimensional measure of poverty and in its European Pillar of Social Rights Action Plan has set a target to reduce the number of people at risk of poverty or social exclusion by at least 15 million by 2030 compared with the situation in 2019. A complementary ambition states that of these 15 million people, at least 5 million should be children.

The EU's at-risk-of-poverty-or-social-exclusion (AROPE) indicator is based on three components: monetary poverty; severe material and social deprivation; and very low work intensity. Through this multidimensional approach, the indicator shows which share of the population is at risk of exclusion and marginalisation from economic and social activities (1).

Stronger progress is necessary to meet the 2030 target to reduce the number of people at risk of poverty or social exclusion

95.4 million people in the EU were at risk of poverty or social exclusion in 2021

In 2021, 95.4 million people, equalling 21.7 % of the EU population, were at risk of poverty or social exclusion. This represents a 7.9 % decrease since 2016, when 103.6 million people (or 23.7 % of the population) had been at risk. Nevertheless, the rate would need to fall more strongly in the next few years in order for the EU to meet its target of lifting at least 15 million people out of poverty or social exclusion by 2030. It is worth noting that the trends for many poverty-related indicators are affected by methodological changes in the data collection from 2020 onwards in a number of Member States, in particular Germany and France (2).

The number of children aged less than 18 who were at risk of poverty or social exclusion amounted to 19.6 million in 2021, corresponding to 24.4 % of the population of this age group. This is an 11.3 % decrease compared with five years earlier, when 22.1 million children (27.1 %) were at risk of poverty or social exclusion across the EU. However, in order to meet the complementary ambition of lifting at least 5 million children out of this situation by 2030, the pace of this development would need to speed up over the next years.

Monetary poverty is the main form of poverty or social exclusion in the EU

73.7 million people in the EU were at risk of monetary poverty in 2021

Monetary poverty was the most prevalent component of poverty or social exclusion in the EU in 2021, affecting 73.7 million people or 16.8 % of the population. This means that after social transfers (excluding pensions) these people had an equivalised disposable income of less than 60 % of the national median equivalised disposable income. The equivalised disposable income is the total income of a household — after tax and other deductions — that is available for spending or saving, divided by a specific scale which takes into account a household's composition and size. Very low work intensity, referring to people living in (quasi-)jobless households where the adults worked equal to or less than 20 % of their total work-time potential during the past year, affected 29.3 million people (equalling 8.9 % of the population) aged less than 65 years in 2021. In the same year, 27.1 million people (6.3 % of the EU population) were affected by severe material and social deprivation, which meant they were unable to afford seven or more items out of a list of 13 elements of material goods, services or social activities considered by most people to be desirable or necessary for an adequate life (see page 50 for the full list).

The three components of the at-risk-of-poverty-or-social-exclusion indicator — monetary poverty, very low work intensity, and severe material and social deprivation — are related but distinct concepts that can overlap. This means that some people might be affected by two or even all three dimensions at the same time. According to its definition, *monetary poverty* is a relative measure and strongly depends on the median income level in a given country. This means that even during times of increasing median income, the relative poverty rate may remain stable or even increase, depending on changes in income distribution across the population. Rates of people living in households with *very low work intensity* (jobless or quasi-jobless households) and *severe material and social deprivation* (indicating a lack of resources to cover certain material and social needs) are likely to decrease during economic recoveries when people are generally better off financially and the labour market situation has improved. Of all of the 95.4 million people at risk of poverty or social exclusion in the EU in 2021, 28.7 million (30.1 %) were affected by more than one dimension of poverty, and 5.9 million (6.2 %) were affected by all three forms ([3]).

29.3
million people in the EU were living in (quasi-)jobless households in 2021

27.1
million people in the EU were affected by severe material and social deprivation in 2021

To reduce poverty, governments provide a wide range of measures, such as income support though various benefits (for example, unemployment benefits, sickness and invalidity benefits, and minimum income benefits), tax policies and provision of enabling, social and employment services. The impact of the transfers can be assessed by comparing the at-risk-of-poverty rate before and after social transfers, excluding pensions. In the EU, social transfers (excluding pensions) reduced the share of people at risk of monetary poverty in 2021 from 26.7 % ([4]) to 16.8 %, which corresponds to a reduction by 37.1 % ([5]).

Considerable differences in poverty rates exist within the EU

The multidimensional risk-of-poverty-or-social-exclusion rate differs considerably between Member States. In 2021, national rates for this indicator ranged from 10.7 % in Czechia to 34.5 % in Romania in 2021. While Czechia ranked among the best performing countries for all three components, other countries show striking differences in their situation in terms of monetary poverty, severe material and social deprivation, and very low work intensity, illustrating that good performance on one indicator does not necessarily go hand in hand with a similar performance on another. Romania, for example, had the second highest share of monetary poverty after social transfers and the highest share of severely materially and socially deprived people in 2021, while at the same time its share of (quasi-)jobless households was the lowest across the EU. Hungary is another example with striking differences with regard to the three components. It was among the best third of countries for monetary poverty after social transfers and share of (quasi-) jobless households, but had the fourth highest rate of severe material and social deprivation. These examples show that the drivers behind the Member States' at-risk-of-poverty-or-social-exclusion rates can vary, depending on the national context.

Children and young people are particularly affected by poverty and social exclusion

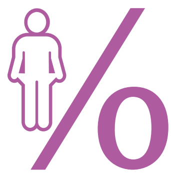
Children and young people are generally more affected by the risk of poverty or social exclusion than other age groups. People aged 20 to 24 were most likely to be at risk in 2021, with 27.6 % of this age group living in households that were at risk of poverty or social exclusion. This figure is 5.9 percentage points higher than the rate for the total EU population (21.7 %). Children aged 0 to 17 were also more affected than the overall EU population, with 24.4 % living in households at risk of poverty or social exclusion. In line with the overall EU trend, the poverty or social exclusion rates for both groups have decreased since 2016 ([6]).

Children aged 0 to 17 show a similar pattern for the three poverty dimensions as the total population, with monetary poverty being the most prevalent form, followed by quasi-joblessness and material and social deprivation. In 2021, 19.5 % of children aged 0 to 17 were living in households affected by monetary poverty after social transfers, 8.3 % were living in (quasi-)jobless households, and 7.5 % were living in households affected by severe material and social deprivation ([7]).

Children's risk of poverty or social exclusion is largely determined by the situation of their parents. Two major factors are education and household composition: parents with a lower level of education usually earn less. In 2021, 62.5 % of children aged 0 to 17 whose parents had at most lower secondary education were at risk of poverty or social exclusion. Very young children aged 0 to 5 were the most affected, with a rate of 67.0 %. Children with more highly educated parents fared significantly better. 28.5 % of children aged 0 to 17 and 29.8 % of children aged 0 to 5 whose parents had a mid-level education were at risk of poverty or social exclusion. The rates were 9.8 % for children aged 0 to 17 and 10.1 % for children aged 0 to 5 with highly educated parents ([8]). Similarly, households of (mostly female) single parents with one or more dependent children had a much higher at-risk rate (44.1 % in 2021) than any other household type ([9]).

Poverty is more likely to affect people who are unemployed or have a migrant background, a low level of education or a disability

Identifying situations that can make people more vulnerable to being at risk of poverty and social exclusion is important for designing sound policies that prevent and fight poverty. Figure 1.4 shows which subgroups of people were most at risk of poverty or social exclusion in 2021. In addition to the case of children and young people discussed previously, other characteristics — such as unemployment, a migrant background, low education levels or disabilities — were also key risk factors. Not surprisingly, the group with the highest at-risk-of-poverty-or-social-exclusion rate were unemployed people, of which two-thirds (64.5 %) were in this situation. Nearly half (48.4 %) of non-EU citizens living in the EU were at risk of poverty and social exclusion, far more than EU home-country nationals (19.5 %). The situation was similar when looking at country of birth, with 41.0 % of adults born in non-EU countries being in that situation, compared with only 19.0 % of those born in the reporting EU countries. Moreover, more than one-third of people with severe disabilities (36.2 %) or low education levels (34.7 %) were at risk of poverty or social exclusion. People living in rural areas (22.5 %) were slightly more affected than those in urban areas (21.9 %). Women (22.6 %) were more affected than men (20.7 %) ([10]).



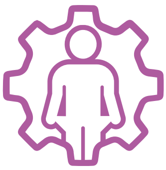
24.4 %
median distance that those at risk of poverty were from the poverty threshold in 2021

The poverty gap has widened in the past decade, but the situation has improved in recent years

The poverty gap measures the 'depth' of poverty and is defined as the distance between the median income of people at risk of poverty and the poverty threshold (set at 60 % of the national median equivalised disposable income after social transfers). In 2021, this gap amounted to 24.4 % in the EU, which means the median income of those below this poverty threshold was 24.4 % lower than the threshold itself. While this represents a 1.0 percentage point improvement compared with 2016, it is 1.3 percentage points above the level recorded in 2010, when the poverty gap amounted to 23.1 %.

In-work poverty has increased in the past ten years, with a peak in 2016

Having a paid job does not necessarily prevent people from being at risk of poverty. The share of people at risk of monetary poverty among the employed, the so-called working poor, has grown slightly since 2010. In 2021, the in-work poverty rate was 8.9 %, which is an increase of 0.4 percentage points compared with 8.5 % in 2010. However, in 2016 the rate had reached a peak of 9.8 %, so the 2021 figure represents a 0.9 percentage point improvement in the in-work poverty rate over the final five years of this period. Rates varied considerably across the EU in 2021, with the lowest share of in-work-poverty recorded in Finland (2.8 %) and the highest in Romania (15.6 %) and Luxembourg (13.5 %).



8.9 %
of employed people in the EU were at risk of monetary poverty in 2021

The likelihood of a person becoming a member of the 'working poor' varies according to their type of contract and education level. Low-skilled workers and people who work part-time or on temporary contracts are generally the most affected [11].

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 or receive necessary medical treatment.

Fewer people are overburdened by their housing costs or face severe housing deprivation

The European Commission has declared access to affordable accommodation to be a fundamental need and right [12]. Meeting basic human needs is central to social sustainability and housing is a key dimension of need. Housing costs often account for the largest component of many households' expenditure and determine what is left of their budget for satisfying other essential needs, such as education, medical treatment, food or energy. People suffering from poverty are far more often restricted to sub-optimal housing than the overall population.

8.3 %
of the EU population were overburdened by their housing costs in 2021

Housing affordability can be analysed through the housing cost overburden rate, which is defined as the share of the population living in households where the total housing costs (net of housing allowances) represent more than 40 % of the total disposable household income. The EU's housing cost overburden rate has been on a downward path since 2010, when 10.0 % of the population were affected, falling to 8.3 % in 2021. Low-income households are particularly prone to being overburdened by their housing costs. In 2021, 33.0 % of people with an income below the poverty threshold spent 40 % or more of their household disposable income on housing, compared with only 3.4 % of the not at-risk-of-poverty population (referring to people with an income above the poverty threshold) [13]. Similarly, people with disabilities are more likely to be overburdened by housing costs. Data are only

4.3 %
of the EU population faced severe housing deprivation in 2020

available for people aged 16 or over and show that in 2021, 9.1 % of people with severe and 8.7 % of people with some disability (activity limitation) were in this situation, compared with 6.9 % of people with no disability (activity limitation) (14).

The severe housing deprivation rate is an indicator of inadequate housing, referring to people living in an overcrowded household (15) that also meet the criteria for housing deprivation, defined by poor amenities such as a leaking roof, lack of sanitation facilities (bath, shower, indoor flushing toilet) or a dwelling that is too dark. In 2020, 4.3 % of the EU population faced severe housing deprivation, which is a 1.0 percentage point improvement compared with 2015. Among people living in monetary poverty, 10.2 % were affected by this situation in 2020, compared with only 3.2 % of the richer population (16).

An analysis by degree of urbanisation reveals that city dwellers in particular are more likely to be overburdened by their housing costs. In 2020, 9.9 % of people living in cities spent 40 % or more of their household disposable income on housing, compared with only 7.0 % for towns and suburbs and 5.8 % for rural areas. Severe housing deprivation was slightly more common in rural areas with 4.9 % than in cities with 4.8 % in 2020; in towns and suburbs the rate was 3.4 % in that year (17).

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

Access to health care services is important for ensuring a high quality of life. In turn, this may contribute to increased productivity and reduced costs associated with social protection systems. Barriers to accessing health services include costs, distance and waiting time. In 2021, 2.0 % of the EU population aged 16 and above reported an unmet need for medical care. While the situation has improved by 0.8 percentage points compared with 2016, the rate has increased in the last four years. Cost was the main reason given for limited access to health care services, indicated by 1.0 % of the EU population in 2021. People with lower incomes face a much higher share of unmet need for medical care. While only 0.2 % of the richest 20 % of the population reported unmet care needs due to financial constraints, 2.2 % of people in the poorest quintile reported that this was the case (18).

2.0 %
of the EU population reported an unmet need for medical care in 2021

Presentation of the main indicators

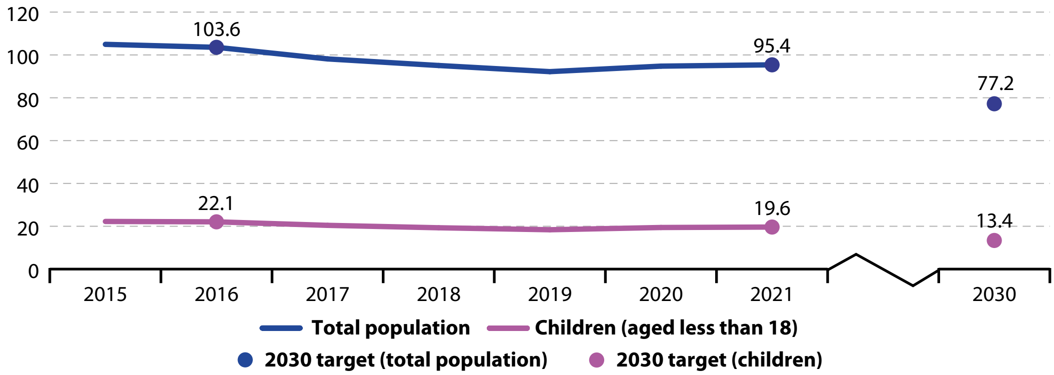
People at risk of poverty or social exclusion

LONG TERM
Time series too short

SHORT TERM
2016–2021

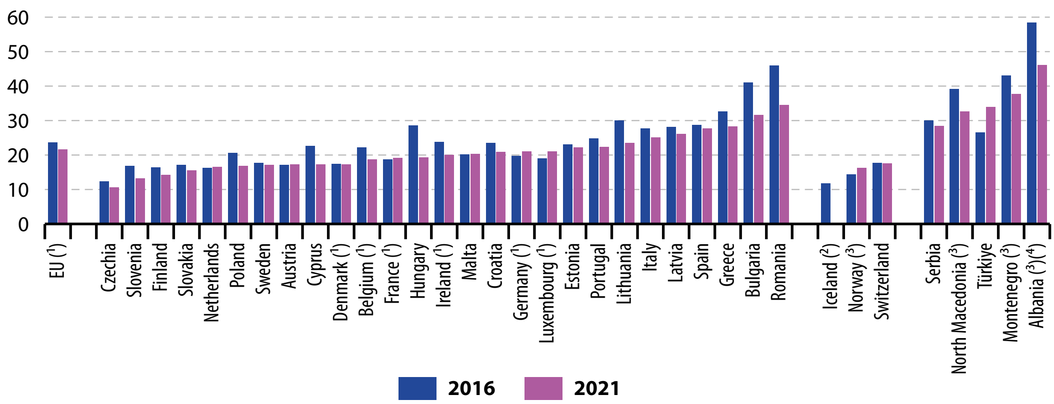
While a household's income is a key determinant of its standard of living, other aspects can prevent people from fully participating in society such as an impeded access to labour markets or material and social deprivation. To reflect these different dimensions of poverty or social exclusion, the indicator 'at risk of poverty or social exclusion' measures the number of people affected by at least one of the following three forms of poverty or social exclusion: monetary poverty, severe material and social deprivation and very low work intensity (see pages 49–51 for a detailed description of these components). Data on the three components are derived from the EU Statistics on Income and Living Conditions (EU-SILC).

Figure 1.1: People at risk of poverty or social exclusion, EU, 2015–2021
(million people)



Note: Break in time series in 2020. Source: Eurostat (online data code: sdg_01_10)

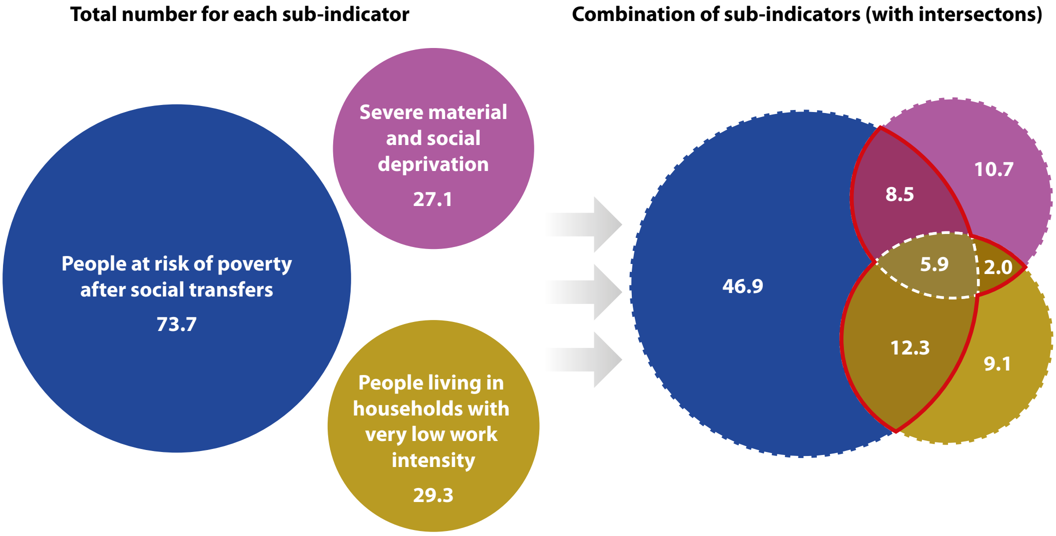
Figure 1.2: People at risk of poverty or social exclusion, by country, 2016 and 2021
(% of population)



([1]) Break(s) in time series between the two years shown.
([2]) No data for 2021.
([3]) 2020 data (instead of 2021).
([4]) 2017 data (instead of 2016).

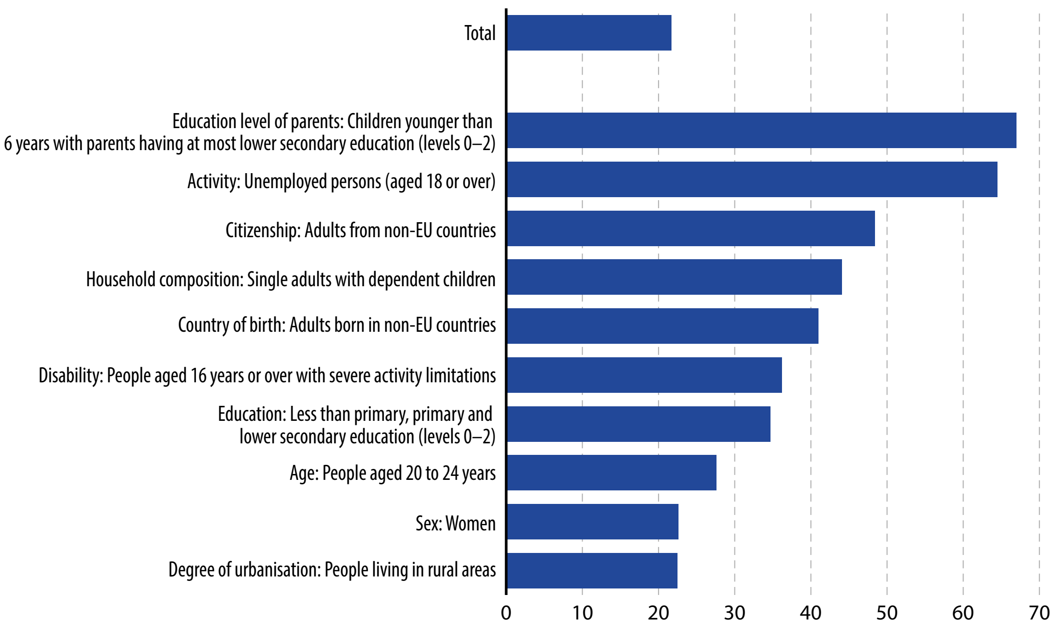
Source: Eurostat (online data code: sdg_01_10)

Figure 1.3: Aggregation of components of 'People at risk of poverty or social exclusion', EU, 2021
(million people)



Source: Eurostat (online data code: ilc_pees01n)

Figure 1.4: People most at risk of poverty or social exclusion, by sub-group, EU, 2021
(% of population)



Note: Estimated data; data by disability not yet adjusted to new 2030 target definition.

Source: Eurostat (online data codes: ilc_peps01n, ilc_peps02n, ilc_peps03n, ilc_peps04n, ilc_peps05n, ilc_peps06n, ilc_peps13n, ilc_peps60n and hlth_dpe010)

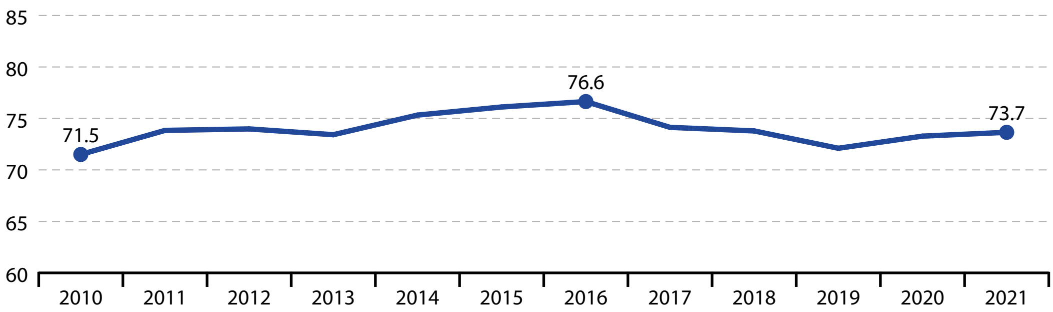
People at risk of monetary poverty after social transfers

LONG TERM 2010–2021

SHORT TERM 2016–2021

This indicator measures the number of people with an equivalised disposable income below the at-risk-of-poverty threshold. This is set at 60 % of the national median equivalised disposable income after social transfers [19] . The data stem from the EU Statistics on Income and Living Conditions (EU-SILC).

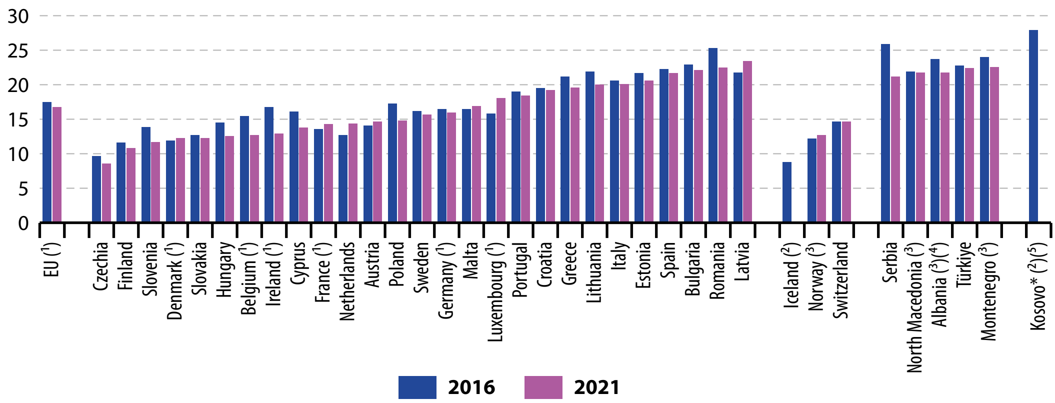
Figure 1.5: People at risk of monetary poverty after social transfers, EU, 2010–2021 (million people)



Note: 2010-2018 data are estimated; break in time series in 2020.

Source: Eurostat (online data code: sdg_01_20)

Figure 1.6: People at risk of monetary poverty after social transfers, by country, 2016 and 2021 (% of population)



(1) Break(s) in time series between the two years shown.
(2) No data for 2021.
(3) 2020 data (instead of 2021).
(4) 2017 data (instead of 2016).
(5) 2018 data (instead of 2016).
(*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: sdg_01_20)

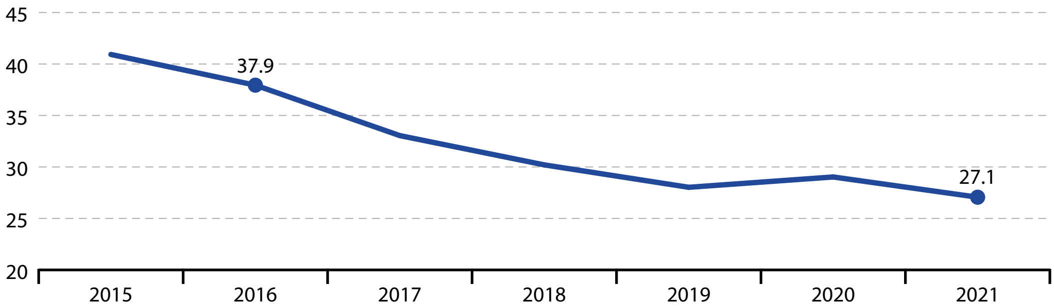
X LONG TERM Time series too short

SHORT TERM 2016–2021

Severe material and social deprivation rate

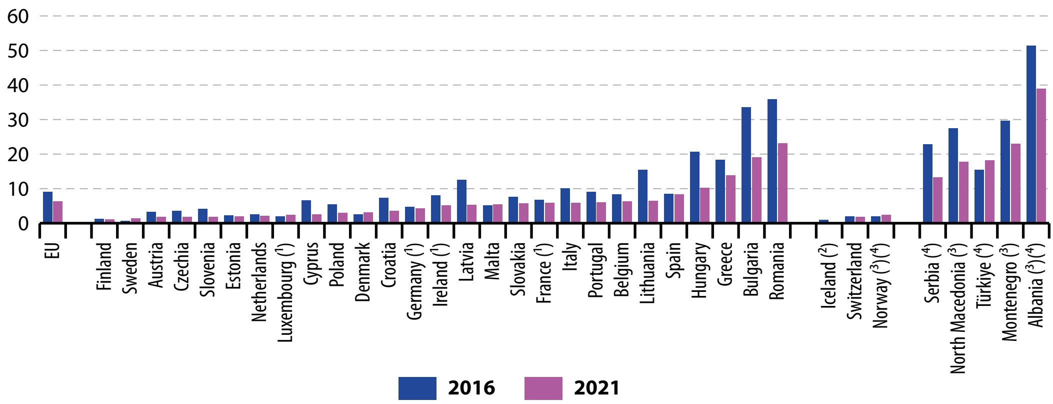
The indicator shows an involuntary lack of necessary and desirable items to lead an adequate life. It is defined as the proportion of the population who cannot afford at least 7 of the following 13 deprivation items: (1) pay rent, utility bills, hire purchase instalments or other loan payments, (2) keep their home adequately warm, (3) face unexpected expenses, (4) eat meat, chicken, fish or vegetarian equivalent every second day, (5) a week of holiday away from home, (6) have access to a car/van for personal use, (7) replace worn-out furniture, (8) replace worn-out clothes with some new ones, (9) have two pairs of properly fitting shoes, (10) spend a small amount of money each week on themselves ('pocket money'), (11) have regular leisure activities, (12) get together with friends/family for a drink/meal at least once a month, and (13) have an internet connection. Items 1 to 7 relate to the household level, while the remaining items 8 to 13 relate to the level of the individual. Data for this indicator stem from the EU Statistics on Income and Living Conditions (EU-SILC).

Figure 1.7: Severe material and social deprivation, EU, 2015–2021
(million people)



Source: Eurostat (online data code: sdg_01_31)

Figure 1.8: Severe material and social deprivation rate, by country, 2016 and 2021
(% of population)



(¹) Break(s) in time series between the two years shown.
(²) No data for 2021.
(³) 2020 data (instead of 2021).
(⁴) 2017 data (instead of 2016).

Source: Eurostat (online data code: sdg_01_31)

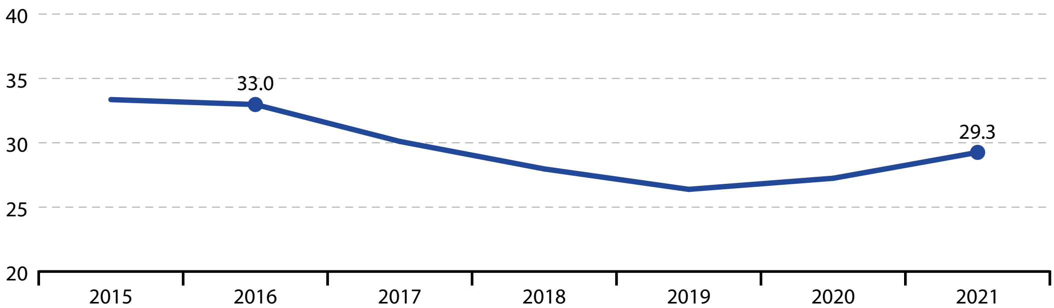
People living in households with very low work intensity

X LONG TERM Time series too short

SHORT TERM 2016–2021

This indicator describes the share of people aged less than 65 living in households where the working age adults aged 18 to 64 worked equal or less than 20 % of their total combined potential work-time during the previous year. It excludes students aged 18 to 24 and people who are retired according to their self-defined current economic status or who receive any pension (except survivors pension), as well as people aged 60 to 64 who are inactive and live in a household where the main income comes from pensions (except survivors' pension). The EU Statistics on Income and Living Conditions (EU-SILC) is the data source for this indicator.

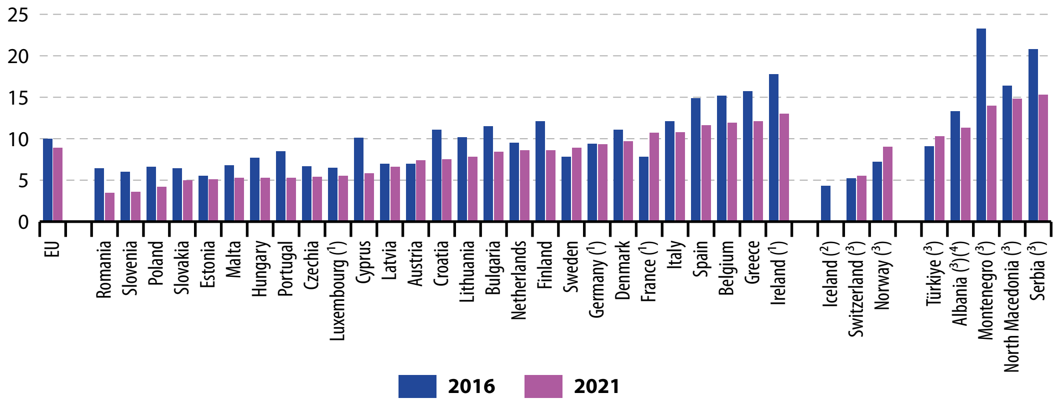
Figure 1.9: People living in households with very low work intensity, EU, 2015–2021
(million people aged less than 65)



Note: 2019 data are estimated.

Source: Eurostat (online data code: sdg_01_40)

Figure 1.10: People living in households with very low work intensity, by country, 2016 and 2021
(% of population aged less than 65)



([1]) Break(s) in time series between the two years shown.
([2]) No data for 2021.
([3]) 2020 data (instead of 2021).
([4]) 2017 data (instead of 2016).

Source: Eurostat (online data code: sdg_01_40)

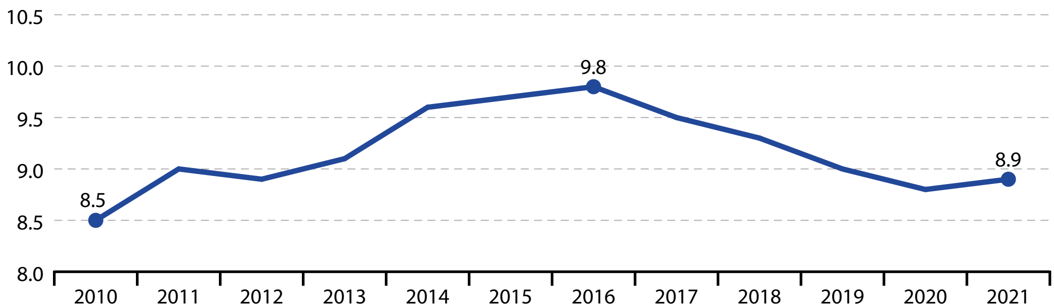
LONG TERM
2010-2021

SHORT TERM
2016–2021

In work at-risk-of-poverty rate

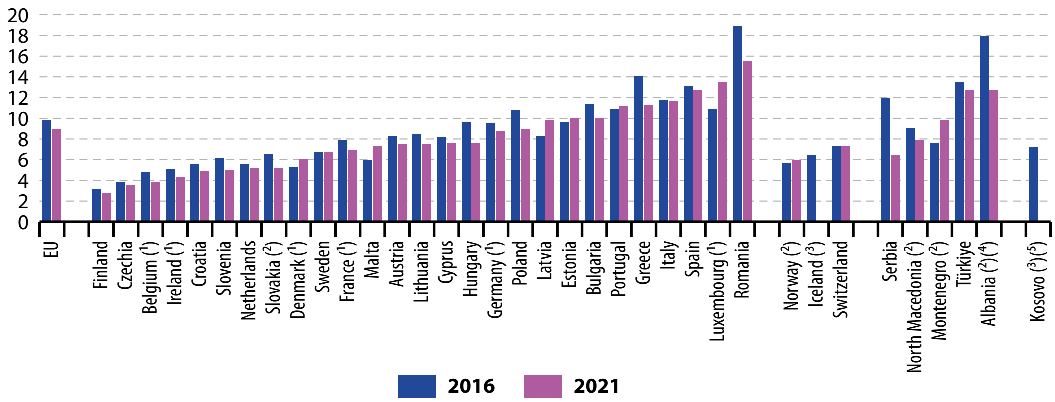
This indicator refers to the share of people aged 18 years or over who declare to be at work (employed or self-employed) and who are at risk of monetary poverty (see definition on page 49). People are considered 'employed' if they held a job for more than half of the reference year. Data for this indicator are taken from the EU Statistics on Income and Living Conditions (EU-SILC).

Figure 1.11: In work at-risk-of-poverty rate, EU, 2010–2021
(% of population aged 18 or over)



Note: 2010–2019 data are estimated.
Source: Eurostat (online data code: sdg_01_41)

Figure 1.12: In work at-risk-of-poverty rate, by country, 2016 and 2021
(% of population aged 18 or over)



([1]) Break(s) in time series between the two years shown.
([2]) 2020 data (instead of 2021).
([3]) No data for 2021.
([4]) 2017 data (instead of 2016).
([5]) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_01_41)

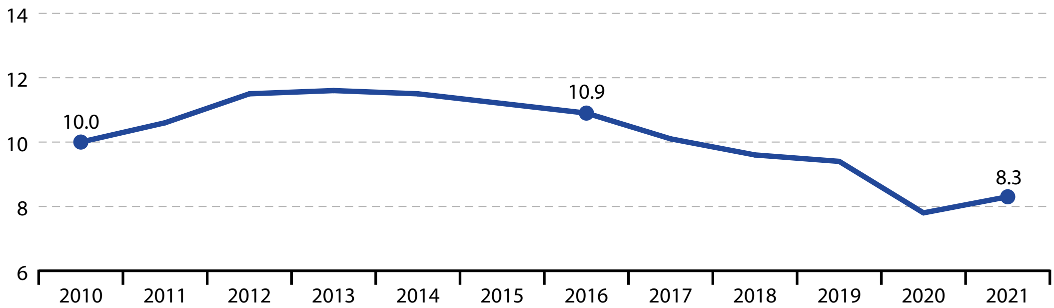
Housing cost overburden rate

The indicator reflects the share of the population living in households where the total housing costs ('net' of housing allowances) represent more than 40 % of the disposable income. This indicator is derived from the EU Statistics on Income and Living Conditions (EU-SILC).

LONG TERM 2010–2021

SHORT TERM 2016–2021

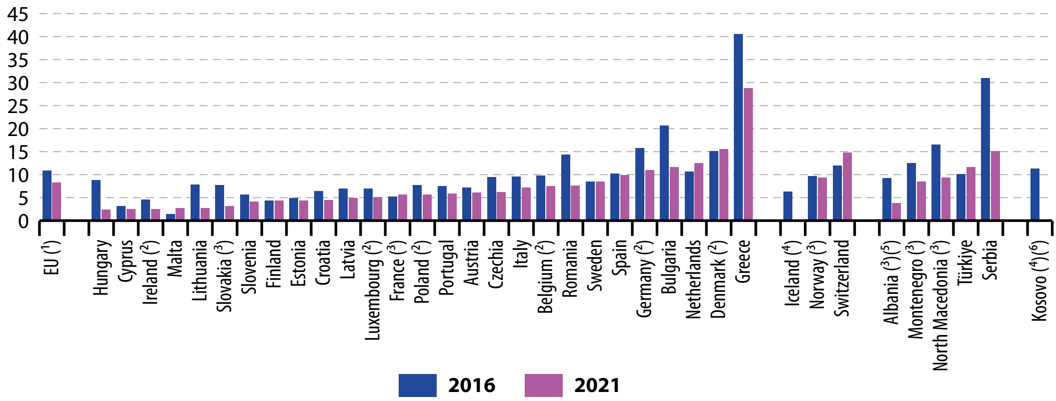
Figure 1.13: Housing cost overburden rate, EU, 2010–2021
(% of population)



Note: 2014–2019 and 2021 data are estimated.

Source: Eurostat (online data code: sdg_01_50)

Figure 1.14: Housing cost overburden rate, by country, 2016 and 2021
(% of population)



([1]) Estimated data.
([2]) Break(s) in time series between the two years shown.
([3]) 2020 data (instead of 2021).
([4]) No data for 2021.
([5]) 2017 data (instead of 2016).
([6]) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_01_50)

Notes

(1) In 2021, the AROPE indicator was modified and the new EU 2030 target was based on the revised definition. The 'severe material deprivation' indicator was replaced with the 'severe material and social deprivation' indicator also considering social aspects such as leisure activities and social relationships in addition to the material aspects of deprivation. In addition, the definition of 'very low work intensity' — referring to people living in (quasi-)jobless households — was adjusted, including extending the monitored age group from 0–59 to 0–64 years. As a consequence, the two components and thus the whole AROPE indicator presented in this report have indicator values from 2015 only and are not comparable with the data in reports before 2022.

(2) The change in data collection methods in several countries, in particular Germany and France, between 2019 and 2020 affected also the EU total but not the direction of change from 2020 to 2021.

(3) The year of reference differs for the three components. Data for the risk of poverty after social transfers and for whether or not someone lives in a household with very low work intensity are based on data from the previous year. The extent to which an individual is severely materially deprived is determined based on information from the year of the survey.

(4) Source: Eurostat (online data code: ilc_li10).

(5) Source: Eurostat (online data code: TESPM050).

(6) Source: Eurostat (online data code: ilc_peps01n).

(7) Source: Eurostat (online data codes: tepsr_spi110, tepsr_spi120 and tepsr_spi130).

(8) Source: Eurostat (online data code: ilc_peps60n).

(9) Source: Eurostat (online data code: ilc_peps03n).

(10) Source: Eurostat (online data codes: online data codes: ilc_peps02n, ilc_peps04n, ilc_peps05n, ilc_peps06n, ilc_peps13n and ilc_peps01n). Further information on vulnerable groups particularly at risk of poverty or social exclusion can be found on Eurostat's Statistics Explained pages related to 'Poverty and social exclusion'.

(11) European Commission (2023), *Joint Employment Report 2023*, Directorate-General for Employment, Social Affairs and Inclusion, Brussels.

(12) European Commission (2010), *The European Platform against Poverty and Social Exclusion: A European framework for social and territorial cohesion*, COM(2010) 0758 final.

(13) Source: Eurostat (online data code: ilc_lvho07a).

(14) Source: Eurostat (online data code: hlth_dhc060).

(15) A household is considered overcrowded if it does not have at least one room for the entire household as well as a room for a couple, for each single person above 18, for a pair of teenagers (12 to 17 years of age) of the same sex, for each teenager of different sex and for a pair of children (under 12 years of age).

(16) Source: Eurostat (online data code: ilc_mdho06a).

(17) Source: Eurostat (online data codes: ilc_lvho07d and ilc_mdho06d).

(18) Source: Eurostat (online data code: hlth_silc_08).

(19) The equivalised disposable income is the total income of a household, after tax and other deductions, that is available for spending or saving, divided by the number of household members converted into equalised adults; household members are equalised or made equivalent by weighting each according to their age, using the so-called modified OECD equivalence scale.

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

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.

Achieving healthy diets and ensuring agricultural systems remain productive and sustainable are essential for achieving a healthy food system that is good for people and the planet. Monitoring SDG 2 in an EU context includes tracking developments in obesity, sustainability of agricultural production, and environmental impacts of agricultural activities on land, water and atmosphere. Over the past five years, progress towards SDG 2 has been modest. There have been strong improvements in labour productivity and public investments in farming, while modest progress has been seen on reducing some environmental impacts. However, growing obesity rates are harming health and well-being, and adversely affecting health and social systems, governmental budgets, and economic productivity and growth. At the same time, European ecosystems and the biodiversity within them continue to lose ground to intensive agriculture.

Table 2.1: Indicators measuring progress towards SDG 2, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Malnutrition				
Obesity rate	Time series too short for long-term assessment		:	page 62
	2014–2019	1.4 %		
Sustainable agricultural production				
Agricultural factor income per annual work unit	2007–2022	3.7 %		page 63
	2017–2022	4.7 %		
Government support to agricultural R&D	2006–2021	2.2 %		page 64
	2016–2021	4.6 %		
Area under organic farming	Time series too short for long-term assessment		:	page 65
	2015–2020	Observed: 6.7 % Required: 9.3 %		
Environmental impacts of agricultural production				
Ammonia emissions from agriculture	2005–2020	– 0.6 %		page 66
	2015–2020	– 0.6 %		
Nitrate in groundwater (*)	2005–2020	0.003 % (1)		SDG 6, page 129
	2015–2020	– 0.7 % (1)		
Estimated severe soil erosion by water (*)	2000–2016	– 0.9 %		SDG 15, page 275
	2010–2016	– 0.1 %		
Common farmland bird index (*)	2006–2021	– 1.5 % (2)		SDG 15, page 278
	2016–2021	– 1.6 % (2)		

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.
(1) Data refer to an EU aggregate based on 18 Member States; trend assessment based on a four-year moving average.
(2) Data refer to an EU aggregate whose composition changes over time depending on when countries joined the Pan-European Common Birds Monitoring Scheme.

Policy context

Malnutrition

The EU Action Plan on Childhood Obesity 2014–2020 aimed to help halt the rise in childhood obesity by 2020 by promoting healthy diets. The Commission will evaluate the 2014–2020 EU Action Plan on Childhood Obesity and propose a follow-up.

Europe's Beating Cancer Plan also highlights the importance of addressing obesity and diabetes from an early age.

Sustainable agricultural production

The EU's Common Agricultural Policy (CAP) provides income support, market measures and rural development measures to safeguard farmers' income and increase agricultural productivity while protecting rural landscapes and the environment.

The EU Farm to Fork Strategy for sustainable food aims to significantly reduce pesticide use, nutrient losses and the use of antibiotics. The strategy sets the 2030 targets of achieving a 25 % share of the EU's total farmland for organic farming and a significant increase in organic aquaculture, a 50 % reduction in the use and risk of chemical pesticides, a 50 % reduction in the use of more hazardous pesticides and a 50 % reduction in nutrient losses.

Biodiversity Strategy for 2030 aims to bring back at least 10 % of agricultural area under high-diversity landscape features in order to provide space for wild animals, plants, pollinators and natural pest regulators.

Environmental impacts of agricultural production

The National Emission-reduction Commitments Directive (NEC Directive) sets national emission-reduction commitments for Member States and the EU for five important air pollutants, including ammonia.

The Nitrates Directive protects water quality by preventing agricultural nitrates from polluting ground and surface waters and by promoting good farming practices.

The new EU soil strategy for 2030 sets out a framework and concrete measures to protect and restore soils, and ensure their sustainable use.

The Zero pollution action plan provides a compass to mainstream pollution prevention in all relevant EU policies, to step up implementation of the relevant EU legislation and to identify possible gaps.

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.

The EU's First 'zero pollution' monitoring and outlook shows that the EU is making progress in some areas (in particular where European legislation is well implemented), though pollution levels are still too high and significantly affect health and biodiversity, with more effort needed to reach the 2030 targets.

Zero hunger in the EU: overview and key trends

Malnutrition

A healthy diet means an adequate, well-balanced diet that meets the body's dietary needs. Combined with regular physical activity and the avoidance of excessive alcohol consumption and tobacco use, a healthy diet is a cornerstone of good health. While ending hunger and all forms of malnutrition are key objectives of the 2030 Agenda, in Europe and in other parts of the world it is obesity that presents the more serious nutrition-related health issue.

More than half of the EU population is overweight and every sixth person is obese

Obesity and pre-obesity are malnutrition problems related to changing consumption and activity habits and environments that favour such unhealthy 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 unhealthy diets that are high in energy, fat, trans fat and saturated fat, salt and sugar, low in fruit and vegetables, whole grains, legumes and nuts, and too high in red and processed meat. Low physical activity and sociological and hereditary factors are also important causes. The environments, such as the food environment, in which lifestyle choices are made are important determinants of health behaviours and obesity.

16.5 %
of the EU's adult population were obese in 2019

Obesity is a significant health issue in the EU, affecting almost 17 % of the adult population in 2019. It is also a contributing factor in other diet-related non-communicable diseases, such as cancer, cardiovascular diseases and diabetes. Obesity also disproportionately affects people with lower levels of education and generally tends to increase with age until late in life [1]. Childhood obesity also remains an important public health problem in Europe, despite childhood obesity rates levelling off in some European countries [2].

When considered together with pre-obesity, the situation looks even more severe, with more than half of the adult EU population being overweight in 2019. Patterns in the pre-obesity rate follow patterns in the obesity rate, though pre-obesity affected more than twice as many Europeans as obesity (36.2 % of the adult population) in 2019.

Between 2014 and 2019, the share of overweight (obese and pre-obese) people rose slightly, from 51.1 % to 52.7 %. This is largely due to an increase in the share of obese people, from 15.4 % in 2014 to 16.5 % in 2019. At the Member State level, 22 EU countries saw a rise in the obesity rate between 2014 and 2019. The obesity rate was highest in Malta, with 28.7 % in 2019, and lowest in Romania and Italy, with 10.9 % and 11.7 %, respectively.

The obesity rate generally increases with age, peaking at age group 65 to 74 years (22.3 % obese in 2019) and decreasing again for people aged 75 and older. Obesity and pre-obesity rates also appear to be decreasing with higher educational levels, with obesity rates ranging from 11.4 % in 2019 for adults with tertiary education to 20.3 % for adults with lower secondary education or lower. The obesity rate was also lower among younger people aged 18 to 24, with 6.0 % [3].

Sustainable agricultural production

Sustainable agricultural production is a key element in making food systems fair, healthy and environmentally friendly. A concerted effort is needed to foster a food-production system that is based on sustainable agricultural practices and produces an adequate supply of food. Three indicators are used to monitor the strong interlinkages that agricultural production has with the social, economic and environmental dimensions of sustainability. These are: agricultural income and labour productivity, investment in agricultural research and innovation, and organic farming.

Labour productivity in EU agriculture has increased, as has investment in the future of farming

To ensure its long-term viability, Europe's agricultural sector needs to achieve economic sustainability. Labour productivity is an important component of this and can be partially measured using the indicator 'agricultural factor income per annual work unit (AWU)'.

62.9 %
growth in EU agricultural factor income per annual work unit between 2010 and 2022

Following a dip during the economic crisis in the late 2000s, agricultural factor income per AWU has been rising in Europe. By 2022 it was 62.9 % higher than it was in 2010. This is mainly due to strong growth between 2009 and 2011 and again between 2016 and 2017 as well as 2021 and 2022, driven partly by increased output values (prices and/or yields) and partly by a reduced labour force ([4]).

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 ([5]).

3.3
billion EUR in government support was spent on agricultural R&D in 2021

Investment in agricultural research and innovation is crucial for decoupling agricultural productivity from environmental impacts. Such investments also help to keep EU farmers competitive and adaptable 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 25.0 % since 2016 to reach EUR 3.3 billion in 2021.

Organic farming is on the rise across the EU, but the pace needs to quicken to reach the 2030 target

Organic farming is one example of a sustainable agricultural management system. It 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.

9.1 %
of the EU's utilised agricultural area was farmed organically in 2020

In the EU, the share of organic farming in total agricultural area grew by 2.5 percentage points between 2015 and 2020, to 9.1 %. Despite this, the take-up of organic farming will need to accelerate significantly to achieve the 25 % target by 2030. Across the EU, Austria leads with more than 25 % of its agricultural area farmed organically, followed by Estonia and Sweden with levels slightly above 20 %, and Italy and Czechia, with levels slightly above 15 %. In all other Member States, organic farming was practised on less than 15 % of agricultural land in 2020.

The Farm to Fork Strategy also aims to reduce the EU food system's dependency on pesticides and antimicrobials, contributing to zero pollution and biodiversity objectives. According to a trend analysis by the European Commission, the use and risk of chemical pesticides decreased by 14 % between the baseline period of 2015–2017 and 2020 and the use of more hazardous pesticides fell by 26 % over the same time span.

To protect human and animal health, the Farm to Fork Strategy also aims to reduce EU sales of antimicrobials for farmed animals and aquaculture by 50 %. The use and misuse of antimicrobials in agriculture contributes to the problem of microbes such as bacteria and fungi becoming antimicrobial resistant, which reduces the effectiveness of such treatments. As of 2021, the EU has achieved an 18 % reduction in EU sales of antimicrobials for farmed animals and in aquaculture compared with the 2018 baseline (6).

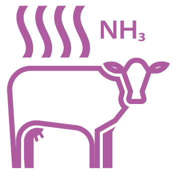
Environmental impacts of agricultural production

Agriculture provides environmental benefits such as the maintenance of specific farmland ecosystems and diverse landscapes, and by providing carbon sinks. However, increases in agricultural productivity and a move towards industrial agriculture practices have contributed to the degradation of environmental conditions and climate change. The 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. Manure produced by livestock is rich in nutrients such as nitrogen (ammonia and nitrates) and phosphorus, and is used as a fertiliser alongside chemical fertilisers. If properly treated, its application improves soil structure and enhances soil organic matter content, which positively contributes to carbon sequestration. When mineral fertilisers or manure are not properly handled and spread, however, excess nutrients that are not taken up by plants are released into the environment (as ammonia in air and as nitrates and phosphorus in water). When released into the atmosphere, ammonia pollutes the air and can land on soil and water, where it can harm sensitive vegetation systems, biodiversity and water quality through eutrophication and acidification.

Since the 1990s, Europe has seen significant decreases in 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, developments have been less clear, with ammonia emissions increasing between 2013 and 2017, only to fall thereafter to a new low of 3.1 million tonnes by 2020. It must be noted that the national and EU totals may mask considerable variations in fertiliser application and livestock densities at regional and local levels. Ammonia emissions from agriculture remain the main nutrient pollutant of concern regarding negative effects on biodiversity (7).



3.1
million tonnes of ammonia were emitted from agriculture in the EU in 2020

The amount of nitrates in EU groundwater has remained stable at around 23 milligrams per litre (mg/L) since 2005. After briefly rising to 23.8 mg/L in 2018, there has been a downward trend in recent years, with the four-year average nitrate concentration reaching 22.6 mg/L in 2020. In addition, hot spots exist where the nitrates concentration is above 50 mg/L, which is the limit set for drinkable water. Several countries among those with the highest ammonia emissions per hectare of utilised agricultural area in Europe, such as Malta, Belgium and Germany, are also struggling the most with high nitrates levels in groundwater (see Figures 2.10 and 6.8).

An average of
22.6
milligrams of nitrates were in each litre of groundwater in the EU in 2020

The agricultural sector is also responsible for considerable quantities of greenhouse gas (GHG) emissions (8), accounting for almost 11 % of total GHG emissions in the EU in 2021 (9). Agricultural emissions are generally linked to the management of agricultural soils, livestock, rice production and biomass burning. While the EU's total GHG emissions have decreased by about 9 % since

2016 (see the chapter on SDG 13 'Climate action' on page 235), emissions from the agricultural sector have fallen much slower, by less than 2 % over the same period. By 2021 they had reached some 381 million tonnes of CO_2 equivalent, which is around 21 % lower than the 1990 level of 483 million tonnes ([10]).

Soil erosion remains a major threat, but signs of improvement exist across the EU

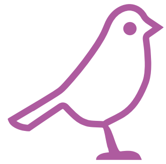
Healthy soils are essential for sustainable and productive agricultural systems. Because soils take years to form, they can be considered a non-renewable resource for food production. One of the biggest threats to soil health in Europe is soil erosion, which can be caused by both wind and water. Though 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 (km^2) of land was 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 decreasing in the EU, in part due to mandatory cross-compliance measures in the EU Common Agricultural Policy (CAP). The share of non-artificial erodible area ([11]) 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

High agricultural productivity can harm biodiversity

Some agricultural landscapes provide valuable and unique habitats for a host of species, both common and threatened. However, biodiversity has suffered under growing pressure from the race to increase productivity and where ecosystem services, which are provided by features that support biodiversity, have not been given economic value or adequate regulatory protection. Species related to agroecosystems are likely to have fared worse without the agri-environmental measures contained in EU policies — primarily the CAP — but measures have not yet been effective enough to halt overall biodiversity loss in agricultural habitats ([12]).



Between 2006 and 2021, common farmland birds in the EU declined by
20.2 %

Farmland bird species depend on agricultural habitats. Because they are relatively visible, they are a good indicator species for monitoring biodiversity. The common farmland bird index measures the relative abundance and diversity of 39 farmland bird species compared with the 2000 base year compared with the 2000 base year. Between 2006 and 2021, the EU saw dramatic declines of 20.2 % for common farmland birds, continuing a trend visible since 1990. Between 1990 and 2021, common farmland birds declined by 35.9 %. Intensive agricultural practices and the use of pesticides have contributed to the loss of wildlife habitats as well as falling populations of insects, which are an important food source for many farmland birds and provide important ecosystem services such as pollination.

Presentation of the main indicators

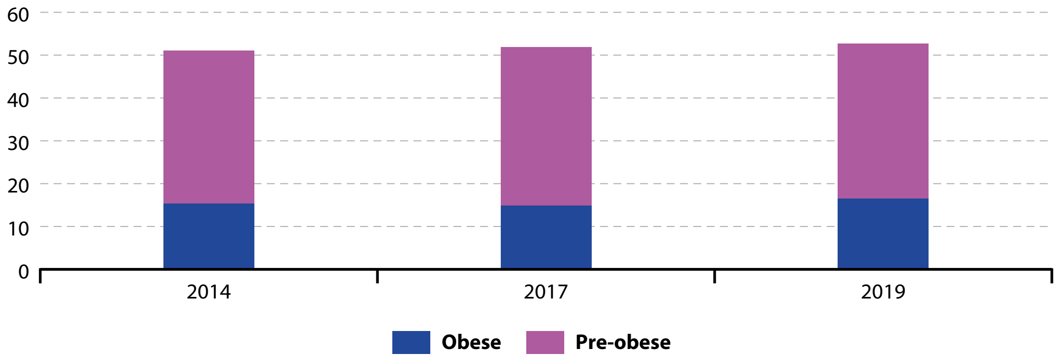
X LONG TERM
Time series too short

SHORT TERM
2014–2019

Obesity rate

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

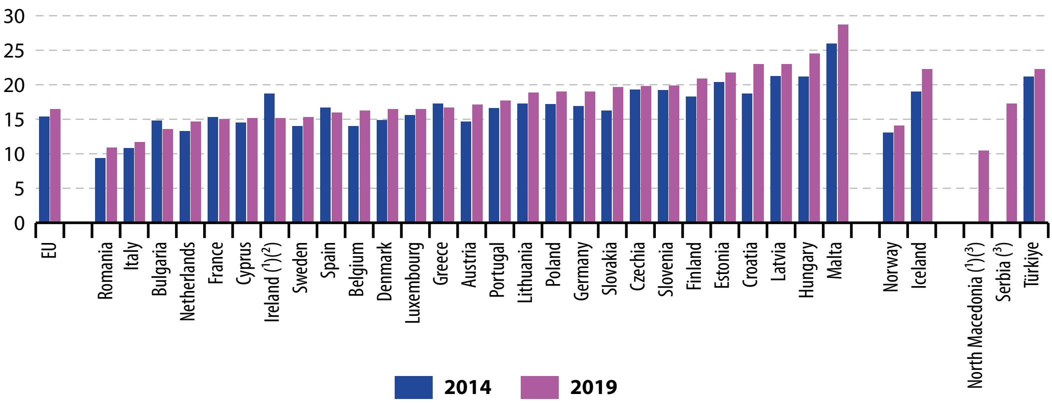
Figure 2.1: Obesity rate, by body mass index (BMI), EU, 2014–2019
(% of population aged 18 or over)



Note: 2017 data are estimated.

Source: Eurostat (online data codes: sdg_02_10)

Figure 2.2: Obesity rate, by country, 2014 and 2019
(% of population aged 18 or over)



([1]) 2017 data (instead of 2019).
([2]) 2017 data have low reliability.
([3]) No data for 2014.

Source: Eurostat (online data code: sdg_02_10)

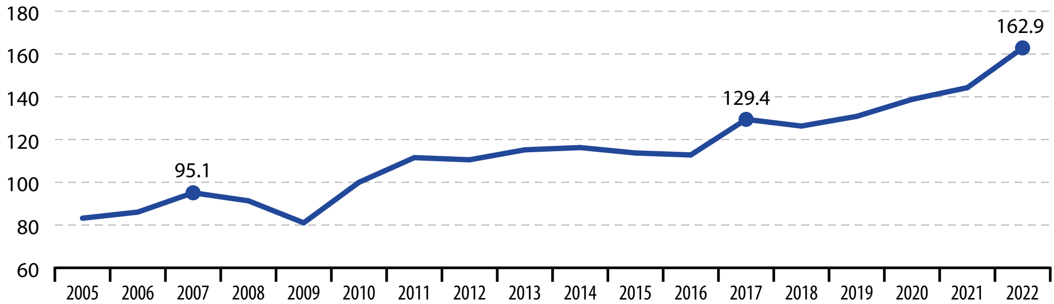
Agricultural factor income per annual work unit

LONG TERM 2007–2022

SHORT TERM 2017–2022

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

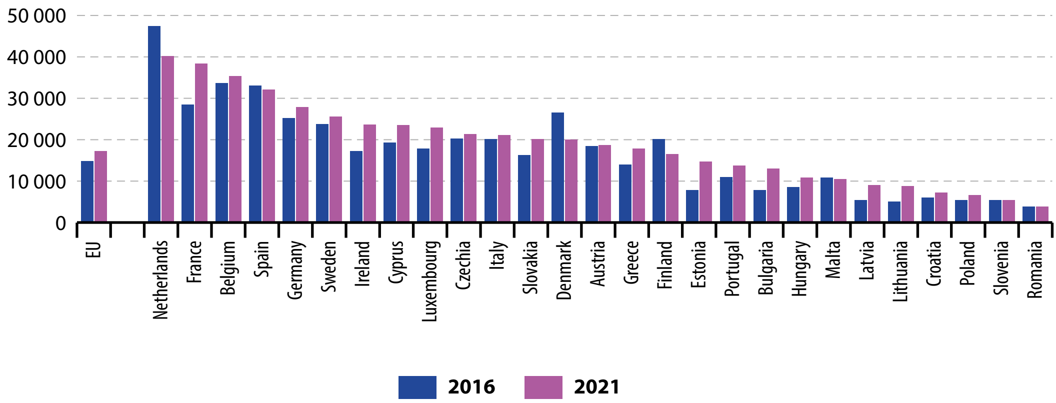
Figure 2.3: Agricultural factor income per annual work unit (AWU), EU, 2005–2022
(index 2010=100)



Note: 2022 data are estimated.

Source: Eurostat (online data code: sdg_02_20)

Figure 2.4: Agricultural factor income per annual work unit (AWU), by country, 2016 and 2021
(EUR, chain linked volumes (2010))



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

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

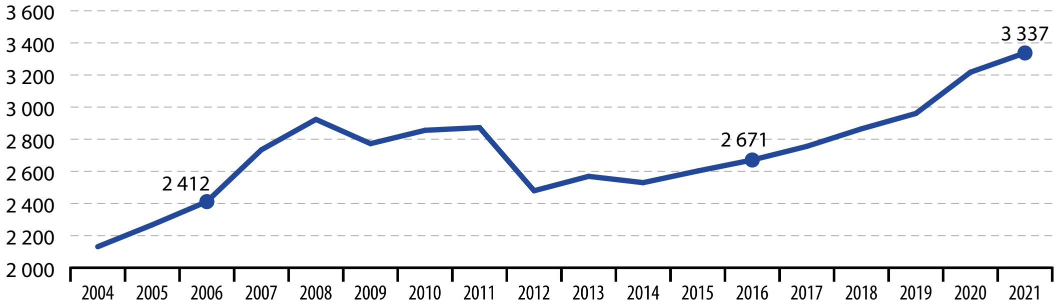
LONG TERM
2006–2021

SHORT TERM
2016–2021

Government support to agricultural R&D

This indicator refers to government budget allocations for R&D (GBARD). GBARD data measure government support to research and development (R&D) activities or, in other words, the level of priority that governments place on the public funding of R&D. GBARD data are built up using the guidelines laid out in the standard practice for surveys of research and experimental development, the OECD's Frascati Manual from 2015.

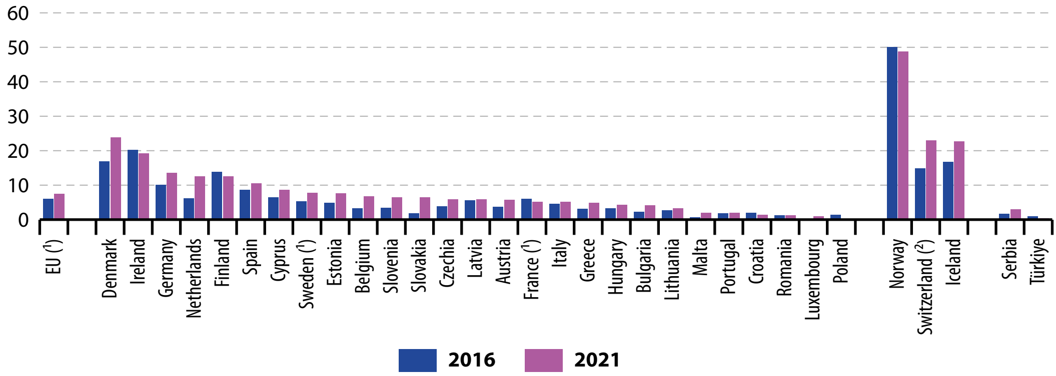
Figure 2.5: Government support to agricultural research and development, EU, 2004–2021
(million EUR)



Note: Estimated data.

Source: Eurostat (online data code: sdg_02_30)

Figure 2.6: Government support to agricultural research and development, by country, 2016 and 2021
(EUR per capita)



(1) Estimated data.
(2) 2017 data (instead of 2016).

Source: Eurostat (online data code: sdg_02_30)

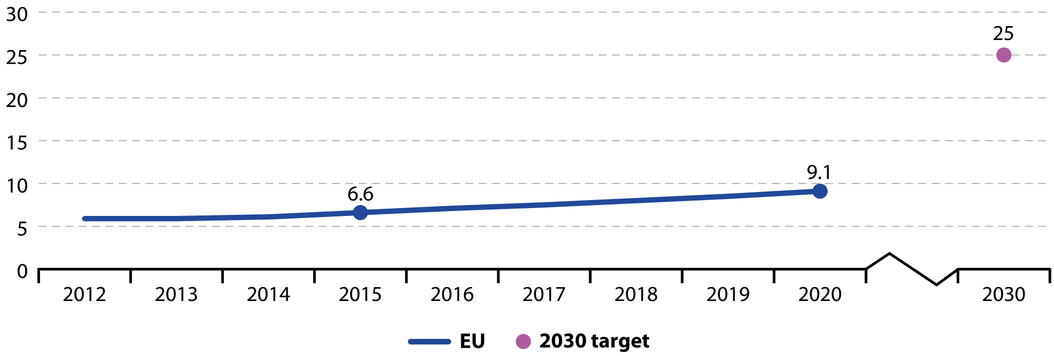
Area under organic farming

LONG TERM
Time series too short

SHORT TERM
2015–2020

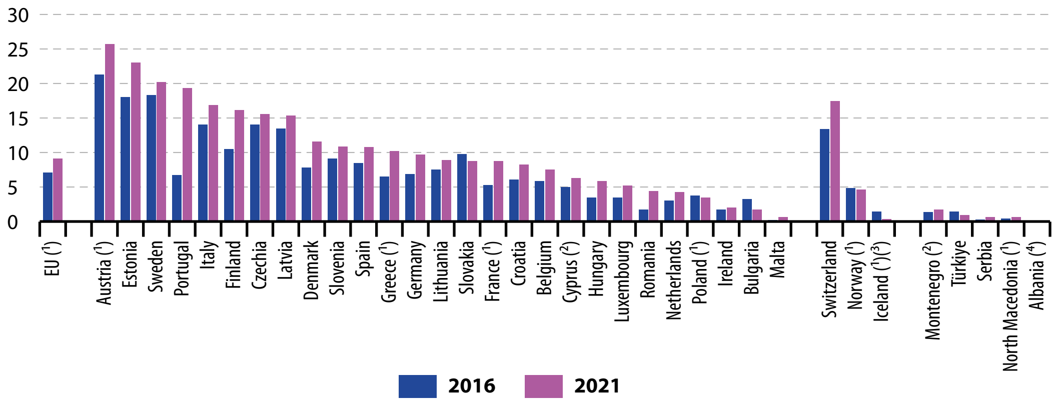
This indicator is defined as the share of total utilised agricultural area (UAA) occupied by organic farming (existing organically farmed areas and areas undergoing conversion). Organic farming is a production method that puts the highest emphasis on environmental and wildlife protection and, with regard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

Figure 2.7: Area under organic farming, EU, 2012–2020
(% of utilised agricultural area)



Note: 2017–2020 data are estimated or provisional.
Source: Eurostat (online data code: sdg_02_40)

Figure 2.8: Area under organic farming, by country, 2016 and 2021
(% of utilised agricultural area)



(1) 2020 data (instead of 2021).
(2) 2021 data are provisional or estimated.
(3) 2015 data (instead of 2016).
(4) No data for 2016.

Source: Eurostat (online data code: sdg_02_40)

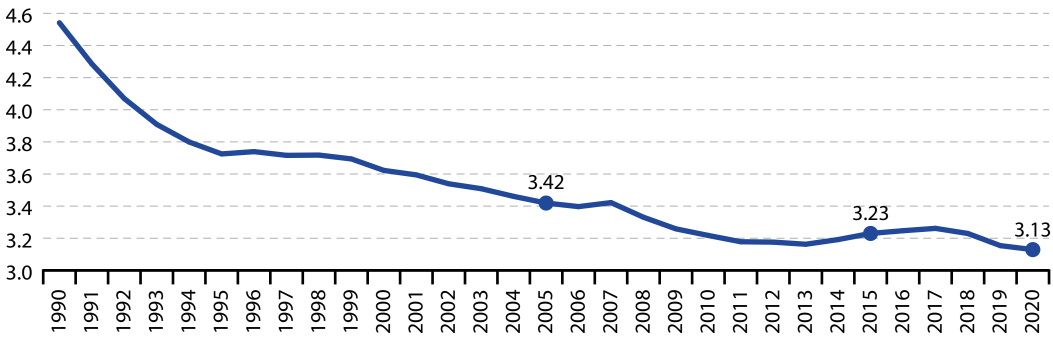
LONG TERM
2005–2020

SHORT TERM
2015–2020

Ammonia emissions from agriculture

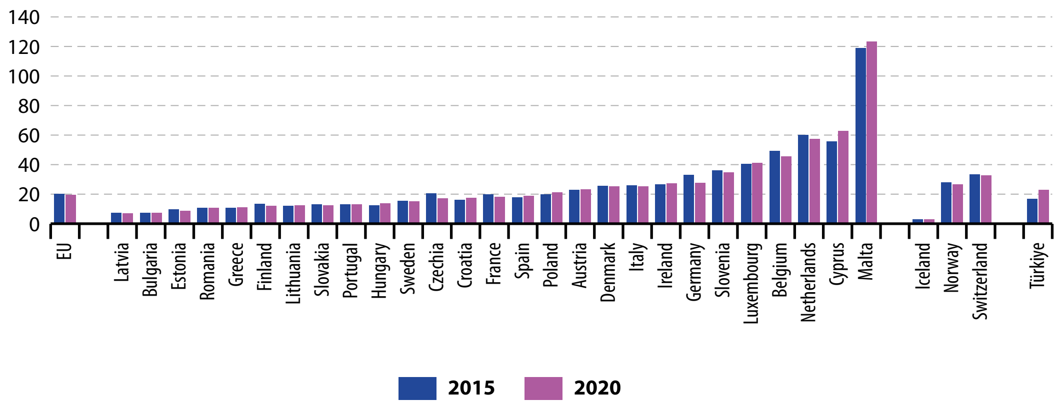
This indicator measures ammonia (NH_3) emissions as a result of agricultural production. These emissions result from manure management, applications of inorganic nitrogen fertilisers and animal manure applied to soil, as well as urine and dung deposited by grazing animals. Data for this indicator come from the EU inventory on air pollution compiled by the European Environment Agency (EEA) under the Convention on Long-range Transboundary Air Pollution (LRTAP) and are fully consistent with national air pollution inventories compiled by EU Member States. Data on the utilised agricultural area (UAA) stem from Eurostat's annual crop statistics. The definition of this indicator is based on the CAP indicator C45 Emissions from agriculture.

Figure 2.9: Ammonia emissions from agriculture, EU, 1990–2020
(million tonnes)



Source: EEA (Eurostat online data code: sdg_02_60)

Figure 2.10: Ammonia emissions from agriculture, by country, 2015 and 2020
(kg per ha of utilised agricultural area)



Source: EEA, Eurostat (online data code: sdg_02_60)

Notes

(1) Eurostat (online data code: HLTH_EHIS_BM1E).
(2) World Health Organisation (2021), *WHO European Childhood Obesity Surveillance Initiative (COSI) Report on the fourth round of data collection 2015–2017*.
(3) Source: Eurostat (online data code: HLTH_EHIS_BM1E).
(4) Source: Eurostat (online data codes: AACT_EAA05 and AACT_ALI02).
(5) Input-intensive agriculture increases agricultural productivity through consumable inputs, such as chemical fertilisers and pesticides, and capital inputs, such as highly mechanised approaches. Mechanised inputs frequently substitute labour inputs as factors of production.
(6) European Medicines Agency (2022), *Sales of veterinary antimicrobial agents in 31 European countries in 2021*, Publications Office of the European Union, Luxembourg, doi:10.2809/39517.
(7) See section 3.2 in the report: European Commission (2022), *First 'zero pollution' monitoring and outlook*, COM(2022) 674 final.
(8) The main GHG emissions from agricultural practices are carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O).
(9) Data for 2021 are provisional estimates based on the EEA approximated GHG inventory for the year 2021.
(10) Eurostat (online data code: env_air_gge).
(11) Generally, artificial, sandy, rocky and icy surfaces as well as wetlands and water bodies are not included in the land area used in calculating the soil-erosion indicator (see online metadata: sdg_15_50).
(12) European Commission (2016), *Fitness Check of the EU Nature Legislation (Birds and Habitats Directives)*, SWD(2016) 472 final.

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.

Health can be defined 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 is also a basic precondition for general economic growth. Monitoring SDG 3 in an EU context focuses on the topics of healthy lives, determinants of health, causes of death and access to health care. Over the five-year period assessed, the EU has made progress in most health-related indicators analysed here, even though the impacts of the COVID-19 pandemic are now clearly visible in some areas. As such, the healthy life expectancy has declined in the EU in 2020, and the number of people dying from avoidable (preventable) causes has grown. Developments have been more favourable in the other indicators used to monitor healthy lives, causes of death and access to health care. Progress has been particularly strong in reducing the negative impact of certain other causes of (premature) death and in diminishing self-reported unmet need for medical care. Less progress, however, has been made in improving some of the health determinants examined, such as obesity rate and noise pollution.

Table 3.1: Indicators measuring progress towards SDG 3, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Healthy lives				
Healthy life years at birth	2008–2020	0.4 %		page 80
	2016–2020	0.0 %		
People with good or very good self-perceived health	2010–2021	0.3 %		page 81
	2016–2021	0.4 %		
Health determinants				
Smoking prevalence	2006–2020	– 1.5 %		page 82
	2014–2020	– 1.3 %		
Obesity rate (*)	Time series too short for long-term assessment		:	SDG 2, page 62
	2014–2019	1.4 %		
Population living in households suffering from noise (*)	2010–2020	– 1.6 %		SDG 11, page 212
	2015–2020	– 0.8 %		
Causes of death				
Standardised death rate due to tuberculosis, HIV and hepatitis	2005–2020	– 6.0 %		page 83
	2015–2020	– 9.3 %		
Standardised avoidable mortality	Time series too short for long-term assessment		:	page 84
	2015–2020	0.7 %		
Fatal accidents at work (*)	2010–2020	– 2.6 %		SDG 8, page 163
	2015–2020	– 2.5 %		
Road traffic deaths (*)	2006–2021	Observed: – 4.6 % Required: – 5.1 %		SDG 11, page 214
	2016–2021	Observed: – 3.5 % Required: – 5.1 %		
Premature deaths due to exposure to fine particulate matter ($PM_{2.5}$) (*)	2005–2020	Observed: – 3.9 % Required: – 3.1 %		SDG 11, page 213
	2015–2020	Observed: – 5.8 % Required: – 3.3 %		

Access to health care				
Self-reported unmet need for medical care	2010–2021	– 5.0 %	↑	page 85
	2016–2021	– 6.5 %	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.

Policy context

Healthy lives

The EU4Health programme is the main financial instrument to fund the Union's health initiatives. Part of the future European Health Union, it will reduce health inequality, improve public health, and boost the EU's capacity to respond to future health crises.

The Cohesion policy programmes support the public health response to the COVID-19 pandemic. The European Social Fund Plus (ESF+) supports investments in health such as for re-skilling and up-skilling of the health workforce.

The new EU Global Health Strategy from 2022 aims to improve global health security and defines interrelated priorities in dealing with global health challenges.

Health determinants

Europe's Beating Cancer Plan addresses cancer through prevention, early detection, diagnosis and treatment, and quality of life of cancer patients and survivors.

Several EU Directives aim to protect citizens from the hazardous effects of smoking, including the Tobacco Products Directive, the Tobacco Advertising Directive and the Tobacco Taxation Directive.

The Clean Air Policy Package and the Zero Pollution Action Plan aim to reduce air, water, and soil pollution.

The Farm to Fork Strategy aims to promote healthy diets. The HealthyLifestyle4All campaign aims to link sport and active lifestyles with health, food and other policies.

Causes of death

The European Commission supports Member States in combatting communicable and other diseases through the EU4Health programme and Horizon Europe.

The EU road safety policy framework 2021–2030 and Sustainable and Smart Mobility Strategy aim to reduce deaths and serious injuries on the road by 50 % by 2030.

Access to health care

Access to health care is one of the 20 principles of the European Pillar of Social Rights and its Action Plan. Directive 2011/24/EU on patient rights in cross-border health care gives EU citizens the right to access care in the EU and to be reimbursed. A Council Recommendation from 2022 aims to improve access to affordable high-quality long-term care.

The Strategy for the rights of persons with disabilities 2021–2030 aims to ensure that these people participate in economic and social life and enjoy good health and access to health care. To improve care, research and policy-making, the European Health Data Space promotes access to health data and the development of digital health services.

The European Commission conducts the State of Health in the EU initiative in close collaboration with the OECD and the European Observatory on Health Systems and Policies. The recurring cycle of monitoring includes, among other products, the 'Health at a Glance: Europe' series, and Country Health Profiles for each EU Member State.

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

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 health care and medicine. While life expectancy has increased in EU countries over the past few decades, the pace of progress has slowed in recent years in many of those countries. The COVID-19 pandemic resulted in a decline in life expectancy in most EU countries in 2020 and 2021 ([2]). However, while life expectancy gives an objective assessment of how long people can expect to live, it does not show whether people live their lives in good health. Thus, two indicators are now included in the analysis. The first one, healthy life years at birth, measures the quantity of life spent in a healthy state. The second one measures the share of people with good or very good perceived health, capturing an individual's subjective view of their well-being.

A child born in 2020 could on average expect to live 64.0 years in a healthy condition

The healthy life expectancy of the EU population has stagnated since 2016, while self-perceived health has improved

In 2020, a child born in the EU could on average expect to live 64.0 years without any severe or moderate health problems. This is the same number of years as in 2016 but 0.6 years lower than at the pre-pandemic peak of 64.6 years in 2019. However, the overall EU figure masks considerable differences between Member States, with healthy life expectancy varying by 19.3 years between countries in 2020. This difference has become somewhat smaller compared with 2019, when it amounted to 20.2 years.

While healthy life expectancy has stagnated since 2016, self-perceived health has improved in the EU. Between 2016 and 2021, the share of people perceiving themselves to be in good or very good health increased by 1.5 percentage points. In 2021, 69.0 % of people in the EU judged their health as either good or very good. However, this share varied strongly across Member States, ranging from 47.9 % to 81.2 %. Furthermore, slight differences also exist between rural and urban areas. In 2021, the percentage of people who perceived their health to be good or very good was highest in cities (70.7 %), slightly above the average in towns and suburbs (69.2 %) and lowest in rural areas (66.3 %) ([3]). Lastly, the share of persons with activity limitation — a dimension of disability capturing a long-standing limitation to perform usual activities — who perceived their health as being good or very good was significantly lower than the EU average. Only 26.6 % of people with a moderate activity limitation and even only 6.6 % of people with severe activity limitation perceived their health as being good or very good in 2021 ([4]), while 85.2 % of people without activity limitation did so.

69.0 % of the EU population perceived themselves to be in good or very good health in 2021

Women have a higher healthy life expectancy than men, but are less likely to assess their health as good

Between 2016 and 2020, the number of healthy life years that women could expect at birth increased by 0.1 years, from 64.4 years to 64.5 years. During the same period, the healthy life years men could expect at birth decreased by 0.1 years — from 63.6

in 2016 to 63.5 years. On the other hand, women were associated with a higher absolute number of healthy life years, and with a higher gain of healthy life years than men. In addition, the gap between the two examined sexes rose from 0.8 years in 2016 to 1.0 years in 2020. In the same year, in about three out of four Member States, women could expect a higher number of healthy life years at birth than men.

Despite their higher healthy life expectancy at birth, women were less likely than men to rate their health as good or very good: 66.6 % of women and 71.6 % of men perceived their health as being good or very good in 2021 — a gap of 5.0 percentage points.

High excess mortality has reduced life expectancy in the EU

The COVID-19 pandemic considerably affected death rates in EU Member States throughout 2020 and 2021. The population above the age of 60 years, as well as people from socially disadvantaged groups, were especially affected ([5]). Overall, between January 2020 and February 2023, about 1.74 million excess deaths were recorded in the EU and European Free Trade Association (EFTA) countries compared with the average number of deaths registered during the period 2016 to 2019 ([6]). The decrease in life expectancy across the EU caused by the COVID-19 pandemic in 2020 continued in 2021, once again with substantial differences across countries. Life expectancy at birth in the EU continued to decrease by on average 0.3 years between 2020 and 2021, from 80.4 to 80.1 years — after a decrease of 0.9 years between 2019 and 2020 ([7]). The largest reductions in life expectancy in 2021 compared with 2020 were observed in Bulgaria and Slovakia (2.2 years both), followed by Latvia (2.1 years) and Estonia (2.0 years).

Furthermore, men appear to have been affected somewhat more strongly by the pandemic, with a reduction in life expectancy of 1.3 years compared with a reduction of 1.1 years for women in 2021, compared with pre-pandemic figures (2019). Lastly, the effects of the pandemic on the elderly were substantial. The expected remaining life years at age 65 decreased by 1 year between 2019 and 2021 — from 20.2 to 19.2 years. Both men and women aged 65 were affected, with their remaining life expectancy falling by 1.0 and 0.9 years, respectively ([8]).

Specific population groups have lower life expectancy

While this monitoring report focuses on the life expectancy of the general population, other studies indicate that life expectancy may differ across specific subpopulations. For example, life expectancy estimates based on interviews with more than 8 000 respondents from 11 EU and non-EU countries suggest that Roma people have a substantially lower life expectancy than that of the general population in those countries. The extrapolated time trend for 2017 suggests that Roma men were expected to live 9.1 fewer years than men in the general population. The corresponding estimate for women shows that the life expectancy of Roma women was 11 years lower than that of women in the general population in the countries examined ([9]).

Health determinants

Many factors affect the health of individuals and populations. These include socio-economic factors, the state of the environment, city design, access to and use of health services, and individual characteristics and behaviour ([10]). Lifestyle-related risk factors, such as an unhealthy diet, physical inactivity, smoking and excessive alcohol consumption, directly affect citizens' quality of life and life expectancy. These factors also have a negative impact on the health and social systems of EU Member States, government budgets, and economic productivity and growth. The health determinants discussed in the following sections are obesity rate, smoking prevalence and noise pollution. In addition, further factors such as mobility and consumption patterns may also influence all of the health determinants described on the following pages.

More than half of the adult EU population was overweight in 2019

16.5 %
of the adult population in the EU were obese in 2019

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 some individuals, obesity may also be linked to a wide range of psychological problems. From a societal perspective, obesity has substantial direct and indirect costs that put a considerable strain on health and social security systems. Furthermore, being obese or overweight from an early age can lead to more health problems in the long term ([11]).

In 2019, 16.5 % of the EU population aged 18 or above were obese (with a body mass index equal to or greater than 30) and another 36.2 % were pre-obese (with a body mass index between 25 and 30) ([12]). In total, more than half of the EU population at the age of 18 or above were obese or pre-obese (and therefore overweight). Between 2014 and 2019 the share of both obese and pre-obese people increased by 1.1 and 0.5 percentage points, respectively. The total share of overweight people grew slightly over this period, from 51.1 % in 2014 to 52.7 % in 2019.

The obesity rate generally increases with age, peaking at age group 65 to 74 years (22.3 % obese in 2019) and decreasing again for people aged 75 and older. Moreover, obesity and pre-obesity rates decrease with higher educational levels, with 2019 obesity rates ranging from 11.4 % for people with tertiary education to 20.3 % for people with lower secondary education or lower. The obesity rate was also lower among young people aged 18 to 24, at 6.0 % ([13]). In 2019, there was furthermore a considerable difference between Member States, with values ranging from 10.9 % in Romania to 28.7 % in Malta for obese people aged 18 and over.

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

25 %
of the EU population aged 15 and over were smokers in 2020

Tobacco consumption is considered to be the single most preventable cause of illness and death worldwide. The WHO European Region — that also includes some non-European countries such as Israel, as well as some countries in Central Asia ([14]) — has one of the highest mortality rates attributable to tobacco use ([15]). Tobacco use is currently the leading cause of 16 % of all deaths among adults aged 30 years and over in Europe, which is above the global average of 12 %. Many of these deaths occur prematurely, which is hardly surprising because many types of cancer and cardiovascular and respiratory diseases are linked to tobacco use ([16]).

Smoking prevalence among the population aged 15 or over fell between 2006 and 2020, from 31 % to 25 %. In 2020, more men (28 %) than women (22 %) reported that they smoke. However, the decline in smoking prevalence is less evident for women than for men, which can partially explain the narrowing gap in life expectancy between the sexes ([17]). The age group with the highest prevalence of smokers were those aged 25 to 54 (close to 30 %) followed by younger respondents aged 15 to 24 (20 %) and older people aged 55 years and above (18 %). Lastly, the share of smokers who indicated they have trouble paying bills most of the time is higher than the share of smokers who said they (almost) never have trouble paying bills ([18]).

Noise pollution levels in the EU have decreased

Noise exposure reduces life satisfaction and perceived well-being. The WHO identified noise as the second most significant environmental cause of ill health in western Europe after air pollution ([19]). The most harmful health problems — such as those affecting the circulatory system — arise because of interrelated issues including decreased sleep quality and stress reactions in the human body. These issues can lead to premature death ([20]). In Europe, environmental noise is estimated to contribute to 12 000 premature deaths per year ([21]). Road traffic is the dominant source of environmental noise, but railways, airports and industry also remain important sources of localised noise pollution ([22]). The WHO Environmental Noise Guidelines for the European Region provide recommendations for protecting human health from exposure to environmental noise that originates from various sources.

17.6 % of the EU population were affected by noise from neighbours or the street in 2020

The EU has made progress towards reducing noise pollution over the past 11 years, with the share of the population feeling affected by noise from neighbours or the street falling from 20.6 % in 2010 to 17.6 % in 2020. 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 ([23]). The perception of noise pollution is also unevenly distributed between Member States: the proportion of people suffering from noise in 2020 was smallest in Estonia (8.0 %) and largest in Malta (30.8 %).

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, air pollution and fatal accidents on roads and at work.

While recent developments in certain communicable diseases remain positive, the COVID-19 pandemic seems to have led to more avoidable deaths

Avoidable mortality refers to preventable and treatable causes of death, including injuries and drug-related diseases, as well as respiratory and infectious diseases, and some types of cancer. While avoidable mortality had been decreasing until 2019, the COVID-19 pandemic appears to have reversed the trend. Between 2015 and 2020, preventable mortality rose by 8.2 %, from 166.3 per 100 000 persons in 2015 to 180.0 per 100 000 in 2020. This result may be a consequence of the COVID-19 pandemic: health systems operated close to their capacity limits in many EU countries, which might have prevented health care professionals from providing patients with the health care they needed on time, or even at all. On the other hand, treatable mortality decreased by 4.3 %, from 95.9 per 100 000 persons to 91.7 in 100 000, over the same period. In total, avoidable mortality increased by 3.6 % in the EU, from 262.1 per 100 000 persons in 2015 to 271.7 per 100 000 persons in 2020. While the developments were nevertheless positive in many Member States, the gap of 410.6 persons per 100 000 in 2020 between the highest (593.2 in Romania) and the lowest (182.7 in Cyprus) value shows there remains a great deal of variability within the EU.

271.7 per 100 000 people died prematurely in the EU due to avoidable causes of death in 2020

1.9 per 100 000 people died because of HIV, tuberculosis and hepatitis in the EU in 2020

The objective of reducing the health burden caused by communicable diseases such as HIV, tuberculosis and hepatitis is enshrined in the Sustainable Development Goals. The EU has also committed to helping Member States achieve the objectives to eradicate HIV/AIDS and tuberculosis by 2030 and to reduce hepatitis [24]. Deaths due to these three diseases have been falling steadily in the EU over the past two decades. While 4.8 out of 100 000 people died from one of these diseases in 2005, the number of deaths had fallen to 1.9 per 100 000 people by 2020. In addition, there was a considerable gap between the country with the highest (7.9 deaths per 100 000 people in Latvia) and the lowest value (0.4 deaths per 100 000 people in Malta) in 2020.

The trends were also positive for the three diseases separately: between 2005 and 2020 deaths per 100 000 people fell from 1.8 to 0.6 for tuberculosis, from 1.3 to 0.4 for HIV/AIDS and from 1.7 to 0.8 for hepatitis. In the case of hepatitis, however, the current calculation of the indicator may conceivably underreport deaths due to hepatitis B and C [25].

The number of premature deaths due to exposure to air pollution by fine particulate matter in the EU has fallen

237 810 people

died prematurely in the EU in 2020 due to exposure to $PM_{2.5}$

According to European Environment Agency (EEA) estimates, air pollution is the number-one environmental cause of death in Europe. It can lead to or aggravate many chronic and acute respiratory and cardiovascular diseases. Air pollution has been one of the EU's main environmental policy concerns since the late 1970s. Air pollutants are emitted both naturally and as a result of human activities, mainly through fuel combustion. Urban populations are particularly exposed because of the daily flow of commuters, and the high concentration of industry and human activities causing the emission of fine particulate matter in EU cities. In addition, the most vulnerable citizens remain disproportionately affected by air pollution [26]. For example, groups with lower socio-economic status tend to be disproportionately affected by air pollution because they often live closest to its source. Children are another disproportionally affected group. On one hand, children have higher respiratory rates than adults, which increases their exposure to air pollution. On the other hand, children's developing immune system and organs make them more vulnerable to air pollution [27]. Air pollution also has a significant negative impact on the economy, by reducing both productivity and life expectancy, as well as by increasing health costs [28].

Fine particulate matter ($PM_{2.5}$) is one of the most harmful components of air pollution for human health, causing 237 810 premature deaths in Europe in 2020. Between 2005 and 2020, premature deaths due to exposure to $PM_{2.5}$ decreased by 44.8 %. This development suggests the EU is on track to meeting its target of reducing the negative impact of air pollution on health by 55 % by 2030 compared with 2005, as set out in the Zero Pollution Action Plan (see 'Zero pollution' monitoring and outlook). However, according to the EEA, it may be challenging for most EU countries to keep reducing the concentration of particulate matter in ambient air over the next decade [29]. To ensure the 2030 target is met, Member States need to fully adopt and implement current and proposed EU legislation, notably in the areas of energy and climate, and vehicle emissions. To help accelerate progress, the European Commission published a proposal for the revision of the EU Directive on ambient air quality and cleaner air for Europe in October 2022 to align air quality standards with the recommendations of the WHO on air quality.

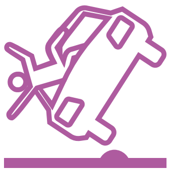
Fatal accidents at work and on the road have decreased, but further progress is necessary to meet the 2030 target of halving deaths from road crashes

Accidents were one of the most common causes of death within the EU in 2020, leading to more than 154 000 deaths or 3.0 % of all deaths [30]. These accidents may happen at different places such as at home, leisure venues or work, as well as while travelling. Improving the working environment to protect employee health and safety is an important objective set out by the

EU and its Member States in the Treaty on the Functioning of the European Union.

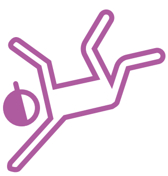
Halving the number of deaths from road-traffic crashes is not only a global target, but also a goal of EU policies. The EU road safety policy framework 2021–2030 set a target of reducing deaths and serious injuries by 50 % by 2030 compared with 2019.

In 2021, slightly more than 19 900 people were killed in road traffic crashes (equalling 4.5 per 100 000 people). This represents a 16.3 % reduction compared with 2016, due in part to the lower traffic volumes as a result of the COVID-19 pandemic. However, the number of road fatalities in the EU will need to fall more quickly to meet the target of halving the number of people killed in road traffic crashes by 2030 compared with 2019 levels. The EU rate of 4.5 fatalities per 100 000 people compares favourably with the global average of around 18 per 100 000. Preliminary results for 2022 indicate that fatalities remained well below the pre-pandemic level: while in 2022 road deaths rose by 3 % in relation to 2021, they remained almost 10 % lower compared with the pre-pandemic year 2019 (31). For further details see the chapter on SDG 11 'Sustainable cities and communities' on page 203.



4.5 per 100 000 people were killed in road crashes in the EU in 2021

Fatal accidents, leading to a person's death within one year, may also occur at work. The EU made progress on this indicator between 2015 and 2020, reducing the number of fatal accidents at work per 100 000 employed persons from 2.0 to 1.8. Compared with 2019, the total incidence rate for fatal accidents at work increased somewhat in 2020. The reason for this increase might be that some countries included COVID-19 cases in the reported data on fatal work accidents (32). Furthermore, there is a considerable difference between the sexes: the incidence rate for women (0.3) was negligible compared with the rate for men (3.1). This difference can be explained by the higher share of men working in professions associated with a higher risk of work accidents. Non-fatal accidents can also cause considerable harm, for example by leading to a permanent disability that may force people to leave the labour market or change their job. Non-fatal accidents happened considerably more often than fatal accidents, with an incidence rate of 1 444 per 100 000 employed persons in 2020 (33).



1.8 per 100 000 persons employed had a fatal accident at work in the EU in 2020

Access to health care

Access to health care — the timely access to affordable, preventive and curative health care — is high on the political agenda of most EU countries. 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 (34). Limited access for some population groups, especially people with disabilities, may result in poorer health outcomes and greater health inequalities (35). Reducing health inequalities is not only important for equity reasons, but also because it contributes to higher economic and social cohesion (36).

Overall, the unmet need for medical care has decreased, but the gap between Member States has widened

In 2021, 2.0 % of the EU population reported an unmet need for medical care because of financial reasons, long waiting lists or travel distance. This share was lower than five years earlier, when it was 2.8 %. However, progress seems to have stalled since 2017, and in some Member States the trend has reversed, showing an increase in the percentage of the population that reported unmet medical need in 2021 — a trend that started in 2019. The considerable differences between Member States' reported unmet needs

2.0 % of the EU population reported unmet need for medical care in 2021

for medical care registered in 2016 have become substantially smaller five years later. Compared with 2016, the gap between the EU countries has narrowed by 7.1 percentage points, reaching 8.0 percentage points in 2021. While in Cyprus, Germany and Malta, 0.1 % of the population reported an unmet need for medical care in 2021 for the reasons monitored, in Estonia the rate was 8.1 % of the population.

Moreover, people with disabilities find it more difficult to access health care. In 2021, 6.2 % of people with severe activity limitations and 3.9 % of people with some activity limitations reported unmet needs for medical care due to the monitored reasons (financial, waiting list or distance), compared with only 1.1 % of people without disabilities ([37]). This discrepancy indicates that access to health care remains a challenge not only in certain parts of the EU but also for certain population groups.

Financial constraints are the most common reason why people report unmet needs for medical examination. On average, for 1.0 % of the total EU population in 2021, 'too expensive' was the most prominent reason for reporting unmet medical examination. Furthermore, financial constraints were the most common self-reported reason for unmet needs in rural areas (1.1 %), which was slightly more than for people in towns or suburbs (0.9 %) and in cities (0.8 %). A further 0.9 % across all degrees of urbanisation reported 'waiting lists' as a reason for unmet need for medical examination. This reason for unmet medical needs was more often declared in cities, and rural areas (both 1.0 %) than in towns and suburbs (0.8 %). Another 0.1 % described 'too far to travel' as the main reason for an unmet need for medical examination. This was more often the case in rural areas (0.2 %) than in cities, or in towns and suburbs (both 0.1 %). However, not all Member States listed cost as the main reason for unmet need — in many countries waiting lists were cited by the majority of people ([38]).

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 may not be universal or patients may have to bear the costs of accessing them. Furthermore, across the EU, around a seventh of all health spending was borne directly by households in 2020. Out-of-pocket payments as a share of total current health expenditure decreased slightly from 15.9 % in 2014 to 14.4 % in 2020. However, a considerable gap of 27.1 percentage points between countries remained in 2020 ([39]). Such out-of-pocket payments can pose a serious problem for low-income households, in particular if combined with reduced financial resources for the health care system caused, for example, by an economic crisis ([40]). Moreover, across Member States, between 1.0 % and 19.2 % of households experienced catastrophic spending on health, meaning out-of-pocket spending on health care exceeded 40 % of a household's disposable income ([41]). Poor households and those who have to pay for long-term treatment such as medicines for chronic illness are at high risk of experiencing financial hardship as a result of having to pay out of their own pockets.

Specific population groups may not have the same access to health services as the general population

In many EU countries minorities do not have the same access to health services as the general population. One of those minorities is the Roma people. According to a study based on survey data from 2021 the share of Roma people who experienced discrimination in terms of access to health services increased between 2016 and 2021 in most of the 13 EU and non-EU countries examined by the Fundamental Rights Agency. The same survey provides evidence that women were more often discriminated against than men. Furthermore, the youngest and the oldest respondents reported lower levels of discrimination compared with middle-aged respondents: the age group 16 to 24 experienced discrimination in 10 % of cases, while respondents aged 65 and above reported discrimination in 13 % of cases. At the same time, 16 % of respondents aged 25 to 64 reported they had experienced discrimination.

Presentation of the main indicators

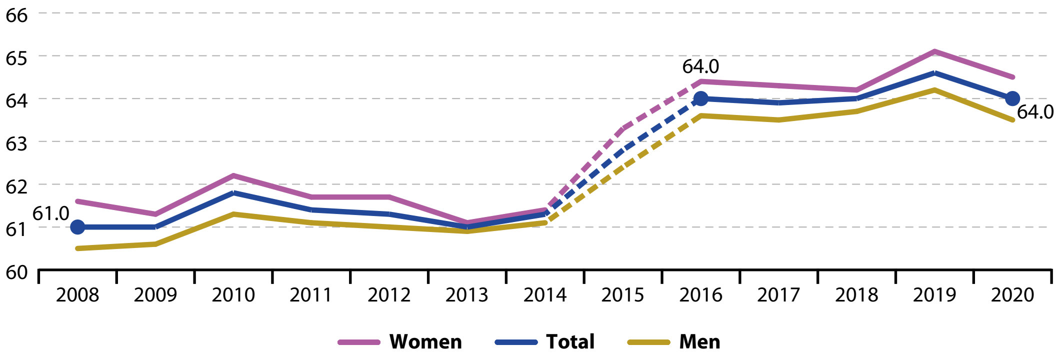
LONG TERM 2008–2020

SHORT TERM 2016–2020

Healthy life years at birth

This indicator measures the number of years at birth that a person can expect to live in a healthy condition. Healthy life years is a health expectancy indicator which combines information on mortality and morbidity (prevalence of the population suffering from a disease or medical condition).

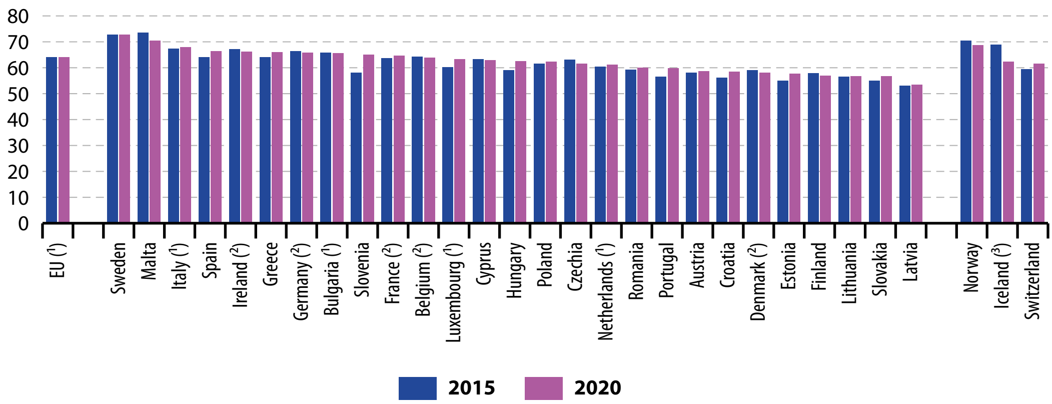
Figure 3.1: Healthy life years at birth, by sex, EU, 2008–2020
(years)



Note: Breaks in time series in 2015 and 2016.

Source: Eurostat (online data code: sdg_03_11)

Figure 3.2: Healthy life years at birth, by country, 2015 and 2020
(years)



(¹) 2016 data (instead of 2015).
(²) Break(s) in time series between the two years shown.
(³) 2018 data (instead of 2020).

Source: Eurostat (online data code: sdg_03_11)

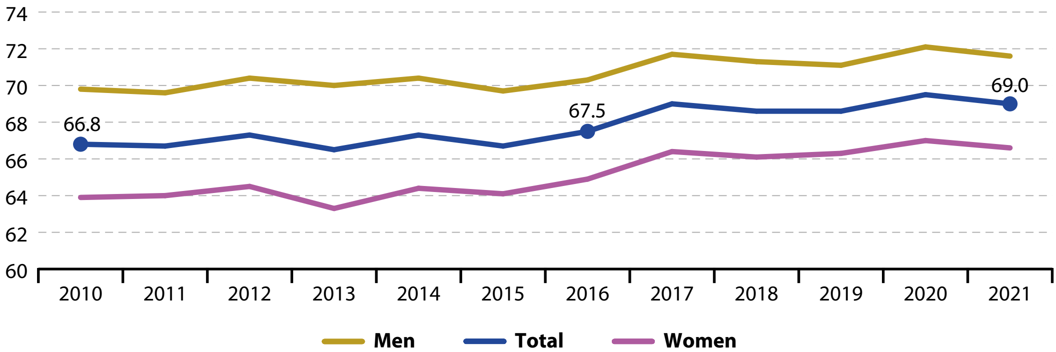
People with good or very good self-perceived health

LONG TERM 2010–2021

SHORT TERM 2016–2021

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

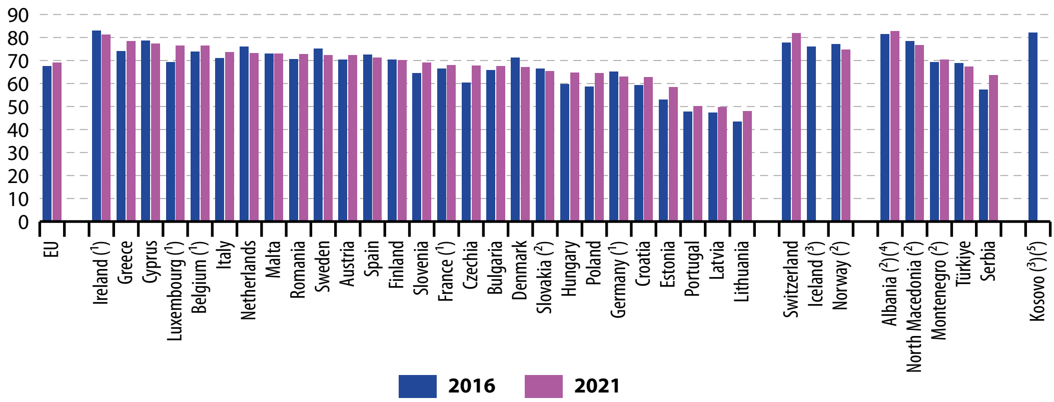
Figure 3.3: Share of people with good or very good perceived health, by sex, EU, 2010–2021
(% of population aged 16 or over)



Note: Data for 2010–2016 and for 2020 are estimated.

Source: Eurostat (online data code: sdg_03_20)

Figure 3.4: Share of people with good or very good perceived health, by country, 2016 and 2021
(% of population aged 16 over)



(¹) Break(s) in time series between the two years shown.
(²) 2020 data (instead of 2021).
(³) No data for 2021.
(⁴) 2017 data (instead of 2016).
(⁵) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_03_20)

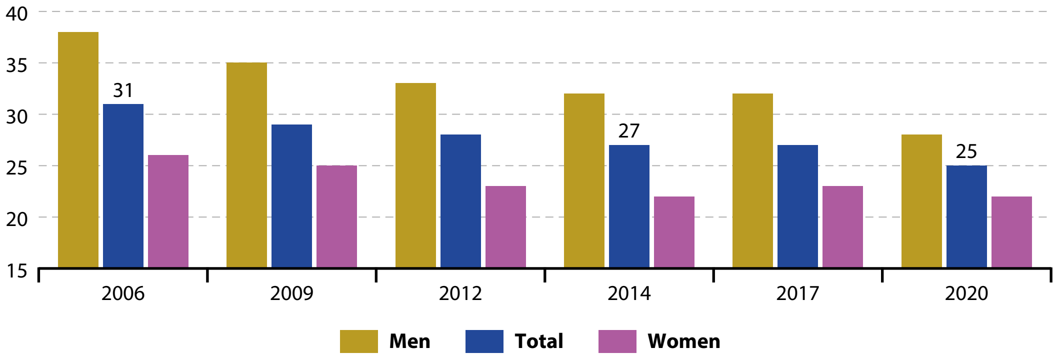
LONG TERM
2006–2020

SHORT TERM
2014–2020

Smoking prevalence

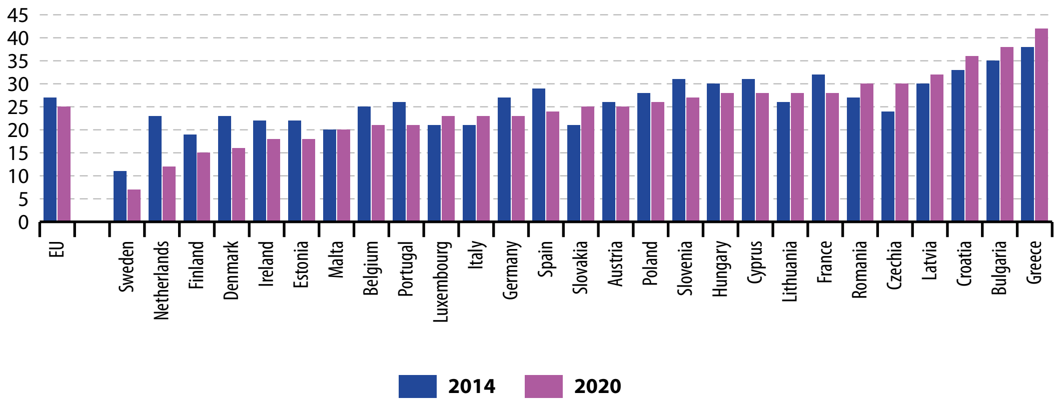
This indicator measures the percentage of the population aged 15 years and over who report they currently smoke boxed cigarettes, cigars, cigarillos or a pipe ([42]). It does not include the use of other tobacco and related products such as electronic cigarettes and snuff. The data are collected through a Eurobarometer survey ([43]) and are based on self-reported use during face-to-face interviews in people's homes.

Figure 3.5: Smoking prevalence, by sex, EU, 2006–2020
(% of population aged 15 or over)



Note: Estimated data; 2012 data excluding Croatia.
Source: European Commission services (Eurostat online data code: sdg_03_30)

Figure 3.6: Smoking prevalence, by country, 2014 and 2020
(% of population aged 15 or over)



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

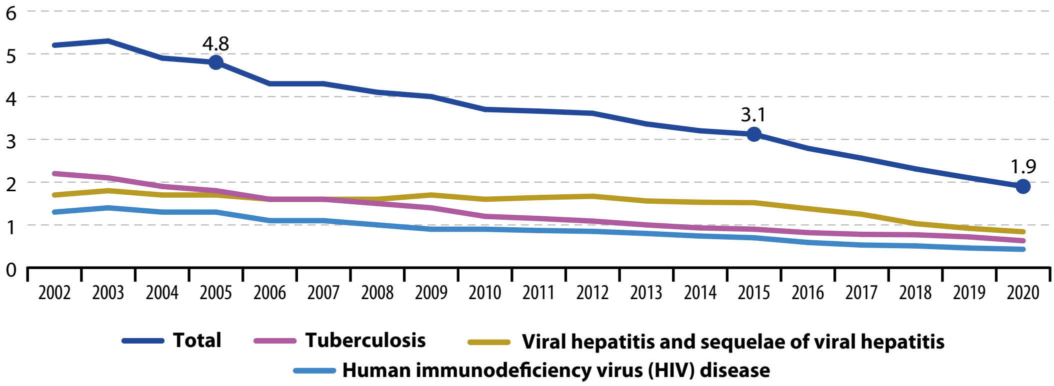
Standardised death rate due to tuberculosis, HIV and hepatitis

LONG TERM 2005–2020

SHORT TERM 2015–2020

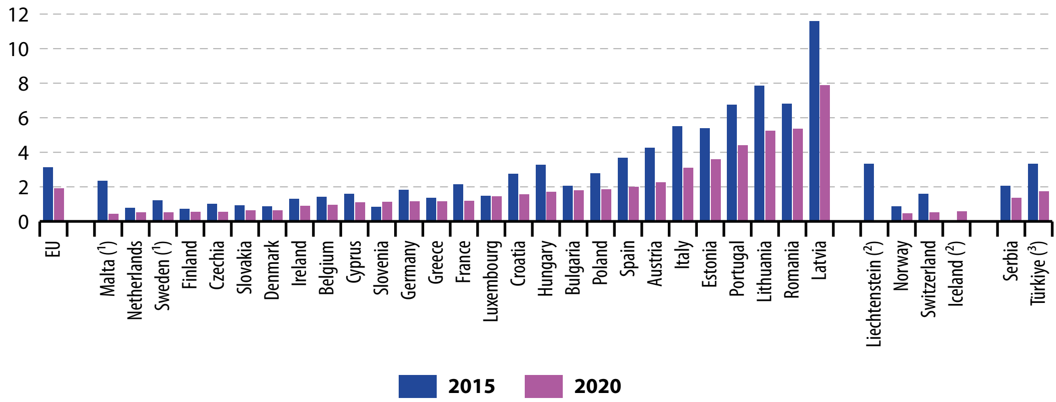
This indicator measures the age-standardised death rate of selected communicable diseases. The rate is calculated by dividing the number of people dying due to tuberculosis, HIV and hepatitis by the total population. This value is then weighted with the European Standard Population (44).

Figure 3.7: Standardised death rate due to tuberculosis, HIV and hepatitis, by type of disease, EU, 2002–2020
(number per 100 000 persons)



Note: Data for 2002–2010 are estimated; data for 2018 and 2019 are provisional.
Source: Eurostat (online data code: sdg_03_41).

Figure 3.8: Standardised death rate due to tuberculosis, HIV and hepatitis, by country, 2015 and 2020
(number per 100 000 persons)



Note: 2019 data are provisional.
(1) 2016 data (instead of 2015).
(2) 2017 data (instead of 2015).
(3) 2019 data (instead of 2020).
Source: Eurostat (online data code: sdg_03_41).

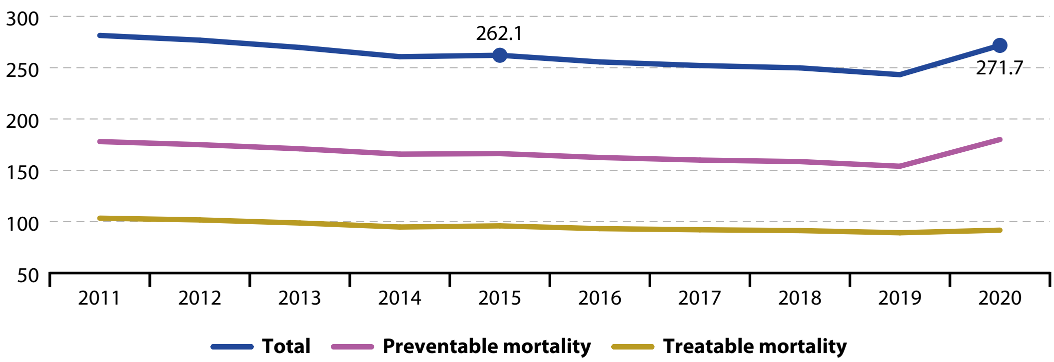
X **LONG TERM** Time series too short

SHORT TERM 2015–2020

Standardised avoidable mortality

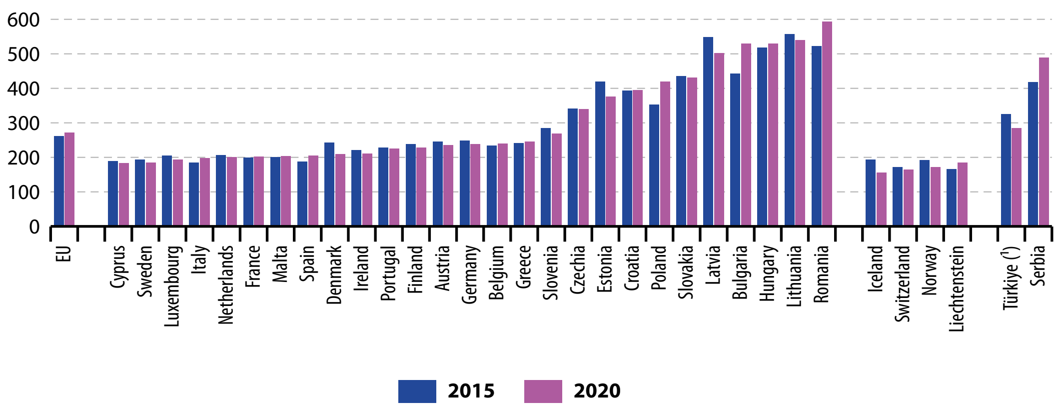
Avoidable mortality covers both preventable and treatable causes of mortality. Preventable mortality refers to mortality that can mainly be avoided through effective public health and primary prevention interventions (i.e. before the onset of diseases/injuries, to reduce incidence). Treatable mortality can mainly be avoided through timely and effective health care interventions, including secondary prevention and treatment (after the onset of diseases to reduce case-fatality). The total avoidable mortality rate includes a number of infectious diseases, several types of cancers, endocrine and metabolic diseases, as well as some diseases of the nervous, circulatory, respiratory, digestive and genitourinary systems, some diseases related to pregnancy, childbirth and the perinatal period, a number of congenital malformations, adverse effects of medical and surgical care, a list of injuries and alcohol and drug related disorders.

Figure 3.9: Standardised avoidable mortality, EU, 2011–2020
(number per 100 000 persons aged less than 75 years)



Note: Data for 2018 and 2019 are provisional.
Source: Eurostat (online data code: sdg_03_42)

Figure 3.10: Standardised avoidable mortality, by country, 2015 and 2020
(number per 100 000 persons aged less than 75 years)

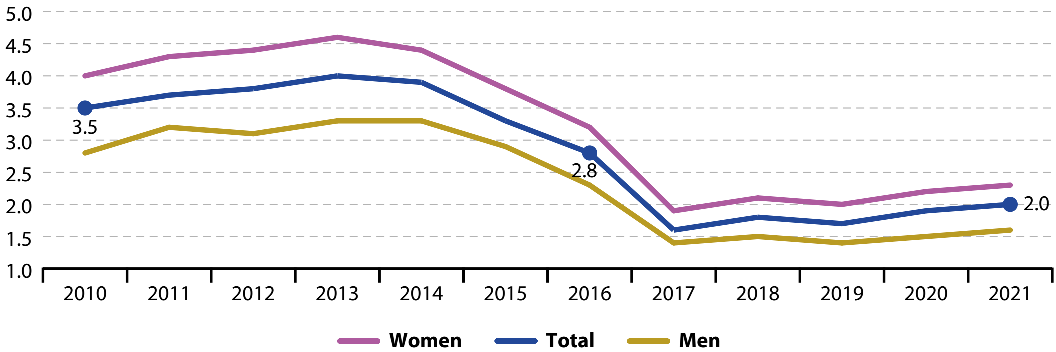


(1) 2019 data (instead of 2020).
Source: Eurostat (online data code: sdg_03_42)

Self-reported unmet need for medical care

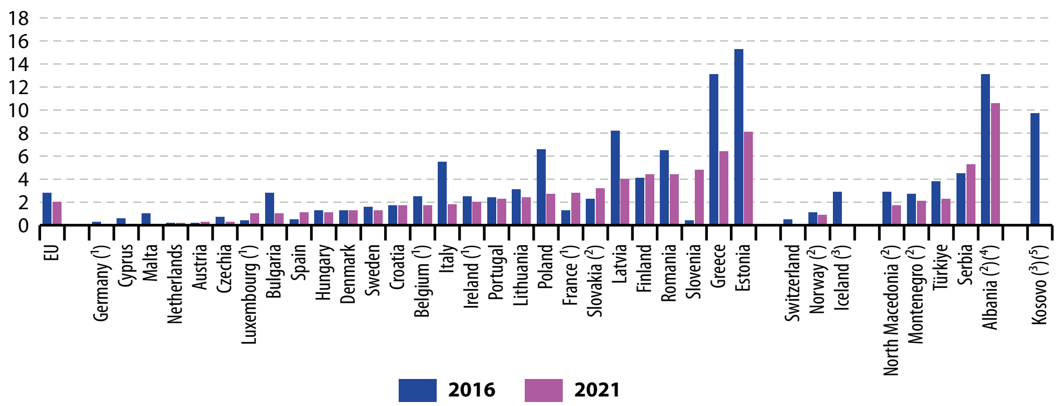
In the context of SDG monitoring, this indicator measures the share of the population aged 16 and over reporting unmet needs for medical care due to one of the following reasons: 'financial reasons', 'waiting list' and 'too far to travel'. Self-reported unmet needs concern a person's own assessment of whether they needed medical examination or treatment (dental care excluded), but did not have it or did not seek it. The data stem from the EU Statistics on Income and Living Conditions (EU-SILC). Since social norms and expectations may affect responses to questions about unmet care needs, caution is required when comparing differences in the reporting of unmet medical examination across countries. In addition, the different organisation of health care services is another factor to consider when analysing the data. Finally, there are also some variations in the survey question across countries and across time ([45]).

Figure 3.11: Self-reported unmet need for medical care, by sex, EU, 2010–2021
(% of population aged 16 and over)



Note: Data for 2010–2020 are estimated.
Source: Eurostat (online data code: sdg_03_60)

Figure 3.12: Self-reported unmet need for medical care, by country, 2016 and 2021
(% of population aged 16 and over)



([1]) Break(s) in time series between the two years shown.
([2]) 2020 data (instead of 2021).
([3]) No data for 2021.
([4]) 2017 data (instead of 2016).
([5]) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_03_60)

Notes

(1) World Health Organization (1946), *Constitution of the World Health Organization.*
(2) Source: Eurostat (online data code: sdg_03_10).
(3) Source: Eurostat (online data code: hlth_silc_18).
(4) Source: Eurostat (online data code: HLTH_DH010).
(5) OECD/EU (2020), *Health at a Glance. Europe 2020 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 12.
(6) European Commission (2023), *Excess mortality statistics.*
(7) Source: Eurostat (online data code: sdg_03_10).
(8) Source: Eurostat (online data code: DEMO_MLEXPEC).
(9) European Union Agency for Fundamental Rights (2022), *Roma Survey 2021. Roma in 10 European countries — Main results*.
(10) WHO (2017), *Social determinants of health, Evidence on social determinants of health.*
(11) World Health Organization (2021): Obesity: *New analysis from WHO/Europe identifies surprising trends in rates of overweight and obesity across the Region.*
(12) The indicator measures the share of obese people based on their body mass index (BMI). BMI is defined as the weight in kilograms divided by the square of the height in metres. People aged 18 years or over are considered obese with a BMI equal to or greater than 30. Other categories are: underweight (BMI less than 18.5), normal weight (BMI between 18.5 and less than 25), and pre-obese (BMI between 25 and less than 30). The category overweight (BMI equal or greater than 25) combines the two categories pre-obese and obese.
(13) Source: Eurostat (online data code: HLTH_EHIS_BM1E).
(14) The WHO European Region also includes some non-European countries such as Israel, Uzbekistan, Turkmenistan or Tajikistan; see https://www.euro.who.int/en/countries for the full list of countries.
(15) World Health Organization (2012), *WHO global report: mortality attributable to tobacco*.
(16) World Health Organization Regional Office for Europe (2019), *European Tobacco Use: Trends Report 2019.*
(17) OECD/EU (2014), *Health at a Glance: Europe 2014*, OECD Publishing, Paris, p. 16–17.
(18) European Commission (2021), *Attitudes of Europeans towards tobacco and electronic cigarettes*, Special Eurobarometer 506.
(19) European Environment Agency (2019), *Environmental noise.*
(20) European Environment Agency (2021), *Managing exposure to noise in Europe*.
(21) European Environment Agency (2020), *Healthy environment, healthy lives: how the environment influences health and well-being in Europe*.
(22) European Environment Agency (2021), *Managing exposure to noise in Europe*.
(23) Also see: European Environment Agency (2019), *Environmental noise.*
(24) European Commission (2016), *Next steps for a sustainable European future: European action for sustainability*, COM(2016) 739 final, Strasbourg.
(25) Mårdh,O., Quinten, C., Amato-Gauci, A. & Duffell, E. (2020), *Mortality from liver diseases attributable to hepatitis B and C in the EU/EEA — descriptive analysis and estimation of 2015 baseline*, Infectious Diseases, 52:9, 625–637.
(26) European Environment Agency (2018), *Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe*, EEA Report No 22/2018, Copenhagen.
(27) Ibid.
(28) European Environment Agency (2021), *Air quality in Europe — 2021 report*, EEA Report 15/2021, Copenhagen.
(29) Ibid.
(30) Source: Eurostat (online data code: hlth_cd_aro).
(31) European Commission (2022), *Road safety in the EU: fatalities below pre-pandemic levels but progress remains too slow.*
(32) European Commission (2023), European Accidents at Work Statistics: COVID-19 Cases with Occupational Origin.
(33) Source: Eurostat (online data code: hsw_mi08).
(34) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 3.
(35) Ibid, p. 169.
(36) European Council (2014), *Council conclusions on the economic crisis and healthcare*, 2014/C 217/02.
(37) Source: Eurostat (online data code: HLTH_DH030).
(38) Source: Eurostat (online data code: HLTH_SILC_21).
(39) Source: Eurostat (online data code: HLTH_SHA11_HF).
(40) Expert Panel on effective ways of investing in health (EXPH) (2016), *Access to health services in the European Union*, final opinion approved at the 14th plenary meeting of 3 May 2016 after public consultation, p. 18.
(41) OECD/EU (2020), *Health at a Glance. Europe 2020 — State of Health in the EU Cycle*, OECD Publishing, Paris. Data refer to different years for the Member States, ranging from 2011 to 2018.
(42) European Commission (2017), *Attitudes of Europeans towards tobacco and electronic cigarettes,* Special Eurobarometer 458, Annex.
(43) European Commission (2021), *Eurobarometers on tobacco*.
(44) Standardised death rates take into account the fact that countries with larger shares of older inhabitants also have higher death rates. See also: Eurostat (2013), *Revision of the European Standard Population*, Report for Eurostat's Task Force, Publications Office of the European Union, Luxembourg.
(45) OECD/EU (2018), *Health at a Glance: Europe 2018 — State of Health in the EU Cycle*, OECD Publishing, Paris, p. 170.

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

SDG 4 seeks to ensure access for all to quality education through all stages of life, as well as to increase the number of young people and adults who have the relevant skills for employment, decent jobs and entrepreneurship.

Education and training are key drivers for growth and jobs because they help to improve employability, productivity, innovation and competitiveness. In the broader sense, education is also a precondition for achieving many other SDGs. Monitoring SDG 4 in an EU context focuses on basic education, tertiary education, adult learning and digital skills. Over the assessed five-year period, the EU has made significant progress in increasing participation in basic and tertiary education as well as in adult learning and to a lesser extent in early childhood education. In contrast, trends in educational outcomes have been less favourable. The percentage of underachievers in the PISA test has further deteriorated, and the share of adults with at least basic digital skills remains far from its target.

Table 4.1: Indicators measuring progress towards SDG 4, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Basic education				
Low achieving 15-year-olds in reading, mathematics or science	2006–2018	Observed: 0.6 % [1] Required: –1.4 % [1]	↓	page 94
	2015–2018	Observed: 4.0 % [2] Required: – 1.9 % [2]	↓	
Participation in early childhood education	Time series too short for long-term assessment		:	page 95
	2015–2020	Observed: 0.2 % Required: 0.3 %	↗	
Early leavers from education and training	2007–2022	Observed: – 2.8 % Required: – 2.1 %	↑	page 96
	2017–2022	Observed: – 1.8 % Required: – 1.2 %	↑	
Tertiary education				
Tertiary educational attainment	2007–2022	Observed: 2.5 % Required: 1.9 %	↑	page 97
	2017–2022	Observed: 2.2 % Required: 1.4 %	↑	
Adult learning				
Adult participation in learning in the past four weeks	2007–2022	2.8 %	↑	page 99
	2017–2022	2.7 %	↑	
Digital skills				
Share of adults with at least basic digital skills	Time series too short for long- and short-term assessment		:	page 100

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(1) Trend refers to worst performance among the three subjects (science).
(2) Trend refers to worst performance among the three subjects (reading).

Policy context

The European Education Area (EEA) is the EU's policy and investment framework in the area of education that helps Member States and the wider education community work together to build more resilient and inclusive education and training systems.

Basic education and tertiary education

Four out of the seven EEA strategic framework targets to achieve by 2030 are used to monitor progress in basic and tertiary education in the EU: at least 96 % of children between the age of 3 and the starting age for compulsory primary education should participate in early childhood education and care; less than 9 % of pupils should leave education and training early; less than 15 % of 15-year-olds should be low-achievers in reading, mathematics and science; and at least 45 % of 25–34-year-olds should have a tertiary education qualification.

Basic and tertiary education are supported by the European Social Fund Plus and the European Child Guarantee. Additionally, the reinforced Youth Guarantee aims to ensure that all young people under the age of 30 receive an offer of good quality employment, continued education, apprenticeship and traineeship within a period of four months of becoming unemployed or leaving education.

The Erasmus+ programme focuses on quality and inclusive education with a commitment of more than EUR 26 billion for 2021 to 2027.

Adult learning and digital skills

The new European Skills Agenda aims to help individuals and businesses develop more and better skills and to put them to use. A Council Resolution on a new European agenda for adult learning 2021–2030 from 2021 highlights the need to significantly increase adult participation in formal, non-formal and informal learning. The European Commission responded to the new skills demand in Europe by declaring 2023 to be the European Year of Skills and promoting a mind-set of lifelong skills development. The EEA requires that by 2025 at least 47 % of adults aged 25 to 64 will have participated in learning during the past 12 months, while the EU leaders have endorsed a headline target proposed by the European Pillar of Social Rights Action Plan that by 2030 at least 60 % of all adults should be participating in training every year.

The EEA also sets the target that by 2030 less than 15 % of eighth-graders should be low-achievers in computer and information literacy. The Digital Education Action Plan (2021–2027) supports the sustainable and effective adaptation of the education and training systems of Member States to the digital age. The plan contributes to achieving the goals of the European Pillar of Social Rights Action Plan and the '2030 Digital Compass: the European way for the Digital Decade', which both have a goal for at least 80 % of people aged 16–74 to have basic digital skills.

Furthermore, the Digital Europe Programme (DIGITAL) is the first EU financial instrument designed to bring digital technology to businesses and citizens. It focuses on building the strategic digital capacities of the EU and on facilitating the wide deployment of digital technologies.

In addition, also the Recovery and Resilience Facility supports reforms and investments in general, vocational, and higher education as well as digital skills.

Quality education in the EU: overview and key trends

Basic education

Basic education covers the earliest stages in a child's educational pathway, ranging from early childhood education and care to primary and secondary education. An inclusive and quality education for all, which eliminates school segregation, is an essential element of sustainable development. SDG 4 thus aims to ensure that by 2030 all girls and boys have access to quality early childhood development, care and pre-primary education so they are ready for primary education. In addition, SDG 4 intends to ensure that all boys and girls complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes. Furthermore, SDG 4 focuses on ensuring that all youths have the literacy, numeracy and relevant skills needed for employment, decent jobs and entrepreneurship.

Participation in early childhood education and care is rising too slowly in the EU to meet the 2030 target

Early childhood education and care is usually the first step on a child's educational pathway. According to the EU Quality Framework for Early Childhood Education and Care, access to quality early childhood education and care for all children contributes to their development, well-being and educational success. Also, as highlighted in the 2022 Council Recommendation on early childhood education and care, the absence of early childhood education and care is a significant constraint on female labour market participation.

93.0% of young children in the EU participated in early childhood education and care in 2020

The 2021 Council Recommendation on a European child guarantee also emphasise the importance of equal access to quality and inclusive early childhood education and care for breaking the transmission of social exclusion and securing equal opportunities for children in a disadvantaged situation. Tackling disadvantage from early years is a cost-effective investment as it contributes to the inclusion of children and their integration into the labour market and social life when they are adults.

Participation in early childhood education is defined as the share of the population aged between three years and the starting age of compulsory primary education who take part in early education. Participation in early childhood education has risen slowly in the EU since 2014, reaching 93.0 % in 2020. Stronger progress will be necessary in the coming years to meet the target of 96 % by 2030.

Educational attainment levels in the EU are improving

Early school leaving is linked to unemployment, social exclusion, poverty and poor health. Thus, it is in the interest of societies as a whole, as well as individuals themselves, to make sure that everyone completes a certain level of education and training. Consequently, the EEA strategic framework has set a target to reduce the share of early leavers from education and training (ELET) to below 9 % by 2030.

9.6 % of people aged 18 to 24 had left education and training early in the EU in 2022

Since 2002, the ELET rate has fallen continuously in the EU, albeit more slowly in recent years. In 2022 the share had reached 9.6 %, putting the EU well on track to meeting the 2030 target. An analysis by degree of urbanisation reveals that young people living in towns and suburbs (10.6 %) and rural areas (10.0 %) were more likely to leave school early than young people living in cities (8.6 %) in 2022 ([1]). For further analyses of ELET trends by sex and citizenship, see the chapters on SDG 5 'Gender equality' on page 103 and on SDG 10 'Reduced inequalities' on page 183.

Monitoring of the 9 % target is complemented by a supplementary indicator on the completion of at least upper secondary education, which is generally considered the minimum requirement for gaining satisfactory employment in today's economy and is important for full participation in society. The indicator, which measures the share of people aged 20 to 24 with at least an upper secondary qualification, shows that 83.6 % had completed this level of education in 2022 ([2]).

Educational outcomes in reading, maths and science have continued to deteriorate

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. Low achievers 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. These pupils face having fewer opportunities in future, at both the personal and the professional level ([3]).

Abc

22.5 %
of 15-year-old pupils in the EU showed insufficient reading skills in 2018

In 2018, more than one in every five 15-year-old pupils showed insufficient abilities in one or more of these basic skills. Test results in that year showed 22.3 % of pupils were low achievers in science, followed by 22.5 % for reading and 22.9 % for mathematics ([4]). Compared with 2015, the results were a step backward, indicating the EU is lagging seriously behind in all three domains when it comes to reaching the 2030 EU-level target of reducing the share of low-achieving 15-year-olds in basic skills to less than 15 %.

Tertiary education

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

The share of people with tertiary education has increased significantly since 2002

The EEA strategic framework aims to raise the share of the population aged 25 to 34 that has completed a higher education qualification (levels 5–8 in the 2011 International standard classification of education, ISCED) to at least 45 % by 2030. As a result of an 18.9 percentage point increase since 2002, the EU reached a tertiary education attainment rate of 42.0 % in 2022 and is well on track to meeting its 2030 target. The degree of urbanisation seems to be related to tertiary attainment levels. While in 2022 more than half (52.2 %) of the population aged 25 to 34 living in cities had attained tertiary education, the rate was significantly lower for towns and suburbs (35.9 %) and rural areas (30.2 %) ([5]).

42.0 %
of the EU population aged 25 to 34 had attained tertiary education in 2022

The share of 25- to 34-year-olds with tertiary education has been growing steadily since 2002 in all Member States. This partly reflects their investment in higher education to meet the demand for a more skilled labour force. Moreover, some countries shifted to shorter degree programmes following the implementation of the Bologna process reforms. For further analyses of the trends in tertiary education by sex, see the chapter on SDG 5 'Gender equality' on page 103 and on SDG 9 'Industry, Innovation and Infrastructure' on page 165.

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 a person's career or aid their return to the labour market (upskilling and reskilling).

Adult participation in learning is growing

11.9 %
of 25- to 64-year-old adults participated in learning in the EU in 2022

Adult participation in learning monitors the share of people aged 25 to 64 who stated they received formal or non-formal education and training in the four weeks preceding the survey. While this share has grown since 2002, when it stood at 5.3 %, it has remained at a rather low level, reaching just 11.9 % in 2022. A drop to 9.1 % in 2020 might be related to the COVID-19 pandemic and the adjustments to the related contingency measures, such as lay-offs and teleworking. Similarly, for adults not in employment, enrolment into education and training programmes reduced temporarily during the beginning of the pandemic due to extended lockdown periods.

Women are more likely to participate in adult learning than men. In 2022, the share of 25- to 64-year-old women was 2.1 percentage points higher than that for men (12.9 % compared with 10.8 %, respectively). The rate for women was not only higher than for men, it had also been improving faster, gaining 7.4 percentage points since 2002, compared with 5.8 percentage points for men. The participation rate in adult learning also differs in terms of degree of urbanisation. In 2022, adults living in cities were more likely to participate in learning (14.6 %) than those living in towns and suburbs (10.6 %) or rural areas (9.0 %) [6].

While the above-mentioned indicator is based on the question of whether adults participated in learning during the four weeks preceding the survey, the target defined in the EEA strategic framework and the European Pillar of Social Rights Action Plan refers to the share of adults participating in learning during the past 12 months. Baseline data for the target definition have so far only been collected in 2016 [7]. At that time, the share stood at 37.4%, which is 9.6 percentage points below the EU target of 47 % for 2025 and 22.6 percentage points below the 2030 target of 60 %. Participation rates were particularly low for low-educated adults (ISCED 2011 levels 0–2), at 17.9 %. The European Skills Agenda consequently also set a target for raising the share of adults aged 25 to 64 with low qualification and who participated in learning during the past 12 months to 30 % by 2025. In contrast to this group, more than half (58.1 %) of adults with tertiary education (ISCED 2011 levels 5–8) participated in learning in 2016.

Digital skills

Digitalisation is having a massive impact on the labour market and the type of skills needed in the economy and society. Thus, digital skills are of critical value for working, learning and social interaction. The COVID-19 pandemic accentuated the digital skills gap that already existed and new inequalities are emerging as many people still do not have a basic level of digital skills or are in workplaces or schools that are lagging behind in digitalisation.

The share of people with at least basic digital skills remains far from the 2030 target

The European Pillar of Social Rights Action Plan has set a complementary target for the EU to raise the share of people aged 16 to 74 who have at least basic digital skills to 80 % in 2030. This target is monitored using the composite indicator for digital skills, based on selected activities performed by individuals on the internet in specific areas: information and data literacy, communication and collaboration, digital content creation, safety and problem solving. The level of 'at least basic digital skills' refers to the two highest out of six levels derived from the survey on the use of information and communication technologies (ICT) in households and by individuals. It is assumed that individuals who can perform certain activities have the desired digital skills, therefore the indicator can be considered as a proxy for the digital competences and skills of individuals.

53.9 %
of 16- to 74-year-old people in the EU had at least basic digital skills in 2021

In 2021, the share of people aged 16 to 74 with at least basic digital skills stood at 53.9 % and thus at a level considerably below the 80 % target for 2030. In contrast to most other education indicators presented in this chapter, fewer women (52.3 % in 2021) had at least basic digital skills than men (55.6 %). Age and formal education also affect a person's level of digital skills. While 71.2 % of 16- to 24-year-olds had basic or above-basic overall digital skills in 2021, this was only the case for 62.1 % of 25- to 54-year-olds. Older people struggle in particular with the use of digital media, with only 34.6 % of people aged 55 to 74 having at least basic digital skills in 2021. Additionally, 79.0 % of people with high formal education had such digital skills in 2021, while this was only the case for 31.9 % of people with no or low formal education ([8]).

Digital competences constitute an essential skill for participating in a technology-driven world. In the EEA strategic framework, the EU sets a target for the share of low-achieving eighth-graders in computer and information literacy to be less than 15 % by 2030. One of the key findings of the 2018 study shows that young people do not develop sophisticated digital skills just by growing up using digital devices: in 8 out of 13 Member States participating in the International Computer and Information Literacy Study (ICILS), more than one-third of pupils achieved scores below level 2 on the ICILS CIL scale. This level can be defined as the threshold for underachievement in digital competence ([9]).

Presentation of the main indicators

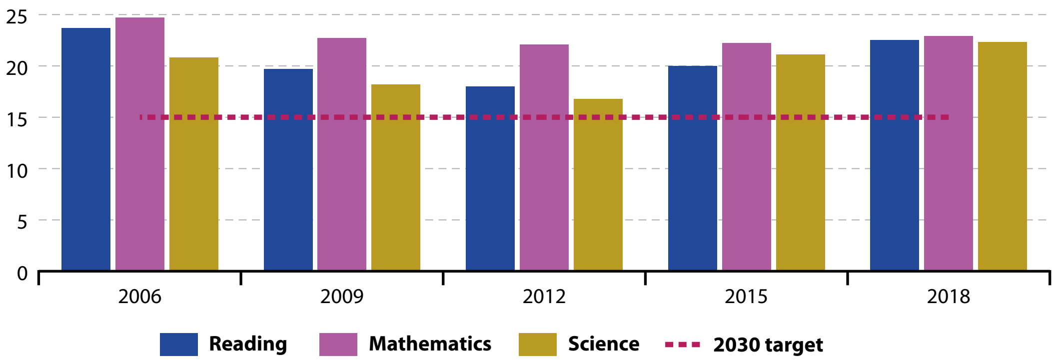
LONG TERM
2006–2018

SHORT TERM
2015–2018

Low achieving 15-year-olds in reading, mathematics or science

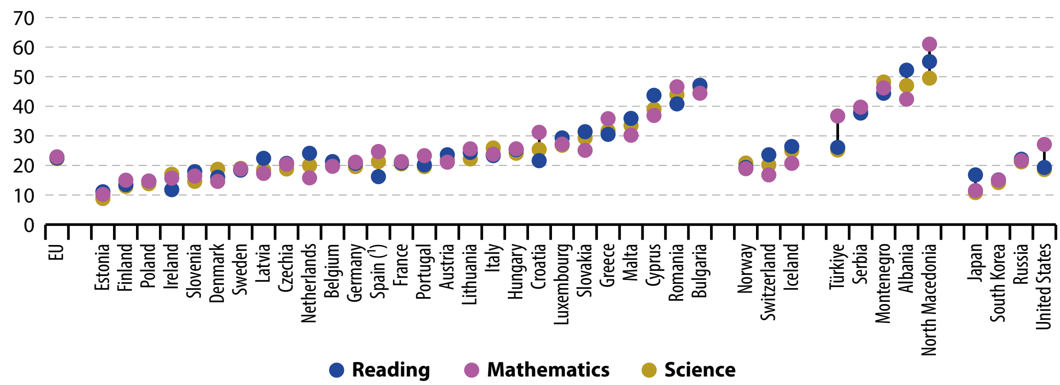
This indicator measures the share of 15-year-old students failing to reach level 2 ('basic skills level') on the Programme for International Student Assessment (PISA) scale for the three core school subjects of reading, mathematics and science. The data stem from the PISA study, a triennial international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

Figure 4.1: Low achieving 15-year-olds in reading, mathematics or science, EU, 2006–2018
(% of 15-year-old students)



Source: OECD (Eurostat online data code: sdg_04_40)

Figure 4.2: Low achieving 15-year-olds in reading, mathematics or science, by country, 2018
(% of 15-year-old students)



(¹) 2015 data for reading.

Source: OECD (Eurostat online data code: sdg_04_40)

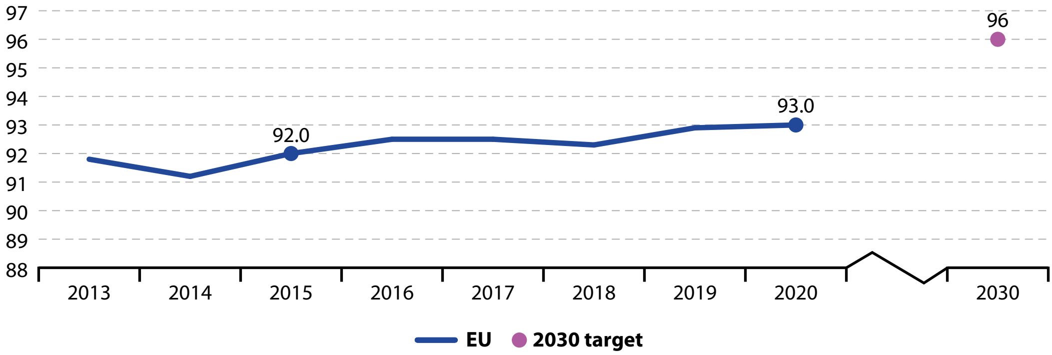
Participation in early childhood education

LONG TERM
Time series too short

SHORT TERM
2015–2020

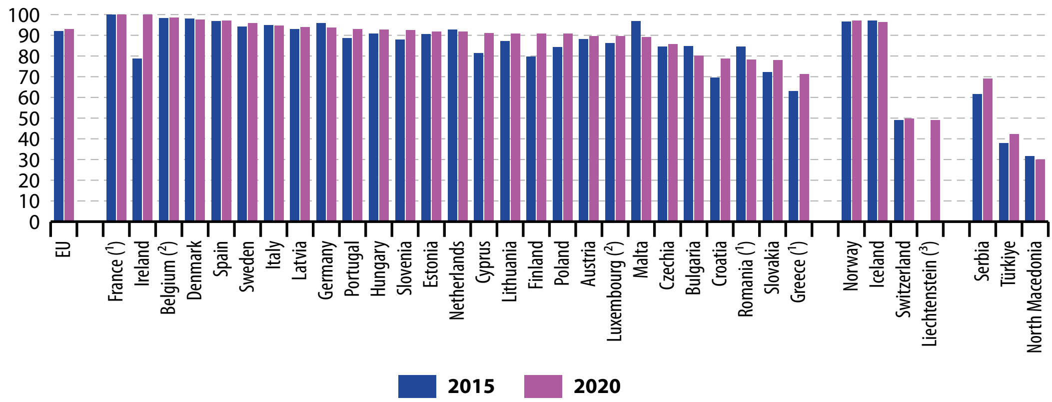
This indicator measures the share of children between the age of three and the starting age of compulsory primary education who participated in early childhood education. Data presented here stem from the joint UIS (UNESCO Institute of Statistics)/OECD/Eurostat (UOE) questionnaires on education statistics,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

Figure 4.3: Participation in early childhood education, EU, 2013–2020
(% of children aged 3 and over)



Source: Eurostat (online data code: sdg_04_31)

Figure 4.4: Participation in early childhood education, by country, 2015 and 2020
(% of children aged 3 and over)



(1) 2020 data are estimated or provisional.
(2) Break(s) in time series between the two years shown.
(3) No data for 2015.

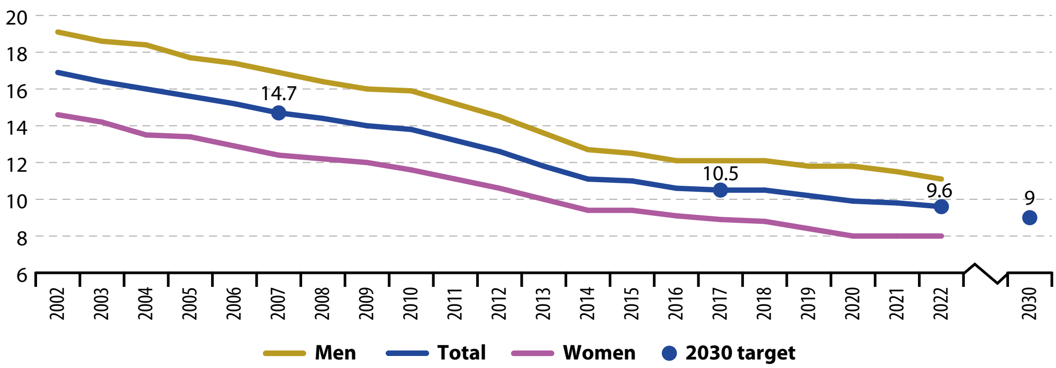
Source: Eurostat (online data code: sdg_04_31)

LONG TERM 2007–2022
SHORT TERM 2017–2022
* Total ** Gender gap

Early leavers from education and training

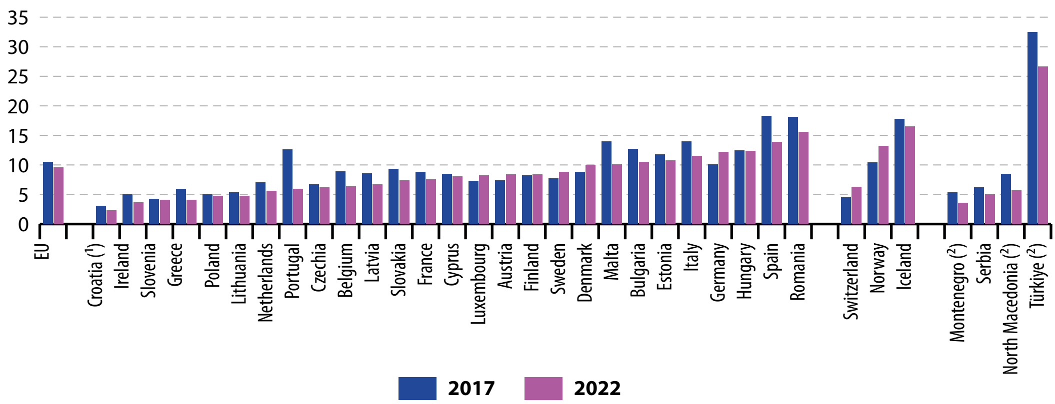
The indicator measures the share of the population aged 18 to 24 with at most lower secondary education who were not involved in any education or training during the four weeks preceding the survey. The data stem from the EU Labour Force Survey (EU-LFS).

Figure 4.5: Early leavers from education and training, by sex, EU, 2002–2022
(% of population aged 18 to 24)



Note: Breaks in time series in 2003, 2006, 2014 and 2021.
Source: Eurostat (online data code: sdg_04_10)

Figure 4.6: Early leavers from education and training, by country, 2017 and 2022
(% of population aged 18 to 24)



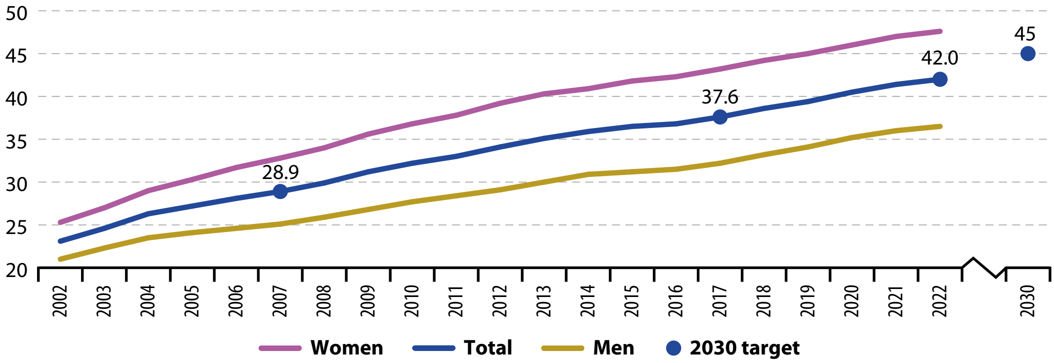
Note: Break in time series in 2021 for all countries.
(1) 2022 data have lower reliability.
(2) 2020 data (instead of 2022).
Source: Eurostat (online data code: sdg_04_10)

Tertiary educational attainment

LONG TERM 2007–2022
SHORT TERM 2017–2022
* Total ** Gender gap

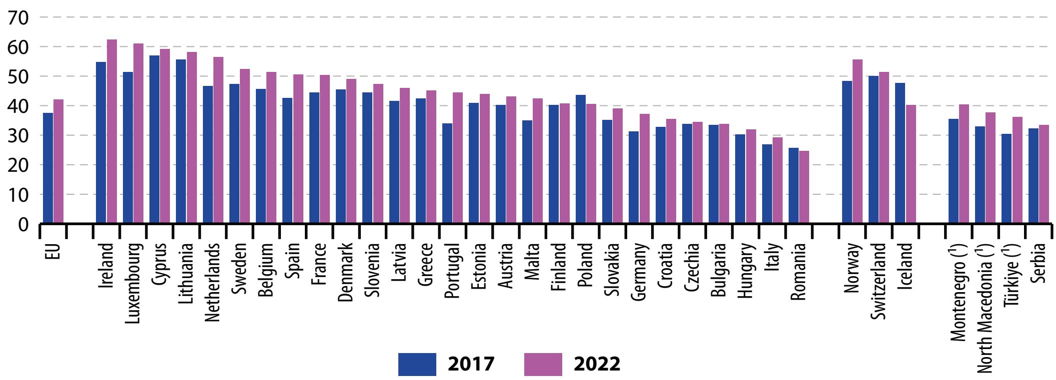
This indicator measures the share of the population aged 25 to 34 who have successfully completed tertiary studies (for example, at university or a higher technical institution). Tertiary educational attainment refers to ISCED (International Standard Classification of Education) 2011 levels 5–8 for data from 2014 onwards and to ISCED 1997 levels 5–6 for data up to 2013. The indicator is based on the EU Labour Force Survey (EU-LFS).

Figure 4.7: Tertiary educational attainment, by sex, EU, 2002–2022
(% of population aged 25 to 34)



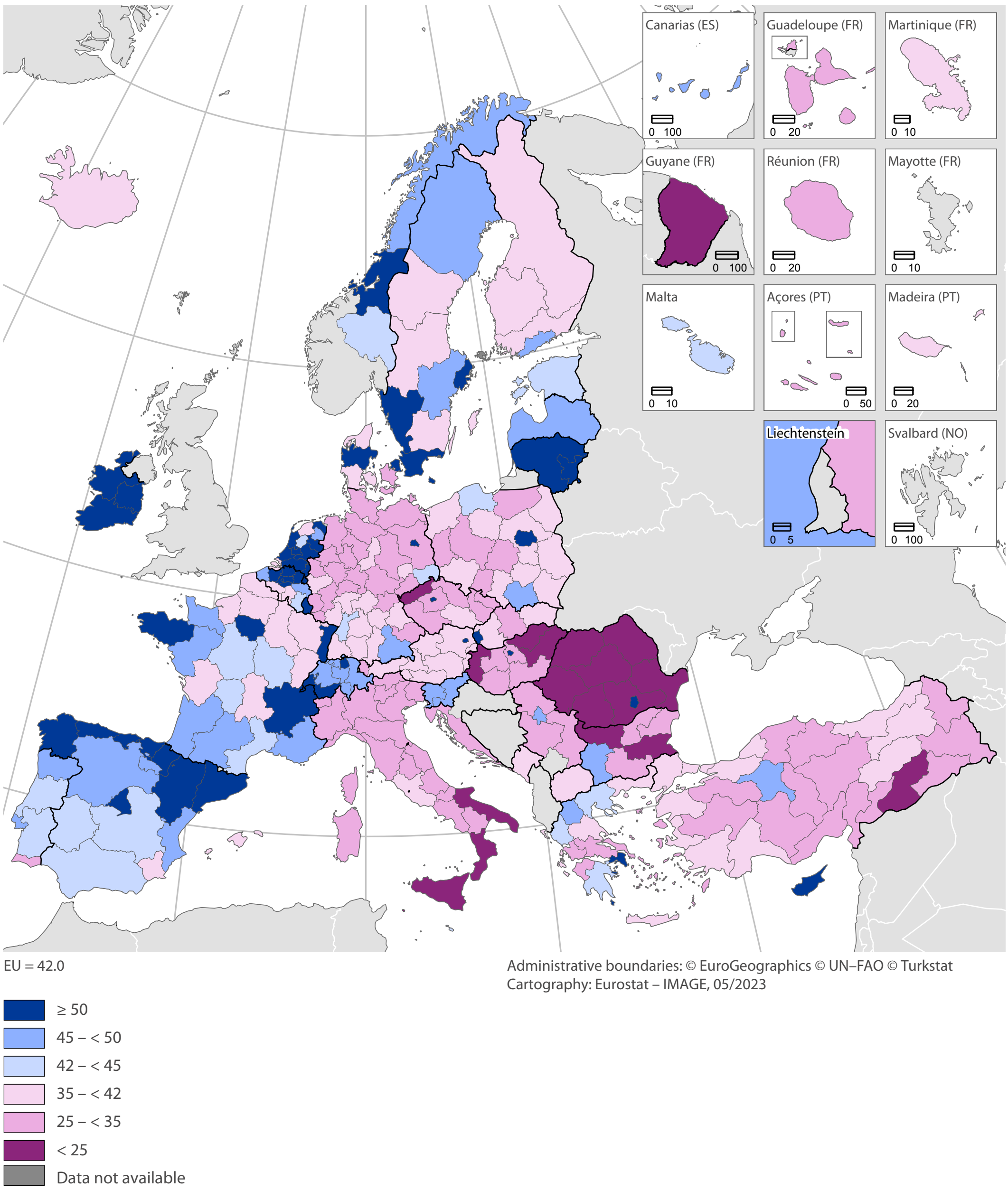
Note: Breaks in time series in 2014 and 2021.
Source: Eurostat (online data code: sdg_04_20)

Figure 4.8: Tertiary educational attainment, by country, 2017 and 2022
(% of population aged 25 to 34)



Note: Break in time series in 2021 for all countries.
(¹) 2020 data (instead of 2022).
Source: Eurostat (online data code: sdg_04_20)

Map 4.1: Tertiary educational attainment, by NUTS 2 region, 2022
(% of population aged 25 to 34)



Note: 2020 data for Corse (FR) as well as for all regions in Montenegro, North Macedonia and Turkey.
Source: Eurostat (online data code: edat_lfse_04)

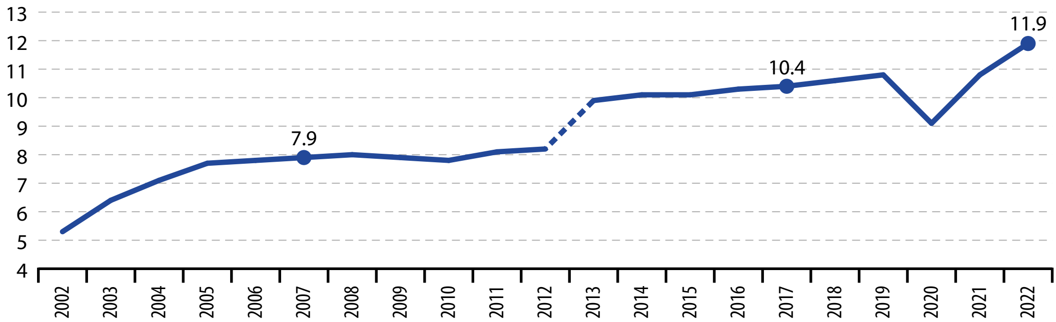
Adult participation in learning in the past four weeks

LONG TERM 2007–2022

SHORT TERM 2017–2022

Adult participation in learning refers to people aged 25 to 64 who stated they received formal or non-formal education and training in the four weeks preceding the survey (numerator). The denominator consists of the total population of the same age group, excluding those who did not answer the question 'participation in education and training'. Adult learning covers formal and non-formal learning activities — both general and vocational — undertaken by those aged 25–64 [10]. Data stem from the EU Labour Force Survey (EU-LFS).

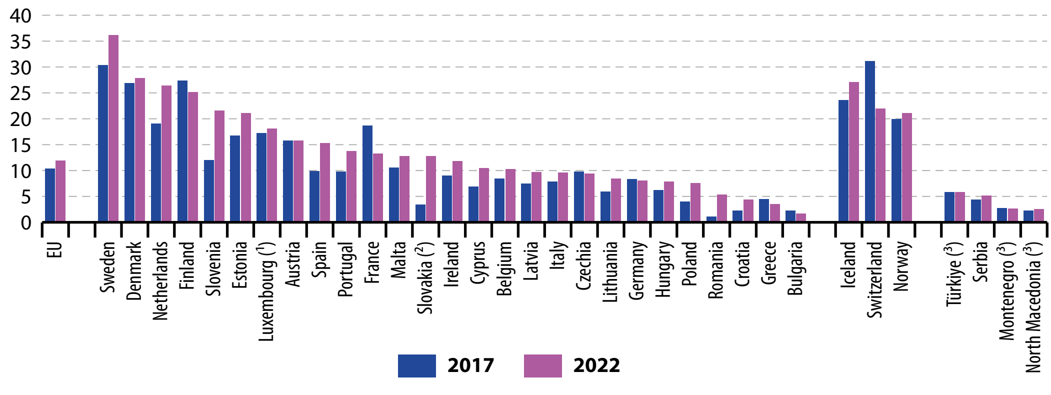
Figure 4.9: Adult participation in learning in the past four weeks, EU, 2002–2022
(% of population aged 25 to 64)



Note: Breaks in time series in 2003, 2006, 2013 and 2021.

Source: Eurostat (online data code: sdg_04_60)

Figure 4.10: Adult participation in learning in the past four weeks, by country, 2017 and 2022
(% of population aged 25 to 64)



Note: Break in time series in 2021 for all countries.
(1) 2022 data have lower reliability.
(2) Break in time series in 2022.
(3) 2020 data (instead of 2022).

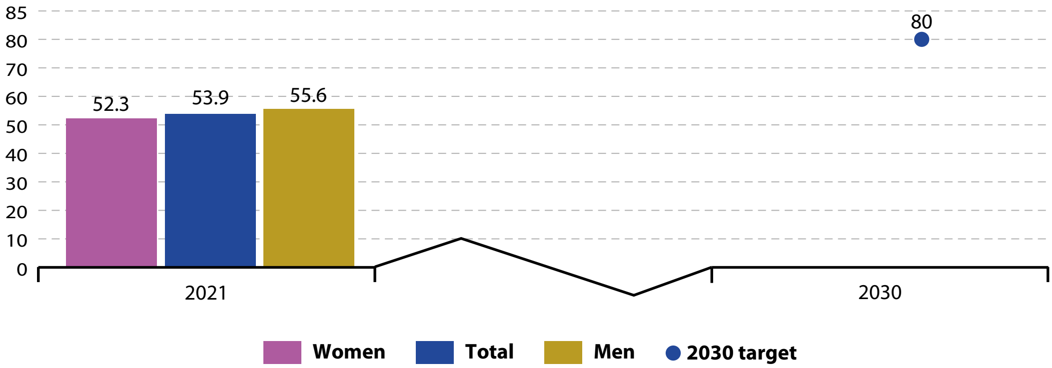
Source: Eurostat (online data code: sdg_04_60)

X LONG TERM Assessment not possible due to break in time series in 2021

Share of adults having at least basic digital skills

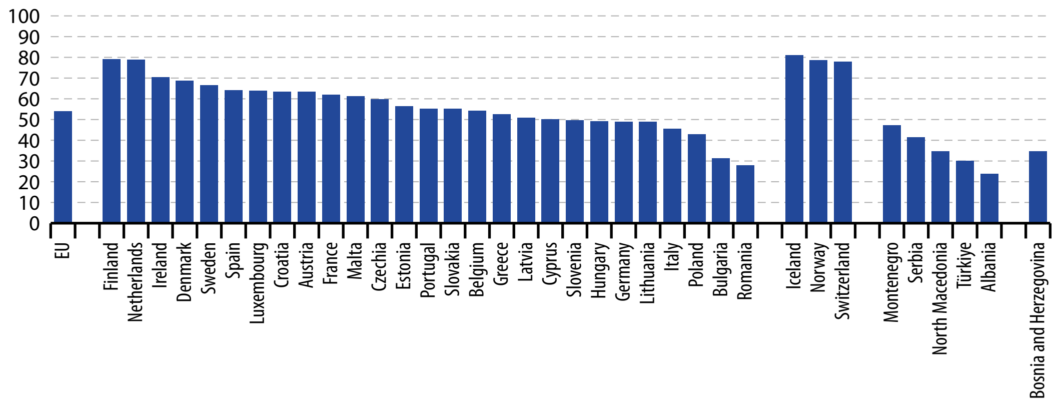
This indicator measures the share of people aged 16 to 74 who have at least basic digital skills. It is a composite indicator based on selected activities performed by individuals on the internet in specific areas: information and data literacy, communication and collaboration, digital content creation, safety and problem solving. The indicator assesses digital skills classified into six levels, of which the two highest constitute the basic or above basic level of digital skills. The indicator is based on data from the EU survey on the use of ICT in households and by individuals.

Figure 4.11: Share of adults having at least basic digital skills, by sex, EU, 2021
(% of individuals aged 16 to 74)



Source: Eurostat (online data code: sdg_04_70)

Figure 4.12: Share of adults having at least basic digital skills, by country, 2021
(% of individuals aged 16 to 74)



Source: Eurostat (online data code: sdg_04_70)

Notes

([1]) Source: Eurostat (online data code: edat_lfse_30).
([2]) Source: Eurostat (online data code: yth_educ_030).
([3]) European Commission (2019), *PISA 2018 and the EU. Striving for social fairness through education*, p. 7.
([4]) Within the EU weighted averages for 2018, Spain's results were excluded for reading. The PISA results for 2022 will only be released in December 2023 and are therefore not included in the analysis.
([5]) Source: Eurostat (online data code: edat_lfs_9913).
([6]) Source: Eurostat (online data code: trng_lfs_14).
([7]) Source: Eurostat, adult education survey (AES).
([8]) Source: Eurostat (online data code: ISOC_SK_DSKL_I21).
([9]) For more information see: European Commission (2022), Education and Training Monitor 2022 (europa.eu)
([10]) The general definition of adult learning covers formal, non-formal and informal training but the indicator adult participation in learning only covers formal and non-formal education and training. For more information, see: Eurostat, Participation in education and training.

5 Achieve gender equality and empower all women and girls

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

5 GENDER EQUALITY

Ending all forms of discrimination against women and girls and empowering women are crucial to accelerating sustainable development in the EU. Thus, monitoring SDG 5 in an EU context focuses on the topics of gender-based violence, access to quality education, participation in employment, equal payment and a balanced representation in leadership positions. Over the assessed five-year period, the EU has made strong progress in most of these areas. The gender gaps for certain labour market-related indicators have narrowed, even though stronger progress will be needed to reach the 2030 target of halving the gender employment gap. Moreover, the EU has improved in terms of women occupying leadership positions, but differences between women and men remain far from parity. The situation is reversed in the area of participation in education. While the gender gap for early school leaving is narrowing, men continue to fall further behind women in terms of tertiary educational attainment levels.

Table 5.1: Indicators measuring progress towards SDG 5, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Gender-based violence				
Physical and sexual violence to women	Assessment not possible due to lack of EU-level time series		:	page 111
Education				
Gender gap for early leavers from education and training (*)	2007–2022	– 2.5 %	↑	SDG 4, page 96
	2017–2022	– 0.6 %	↗	
Gender gap for tertiary educational attainment (*)	2007–2022	2.5 % (1)	↓	SDG 4, page 97
	2017–2022	0.2 % (1)	↘	
Employment				
Gender employment gap	2009–2022	Observed: – 1.7 % Required: – 4.1 %	↘	page 112
	2017–2022	Observed: – 1.1 % Required: – 5.3 %	↘	
Gender pay gap in unadjusted form	2010–2021	– 2.0 %	↑	page 113
	2016–2021	– 3.4 %	↑	
Gender gap – people outside the labour force due to caring responsibilities	2007–2022	– 2.7 %	↑	page 114
	2017–2022	– 4.4 %	↑	
Leadership positions				
Seats held by women in national parliaments	2007–2022	2.3 %	↑	page 115
	2017–2022	1.6 %	↑	
Positions held by women in senior management	2007–2022	7.9 %	↑	page 116
	2017–2022	5.1 %	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.
(1) Gender gap is widening to the disadvantage of men.

Policy context

The EU Gender Equality Strategy 2020–2025 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 path in life, have equal opportunities to thrive and can equally participate in and lead European society.

Under EU Cohesion Policy, Member States have to ensure that equality between men and women, gender mainstreaming and the integration of a gender perspective are taken into account and promoted throughout the preparation, implementation, monitoring, reporting and evaluation of programmes.

Under the European Social Fund Plus (ESF+), Member States have the obligation to programme targeted actions to promote gender equality, equal opportunities and non-discrimination, including in addressing gender-based violence, ensuring access to education and employment, as well as promoting social inclusion.

Gender-based violence

The benchmark for international standards in gender-based violence is the Istanbul Convention, which the EU signed in 2017, and the EU Strategy on victims' rights (2020–2025) which guarantees that all victims of crime can fully rely on their rights, no matter where in the EU the crime took place. Ending gender-based violence is one of the key objectives of the EU Gender Equality Strategy 2020–2025. It is also a subject of the European Parliament resolution on the situation of women with disabilities.

Education

The Strategic framework for European cooperation in education and training (2021–2030) prioritises improving quality, equity, inclusion and success for all in education and sets a monitoring framework via policy targets to be achieved by 2030.

Employment

A proposal on pay transparency is aimed at ensuring women and men in the EU get equal pay for equal work.

The European Pillar of Social Rights Action Plan proposes a new EU headline target of raising the overall employment rate to at least 78 % by 2030. This includes the complementary target of halving the gender employment gap by 2030 compared with 2019 levels.

The Work-life Balance Directive aims to help women and men reconcile work and caring responsibilities and promote gender equality.

Leadership positions

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. The Women on Boards' Directive seeks to improve the gender balance in corporate decision-making positions in the EU's largest listed companies. The Directive proposes a target for the under-represented sex to make up 40 % of non-executive board members or 33 % of all directors by 2026.

Gender equality in the EU: overview and key trends

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 and harm 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, a survey from the European Union Agency for Fundamental Rights (FRA) revealed that 8 % of women in the EU had experienced physical and/or sexual violence by a partner or non-partner in the 12 months prior to the interview. Younger women were more likely to report having been subjected to violence; 12 % of women aged 18 to 29 had experienced physical or sexual violence in the 12 months prior to the interview, whereas 5 % of women aged 50 to 59 had been affected. Over a longer time period, every third woman (33 %) in the EU reported having experienced physical or sexual violence since the age of 15 in the FRA survey from 2012 (1). In 2022, Eurostat published the first results of a new EU survey on gender-based violence against women. While the full sample of this new data collection is not yet available, the released data for the first batch of countries show that in France, Austria and the Netherlands more than a third of women have experienced physical or sexual violence during their adulthood, with the highest share of more than 40 % in the Netherlands (2). Women with disabilities are even more likely to be a victim of physical and/or sexual violence, at a rate that is two to five times higher than the rate for women without disabilities (3).

8 %
of women in the EU in 2012 had experienced physical or sexual violence during the past 12 months

Data from official crime statistics on intentional homicide and sexual offences show that women are much more likely to be a victim of such crimes than men. In 2020, 49 out of 100 000 women were victims of sexual assault, and 28 out of 100 000 women were victims of rape. The rates were significantly lower for men, with 9 per 100 000 men for sexual assault and 3 out of 100 000 men for rape (4). Moreover, women are about twice as likely as men to be a victim of intentional homicide by family and relatives or their intimate partner. In 2020, 0.4 out of 100 000 women were victims of such homicide, compared with only 0.2 per 100 000 men (5). In Western Europe this type of homicide notably increased during the pandemic (6).

The prevalence of violence varies greatly across the EU. However, caution is needed when comparing countries' official crime statistics. Their comparability can be affected, for example, by different legal and criminal justice systems or criminal law and legal definitions such as those concerning offenders, victims or prosecutable age. Also, aspects such as the organisation and efficiency of the police, prosecution and courts or recording and reporting systems contribute to cross-country differences (7). The limitations of comparability also include the stigma associated with disclosing cases of violence against women in certain settings and to certain people, including to interviewers. 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 (8).

Education

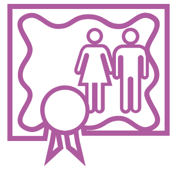
Education is a driving force for social change and a condition for the achievement of fundamental human rights. Also, equipping people with the right skills allows them to find quality jobs and improve their chances in life and thus combat the risks of social exclusion. Economic independence also makes it easier to leave a difficult situation, such as a violent home [9]. In education and training, it is important to eliminate gender stereotypes and promote gender balance in traditionally 'male' or 'female' fields. In general, equal access to quality education and training is thus an important foundation for gender equality and an essential element of sustainable development.

Young women outperform men in terms of education

Women overall tend to perform better than men when it comes to early leaving from education and training in the EU. In 2022, 11.1 % of men and 8.0 % of women aged 18 to 24 had left education and training earlier, meaning with at most lower secondary education while not being in further education and training. Although this gap narrowed between 2002 and 2016, it widened again over the following four years. Since 2020, women's early leaving rate has stagnated at 8.0 %, while the rate for men fell by 0.8 percentage points. As a result, the gender gap in 2022 was slightly below the value recorded five years earlier, but remained substantial, at 3.1 percentage points.

The rate of early leavers from education and training among men in the EU was
3.1
percentage points higher than among women in 2022

A major expansion in higher education systems has taken place in the EU since the early 2000's, when the Bologna process put in motion a series of reforms to make European higher education more compatible, comparable, competitive and attractive for students. As a result, the share of the population aged 25 to 34 who completed tertiary education increased steadily between 2002 and 2022. The increase was particularly strong for women, whose tertiary educational attainment rate rose from 25.3 % in 2002 to 47.6 % in 2022. For men, the increase was slower, from 21.0 % to 36.5 %. This caused the gender gap to surge from 4.3 percentage points to 11.1 percentage points between 2002 and 2022.



The tertiary educational attainment rate of women in the EU was
11.1
percentage points higher than for men in 2022

Employment

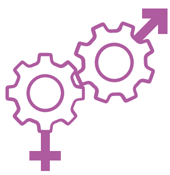
Ensuring high employment rates for both men and women is one of the EU's key targets. Reducing the wide gender employment gap, which measures the difference between the employment rates of men and women aged 20 to 64, is important for equality and a sustainable economy. The European Pillar of Social Rights Action Plan consequently includes the target of at least halving the gender employment gap by 2030 compared with 2019.

Women tend to be more highly educated than men in most EU countries. Despite this, women are still paid less, as evidenced by the persistent gender pay gap. Women in the EU are over-represented in low-paid sectors and under-represented in well-paid sectors. Because of the gender pay gap, and interrupted and shorter working lives, women earn less over their lifetime than men. The correlation between women's lower employment rate and caring responsibilities aggravates women's risk of poverty and social exclusion, especially in old age, as employment and pay gaps largely influence the gender pension gap.

Women are still less likely to be employed than men, and the EU is not on track to halving its gender employment gap by 2030

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 ([10]). Parenthood and caring responsibilities, limited access to quality childcare and monetary disincentives to participate in the labour market have a negative impact on the gender employment gap ([11]).

In the EU, the employment rate for women grew from 60.6 % in 2009 to 69.3 % in 2022. For men, the rate started from a higher value and increased more slowly, from 74.0 % in 2009 to 80.0 % in 2022 (see the chapter on SDG 8 'Decent work and economic growth' on page 149 for more detailed analyses on employment rates). As a result, the gender employment gap narrowed by 2.7 percentage points between 2009 and 2022. Most of this decrease took place in the period leading up to 2014, with the gap remaining at just over 11 percentage points until 2020 and further decreasing during the next two years. Although the drop to 10.7 percentage points in 2022 represents a new record low, it also means that the proportion of working-age men in employment still considerably exceeds that of women. Moreover, the gap is not narrowing quickly enough for the EU to be on track to meeting its 2030 target of at least halving the gender employment gap compared with 2019. Meeting this target would require the difference between men's and women's employment rates to be reduced to 5.6 percentage points or lower.



The gender employment gap (in favour of men) was
10.7
percentage points in the EU in 2022

An analysis by degree of urbanisation shows a variation in the gender employment gap between cities, towns and suburbs and rural areas. In 2022, the gap was smallest in cities, at 8.9 percentage points, while it amounted to 11.8 percentage points in rural areas and 12.1 percentage points in towns and suburbs ([12]).

There is also a clear difference between employed women and men aged 20 to 64 when looking at the rate of part-time working. In 2022, 27.8 % of women in this age group worked part-time, while this was the case for only 7.6 % of men. This difference resulted in a gender gap of 20.2 percentage points for part-time employment. Caring responsibilities for children or for adults with disabilities were a main reason for this gap. In 2022, 27.1 % of women working part-time reported caring responsibilities as the main reason for doing so, compared with only 6.3 % for men ([13]). The gender gap for employed persons with temporary contracts was much less pronounced, at 2.5 percentage points in 2022 (12.4 % of women and 9.9 % of men) ([14]).

The COVID-19 pandemic further highlighted ongoing challenges related to women's participation in the labour market. According to the Joint Employment Report 2022, there is no evidence of a stronger negative impact on employment rates of women compared with men, but women experienced a steeper fall in working hours than men during confinement periods. Reasons behind these developments can be found in differences in the representation of women and men in sectors and occupations affected by the crisis, but also in gender differences in working from home ([15]) and the fact that women took on the larger share of caring responsibilities ([16]). In addition, single women with children experienced larger employment losses during the pandemic than those without children. This underlines the importance of child-care and long-term care services to increase the labour market participation of women ([17]).

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

Women do not only have lower employment rates than men, they also tend to earn less. Between 2016 and 2021, the gender pay gap narrowed by 2.4 percentage points in the EU. However, in 2021, women's gross hourly earnings in the EU were still on average 12.7 % below those of men.

There are various reasons for the existence and size of the gender pay gap. A part of the difference in earnings between men and women may be explained by the 'sectoral gender segregation', meaning that women tend to be concentrated in the low-paying economic sectors such as education and health, whereas men tend to work more in the finance and IT sectors. Similarly, the 'occupational gender segregation' may also explain the difference in earnings between men and women because men are more likely to be promoted to supervisory and management positions than women due to discrimination or self-restraints. The term 'glass ceiling' is usually used as a metaphor to describe an invisible barrier that keeps women from rising beyond a certain level in an enterprise's hierarchy ([18]). Moreover, the inequalities that women face in gaining access to work, career progression and rewards, along with the consequences of career breaks or part-time work due to caring responsibilities, labour market segregation, the parenthood penalty and stereotypes about the roles of men and women are inevitably linked to the persistent gender pay gap.

Men earned 12.7 % more than women in the EU in 2021

More women than men are outside the labour force due to caring responsibilities

Women still tend to take on a larger share of caring responsibilities for children and other family members. In 2022, 0.9 % of the total population (aged 20 to 64) was outside of the labour force due to caring responsibilities, which can be attributed to the lack of available, accessible and quality formal care services, especially for children ([19]). By comparison, 1.5 % of women were economically inactive due to caring responsibilities in 2022, which was five times higher than the rate of 0.3 % for men. This resulted in a gender gap of 1.2 percentage points.

The gender gap (in favour of men) for inactivity due to caring responsibilities in the EU in 2022 was 1.2 percentage points

The overall inactivity rate due to caring responsibilities has stagnated at around 1.0 % since 2017. For women, the rate fell by 0.3 percentage points, while the share of men being outside the labour force due to caring responsibilities remained at 0.3 % over the past five years. As a result, the gender gap has narrowed by 0.3 percentage points since 2017.

Leadership positions

Traditional gender roles, a lack of support to allow women and men to balance care responsibilities with work, and political and corporate cultures are some of the reasons why women are underrepresented in decision-making processes. Promoting equality between women and men in this area is one of the priorities the EU has set for achieving gender equality.

The increase in the share of seats held by women in national parliaments stalled in 2022

Women held 32.5 % of seats in national parliaments in the EU in 2022. This share increased steadily between 2003 and 2021, but experienced a decline in 2022 compared with the peak in 2021 of 33.1 %. While differences between Member States vary greatly, from 46.4 % seats held by women in Sweden to 13.1 % in Hungary, there was no single EU country in 2022 where women held the most seats.

32.5 % of seats in national parliaments in the EU were held by women in 2022

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 33.9 % in 2022, although this was an 11.3 percentage point increase from 22.6 % in 2003. The number of female heads of government in EU countries has also shown an increase. In 2022, there were on average six female heads of government compared with none in 2003. Over the whole period from 2003 to 2022, the highest share of female heads of government was observed in 2022 with 22.2 %, meaning that there were never more than six women in this executive position at the same time ([20]).

In 2022, almost a third of board members of the largest listed companies were women

Women held 32.2 % of board positions in the largest listed companies in 2022. This level of representation was achieved after a steady 24.0 percentage point increase since 2003. However, the numbers mean the clear majority of 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 ([21]).

32.2 %
of board positions in the largest listed companies in the EU were held by women in 2022

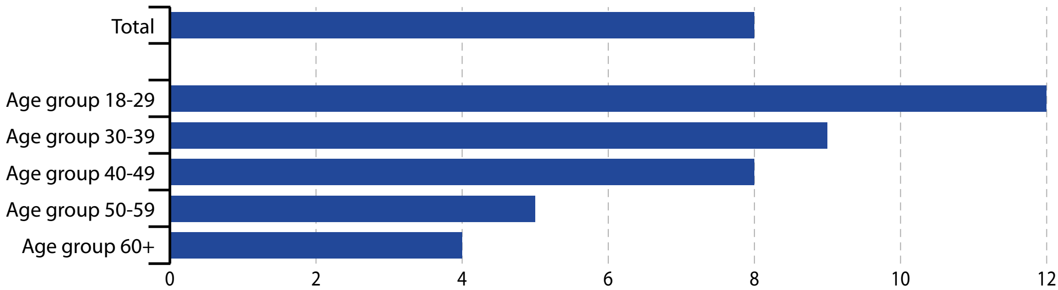
Presentation of the main indicators

Physical and sexual violence to women

X Assessment of progress not possible due to lack of EU-level time series

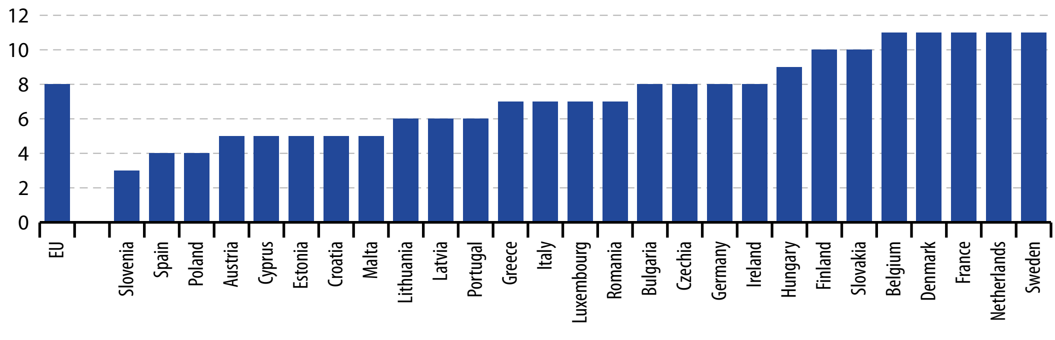
This indicator is based on the results of a survey by the European Union Agency for Fundamental Rights (FRA). Women were asked whether they had experienced physical and/or sexual violence within the 12 months prior to the interview.

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



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

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



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

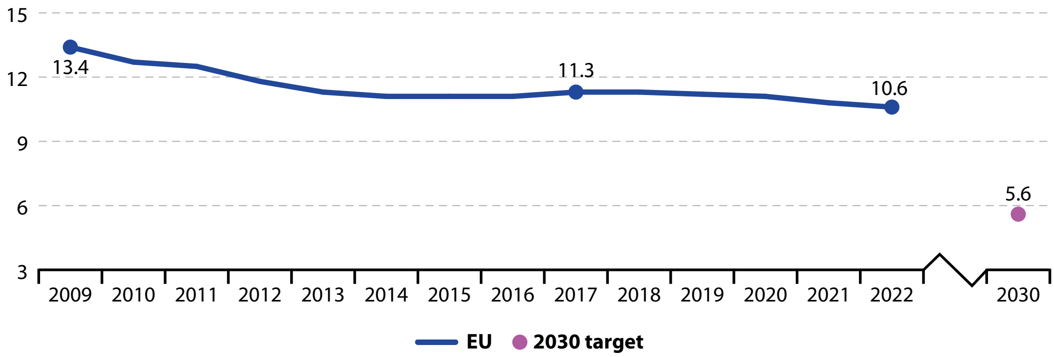
LONG TERM
2009–2022

SHORT TERM
2017–2022

Gender employment gap

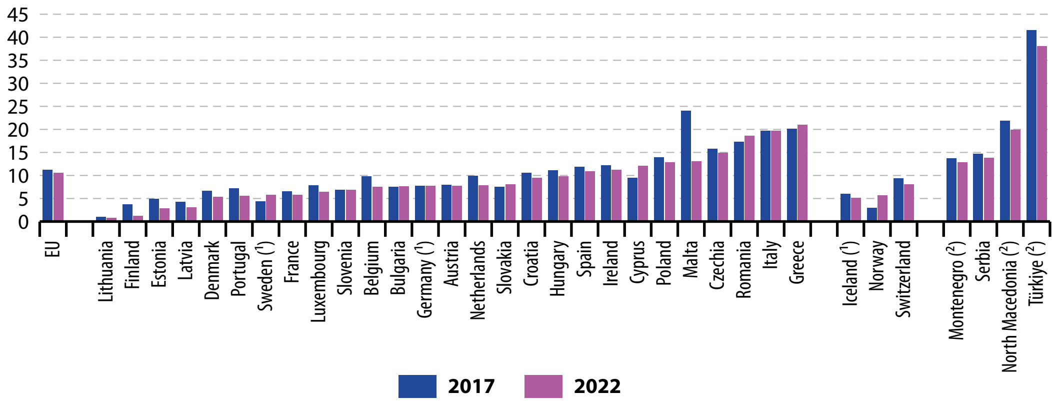
The gender employment gap is defined as the difference between the employment rates of men and women aged 20 to 64. The employment rate is calculated by dividing the number of people aged 20 to 64 in employment by the total population of the same age group. The indicator is based on the EU Labour Force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

Figure 5.3: Gender employment gap, EU, 2009–2022
(percentage points)



Source: Eurostat (online data code: sdg_05_30)

Figure 5.4: Gender employment gap, by country, 2017 and 2022
(percentage points)



([1]) Break(s) in time series between the two years shown.
([2]) 2020 data (instead of 2022).

Source: Eurostat (online data code: sdg_05_30)

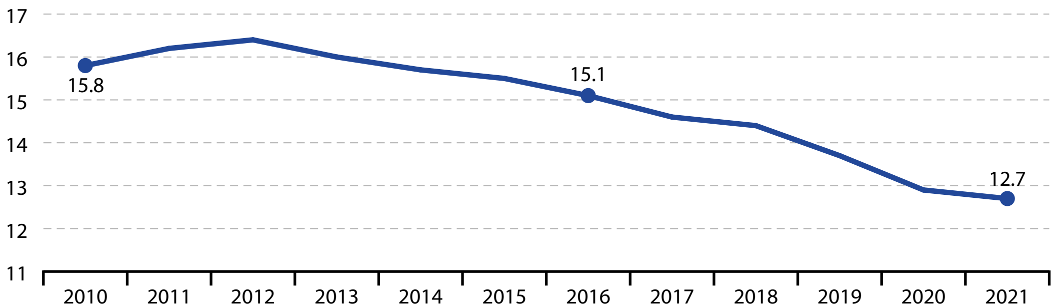
Gender pay gap in unadjusted form

LONG TERM
2010-2021

SHORT TERM
2016–2021

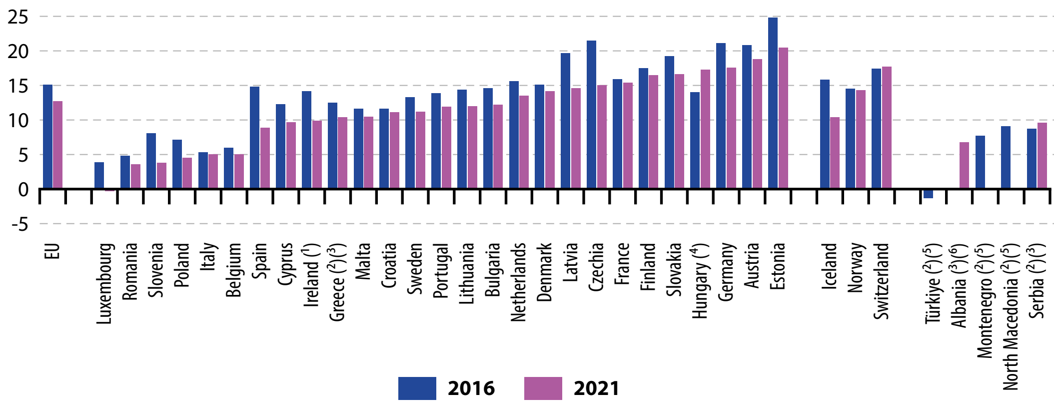
The gender pay gap in unadjusted form represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The indicator has been defined as unadjusted because it gives an overall picture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

Figure 5.5: Gender pay gap in unadjusted form, EU, 2010–2021
(% of average gross hourly earnings of men)



Note: Data for 2019-2021 are provisional.
Source: Eurostat (online data code: sdg_05_20)

Figure 5.6: Gender pay gap in unadjusted form, by country, 2016 and 2021
(% of average gross hourly earnings of men)



Note: 2021 data are provisional or estimated for most countries.
(¹) 2020 data (instead of 2021).
(²) 2014 data (instead of 2016).
(³) 2018 data (instead of 2021).
(⁴) Break(s) in time series between the two years shown.
(⁵) No data for 2021.
(⁶) No data for 2016.
Source: Eurostat (online data code: sdg_05_20)

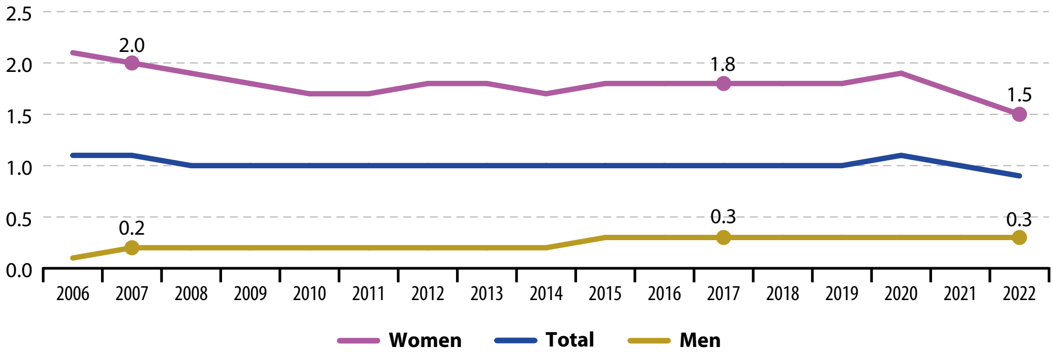
LONG TERM 2007–2022

SHORT TERM 2017–2022

People outside the labour force due to caring responsibilities

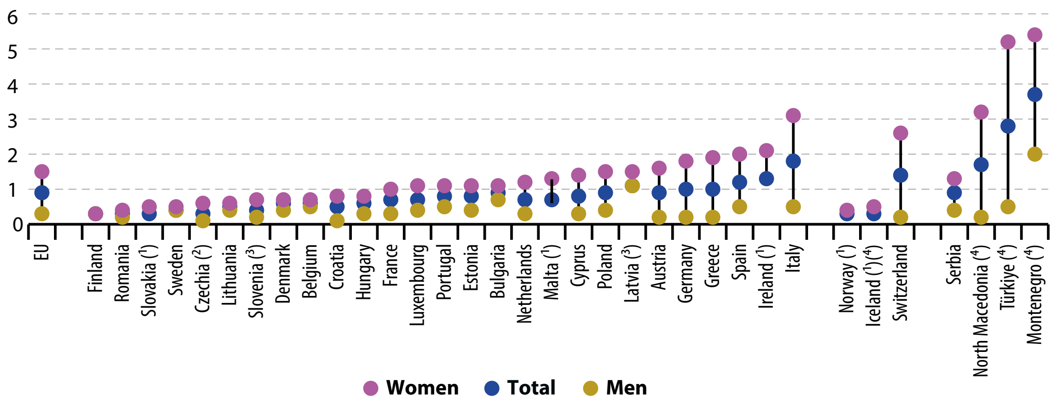
The population outside the labour force comprises individuals who are not working, not actively seeking work or not available to work even if they have found a job. Therefore, they are neither employed nor unemployed. This definition used in the EU Labour Force Survey (EU-LFS) is based on the guidelines of the International Labour Organization. The reasons for economic inactivity covered by this indicator include 'care of adults with disabilities or children' and 'other family or personal reasons'.

Figure 5.7: People outside the labour force due to caring responsibilities, by sex, EU, 2006–2022
(% of population aged 20 to 64)



Source: Eurostat (online data code: sdg_05_40)

Figure 5.8: People outside the labour force due to caring responsibilities, by sex, by country, 2022
(% of population aged 20 to 64)



Note: Data (especially for men) have low reliability for many countries.
(¹) No data for men.
(²) 2021 data.
(³) 2021 data for men.
(⁴) 2020 data.

Source: Eurostat (online data code: sdg_05_40)

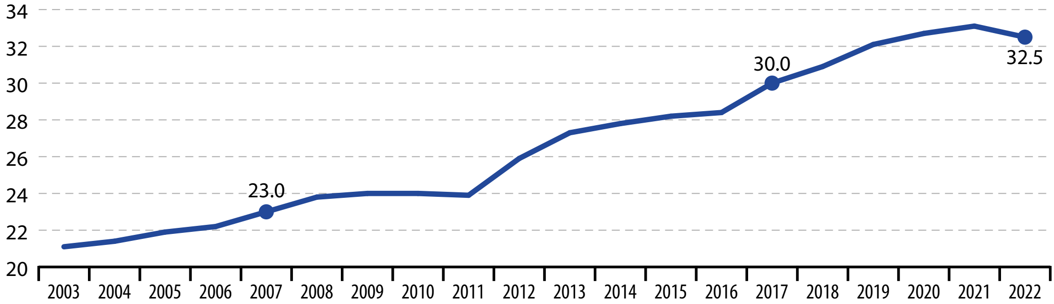
Seats held by women in national parliaments

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

LONG TERM
2007–2022

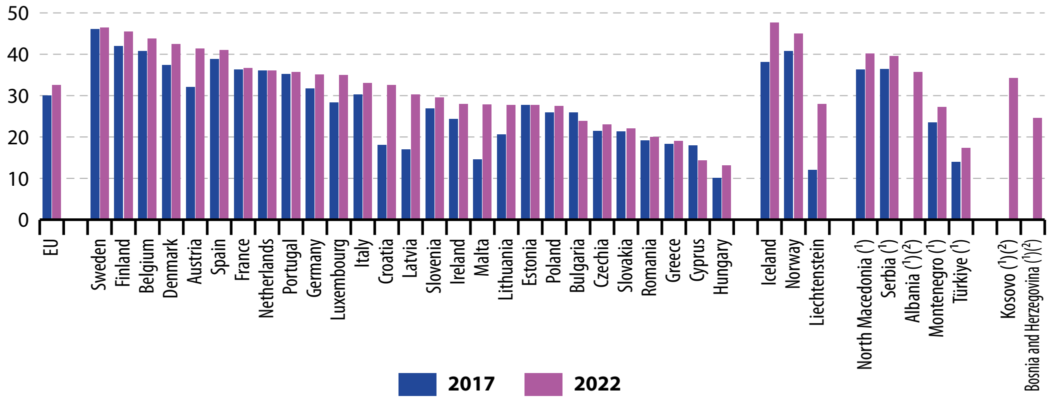
SHORT TERM
2017–2022

Figure 5.9: Seats held by women in national parliaments, EU, 2003–2022
(% of seats)



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

Figure 5.10: Seats held by women in national parliaments, by country, 2017 and 2022
(% of seats)



(1) 2021 data (instead of 2022).
(2) No data for 2017.

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

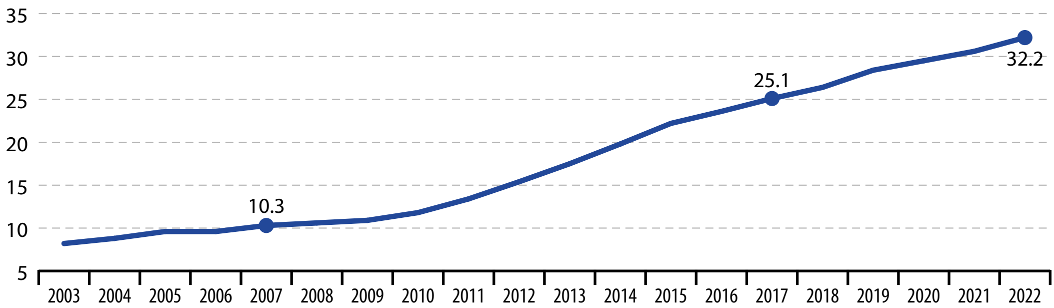
LONG TERM
2007–2022

SHORT TERM
2017–2022

Positions held by women in senior management

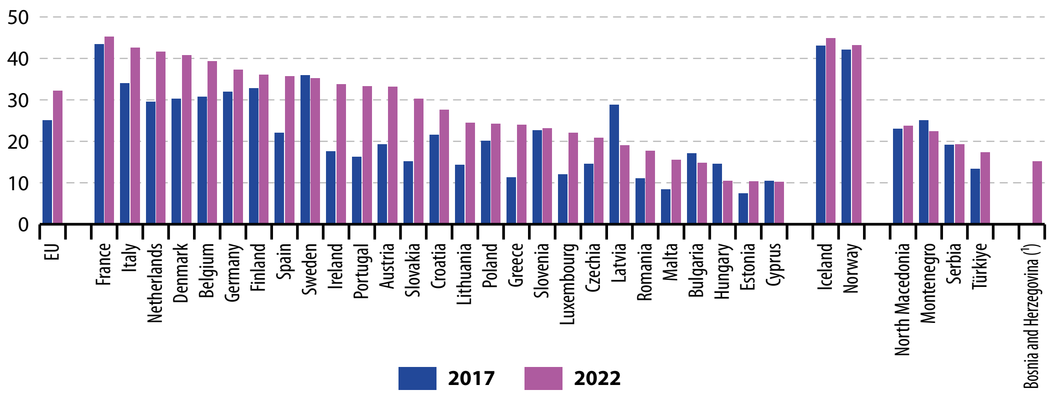
This indicator measures the share of female board members in the largest publicly listed companies. The data presented in this section stem from the Gender Statistics Database of the European Institute for Gender Equality.

Figure 5.11: Positions held by women in senior management, EU, 2003–2022
(% of board members)



Source: European Institute for Gender Equality (EIGE) (Eurostat online data code: sdg_05_60)

Figure 5.12: Positions held by women in senior management, by country, 2017 and 2022
(% of board members)



(¹) No data for 2017.

Source: European Institute for Gender Equality (EIGE) (Eurostat online data code: sdg_05_60)

Notes

([1]) European Union Agency for Fundamental Rights (2014), *Violence against women: an EU-wide survey, Main results*, Publications Office of the European Union, Luxembourg, p. 17.
([2]) Source: Eurostat (online data code: gbv_any_type).
([3]) European Parliament (2018), European Parliament resolution of 29 November 2018 on the situation of women with disabilities (2018/2685(RSP)).
([4]) Source: Eurostat (online data code: CRIM_HOM_SOFF).
([5]) Source: Eurostat (online data code: CRIM_HOM_VREL).
([6]) United Nations Office on Drugs and Crime (2022), *Gender-related killings of women and girls (femicide/ feminicide)*.
([7]) For more information see Eurostat metadata on Crime and criminal justice (crim).
([8]) European Union Agency for Fundamental Rights (2014), *Violence against women: an EU-wide survey, Main results*, Publications Office of the European Union, Luxembourg, pp. 25–26, 32.
([9]) European Institute for Gender Equality (2016), *Gender in education and training*, p. 3.
([10]) International Labour Organisation (2015), *Key Indicators of the Labour market: Full report, Ninth Edition*, International Labour Office, Geneva, p. 17.
([11]) European Commission (2019), *Proposal for a Joint Employment Report from the Commission and the Council accompanying the Communication from the Commission on the Annual Sustainable Growth Survey 2020*, COM(2019) 653 final, Brussels.
([12]) Source: Eurostat (online data code : TEPSR_LM230).
([13]) Source: Eurostat (online data code: LFSA_EPGAR).
([14]) Source: Eurostat (online data code: LFSI_PT_A).
([15]) see also Eurofound (2020), *Living, working and COVID-19, COVID-19 series*, Publications Office of the European Union, Luxembourg.
([16]) see also OECD (2021), *Caregiving in crisis: Gender inequality in paid and unpaid work during COVID-19*.
([17]) European Commission, Directorate-General for Employment, Social Affairs and Inclusion (2021), *Proposal for a Joint Employment Report 2022*, Brussels.
([18]) Eurostat (2021), *Gender pay gaps in the European Union - a statistical analysis*. Publications Office of the European Union, Luxembourg.
([19]) European Commission (2017), *Draft Joint Employment Report from the Commission and the Council accompanying the Communication from the Commission on the Annual Growth Survey 2018*, COM(2017) 674 final, Brussels, p. 57.
([20]) European Institute for Gender Equality, Gender Statistics Database (National governments: presidents and prime ministers).
([21]) European Commission (2021), *2021 report on gender equality in the EU*, p. 37.

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.

Access to water is a basic human need. 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. Monitoring SDG 6 in an EU context focuses on sanitation, water quality and water scarcity. While the EU has made further progress on access to sanitation, trends for water quality have been mixed over the assessed five-year period, with concentrations of some surface and groundwater pollutants rising. Similarly, despite an overall positive long-term trend, developments regarding water scarcity have been mixed, with seasonal variations and a slight decline in recent years that can be attributed to more frequent and severe drought events.

Table 6.1: Indicators measuring progress towards SDG 6, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Sanitation				
People living in households without basic sanitary facilities (such as bath, shower, indoor flushing toilet)	2010–2020	– 6.4 %	↑	page 126
	2015–2020	– 7.4 %	↑	
Population connected to at least secondary waste water treatment	2005–2020	0.8 %	↗	page 127
	2015–2020	0.6 %	↗	
Water quality				
Biochemical oxygen demand in rivers	2005–2020	– 0.8 % (1)	↗	page 128
	2015–2020	– 2.7 % (1)	↑	
Nitrate in groundwater	2005–2020	0.003 % (1)(2)	↘	page 129
	2015–2020	– 0.7 % (1)(2)	↗	
Phosphate in rivers	2005–2020	– 0.5 % (1)	↗	page 130
	2015–2020	4.4 % (1)	↓	
Inland water bathing sites with excellent water quality (*)	2011–2021	1.0 %	↑	SDG 14, page 260
	2016–2021	– 1.0 %	↓	
Water scarcity				
Water exploitation index (WEI+)	2004–2019	– 1.3 % (2)	↑	page 131
	2014–2019	0.1 % (2)	↘	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.
(1) Data refer to an EU aggregate based on 18 Member States.
(2) Trend assessment based on a four-year moving average.

Policy context

Sanitation

Protection of water resources, water ecosystems, and drinking and bathing water is a cornerstone of EU water policy, as proposed in the 8th Environment Action Programme.

The Urban Waste Water Treatment Directive regulates the collection, treatment and discharge of domestic and industrial urban waste waters. The Directive is currently being revised by the European Commission.

The European Pillar of Social Rights lists water and sanitation among the essential services that everyone should have access to. In 2023, the Commission will release a first EU Report on Access to Essential Services that provides a state of play concerning access to the essential services including access to water and sanitation.

Water quality

The Water Framework Directive is the main European legislation aiming to protect and restore water bodies and to prevent and/or limit deterioration by excessive abstractions or pollution. As part of the Zero Pollution package, the Commission adopted a proposal in October 2022 to revise the lists of surface and groundwater pollutants. The proposal entails changes in parts of the Water Framework Directive and its daughter directives, the Environmental Quality Standards Directive and the Groundwater Directive.

The Nitrates Directive includes measures to prevent nitrates from agriculture polluting ground and surface waters by improving the nitrogen balance.

The Farm to Fork Strategy addresses these challenges by setting objectives to reduce nutrient loss from fertilisers (especially nitrogen and phosphorus) by at least 50 % by 2030.

The Towards Zero Pollution for Air, Water and Soil action plan released in May 2021 sets out key actions to speed up water pollution reduction.

The Bathing Water Directive requires Member States to monitor and assess bathing water for at least two parameters of (faecal) bacteria. The Directive is currently being reviewed by the European Commission.

Water scarcity

The EU strategy on adaptation to climate change aims to reduce water use and encourage water efficiency and savings, while guaranteeing a stable and secure drinking water supply.

The Water Framework Directive aims to ensure water is used and managed in a sustainable way. To reduce water stress and promote water resource efficiency, a new Regulation on minimum requirements for water reuse for agricultural irrigation entered into force in June 2020. The new rules will apply from June 2023.

Clean water and sanitation in the EU: overview and key trends

Sanitation

Provision of drinking water and the adequate treatment of sewage 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.

Most 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 without a bath, shower, or indoor flushing toilet in their household fell from 2.2 % in 2015 to 1.5 % in 2020. Data also show that the share of the EU population connected to secondary waste water treatment has increased continuously since 2000, reaching 81.1 % in 2020.

1.5 %
of the EU population lacked sanitary facilities at home in 2020

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, remove about 70 % of organic pollution. Growth in the share of people connected to secondary treatment indicates that the Urban Waste Water Treatment Directive, which was first implemented in the 1990s, has helped to reduce pollution and improve water quality in Europe's rivers, lakes and coastal waters. The ongoing revision of the Directive will bring additional improvements not only for water quality but also for access to sanitation.

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

Almost every household in the EU had basic sanitary facilities in 2020, and most countries reported that less than 1 % of their population were still living in households without a bath, shower or a flushing toilet. However, in some countries, this share remains comparatively high. In particular, Romania reported figures far above all other Member States, with 21.2 % of the population not having access to basic sanitary facilities in 2020. Relatively high shares were also reported by Lithuania, Bulgaria and Latvia with values between 6.4 % and 7.0 % in the same year. These figures highlight the strong link between access to basic sanitary facilities and poverty, which can be seen across the EU. In 2020, 5.1 % of poor people in the EU lacked access to a bath, shower or toilet in their households, compared with only 0.8 % of those living above the poverty threshold.

81.1 %
of the EU population were connected to at least secondary waste water treatment in 2020

Connection to secondary waste water treatment is another important facility for enhancing access to sanitation. Connection rates have increased slowly but continuously across the EU, with 81.1 % of the EU population connected in 2020. This is almost 10 percentage points higher than in 2005, when the connection rate was 71.8 %. Between 2015 and 2020, connection rates increased in almost all reporting Member States. The lowest-scoring countries were in south-east Europe. It is important to note that connection rates are not expected to reach 100 % in most cases because connection costs can be disproportionately high in some areas, in particular for rural areas with a low population density. The Urban Waste Water Treatment Directive only obliges bigger agglomerations to introduce secondary treatment, while requiring smaller agglomerations to apply an appropriate treatment (when waste water is collected) or other alternative solutions to reach the same level of protection for water bodies. However, the Commission's proposal to review the Urban Waste Water Treatment Directive suggests making this obligation applicable for smaller agglomerations too.

Water quality

Diffuse pollution by agriculture, accidental spillage of harmful substances and discharge of untreated or 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, pose a barrier to sustainable development. Water quality monitoring distinguishes between different kinds of chemical pollution such as organic pollution by nutrients, pesticides and pathogens. In this report, water quality is monitored through four indicators looking at nutrients in freshwater and at bathing water quality ([1]).

Improved waste water treatment has reduced organic pollution in European rivers

Heavy organic pollution, caused by municipal waste water and effluents from industry or livestock, can lead to the deoxygenation of water, killing fish and invertebrates. Thanks to improved waste water collection and treatment, as well as mature treatment, organic pollution in European rivers has been declining, though the trend has slowed in recent years. A proxy for organic water pollution is the amount of oxygen needed for microbes to digest organic pollution under standard conditions, expressed as biochemical oxygen demand (BOD). BOD values of rivers in Europe range from less than 1 milligram per litre (mg/L) (very clean) to more than 15 mg/L (heavily polluted).

Between 2015 and 2020, the biochemical oxygen demand in EU rivers fell by 12.8 %

Available data for 18 Member States (see page 128) show an overall decline in BOD in EU rivers, from 3.0 mg/L in 2005 to 2.7 mg/L in 2020. The trend, however, has not been continuous. While BOD levels were showing a downward trend up to 2010, they had climbed back to 3.0 mg/L by 2015 before falling again. Recently, there has been a small increase from 2.6 mg/L in 2019 to 2.7 mg/L in 2020. Overall, BOD levels in EU rivers have fallen by 10.8 % since 2005 and by 12.8 % since 2015. The overall decrease in BOD values is mainly linked to a general improvement in waste water collection and treatment throughout Europe.

Eutrophication is still a major issue for Europe's aquatic environment

An assessment of European waters published by the European Environment Agency (EEA) in 2018 concludes that although nutrient pollution has fallen since the 1990s, it is still the main reason why 28 % of EU surface water bodies have not achieved good water quality ([2]). 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, which in turn can harm fish, invertebrates and whole ecosystems.

The main sources of nutrient inputs are the use of fertilisers and animal waste in agriculture, as well as poorly treated waste water from industry ([3]). Nitrates (NO_3), among other chemicals, can infiltrate and contaminate groundwater bodies. They are the most common cause of poor chemical status of groundwater in the EU — 18 % of groundwater bodies by area across 24 Member States are in poor status because of nitrates ([4]). This is particularly problematic because groundwater is an important source of drinking water in Europe.

Data on nitrate concentrations in EU groundwater are available for 18 Member States (see page 129). They show a long-term stagnation of NO_3 concentrations at around 23 mg/L, with a slight downward trend in 2019 and 2020. Due to annual fluctuations in the data, a smoothed four-year average is used to better depict the trend over time. This shows a 3.2 % decrease in the average EU nitrate concentrations between 2015 and 2020. Additionally, between 2016 and 2019, 14.1 % of groundwater stations showed NO_3 concentrations above the threshold considered unfit for drinking, which is set at 50 mg/L by the Nitrates Directive ([5]). The comparatively small changes at European level do not mean that overall groundwater nitrate concentrations remain stable, but rather that some groundwater bodies in Europe are showing an upward trend, while others are showing a downward trend ([6]).

Between 2015 and 2020, the four-year average concentration of nitrates in EU groundwater decreased by

3.2 %

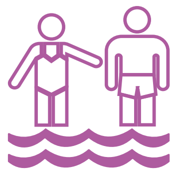
Data on phosphate (PO_4) concentrations in EU rivers are available for 18 Member States (see page 130). They show a marked improvement between 2007 and 2013, after which, however, the trend levelled off and even started increasing again. Thus, while the phosphate concentration of 0.072 mg/L recorded in 2020 is considerably below the values reported in the early 2000s of around 0.087 mg/L, it is 24.1 % higher than in 2015. The overall positive long-term trend is to some extent the result of measures implemented under the Urban Waste Water Treatment Directive over the past 30 years, especially the introduction of phosphate-free detergents ([7]). The recent turnaround may be related to the slower decline in phosphorus emissions from the agricultural sector and increased phosphorus fertiliser consumption at EU level ([8]).

Between 2015 and 2020, the concentration of phosphates in EU rivers increased by

24.1 %

The share of inland bathing waters with excellent water quality has fallen in recent years

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, where it can cause illness among swimmers. Overall, the share of inland water bathing sites with excellent water quality in the EU increased between 2011 and 2017, followed by a decline up to 2020 and a slight improvement in 2021. The downward trend has been caused by a stagnation in the absolute number of bathing sites recording excellent water quality while at the same time the number of bathing sites included in the assessment has increased. According to the latest European Environment Agency (EEA) data, 78.2 % of inland water bathing sites showed excellent bathing water quality in 2021, compared with 82.1 % in 2016 and 77.7 % in 2020. 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.



78.2 %

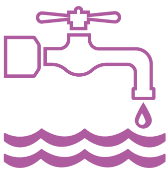
of inland water bathing sites in the EU showed excellent bathing water quality in 2021

Water scarcity

SDG 6 also focuses on the sustainable use of freshwater resources and on reducing 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. Due to a change in the reference database for the WEI+, the data presented in this report are not comparable to those shown in previous editions.

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

Water stress occurs when water demand exceeds the available water resources at a specific place and time. Water scarcity is generally considered to occur when the ratio of water abstraction to long-term average available water resources exceeds 20 %, while ratios above 40 % indicate severe water scarcity, meaning the use of freshwater resources is unsustainable (9). Using a four-year smoothed average shows that the EU's WEI+ decreased by 0.9 index points over the past 15 years, from 5.0 % in 2004 to 4.1 % in 2019. Between 2014 and 2019, however, the WEI+ has stagnated at this level. A look at the annual figures shows that the change in the EU's WEI+ was not constant but varied both annually and between Member States. Apart from socio-economic developments, the recent stagnation can be attributed to more frequent and severe droughts, which have affected water availability in an increasingly larger area in the EU (10).



Between 2014 and 2019, the EU's water exploitation index (WEI+) stagnated at

4.1 %

In 2019, Cyprus showed severe water stress with a mean annual WEI+ of 113 %, while Malta showed water stress with a mean annual WEI+ of around 30 %. However, annual national values can mask regional and seasonal water stress, which is in fact common in many European regions (11). In 2019, almost a third (29 %) of the EU territory, excluding Italy, was affected by water scarcity conditions in at least one quarter of the year, with WEI+ values of above 20 % (12).

Water scarcity is more common in southern Europe, where about 30 % of the population live in areas with permanent water stress and up to 70 % live in areas with seasonal water stress during summer (13) caused mainly by abstractions for agriculture, public water supply and tourism (14). However, water scarcity also affects river basins in other parts of the EU, particularly in western Europe, where it is caused primarily by high population densities in urban areas, combined with high levels of abstraction for public water supply, energy and industry (15).

Presentation of the main indicators

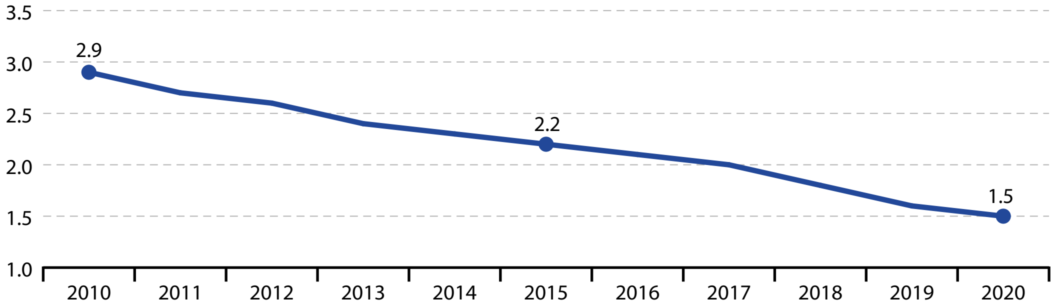
LONG TERM
2010–2020

SHORT TERM
2015–2020

People living in households without basic sanitary facilities (such as bath, shower, indoor flushing toilet)

This indicator reflects the share of total population having neither a bath, nor a shower, nor an indoor flushing toilet in their household. Data presented in this section stem from the EU Statistics on Income and Living Conditions (EU-SILC).

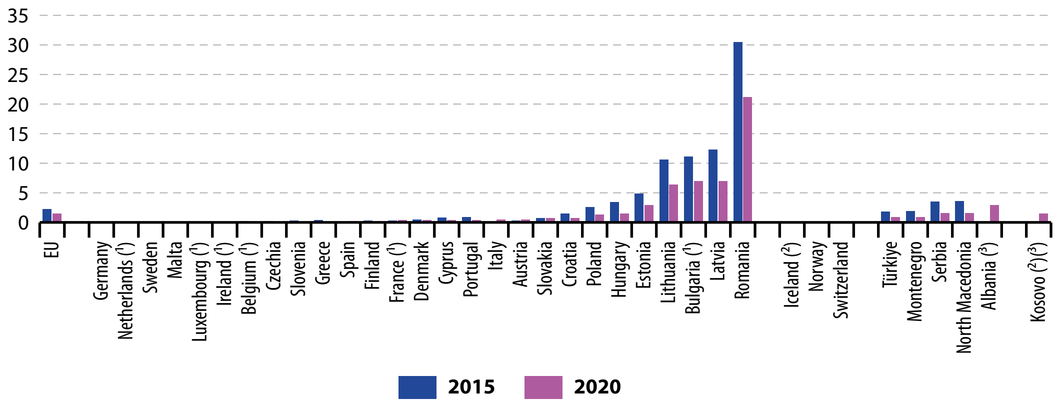
Figure 6.1: Population having neither a bath, nor a shower, nor indoor flushing toilet in their household, EU, 2010–2020
(% of population)



Note: Data for 2010–2019 are estimated. The frequency of the data collection has been changed from annually to every three years, meaning no data were collected for 2021 and 2022.

Source: Eurostat (online data code: sdg_06_10)

Figure 6.2: Population having neither a bath, nor a shower, nor indoor flushing toilet in their household, by country, 2015 and 2020
(% of population)



([1]) Break(s) in time series between the two years shown.
([2]) 2018 data (instead of 2020).
([3]) No data for 2015.

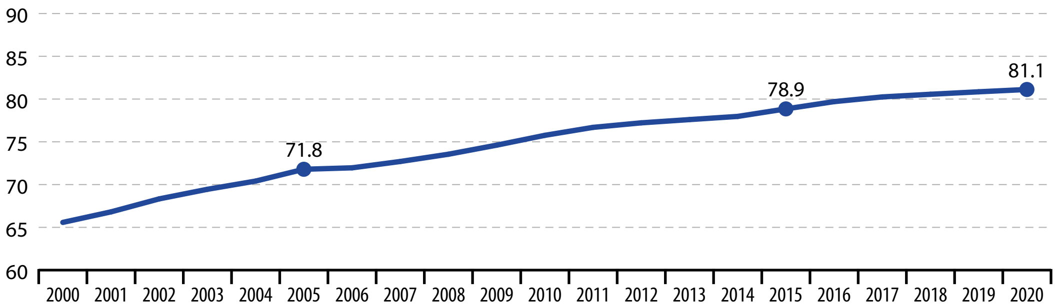
Source: Eurostat (online data code: sdg_06_10)

Population connected to at least secondary waste water treatment

LONG TERM 2005–2020
SHORT TERM 2015–2020

This indicator measures the percentage of the population connected to waste water treatment systems with at least secondary treatment. Thereby, waste water from urban or other sources is treated by a process generally involving biological treatment with a secondary settlement or other process that removes organic material and reduces its biochemical oxygen demand (BOD) by at least 70 % and chemical oxygen demand (COD) by at least 75 %. Data presented in this section stem from the Water Statistics of the European Statistical System (ESS).

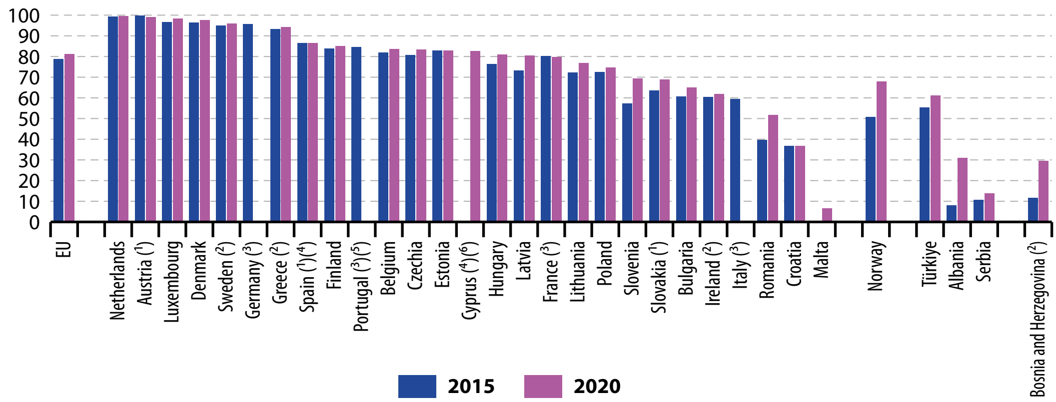
Figure 6.3: Population connected to at least secondary waste water treatment, EU, 2000–2020
(% of population)



Note: Eurostat estimates.

Source: Eurostat (online data code: sdg_06_20)

Figure 6.4: Population connected to at least secondary waste water treatment, by country, 2015 and 2020
(% of population)



(1) 2016 data (instead of 2015).
(2) 2019 data (instead of 2020).
(3) No data for 2020.
(4) 2018 data (instead of 2020).
(5) 2017 data (instead of 2015).
(6) No data for 2015.

Source: Eurostat (online data code: sdg_06_20)

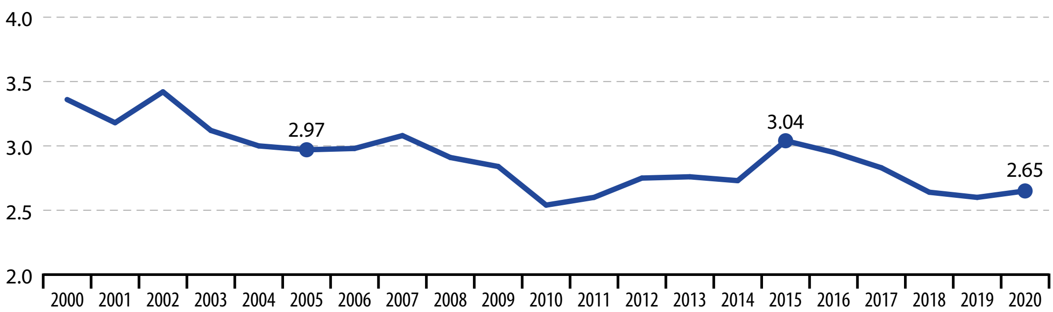
LONG TERM
2005–2020

SHORT TERM
2015–2020

Biochemical oxygen demand in rivers

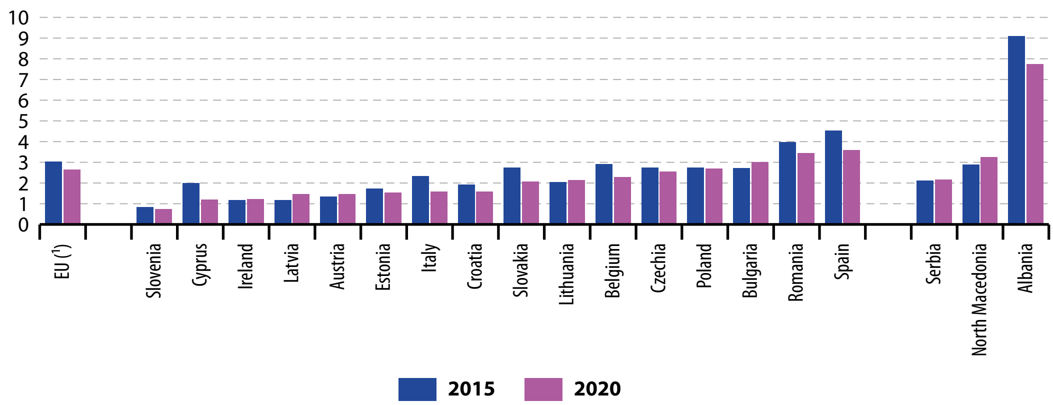
This indicator measures the mean annual five-day biochemical oxygen demand (BOD5) in rivers, weighted by the number of measuring stations. BOD5 is a measure of the amount of oxygen that aerobic microorganisms need to decompose organic substances in a water sample over a five-day period in the dark at 20 °C. High BOD5 values are usually a sign of organic pollution, which affects water quality and the aquatic environment. Organic pollution caused by discharges from waste water treatment plants, industrial effluents and agricultural run-off increase BOD. The cleanest rivers have a five-day BOD of less than 1 milligram per litre (mg/L). Moderately polluted rivers show values ranging from 2 to 8 mg/L. Data presented in this section stem from the EEA Waterbase database on the status and quality of Europe's rivers.

Figure 6.5: Biochemical oxygen demand in rivers, EU, 2000–2020
(mg O_2 per litre)



Note: 'EU' refers to an aggregate based on 18 Member States.
Source: EEA (Eurostat online data code: sdg_06_30)

Figure 6.6: Biochemical oxygen demand in rivers, by country, 2015 and 2020
(mg O_2 per litre)



(1) 'EU' refers to an aggregate based on 18 Member States. Data for Finland and Sweden are not shown in the graph due to the low number of measuring stations compared with the country size, but are included in the aggregated EU data.
Source: EEA (Eurostat online data code: sdg_06_30)

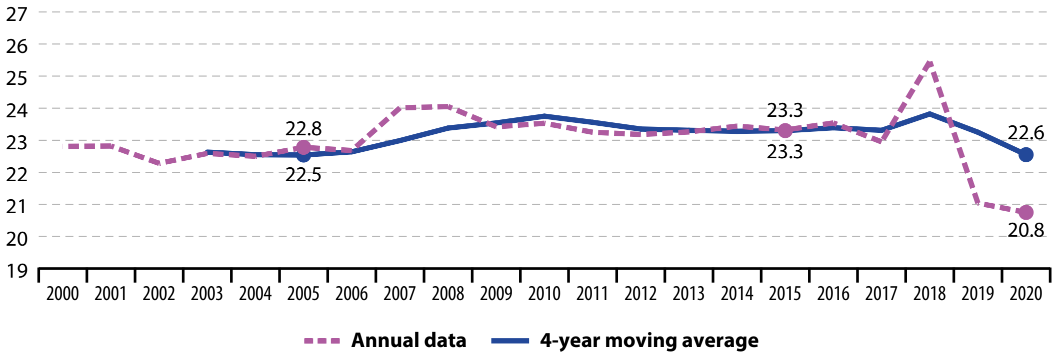
Nitrate in groundwater

LONG TERM 2005–2020

SHORT TERM 2015–2020

This indicator refers to concentrations of nitrate (NO_3) in groundwater measured as milligrams per litre (mg NO_3/L). Data are taken from well samples and aggregated to annual average concentrations for groundwater bodies in Europe. Only complete series after inter/extrapolation are included. The indicator is relatively robust in presenting the overall trend in water quality, however, the distribution of measuring stations over groundwater bodies might mask exceedances of nitrate levels in certain polluted areas. The data stem from the EEA Waterbase database on the status and quality of Europe's rivers.

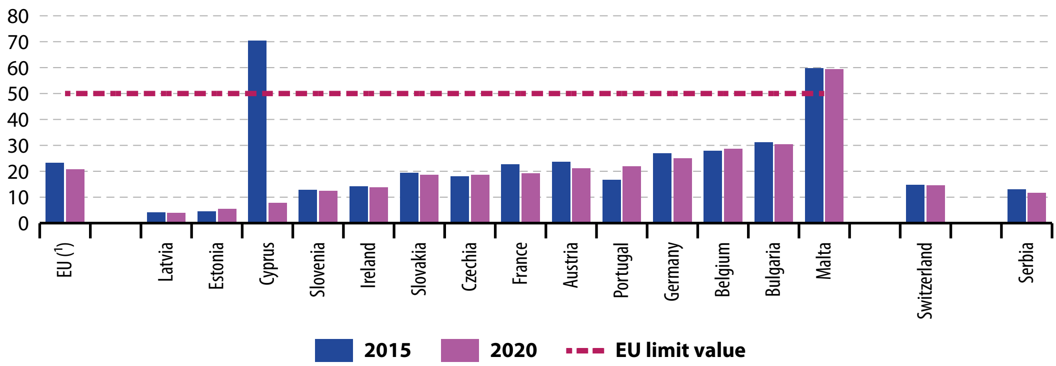
Figure 6.7: Nitrate in groundwater, EU, 2000–2020
(mg NO_3 per litre)



Note: 'EU' refers to an aggregate based on 18 Member States.

Source: EEA (Eurostat online data code: sdg_06_40)

Figure 6.8: Nitrate in groundwater, by country, 2015 and 2020
(mg NO_3 per litre)



([1]) 'EU' refers to an aggregate based on 18 Member States. Data for Denmark, Spain, Italy and Finland are not shown in the graph due to the low number of measuring stations compared with the country size, but are included in the aggregated EU data.

Source: EEA (Eurostat online data code: sdg_06_40)

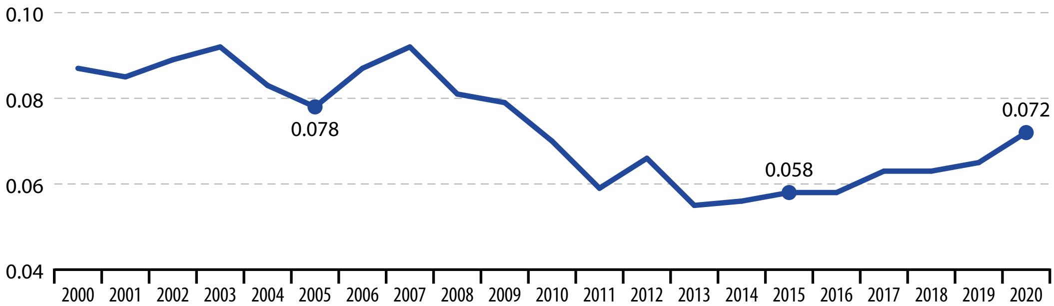
LONG TERM 2005–2020

SHORT TERM 2015–2020

Phosphate in rivers

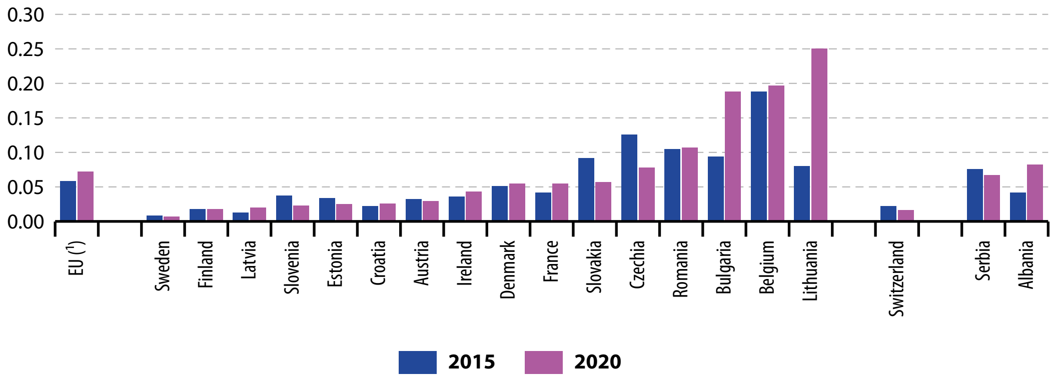
This indicator measures the concentration of phosphate (PO_4) per litre in the dissolved phase from water samples from river stations and aggregated to annual average values. At high concentrations phosphate can cause water quality problems, such as eutrophication, by triggering the growth of aquatic plants including algae. The data stem from the EEA Waterbase database on the status and quality of Europe's rivers.

Figure 6.9: Phosphate in rivers, EU, 2000–2020
(mg PO_4 per litre)



Note: 'EU' refers to an aggregate based on 18 Member States.
Source: EEA (Eurostat online data code: sdg_06_50)

Figure 6.10: Phosphate in rivers, by country, 2015 and 2020
(mg PO_4 per litre)



(1) 'EU' refers to an aggregate based on 18 Member States. Data for Spain and Italy are not shown in the graph due to the low number of measuring stations compared with the country size, but are included in the aggregated EU data.
Source: EEA (Eurostat online data code: sdg_06_50)

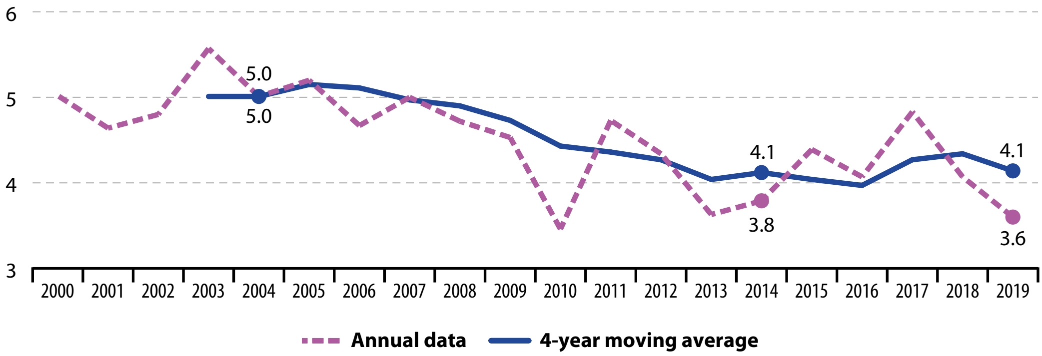
Water exploitation index (WEI+)

LONG TERM
2004–2019

SHORT TERM
2014–2019

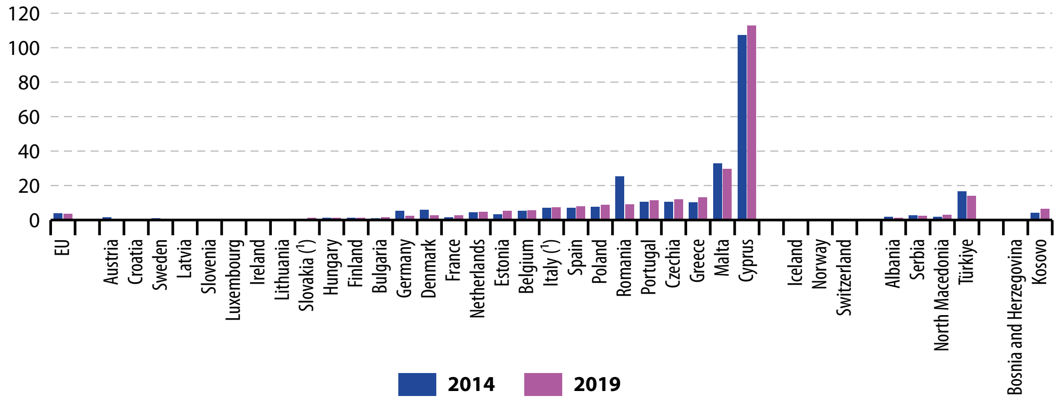
The regionalised water exploitation index (WEI+) measures total water consumption as a percentage of the renewable freshwater resources available for a given territory and period. It quantifies how much water is abstracted monthly or seasonally and how much water is returned before or after use to the environment via river basins (for example, leakages and discharges by economic sectors) ([16]). The difference between water abstractions and water returns is regarded as 'water consumption'. In the absence of Europe-wide agreed formal targets, values above 20 % are generally considered to be a sign of water scarcity, while values equal or greater than 40 % indicate situations of severe water scarcity ([17]), meaning the use of freshwater resources is unsustainable. Annual calculations of the WEI+ at national level do not reflect uneven spatial and seasonal distribution of resources and may therefore mask water stress which occurs on a seasonal or regional basis. The indicator is a result of data modelling by the EEA based on data from the WISE SoE-Water quantity database (WISE 3) and other open sources (JRC, Eurostat, OECD, FAO) and including gap filling methods.

Figure 6.11: Water exploitation index (WEI+), EU, 2000–2019
(% of renewable water resources)



Source: EEA (Eurostat online data code: sdg_06_60)

Figure 6.12: Water exploitation index (WEI+), by country, 2014 and 2019
(% of renewable water resources)



(¹) 2019 data are provisional.

Source: EEA (Eurostat online data code: sdg_06_60)

Notes

([1]) Chemical water quality is not evaluated in this report because of a lack of a comprehensive series of suitable data.
([2]) European Environment Agency (2018), *European waters — Assessment of status and pressures 2018*, EEA Report No 7/2018, p. 63.
([3]) European Environment Agency (2017), *Emissions of pollutants to Europe's waters — sources, pathways and trends*, ETC/ICM report, p. 17.
([4]) European Environment Agency (2018), *European waters — Assessment of status and pressures 2018*, EEA Report No 7/2018, p. 52.
([5]) European Commission (2021), *Report from the Commission to the Council and the European Parliament on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources based on Member State reports for the period 2016–2019*, p. 4.
([6]) European Environment Agency (2022), *Nutrients in freshwater in Europe*.
([7]) Ibid.
([8]) Eurostat (2022), *Statistics Explained, Agri-environmental indicator — mineral fertiliser consumption*.
([9]) European Environment Agency (2023), *Water scarcity conditions in Europe*.
([10]) Ibid.
([11]) Ibid.
([12]) Ibid.
([13]) European Environment Agency (2021), *Water resources across Europe — confronting water stress: an updated assessment*, EEA Report No 12/2021, p. 84.
([14]) European Environment Agency (2022), *Water abstraction by source and economic sector in Europe*.
([15]) Ibid.
([16]) European Environment Agency (2023), *Water scarcity conditions in Europe (Water exploitation index plus)*
([17]) Ibid.

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

SDG 7 calls for ensuring universal access to affordable, reliable and sustainable energy. This includes improving energy efficiency, increasing the share of renewables and further diversifying the energy mix while ensuring affordability of energy for citizens.

In everyday life, our well-being and the workings of the economy depend on reliable, affordable and sustainable energy services, such as electricity supply, heating and cooling, and transport services. Monitoring SDG 7 in an EU context involves looking at developments in energy consumption, energy supply and access to affordable energy. As illustrated by the figure on the right, the EU has made slight progress towards this SDG over the past five years. In the area of energy consumption, the EU needs to speed up progress in light of the more ambitious 2030 energy consumption reduction targets agreed in March 2023. In the area of energy supply, the EU has made progress towards the newly agreed 2030 target requiring renewable energy to reach a 42.5 % share, although the pace has slowed in recent years. The EU achieved its 2020 target for renewable energy to reach a 20 % share and it reduced its import dependency slightly. Access to affordable energy has improved over the past few years. It is important to note that the most recent data presented in this chapter refer to 2021, so do not yet reflect the recent developments related to the effects of Russia's invasion of Ukraine on energy consumption and supply.

Table 7.1: Indicators measuring progress towards SDG 7, EU

Indicator		Period	Annual growth rate	Trend	Where to find out more
Energy consumption					
Energy consumption	Primary energy consumption	2006–2021	Observed: – 1.0 % Required: – 1.7 % (1)		page 141
		2016–2021	Observed: – 0.8 % Required: – 2.2 % (1)		
	Final energy consumption	2006–2021	Observed: – 0.5 % Required: – 1.3 % (1)		
		2016–2021	Observed: – 0.2 % Required: – 1.7 % (1)		
Final energy consumption in households per capita		2006–2021	– 0.2 %		page 143
		2016–2021	0.8 %		
Energy productivity		2006–2021	1.8 %		page 144
		2016–2021	1.8 %		
Energy supply					
Share of renewable energy in gross final energy consumption		2006–2021	Observed: 4.8 % Required: 5.9 % (1)		page 145
		2016–2021	Observed: 3.9 % Required: 6.3 % (1)		
Energy import dependency		2006–2021	– 0.3 %		page 146
		2016–2021	– 0.2 %		
Access to affordable energy					
Population unable to keep home adequately warm		2010–2021	– 3.2 %		page 147
		2016–2021	– 5.2 %		

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(1) Assessment against the new energy efficiency and renewable energy targets agreed in March 2023.

Policy context

The European Green Deal with its 'Delivering on the European Green Deal' package envisages the decarbonisation of Europe's energy systems in order to reach climate neutrality by 2050. To reach the new EU climate target for 2030, the Commission proposed an interconnected set of measures in the areas of energy, transport, taxation and climate policies, also called 'Fit for 55'. The Recovery and Resilience Facility supports reforms and investments into sustainable mobility, energy efficiency and renewable energy.

REPowerEU is a new strategic plan for reducing the EU's dependence on energy imports, particularly from Russia. In March 2022, the Communication on security of supply and affordable energy prices outlined immediate measures to prepare for the next two winters, including an obligatory gas storage target. Since then, the EU has agreed emergency rules on safeguarding gas supply, which outline voluntary and mandatory energy consumption reductions, as well as an emergency regulation, which includes joint purchasing of gas, a market correction mechanism for gas trade, market interventions in the electricity sector, and the promotion of solidarity among Member States.

Energy consumption

The amended Energy Efficiency Directive was introduced to improve energy efficiency by at least 32.5 % by 2030 compared with the 2007 reference year. In July 2021, the Commission proposed a revision, which would implement energy efficiency as a priority across all sectors, increase the ambition of the 2030 target and make it binding for the EU as a whole. Negotiations among EU co-legislators ended in March 2023 with an agreement to reduce final energy consumption by at least 11.7 % in 2030, compared with the 2030 energy consumption forecasts made in 2020.

Energy supply

The 2018 Renewable Energy Directive established a binding target for the share of renewable energy sources in final energy consumption to reach at least 32 % by 2030. The Commission proposed a revision of the Directive in July 2021, including increasing the target to 40 % and strengthening measures for transport, heating and cooling, and a more circular energy system. In May 2022, the REPowerEU plan proposed to further increase the target to 45 % by 2030. Negotiations among EU co-legislators concluded in March 2023, with an agreement to raise the share of renewable energy in the EU's overall energy consumption to 42.5 % by 2030, with an additional 2.5 % indicative top-up that would allow it to reach 45 %.

Access to affordable energy

The European Pillar of Social Rights lists energy among the essential services that everyone should have access to, and the Commission released its first status report in 2023. In April 2022, the Commission established the Energy Poverty and Vulnerable Consumers Coordination Group to help Member States tackle energy poverty. The SAFE (Supporting Affordable Energy) measures proposed in October 2022 under the Cohesion Policy will enable Member States to use unspent funds under their 2014–2020 allocation to provide direct support to vulnerable families and small and medium-sized businesses (SMEs) to help them face increased energy costs.

The EU Energy Poverty Advisory Hub is an initiative that provides a central platform offering energy poverty expertise to local authorities and other stakeholders.

Affordable and clean energy in the EU: Overview and key trends

Energy consumption

Increasing energy efficiency is one of the main pillars for reaching an affordable, reliable, sustainable and modern energy system as envisaged in SDG 7. Efficient energy systems reduce consumption and costs, decrease energy 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.

Energy consumption has bounced back after the COVID-19 pandemic significantly reduced consumption in 2020

The EU aims to increase its energy efficiency by at least 32.5 % by 2030, which should be achieved through energy consumption reductions alongside increased economic activity. Because the target was set in relation to business-as-usual projections of energy consumption and economic growth, it was translated into absolute levels of energy consumption for monitoring purposes. This equated to an initial target limiting EU consumption to 1 128 million tonnes of oil equivalent (Mtoe) of primary and 846 Mtoe of final energy per year by 2030. However, in spring 2023, an agreement was reached to increase the 2030 target's ambition, to limit the EU's consumption to no more than 993 Mtoe of primary energy and 763 Mtoe of final energy by 2030.

1 309.0 Mtoe of primary energy were consumed in the EU in 2021

The EU's primary energy consumption has seen a general downward trend since 2006, reaching 1 309.0 Mtoe in 2021, which amounts to a 13.4 % reduction over the past 15 years. In comparison, final energy consumption has fallen to 967.9 Mtoe or 7.5 % over the same period. The difference in reductions can be mainly traced back to more efficient energy production and the switch to renewable energies ([1]). Long-term 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.

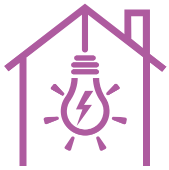
The short-term trend has been influenced by a remarkable drop in energy consumption of more than 8 % in 2020 compared with 2019, mainly as a result of measures taken to tackle the COVID-19 pandemic. The economic recovery in 2021 and a return to pre-pandemic mobility patterns has increased energy needs, although consumption has stayed below pre-pandemic levels. Overall, the EU's primary energy consumption fell by 4.0 % between 2016 and 2021, while final consumption decreased by 0.9 % only. Additional improvements in energy efficiency and consumption patterns appear necessary to ensure the EU meets both of its new, more ambitious 2030 energy consumption targets.

967.9 Mtoe of final energy were consumed in the EU in 2021

EU citizens' energy consumption at home increased slightly

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, energy performance of buildings, use and efficiency of electrical appliances, and behaviour and economic status of inhabitants (for example, their desired or affordable level of thermal comfort, frequency of clothes washing, use of TV-sets, games and lighting preferences).

Household energy consumption has slightly increased since 2016. In 2021, the average household energy consumption was 586 kilograms of oil equivalent (kgoe) per EU inhabitant, which is about 3.9 % more than in 2016. The data show some annual variability that depends mainly on weather conditions during winter, as more than 60 % of energy is used for heating.

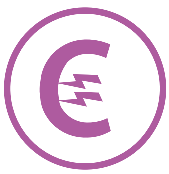


586
kgoe
of final energy were consumed by each EU inhabitant at home in 2021

When viewed over the longer term, efficiency improvements, in particular in space heating, seem to have balanced the effect of population growth and increases in the number and size of dwellings. Since 2006, energy consumption per EU inhabitant has fallen by 3.6 %, with a slight downward trend in total household energy consumption offsetting a 2.3 % or 10.4 million [2] increase in the population over the same period.

The EU has increased its energy productivity

Recent trends in Europe point to a decoupling of economic growth from energy consumption, which is measured here using gross domestic product (GDP) and gross available energy (GAE) respectively. Between 2006 and 2021, GAE fell by 12.4 % and thus by a similar amount to primary energy consumption. Over the same period, real GDP grew by 15.4 % [3]. As a result, energy productivity — which measures GDP per unit of energy input — increased almost continuously, from EUR 6.5 per kgoe in 2006 to EUR 8.5 per kgoe in 2021.



In 2021, the EU's energy productivity amounted to
EUR 8.5
per kgoe

Energy supply

To achieve a clean and secure energy system, the EU is aiming to increase the share of renewable energy in gross final energy consumption. In March 2023, the EU co-legislators agreed to increase the ambition of the EU's 2030 target from at least 32 % by 2030 to 42.5 %, with an additional 2.5 % indicative top-up that would allow the EU to reach 45 %. Most renewable energy sources are considered to be practically inexhaustible or renewable within a human lifetime. In contrast, fossil energy sources regenerate over millions of years and are the main source of man-made greenhouse gas (GHG) emissions, and therefore contribute significantly to the climate crisis. In addition, fossil fuels such as natural gas and crude oil are mainly imported from outside the EU. This dependence exposes consumers to significant costs and to the risk of supply shortages, as shown by the reduction in natural gas and crude oil deliveries from Russia. The risks increase as dependency on a single country grows. Therefore, the EU is seeking to increase domestic energy production, particularly from renewable energy sources, as well as reduce its energy consumption, and build and update infrastructure to allow clean energy to be distributed across Member States. The EU has also introduced sustainability criteria to address the negative impacts of certain renewable energy sources such as hydropower and biofuels on other SDGs such as health, water and marine and terrestrial ecosystems [4].

The share of renewables has kept rising in the EU, but stronger progress appears necessary to meet the 2030 target

Use of renewable energy has grown continuously in the EU, doubling from 10.8 % of gross final energy consumption in 2006 to reach 21.8 % in 2021. Reductions in investment costs due to economies of scale and greater competition, more efficient technologies, supply chain improvements and renewable energy support schemes have driven this growth [5]. However, even faster growth is likely to be needed for the EU to meet its newly agreed 42.5 % target in 2030.

The share of renewable energy grew in all three of the areas monitored here, namely electricity generation, heating and cooling, and transport. In 2021, the share of renewables in these areas was 37.5 %, 22.9 % and 9.1 %, respectively. However, additional efforts are required across these sectors to scale up the renewable energy transition.

In 2021, the share of renewable energy in gross final energy consumption varied widely across 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 62.6 %, followed by Finland and Latvia with shares of 43.1 % and 42.1%, respectively. These particularly high shares were reached using hydropower and solid biofuels.

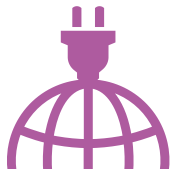
Across all Member States, the largest share of renewable energy production in 2021 came from solid biofuels (41.4 %), followed by wind energy (13.2 %) and hydropower (11.9 %). Solid biofuels and wind energy also made the biggest contribution to the absolute increase in renewable energy production between 2016 and 2021. Energy production from heat pumps more than doubled and solar photovoltaic power increased by two-thirds, meaning these two sources saw the largest percentage increase over the period [6].

21.8 %
of the energy consumed in the EU in 2021 came from renewable sources

Fossil fuel imports still cover more than half of the EU's energy demand

Despite continuous growth in renewable energy sources over the past decade, fuel imports from non-EU countries remained an important energy source for the EU in 2021, contributing to 55.6 % of gross available energy (GAE) — as measured by net imports (imports minus exports). This is just slightly below the share in 2006, when net imports met 58.3 % of the EU's energy needs. This stagnation can be explained by two opposing developments. On the one hand, the EU reduced its energy consumption and increased its use of domestic renewables. On the other hand, it reduced its primary production of fossil fuels because of exhausted or uneconomical domestic sources, particularly natural gas [7]. Therefore, in 2021, net imports were highest for oil and petroleum products (92.0 % imported), followed by natural gas (83.4 % imported) and solid fuels (predominantly coal) (37.4 % imported). Net imports of renewable energy including biofuels accounted for 8.9 % of gross available renewable energy in 2021 and just 1.8 % of total net imports [8].

Russia continued to be the main supplier of energy to the EU in 2021, accounting for 44.1 % of gas, 28.4 % of petroleum product and 52.4 % of solid fuel imports from outside the EU. This shows the EU's significant dependence on Russian energy deliveries, which according to the most recent quarterly data fell significantly in 2022 after Russia cut gas supplies to the EU and the EU accelerated its phase-out of Russian fossil fuels through sanctions on coal and crude oil and by increasing its diversification efforts. By some distance, the next largest sources of gas and petroleum products were European countries outside the EU (mainly Norway and the UK), which supplied 18.0 % of gas and 15.4 % of petroleum imports. The second largest source for solid fuels was North America, which supplied 17.9 % [9]. 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.

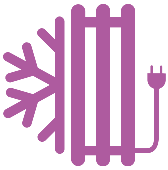


Net imports amounted to
55.6 %
of the gross available energy in the EU in 2021

In 2021, all Member States were net importers of energy, with 16 importing more than half of their total energy consumption from other countries (EU countries and non-EU countries). Countries with the highest shares of imports in 2021 were the island countries Malta (97.1 %) and Cyprus (89.5 %), along with Luxembourg (92.5 %), which imported almost all of their energy.

Access to affordable energy

SDG 7 emphasises the need for affordable energy for reasons of social equality and justice. Principle 20 of the European Pillar of Social Rights also places energy among the essential services everyone should have access to. 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 in combination with high expenditure on energy and poor building efficiency standards ([10]).



6.9%
of the EU population were unable to keep their home adequately warm in 2021

Access to affordable energy has been improving since 2012

The EU has made progress on improving access to affordable energy over the past few years. Between 2012 and 2019, the share of people unable to afford to keep their homes adequately warm fell steadily, from 11.2% to 6.9%. In 2020, the share temporarily rose to 7.5%, only to fall again to 6.9% in 2021. The data do not yet reflect the impacts of the recent price spikes following cuts in Russian energy supplies.

People with an income below the poverty threshold are more likely to report an inability to keep their home adequately warm. In 2021, this was the case for 16.4% of people from this group, compared with only 4.9% of people with an income above the poverty threshold.

In 2021, 20 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 affordable access to heating. In contrast, the lack of adequate warmth appeared to be a problem particularly in southern and south-eastern Europe. This distribution can be traced mainly to poor building energy efficiency, including the lack of suitable heating systems and insulation, leading to higher heating costs. In addition, the generally lower income levels in these regions affect housing standards and the ability to pay for fuel. The existence and design of financial interventions by the respective governments might also play an important role in alleviating energy poverty and helping to keep homes adequately warm ([11]).

Presentation of the main indicators

A variety of energy indicators are used to measure energy consumption at different stages of the supply chain and progress towards the EU energy targets. The following box explains the indicators and the differences between them.

Definitions of energy terms/concepts:

Gross available energy (GAE): represents the total energy demand of a country. It is defined as: primary production + recovered/recycled products + imports – exports + stock changes.

Gross inland energy consumption (or gross inland consumption; GIC): represents energy demand including international aviation but excluding maritime bunkers. It is defined as: gross available energy – international maritime bunkers.

Total energy supply: represents the total energy delivered and/or consumed in a country excluding deliveries to international aviation and international marine bunkers. It is defined as: gross inland energy consumption – international aviation.

Primary energy consumption (PEC): represents a country's total energy demand including consumption of the energy sector itself, losses during transformation and distribution, and the final consumption by end users. This means it excludes, for example, natural gas used in non-energy products, such as chemicals. It is defined as: gross inland energy consumption – non-energy use of energy carriers.

Primary energy consumption (2020–2030): measures the progress towards the EU's 2020 and 2030 energy efficiency targets. It deviates from primary energy consumption only in that it excludes ambient heat. It is defined as: primary energy consumption – gross inland consumption of ambient heat (heat pumps).

Gross final energy consumption (or gross energy consumption): is the basis for measuring the share of renewable energies according to Directive 2009/28/EC on the promotion of renewable energies. It represents the energy commodities delivered for energy purposes to industry, transport, households, services including public services, agriculture, forestry and fisheries, the consumption of electricity and heat by the energy branch for electricity, heat and transport fuel production, and losses of electricity and heat in distribution and transmission.

Final energy consumption (FEC) (or final consumption – energy use): measures a country's energy use by end users, such as households, industry and transport. It excludes the energy used by the energy sector itself and losses incurred during energy transformation and distribution and any non-energy use of energy carriers. It is defined as: primary energy consumption – consumption by the energy sector – transformation/distribution losses – statistical differences.

Final energy consumption (2020–2030): measures the progress towards the EU's 2020 and 2030 energy efficiency targets. It deviates from final energy consumption by excluding ambient heat and including international aviation and energy consumption of blast furnaces. It is defined as: final energy consumption – final energy consumption of ambient heat (heat pumps) + international aviation + transformation input blast furnaces (all products) – transformation output blast furnaces (all products) + energy sector blast furnaces (all fossil fuels).

Energy consumption

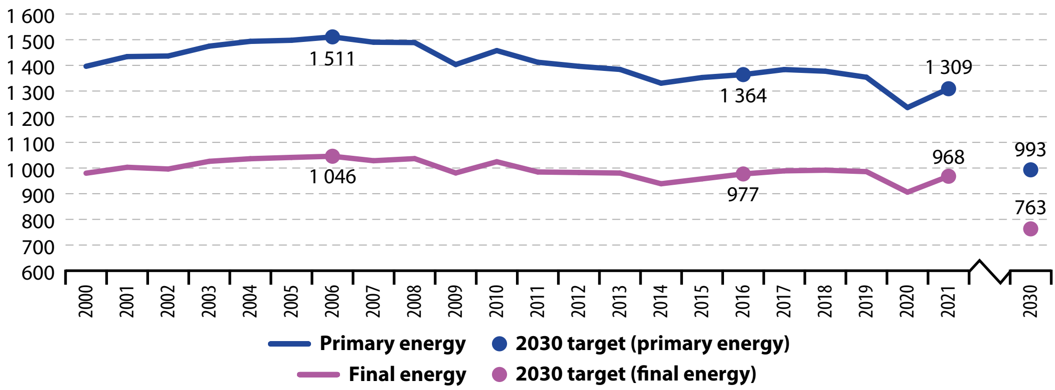
LONG TERM * ** 2006–2021

SHORT TERM * ** 2016–2021

* Primary ** Final

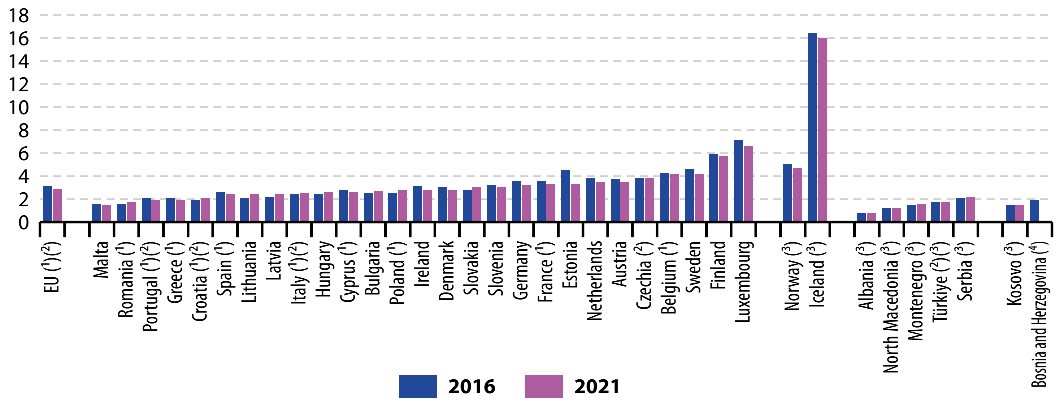
This indicator measures a country's total energy needs excluding all non-energy use of energy carriers (such as natural gas used for producing chemicals rather than for combustion). Primary energy consumption represents a country's total energy demand before any energy transformation, excluding energy carriers used for non-energy purposes. In comparison, final energy consumption covers the energy consumed by end users, such as industry, transport, households, services and agriculture.

Figure 7.1: Primary and final energy consumption, EU, 2000–2021
(million tonnes of oil equivalent (Mtoe))



Source: Eurostat (online data codes: sdg_07_10 and sdg_07_11)

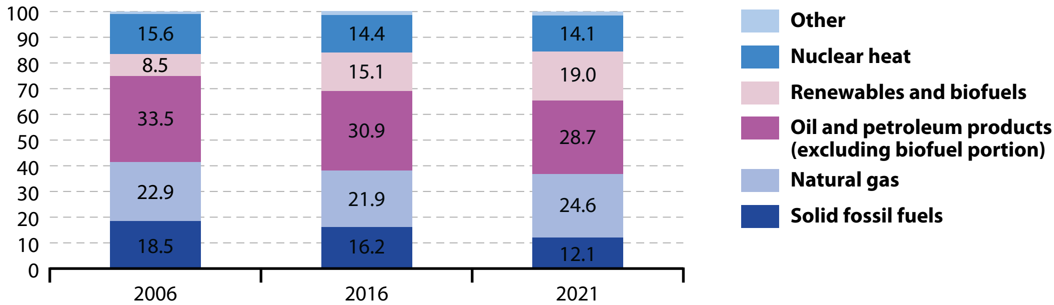
Figure 7.2: Primary energy consumption, by country, 2016 and 2021
(tonnes of oil equivalent per capita)



([1]) 2021 population data are estimated and/or provisional.
([2]) Break(s) in population data time series between the two years shown.
([3]) 2020 data (instead of 2021).
([4]) No data for 2021.

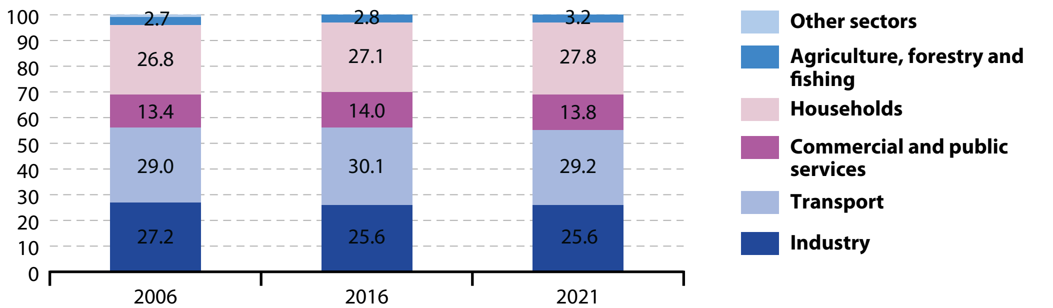
Source: Eurostat (online data code: sdg_07_10)

Figure 7.3: Primary energy consumption, by fuel type, EU, 2006, 2016 and 2021
(%)



Note: Definition of primary energy consumption according to energy balances.
Source: Eurostat (online data code: nrg_bal_c)

Figure 7.4: Final energy consumption, by sector, EU, 2006, 2016 and 2021
(%)



Note: Definition of final energy consumption according to energy balances.
Source: Eurostat (online data code: nrg_bal_c)

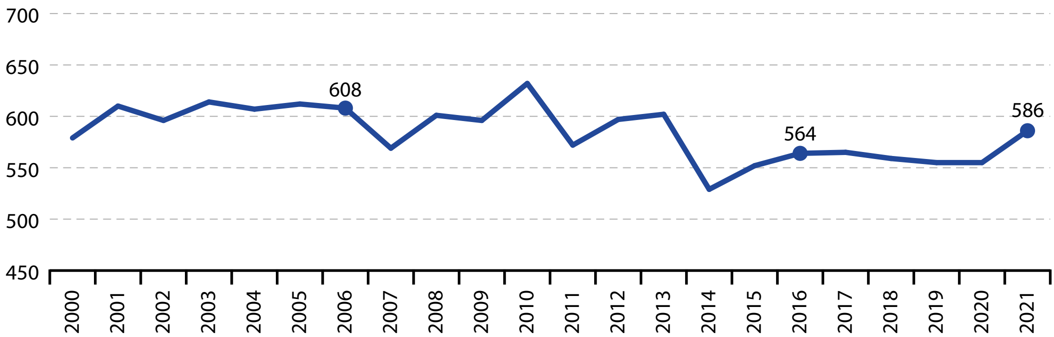
Final energy consumption in households per capita

LONG TERM
2006–2021

SHORT TERM
2016–2021

This indicator measures how much energy each citizen consumes at home, excluding transport. Data are not temperature-adjusted, so variations from year to year are due in part to weather.

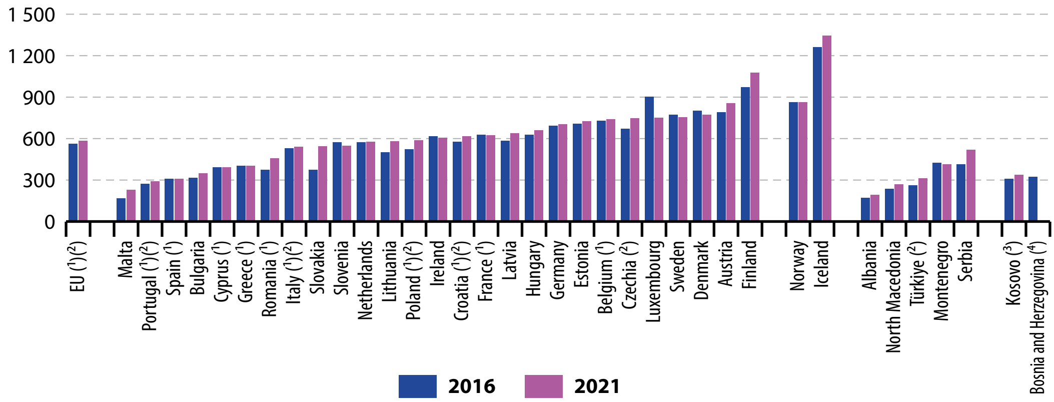
Figure 7.5: Final energy consumption in households per capita, EU, 2000–2021
(kgoe)



Note: Multiple breaks in population data time series; 2018–2021 population data are provisional estimates.

Source: Eurostat (online data code: sdg_07_20)

Figure 7.6: Final energy consumption in households per capita, by country, 2016 and 2021
(kgoe)



(1) 2021 population data are estimated and/or provisional.
(2) Break(s) in population data time series between the two years shown.
(3) 2020 data (instead of 2021).
(4) No data for 2021.

Source: Eurostat (online data ode: sdg_07_20)

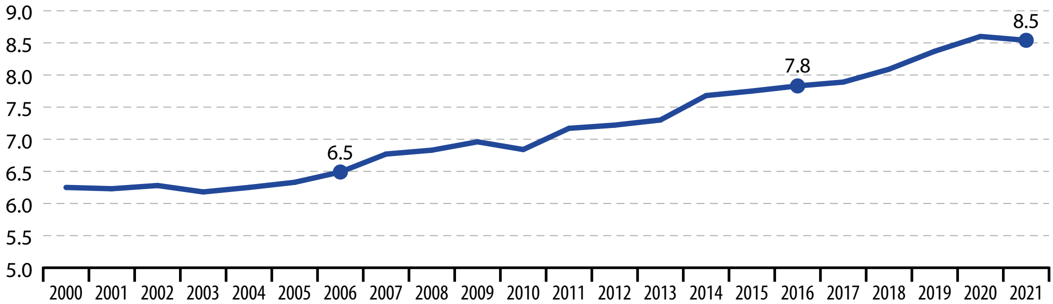
LONG TERM
2006–2021

SHORT TERM
2016–2021

Energy productivity

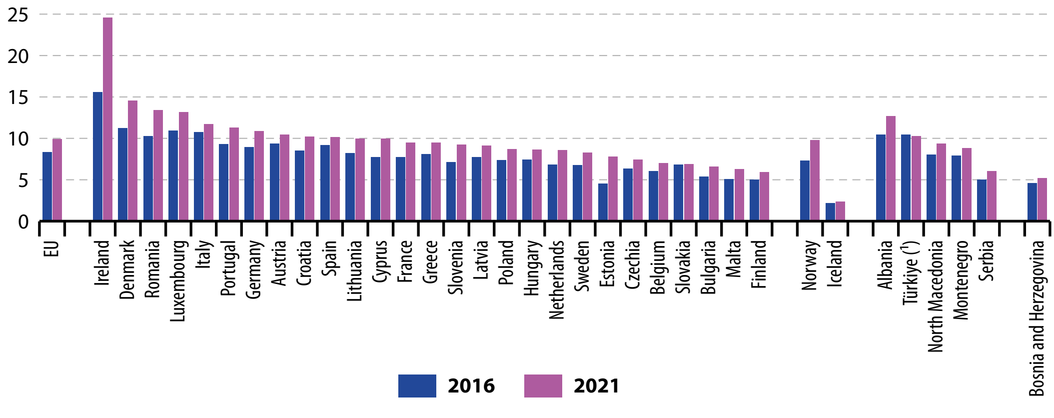
This indicator measures the amount of economic output produced per unit of gross available energy (GAE). Gross available energy represents the quantity of energy products needed to satisfy all demand of entities in the geographical area under consideration. Economic output is either given as euros in chain-linked volumes to the reference year 2010 at 2010 exchange rates or in the unit PPS (purchasing power standards).

Figure 7.7: Energy productivity, EU, 2000–2021
(EUR per kgoe)



Source: Eurostat (online data code: sdg_07_30)

Figure 7.8: Energy productivity, by country, 2016 and 2021
(PPS per kgoe)



(1) 2020 data (instead of 2021).

Source: Eurostat (online data code: sdg_07_30)

Share of renewable energy in gross final energy consumption

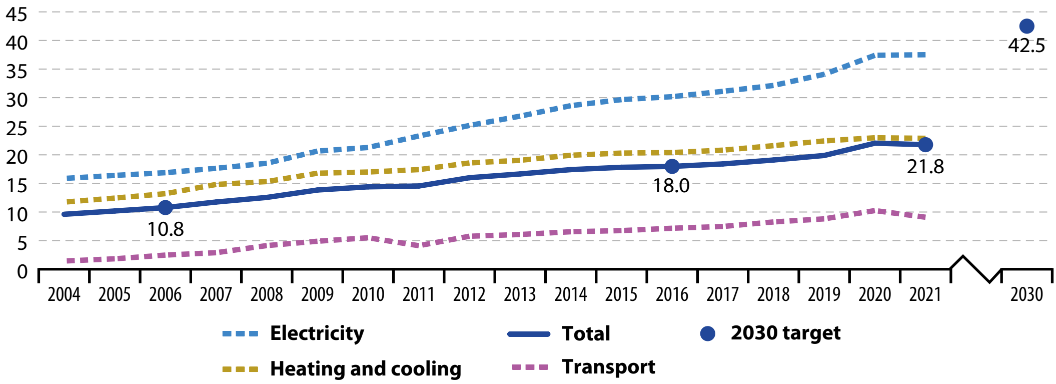
LONG TERM
2006–2021

SHORT TERM
2016–2021

This indicator is defined as the share of renewable energy consumption in gross final energy consumption, according to the Renewable Energy Directive ([12]). The gross final energy consumption is the energy used by end consumers plus grid losses and power plants' own consumption.

Figure 7.9: Share of renewable energy in gross final energy consumption, by sector, EU, 2004–2021

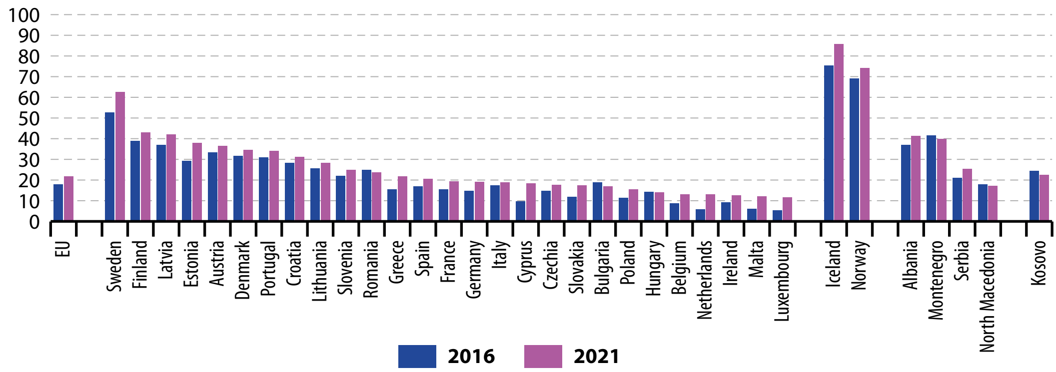
(%)



Source: Eurostat (online data code: sdg_07_40)

Figure 7.10: Share of renewable energy in gross final energy consumption, by country, 2016 and 2021

(%)



Source: Eurostat (online data code: sdg_07_40)

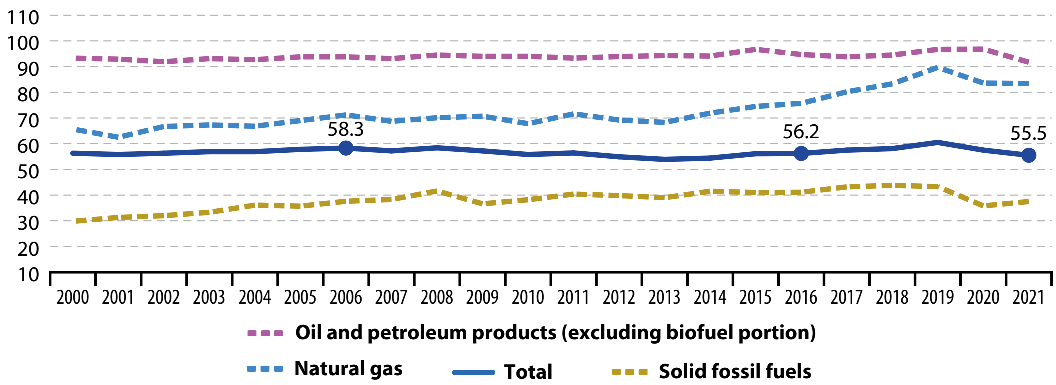
LONG TERM
2006–2021

SHORT TERM
2016–2021

Energy import dependency

Energy import dependency shows the share of a country's total energy needs that are met by imports from other countries. It is calculated as net imports divided by the gross available energy (GAE). Energy import dependency = (imports – exports) / gross available energy.

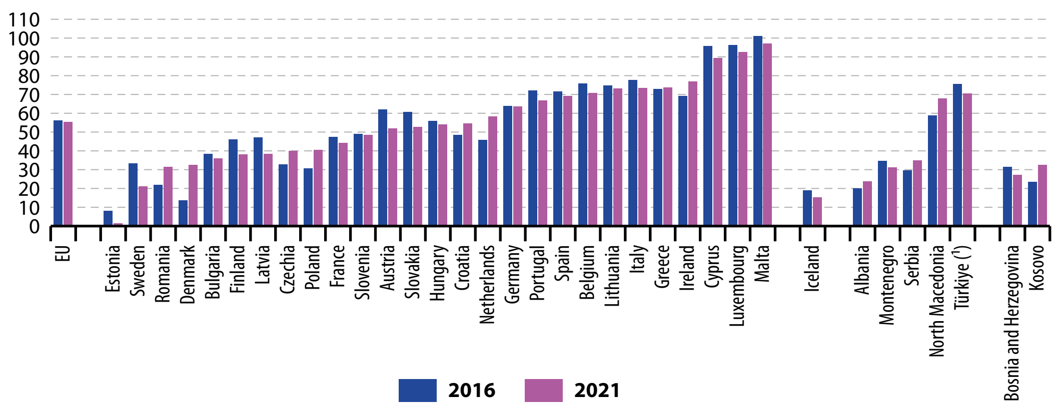
Figure 7.11: Energy import dependency, by product, EU, 2000–2021
(% of imports in gross available energy)



Note: 'Total' is not the average of the other three fuel categories shown. It also includes other energy sources, such as renewable energy or nuclear energy, which are treated as domestic sources.

Source: Eurostat (online data code: sdg_07_50)

Figure 7.12: Energy import dependency, by country, 2016 and 2021
(% of imports in gross available energy)



Note: Norway not shown on the graph with an import dependency of −617 % in 2021.
(¹) 2020 data (instead of 2021).

Source: Eurostat (online data code: sdg_07_50)

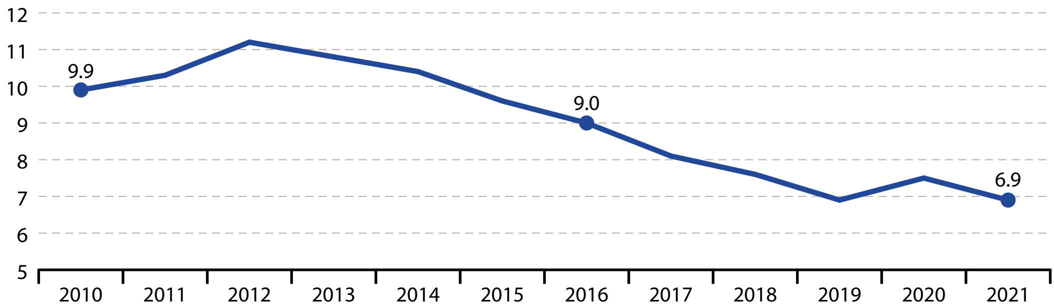
Population unable to keep home adequately warm

LONG TERM 2010–2021

SHORT TERM 2016–2021

This indicator measures the share of people unable to afford to keep their home adequately warm. The data are collected as part of the EU Statistics on Income and Living Conditions (EU-SILC) to monitor the development of poverty and social inclusion in the EU. Data collection is based on a survey, which means that indicator values are self-reported.

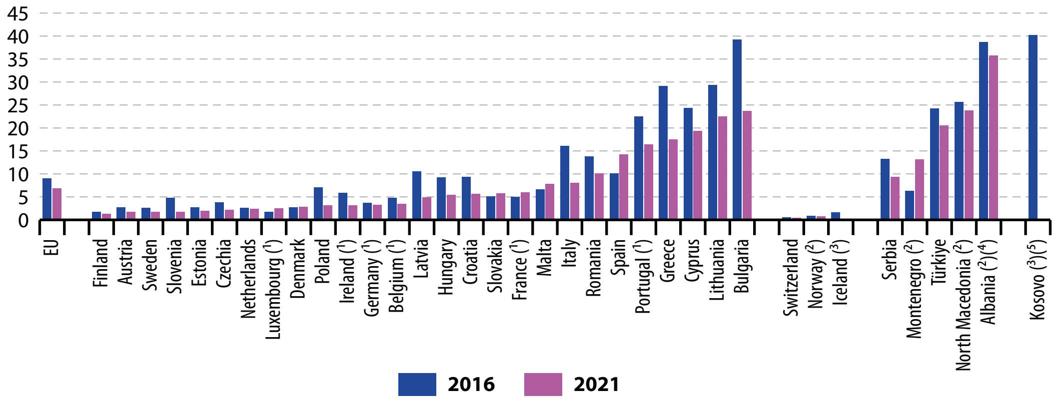
Figure 7.13: Population unable to keep home adequately warm, EU, 2010–2021
(% of population)



Note: 2010–2019 data are estimated.

Source: Eurostat (online data code: sdg_07_60)

Figure 7.14: Population unable to keep home adequately warm, by country, 2016 and 2021
(% of population)



([1]) Break(s) in time series between the two years shown.
([2]) 2020 data (instead of 2021).
([3]) No data for 2021.
([4]) 2017 data (instead of 2016).
([5]) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_07_60)

Notes

(1) The substitution of fossil energy by renewable energies leads to a reduction of PEC via a statistical definition. The physical energy content method basically means fossil and biogenic fuel input quantities are multiplied by their calorific value. Wind, hydropower or photovoltaics produce energy with 100 % efficiency, geothermal energy with 10 % and nuclear energy with 33 %. This means that PEC decreases disproportionately with increasing substitution of fossil and nuclear fuels by renewable energies.
(2) Source: Eurostat (online data code: demo_gind).
(3) Source: Eurostat (online data codes: nrg_bal_c and nama_10_gdp).
(4) See, for example, Sayed, E. T. et al. (2021), *A critical review on environmental impacts of renewable energy systems and mitigation strategies: Wind, hydro, biomass and geothermal*, Science of the total environment, Volume 766 or Best, A., et al. (2021), *Assessment of resource nexus-related challenges and opportunities in the context of the European Green Deal*. Background report for the EEA Briefing "Applying a 'resource nexus' lens to policy: opportunities for increasing coherence".
(5) European Commission (2022), 2022 Report on the Achievement of the 2020 Renewable Energy Targets.
(6) Source: Eurostat (online data code: nrg_bal_c).
(7) Ibid.
(8) Ibid.
(9) Source: Eurostat (online data codes: nrg_ti_sff, nrg_ti_oil and nrg_ti_gas). Import shares for natural gas were calculated in cubic meters; solid fuel and oil import shares were calculated in tonnes.
(10) European Commission (2020), *Commission Recommendation on Energy Poverty,* COM(2020) 1563, Brussels.
(11) Bouzarovski, S. and Tirado-Herrero, S. (2017), *The energy divide: Integrating energy transitions, regional inequalities and poverty trends in the European Union*, European Urban and Regional Studies; 24: pp. 69–86.
(12) European Parliament and Council of the European Union (2009), *Directive 2009/28/EC on the promotion of the use of energy from renewable sources.*

8

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

SDG 8 recognises the importance of sustained economic growth and high levels of economic productivity for the creation of well-paid quality jobs and calls for opportunities for full employment and decent work for all.

8 DECENT WORK AND ECONOMIC GROWTH

Sustainable economic growth and decent work are vital for the development and prosperity of European countries and the well-being and personal fulfilment of individuals. Monitoring SDG 8 in an EU context involves looking into trends in the areas of sustainable economic growth, employment and decent work. As illustrated by the figure on the right, the EU has made strong progress towards SDG 8 over the assessed five-year period. The EU's economy has grown, which in turn has led to an improvement in the EU's overall employment situation. The EU is thus on track to meet its respective 2030 targets for the overall employment rate and for the share of young people neither in employment nor in education or training. Additionally, working conditions have also improved, with fewer fatal work accidents and fewer people being affected by in-work poverty.

Table 8.1: Indicators measuring progress towards SDG 8, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Sustainable economic growth				
Real GDP	2007–2022	0.8 %	↗	page 157
	2017–2022	1.2 %	↑	
Investment share of GDP	2007–2022	– 0.2 %	↘	page 158
	2017–2022	1.9 %	↑	
Material footprint (*)	2005–2020	– 1.6 %	↑	SDG 12, page 226
	2015–2020	– 0.4 %	↗	
Employment				
Employment rate	2009–2022	Observed: 0.8 % Required: 0.7 %	↑	page 159
	2017–2022	Observed: 1.0 % Required: 0.7 %	↑	
Long-term unemployment rate	2009–2022	– 1.9 %	↑	page 161
	2017–2022	– 8.3 %	↑	
Young people neither in employment nor in education and training (NEET)	2009–2022	Observed: – 1.8 % Required: – 2.3 %	↗	page 162
	2017–2022	Observed: – 3.5 % Required: – 3.3 %	↑	
People outside the labour force due to caring responsibilities (*)	2007–2022	– 2.7 % (1)	↑	SDG 5, page 114
	2017–2022	– 4.4 % (1)	↑	
Decent work				
Fatal accidents at work	2010–2020	– 2.6 %	↑	page 163
	2015–2020	– 2.5 %	↑	
In work at-risk-of-poverty rate (*)	2010–2021	0.4 %	↘	SDG 1, page 52
	2016–2021	– 1.9 %	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(1) Trend refers to the change in the gender gap.

Policy context

Sustainable economic growth

The Sustainable Europe Investment Plan under the European Green Deal will mobilise at least EUR 1 trillion in sustainable investments over the next decade.

NextGenerationEU is a EUR 750 billion temporary recovery instrument to help repair the immediate economic and social damage brought about by the COVID-19 pandemic. The Recovery and Resilience Facility makes EUR 672.5 billion in loans and grants available to support reforms and investments undertaken by EU countries.

The 8th Environment Action Programme from 2022 aims to decrease the EU's material and consumption footprints and foster a regenerative well-being economy.

The Competitiveness Strategy beyond 2030 presents a coordinated EU framework to spur competitiveness and prosperity in the longer term.

Employment

The European Pillar of Social Rights Action Plan aims to increase the employment rate of people aged 20 to 64 to at least 78 % and to reduce the share of young people aged 15 to 29 neither in employment nor in education or training to less than 9 % by 2030.

The Council Decision on guidelines for the employment policies of the Member States updated in 2022 puts a strong focus on the post-COVID-19 environment, socially fair green transition and measures in response to Russia's aggression against Ukraine.

The Council Recommendation on access to social protection for workers and the self-employed from 2019 extends the coverage of social protection systems across the EU. The Directive for Work-Life Balance aims to improve families' access to leave and flexible work arrangements to facilitate women's participation in the labour market.

The Council Recommendation on the integration of the long-term unemployed into the labour market aims to help long-term unemployed people re-enter the labour market.

The European Social Fund and the Youth Employment Initiative support quality employment, further education, quality traineeships and apprenticeships. The European Social Fund Plus fosters youth employment through funds allocation.

Decent work

The Communication on Decent Work Worldwide reaffirmed the EU's commitment to championing decent work both at home and around the world. The Directive on adequate minimum wages in the European Union aims to ensure that EU workers earn minimum wages that allow a decent living. The Directive on transparent and predictable working conditions in the EU sets new minimum standards on working conditions.

The EU strategic framework on health and safety at work 2021–2027 sets out key priorities for improving workers' health and safety. The proposal for an amendment of the Asbestos at work directive will provide additional protection to workers.

The Communication and the proposal for a Council Recommendation on strengthening social dialogue in the EU promote concrete actions at national and EU level.

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

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. To ensure the well-being of future generations, the EU has adopted a new growth strategy, the European Green Deal, aimed at transforming the Union into a modern, resource-efficient, fair and competitive economy. The indicators selected to monitor this objective show that over the assessed five-year period, Europeans have generally enjoyed continuous economic growth while their material footprint has decreased — although the latter is likely to be a temporary effect of the COVID-19 pandemic.

Real GDP per capita grew by 3.3 % in 2022

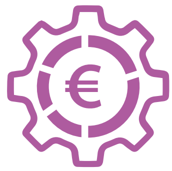
Citizens' living standards depend on the performance of the EU economy, which can be measured using several indicators. One of these is growth in gross domestic product (GDP). Although GDP is not a measure of welfare, it gives an indication of an economy's potential to satisfy people's needs and its capacity to create jobs. It can also be used to monitor economic development.

The average real GDP per capita in the EU in 2022 was

EUR 28 820

Real GDP per capita (GDP adjusted for inflation) in the EU saw strong and continuous growth of 2.0 % per year on average between 2014 and 2019. In 2020, the economy was hit by the COVID-19 pandemic, resulting in a 5.7 % contraction of real GDP compared with 2019. Nevertheless, the economy rebounded from the recession in the following years. In 2022, real GDP per capita grew by 3.3 % compared with the previous year and reached EUR 28 820 — this is a record high despite the economic reverberations of Russia's ongoing war of aggression against Ukraine. This growth was mostly driven by a spending spree that came with an easing of COVID-19 containment measures ([1]). In 2023 and 2024, GDP in the EU is projected to expand by 0.8 % and 1.6 %, respectively ([2]).

Investment is another indicator of economic growth as it enhances an economy's productive capacity. In 2022, the total investment share of GDP in the EU reached 23.2 % — the highest level recorded since 2008. Businesses were the biggest investors in 2022, with an investment share in GDP of 14.0 %, followed by households with 6.0 % and governments with 3.2 %. The investment share of households has been slowly growing since 2016 but still remains below the levels before the 2008 financial crisis. This is most likely because household investment consists mainly of the purchase of dwellings. Government investment has followed a counter-cyclical pattern, increasing during both the financial crisis of 2008 and the COVID-19 crisis in 2020.



23.2 %

of GDP was invested in the EU in 2022

EU's material footprint decreased in 2020 as a result of the pandemic

Economic growth helps to satisfy peoples' material needs, which, in turn, can put pressure on the environment. The EU, therefore, aims to lower this pressure by reducing the Union's material footprint. The EU's material footprint, also referred to as raw material consumption (RMC), shows the amount of material extracted from nature, both inside and outside the EU, to manufacture or provide the goods and services consumed by EU inhabitants. In other words, it refers to the resources needed to sustain the EU's economic and social activities.

The EU's material footprint had been growing between 2000 and 2007, before it was halted by the economic crisis of 2008. As the EU's economy recovered, consumption had started to rise again, increasing by 4.3 % between 2014 and 2019. In 2020, EU inhabitants consumed 6.11 billion tonnes of raw material, which was 5.6 % less than the previous year and the lowest value observed since 2000. This fall is likely to be influenced by the economic slowdown due to the COVID-19 pandemic. Despite an overall decrease in RMC since 2000, the EU's total material footprint is above the global average and exceeds sustainable levels of resource extraction. This means that Earth's capacity to provide resources would be exceeded if all countries in the world were to consume resources at the same rate as the EU (3). Discounting the temporary dip in 2020, RMC had been increasing over the past few years, which means the EU is not on track to significantly reduce its material footprint, as envisioned by the European Green Deal and the 8th Environmental Action Programme. For more information on the EU's material footprint, see the chapter on SDG 12 'Responsible consumption and production' on page 219.

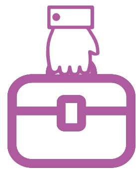
6.11
billion tonnes of globally extracted raw material were consumed in the EU in 2020

Employment

Decent employment for all — including women, people with disabilities, young people, older people, those with migrants backgrounds and other disadvantaged groups — 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 in turn 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 regions and social groups. The European Pillar of Social Rights Action Plan sets a target for at least 78 % of the population aged 20 to 64 to be in employment by 2030. It also envisions the complementary ambition of at least halving the gender employment gap and decreasing the rate of young people aged 15 to 29 who are neither in employment nor in education or training (NEETs) to 9 %.

The employment rate in the EU reached a historic high in 2022

Before the COVID-19 pandemic, the EU employment rate exhibited an upward trend, reaching 72.7 % in 2019. In 2020, the rate fell by one percentage point as a result of the socio-economic impacts of the pandemic, but has started increasing again. Despite the uncertain and challenging environment caused by Russia's war of aggression against Ukraine, the employment rate in the EU reached a record high of 74.6 % in 2022. However, the slowing of economic activity is expected to weigh on the pace of the employment growth in 2023 and 2024 (4). Nevertheless, if the employment growth observed since 2017 continues, the EU will be well placed to reach its target of 78 % by 2030.



74.6 %
of 20- to 64-year-olds were employed in the EU in 2022

An analysis by degree of urbanisation reveals that employment rates in cities, towns and suburbs and rural areas were all affected by the COVID-19 crisis, decreasing by between 0.8 and 1.0 percentage points from 2019 to 2020. By 2022, the employment rates had recovered, reaching 74.9 % in cities, 74.2 % in towns and suburbs and 74.8 % in rural areas. The employment gap between cities and rural areas has thus narrowed to 0.1 percentage points in 2022, after amounting to 0.3 to 0.5 percentage points between 2017 and 2021 (5).

Unemployment and long-term unemployment reached all-time low in 2022

The EU's unemployment situation has been steadily improving since 2014, disregarding a temporarily COVID-19-related drop in 2020. Between 2014 and 2022, the EU's unemployment rate for the age group 15 to 74 decreased by 4.8 percentage points, affecting 6.2 % of the population in the labour force in 2022 — the lowest value recorded since 2009 (6). Over the past years, city dwellers have been more affected by unemployment than those living in rural areas. In 2022, the unemployment rate in cities was 6.8 % compared with 5.3 % for rural areas (7).

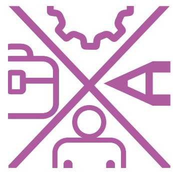
2.4 %
of the population in the labour force were long-term unemployed in 2022

Long-term unemployment usually follows the trends in unemployment, but with a delay, meaning that the effects of the COVID-19 pandemic are only visible in 2021 data. Being unemployed for a year or more can have long-lasting negative implications for individuals and society by reducing employability prospects, contributing to human capital depreciation, 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 status, thus hindering future employability, productivity and earnings.

As a result of the COVID-19 pandemic, long-term unemployment in the EU increased by 0.3 percentage points from 2020 to 2021, affecting 2.8 % of the labour force in 2021. However, already in 2022 the rate returned to a decreasing path and reached the lowest value on record at 2.4 %. The proportion of long-term unemployment in total unemployment had been decreasing between 2015 and 2020, before this trend was halted due to the effects of the pandemic. In 2022, the share of long-term unemployment in total unemployment was 38.5 %, 4.6 percentage points above the level observed in 2020 (8).

The labour market situation of young people is improving

The economic growth observed over the past few years has also helped to improve the labour market situation of younger people, with the employment rate of 20- to 24-year-olds growing steadily between 2014 and 2019. Nevertheless, they were hit harder by the COVID-19 crisis than older age groups. This is because young people are more likely to be employed on temporary and other atypical contracts (such as part-time, on-call or zero-hour contracts). However, already by 2022, the youth employment rate (20-24-year-olds) had recovered and reached 53.3 %. While this is the highest level recorded, it is still lower than for other age groups (9). This overall low employment rate of people aged 20 to 24 can be explained by the fact that many people at this age are in education and thus not part of the labour force. In addition, youth unemployment was significantly higher than for older age groups. Despite a strong 10.5 percentage point decrease in youth unemployment since 2013, 12.9 % of 20- to 24-year-olds were unemployed in 2022 (10).



11.7 %
of young people aged 15 to 29 were not employed nor in education and training in the EU in 2022

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. To improve the labour market situation of young people, the EU set a complementary target of decreasing the NEET rate to 9 % by 2030.

Between 2013 and 2019, the NEET rate for 15- to 29-year-olds in the EU improved from 16.4 % to 12.8 %. Despite a COVID-19 related increase in

2020, already by 2022 the NEET rate had dropped to 11.7 %, which was the lowest value recorded. If this positive trend continues, the EU is well placed to reach its NEET rate target of 9 % by 2030. Since 2009, the NEET rate in rural areas and towns and suburbs had been higher than in cities and reached 12.2 % in towns and suburbs and 12.6 % in rural areas in 2022, compared with a rate of 10.9 % in cities ([11]).

Women's participation in the labour market is growing, but gender differences persist

The employment rate of women in the EU has been increasing since 2009. After a dip caused by the COVID-19 pandemic, it reached a new high of 69.3 % in 2022. The gender employment gap, however, continues to persist, despite narrowing by 2.7 percentage points since 2009. In 2022, it amounted to 10.7 percentage points, despite women becoming increasingly well-qualified and even outperforming men in terms of educational attainment (see the chapter on SDG 5 'Gender equality' on page 103).

Inflexible work-life-balance options and underdeveloped care services — both for childcare and long-term care of a family member — are major impediments to women remaining in or returning to work. Caring responsibilities, which include care for children, care for adults with disabilities, and other family or personal responsibilities, are more often performed by women, contributing to the gender employment gap. In the EU, 1.5 % of women aged 20 to 64 were outside the labour force because they were caring for children or incapacitated adults, compared with only 0.3 % of men in 2022. Caring responsibilities are also the main reason why women are opting for part-time employment ([12]). As a result, women were overrepresented in part-time employment, with 27.8 % of employed women working part-time in 2022, compared with 7.6 % of employed men ([13]).

1.5 %
of women in the EU were outside of the labour force because of caring responsibilities in 2022

Interestingly, the share of women who indicated caring responsibilities as the main reason for part-time employment in 2022 varied widely across the EU Member States, from 2.5 % in Denmark to 45.4 % in the Netherlands ([14]). Similarly, the share of women working part-time varied significantly. While only 1.7 % of women in Bulgaria and 2.7 % in Romania performed part-time work, this was the case for 60.6 % of women in the Netherlands and 51.0 % in Austria in 2022 ([15]).

Employment opportunities are lower for people with disabilities

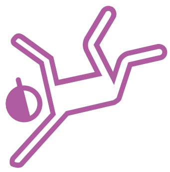
People with disabilities are those who have a basic activity difficulty (such as seeing, hearing, walking or communicating) and/or a work limitation caused by a longstanding health condition and/or a basic activity difficulty ([16]). Disabilities impact people's lives in many areas, including participation in the labour market. In 2021, the employment rate of people with disabilities at the EU level was 23.1 percentage points lower compared with people without disabilities. For women with disabilities, this gap was 20.4 percentage points, while for men with disabilities it was 25.1 percentage points. The degree of disability is also an important factor affecting the employment rate. At the EU level, the employment rate for people with a severe disability was 42.8 percentage points lower than for people without a disability, while for people with a moderate disability the gap was 16.2 percentage points in 2021 ([17]).

Decent work

For a society's sustainable economic development and well-being it is crucial that economic growth generates not just any kind of job but 'decent' jobs. This means that work should deliver fair income, workplace security and social protection for families, better prospects for personal development and social integration and equality of opportunity ([18]).

Over the past few years, work in the EU has become safer and more economically secure

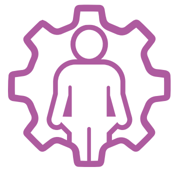
A prerequisite for decent work is a safe and healthy working environment, without non-fatal and fatal accidents, where risks of work-related hazardous events or exposures are minimised. Over the past few decades, the EU and its Member States have put considerable effort into ensuring at least minimum standards in occupational health and safety at work. After almost a decade of steady decline, the rate of fatal incidents at work slightly increased in 2020, amounting to 1.8 fatalities per 100 000 employed persons, with the mining and quarrying and construction sectors particularly prone to fatal accidents [19]. One of the reasons behind this increase might be the inclusion of a new category to the definition of an accident at work — COVID-19 of occupational origin — which some countries have already added to their statistics [20]. Although the incidence rate increased in 2020, the absolute number of fatal accidents decreased by 1.5 % compared with the previous year. Thus, the increase in the incidence rate may also be attributed to the fact that during the pandemic in 2020, the number of employed people fell by more than the number of fatal accidents did [21].



1.8
per 100 000 people employed in the EU had a fatal accident at work in 2020

While there has been a significant decrease since 2010, a noticeable gender difference persists: in 2020, the incidence rate for women was only 0.3 per 100 000 persons, compared with 3.1 for men. This gender gap is due to the fact that activities with the highest incidence rates are mostly male-dominated [22].

Besides safety at work, fair income and social protection are also important components of decent work. Poverty is often associated with the absence of a paid occupation but low wages can also push some workers below the poverty line. People working part-time or on temporary contracts, low-skilled workers and non-EU born workers are especially affected by in-work poverty. In the EU, the share of the so-called 'working poor' (aged 18 and over) decreased between 2016 and 2020, from 9.8 % to 8.8 %. In 2021, the in-work at-risk-of-poverty rate remained rather stable, at 8.9 % of employed people. For more information on in-work poverty, see the chapter on SDG 1 'No poverty' on page 39.



8.9 %
of employed people in the EU were at risk of income poverty in 2021

While a fixed-term, part-time contract or platform work may provide greater flexibility for both employers and workers, it is not always a personal choice for an employee and can thus significantly influence their well-being. In 2022, 4.3 % of European employees aged 20 to 64 were involuntarily working on temporary contracts, corresponding to 33.0 % of all temporary employees. This share has decreased significantly over the past few years [23]. The indicator on labour transitions from temporary to permanent contracts also shows that the share of such transitions has increased since 2015, reaching 27.1 % in 2020 (based on a three-year average) [24]. Similar to involuntary temporary employment, the share of involuntary part-time employment in total employment in the EU also decreased, from 5.3 % in 2017 to 3.6 % in 2022 [25].

Presentation of the main indicators

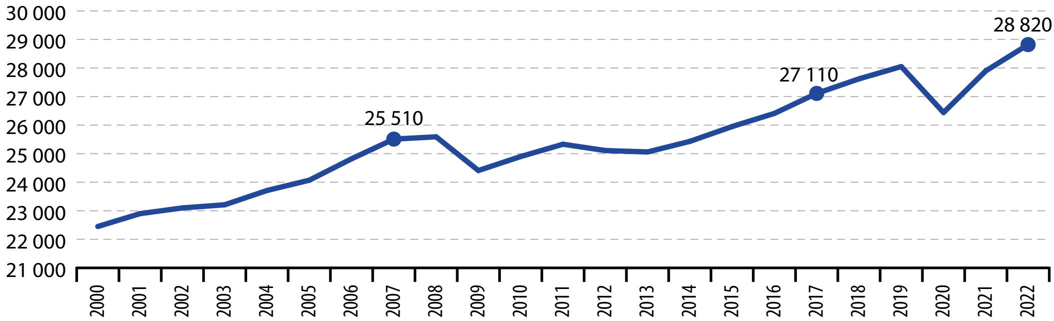
LONG TERM 2007–2022

SHORT TERM 2017–2022

Real GDP

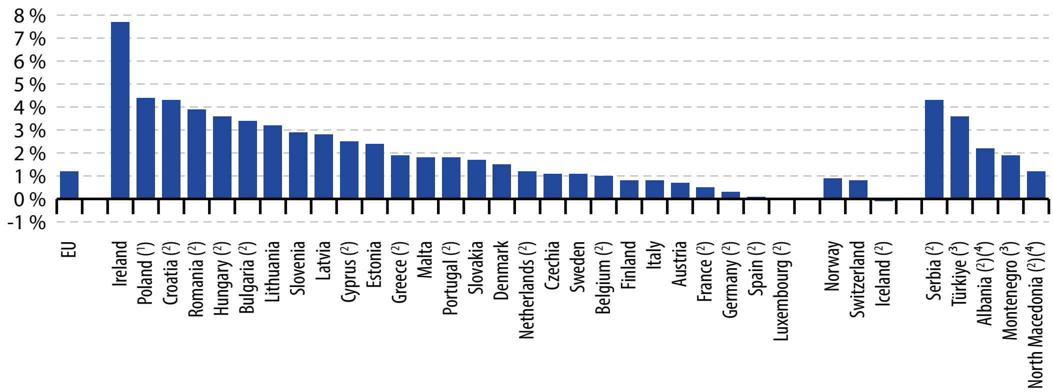
Gross domestic product (GDP) is a measure of economic activity and is often used as a proxy for changes in a country's material living standards. It refers to the value of total final output of goods and services produced by an economy within a certain time period. Real GDP per capita is calculated as the ratio of real GDP (GDP adjusted for inflation) to the average population of the same year and is based on rounded figures.

Figure 8.1: Real GDP per capita, EU, 2000–2022
(EUR per capita, chain-linked volumes, 2010)



Source: Eurostat (online data code: sdg_08_10)

Figure 8.2: Change in real GDP per capita, by country, 2017–2022
(average annual growth rate in %)



(1) Break(s) in time series between the two years shown.
(2) Provisional or estimated data.
(3) Change 2016–2021.
(4) Change 2015–2020.

Source: Eurostat (online data code: sdg_08_10)

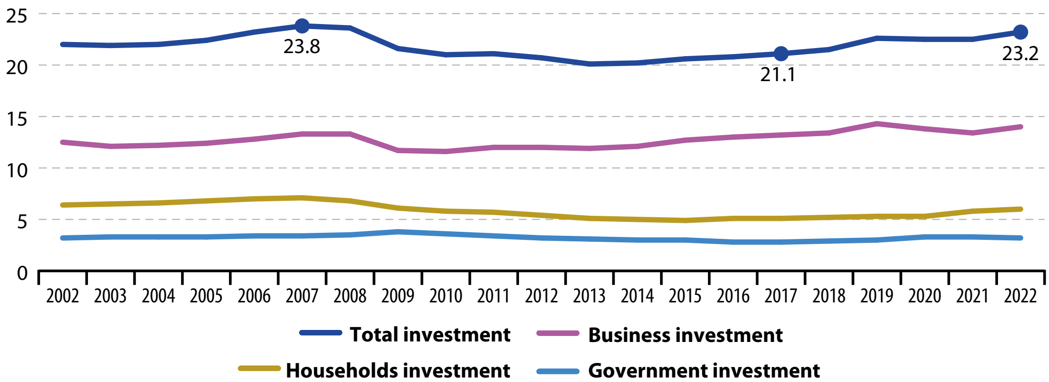
LONG TERM
2007–2022

SHORT TERM
2017–2022

Investment share of GDP

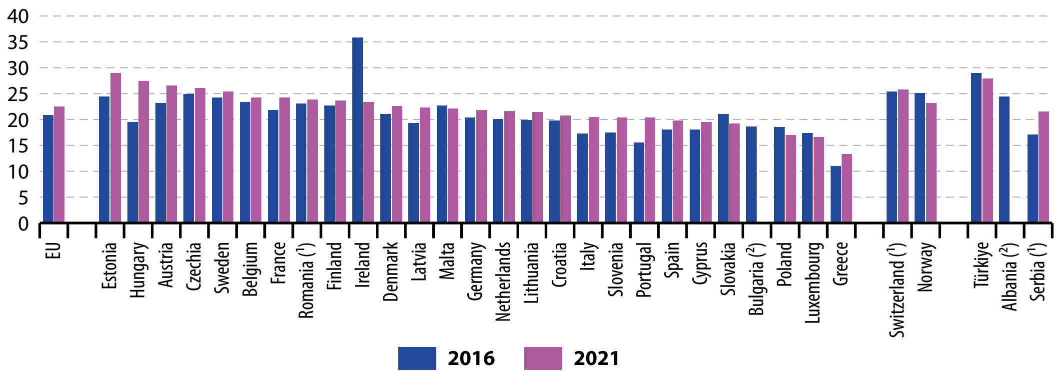
The investment share of GDP measures gross fixed capital formation (GFCF) for the total economy, government and business, as well as household sectors as a percentage of GDP.

Figure 8.3: Investment share of GDP, by institutional sector, EU, 2002–2022
(% of GDP)



Source: Eurostat (online data code: sdg_08_11)

Figure 8.4: Investment share of GDP, by country, 2016 and 2021
(% of GDP)



(1) 2020 data (instead of 2021).
(2) No data for 2021.

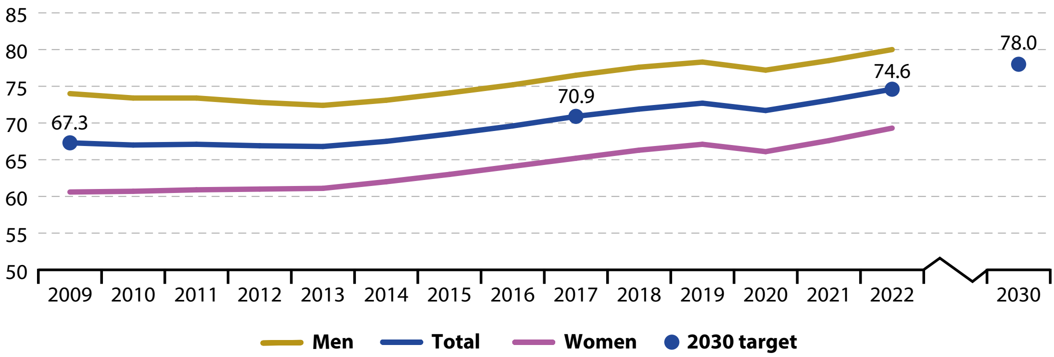
Source: Eurostat (online data code: sdg_08_11)

Employment rate

LONG TERM 2009–2022
SHORT TERM 2017–2022

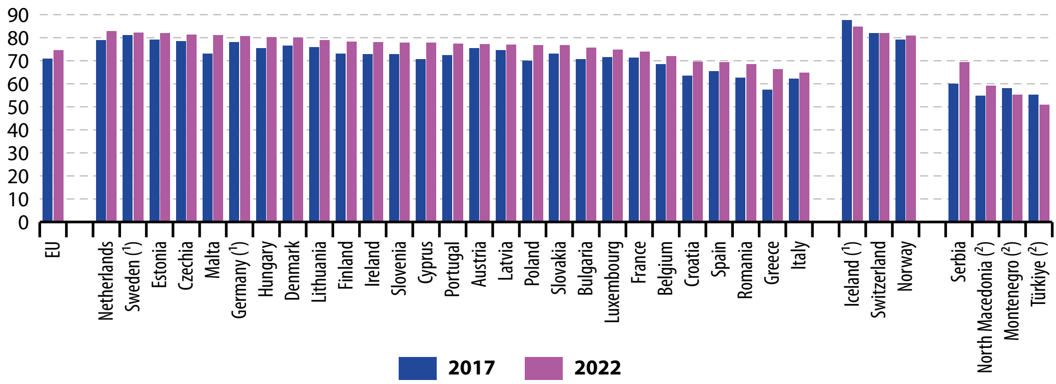
The employment rate is defined as the percentage of employed persons in relation to the total population. The data analysed here focus on the population aged 20 to 64. Employed persons are defined as all persons who, during a reference week, worked at least one hour for pay or profit or were temporarily absent from such work. Data presented in this section stem from the EU Labour Force Survey (EU-LFS).

Figure 8.5: Employment rate, by sex, EU, 2009–2022
(% of population aged 20 to 64)



Source: Eurostat (online data code: sdg_08_30)

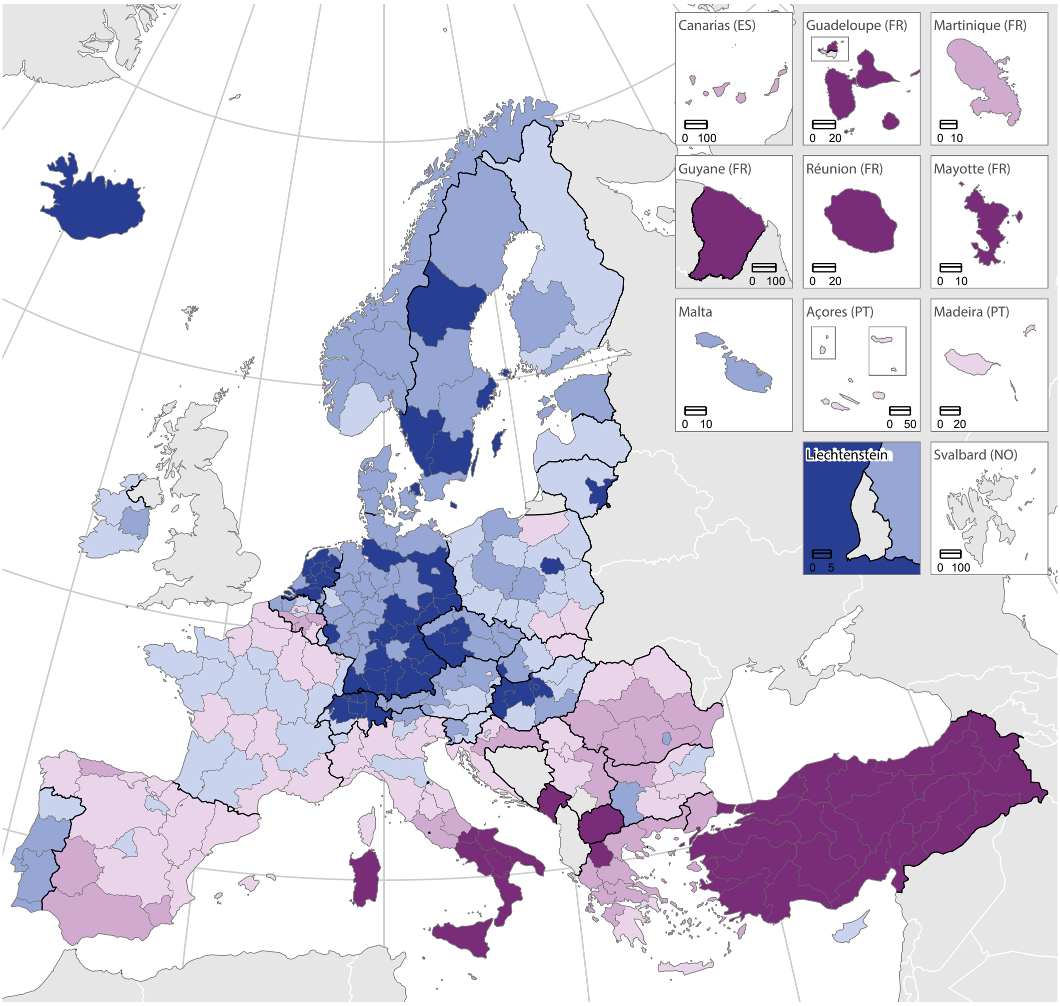
Figure 8.6: Employment rate, by country, 2017 and 2022
(% of population aged 20 to 64)



([1]) Break(s) in time series between the two years shown.
([2]) 2020 data (instead of 2022).

Source: Eurostat (online data code: sdg_08_30)

Map 8.1: Employment rate, by NUTS 2 region, 2022
(% of population aged 20 to 64)



EU = 74.6

Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 05/2023

- ≥ 82
- 78 – < 82
- 74.6 – < 78
- 68 – < 74.6
- 60 – < 68
- < 60
- Data not available

Note: 2020 data for Mayotte (FR) as well as for all regions in Montenegro, North Macedonia Turkey.
Source: Eurostat (online data code: lfst_r_lfe2emprt)

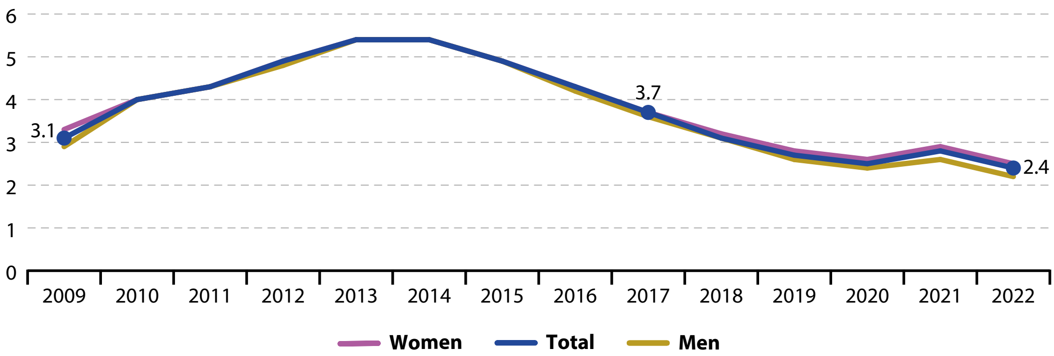
Long-term unemployment rate

LONG TERM 2009–2022

SHORT TERM 2017–2022

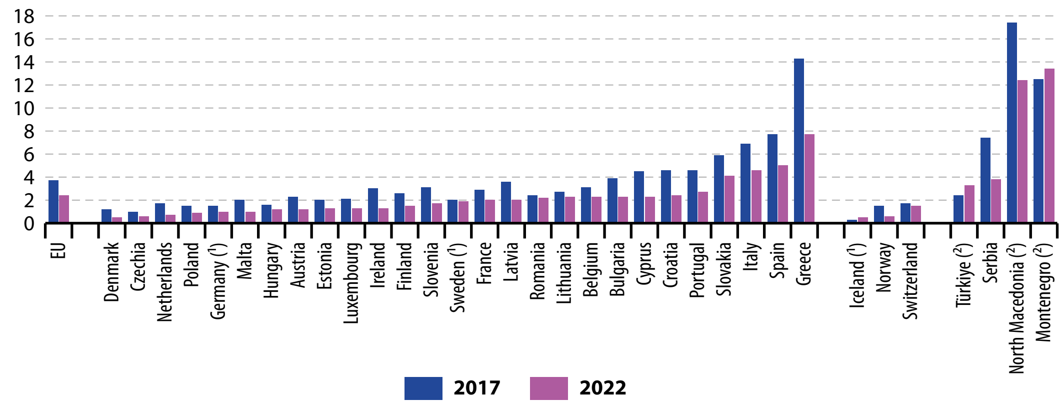
Long-term unemployment is measured as a percentage of the population in the labour force (which includes both employed and unemployed people) aged 15 to 74 who have been unemployed for 12 months or more. Long-term unemployment increases the risk of a person completely stopping their search for employment and falling into poverty, and has negative implications for society as a whole. People in the EU who are long-term unemployed have about half the chance of finding employment as those who are short-term unemployed ([26]). Data presented in this section stem from the EU Labour Force Survey (EU-LFS).

Figure 8.7: Long-term unemployment rate, by sex, EU, 2009–2022
(% of population in the labour force)



Source: Eurostat (online data code: sdg_08_40)

Figure 8.8: Long-term unemployment rate, by country, 2017 and 2022
(% of population in the labour force)



([1]) Break(s) in time series between the two years shown.
([2]) 2020 data (instead of 2022).

Source: Eurostat (online data code: sdg_08_40)

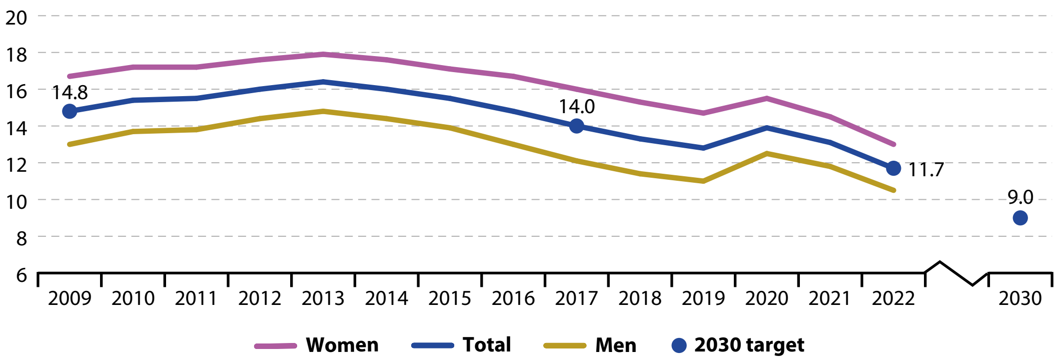
LONG TERM 2009–2022

SHORT TERM 2017–2022

Young people neither in employment nor in education and training (NEET)

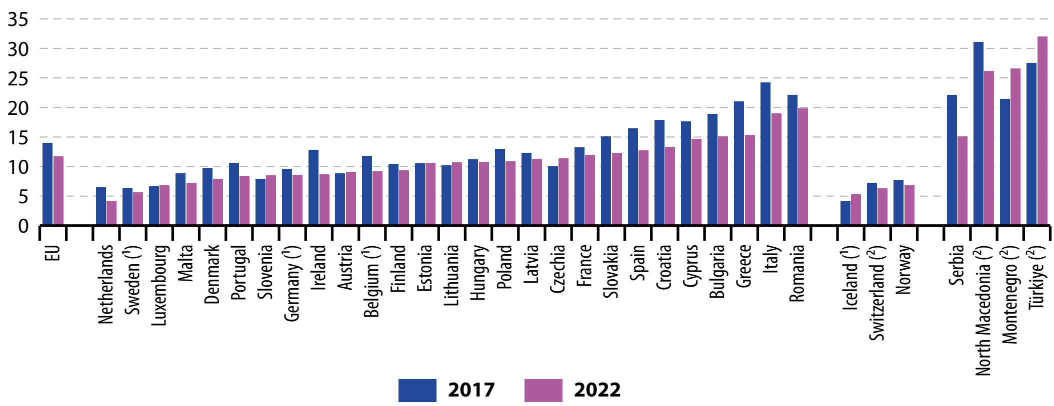
A considerable proportion of young people aged 15 to 29 in the EU are not employed. For some this is due to the pursuit of education and training. However, others have withdrawn from education and training as well. Those are captured by the statistics on young people who are neither in employment (meaning they are outside of the labour force or unemployed), education nor training (NEET rate). Data presented in this section stem from the EU Labour Force Survey (EU-LFS).

Figure 8.9: Young people neither in employment nor in education and training (NEET), by sex, EU, 2009–2022
(% of population aged 15 to 29)



Source: Eurostat (online data code: sdg_08_20)

Figure 8.10: Young people neither in employment nor in education and training (NEET), by country, 2017 and 2022
(% of population aged 15 to 29)



(1) Break(s) in time series between the two years shown.
(2) 2020 data (instead of 2022).

Source: Eurostat (online data code: sdg_08_20)

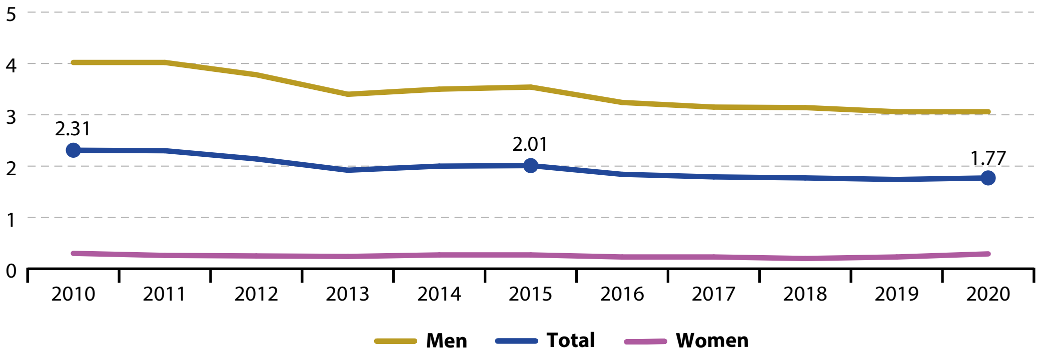
Fatal accidents at work

LONG TERM 2010–2020

SHORT TERM 2015–2020

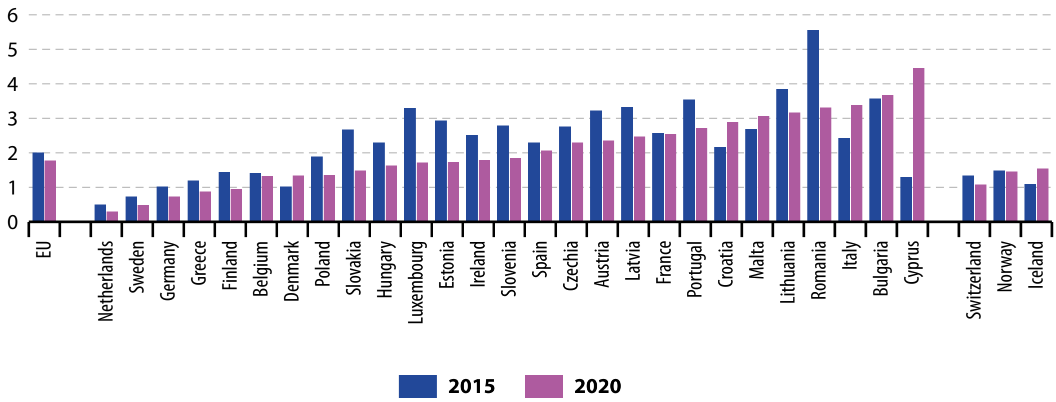
Fatal accidents at work are those occurring during the course of employment and leading to the death of the victim within one year; commuting accidents occurring between the home and the workplace are excluded. The incidence rate refers to the number of accidents per 100 000 persons in employment. Data presented in this section are collected in the framework of the administrative data collection 'European Statistics on Accidents at Work (ESAW)' ([27]). As an exception, fatal road traffic accidents at work are not included in the data from the Netherlands.

Figure 8.11: Fatal accidents at work, EU, 2010–2020
(number per 100 000 workers)



Note: Break in time series in 2020.
Source: Eurostat (online data code: sdg_08_60)

Figure 8.12: Fatal accidents at work, by country, 2015 and 2020
(number per 100 000 workers)



Note: Break in time series in 2020 for all countries.
Source: Eurostat (online data code: sdg_08_60)

Notes

([1]) European Commission (2022), *European Economic Forecast, Autumn 2022*, Publications Office of the European Union, Luxembourg, p. 1.
([2]) European Commission (2023), *European Economic Forecast, Winter 2023*, Publications Office of the European Union, Luxembourg, p. 1.
([3]) EEA (2022), Europe's material footprint.
([4]) European Commission (2023), *European Economic Forecast, Winter 2023*, Publications Office of the European Union, Luxembourg, p. 17.
([5]) Source: Eurostat (online data code: lfst_r_ergau).
([6]) Source: Eurostat (online data code: une_rt_a).
([7]) Source: Eurostat (online data code: lfst_r_urgau).
([8]) Source: Eurostat (online data code: une_ltu_a)
([9]) Source: Eurostat (online data code: lfsa_ergan).
([10]) Source: Eurostat (online data code: lfsa_urgaed).
([11]) Source: Eurostat (online data code: edat_lfse_29).
([12]) Source: Eurostat (online data code: lfsa_epgar).
([13]) Source: Eurostat (online data code: lfsa_epgaed).
([14]) Source: Eurostat (online data code: lfsa_epgar).
([15]) Source: Eurostat (online data code: lfsa_epgaed).
([16]) Eurostat, Prevalence of disability (source LFS).
([17]) Source: Eurostat (online data code: hlth_dlm200).
([18]) International Labour Organisation (2022), Decent work.
([19]) Source: Eurostat (online data code: hsw_n2_ 02).
([20]) European Commission (2023), European Accidents at Work Statistics: COVID-19 Cases with Occupational Origin.
([21]) Eurostat (2022), Statistics Explained: Accidents at work — statistics by economic activity.
([22]) Ibid.
([23]) Source: Eurostat (online data code: lfsa_etgar).
([24]) Source: Eurostat (online data code: ILC_LVHL36).
([25]) Source: Eurostat (online data codes: lfsa_epgar and lfsa_epgaed).
([26]) European Commission (2016), *Employment and Social Developments in Europe 2015*, Publications Office of the European Union, Luxembourg, p. 13.
([27]) Eurostat (2013), *European Statistics on Accidents at Work (ESAW) — Summary methodology*, Publications Office of the European Union, Luxembourg.

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

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 solutions to social, economic and environmental challenges.

Research and development (R&D), innovations, sustainable industries and infrastructures are key to achieving the SDGs. Monitoring SDG 9 in an EU context focuses on elements such as R&D intensity and personnel, patent applications, the air emissions intensity of industry, and modal splits in passenger and freight transport. Over the five-year period assessed in this report, the EU has experienced strong progress in many of these indicators. However, there have also been recent unfavourable trends, especially regarding the use of environmentally friendly modes in freight and passenger transport.

Table 9.1: Indicators measuring progress towards SDG 9, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
R&D and innovation				
Gross domestic expenditure on R&D	2006–2021	Observed: 1.5 % Required: 2.2 %	↗	page 173
	2016–2021	Observed: 1.3 % Required: 2.5 %	↘	
Patent applications to the European Patent Office	2007–2022	1.1 %	↑	page 175
	2017–2022	1.1 %	↑	
R&D personnel	2006–2021	3.0. %	↑	page 177
	2016–2021	4.0 %	↑	
Tertiary educational attainment (*)	2007–2022	Observed: 2.5 % Required: 1.9 %	↑	SDG 4, page 97
	2017–2022	Observed: 2.2 % Required: 1.4 %	↑	
Sustainable industry				
Air emissions intensity of industry	2008–2020	– 3.7 %	↑	page 178
	2015–2020	– 2.6 %	↑	
Gross value added in the environmental goods and services sector (*)	2005–2020	3.5 %	↑	SDG 12, page 230
	2015–2020	3.4 %	↑	
Sustainable infrastructure				
Share of buses and trains in inland passenger transport	2005–2020	– 2.0 %	↓	page 179
	2015–2020	– 6.2 %	↓	
Share of rail and inland waterways in inland freight transport	2006–2021	– 0.8 %	↘	page 180
	2016–2021	– 2.3 %	↓	
Share of households with high-speed internet connection (*)	Time series too short for long-term assessment		:	SDG 17, page 313
	2016–2021	Observed: 22.7 % Required: 10.3 %	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.

Policy context

R&D and innovation

The new European Research Area (ERA) aims to build a single, borderless area for research, innovation and technology by prioritising investments and reforms, improving access to excellence, translating research and innovation results into the economy and strengthening the mobility of researchers and knowledge through greater cooperation. The Council Recommendation on a Pact for Research and Innovation in Europe re-affirmed the EU's long-standing objective of increasing its R&D intensity to 3 % of GDP and outlines the long-term vision for the ERA. The ERA Policy Agenda 2022–24 translates the vision into 20 tangible actions. The EU research and innovation programme Horizon Europe supports researchers and innovators to drive the systemic changes needed to ensure a green, healthy and resilient Europe.

The European Education Area (EEA) is an initiative that enables all young people to benefit from the best education and training and to find employment across Europe. The European Education Area strategic framework promotes collaboration between EU Member States and key stakeholders and sets the target that by 2030 at least 45 % of 25–34-year-olds in the EU should have completed tertiary education.

The New European Innovation Agenda (2022) aims to position Europe at the forefront of the new wave of deep tech innovation and start-ups.

The Recovery and Resilience Facility is a temporary instrument that supports reforms and investments to promote smart, sustainable and inclusive growth, entrepreneurship, competitiveness, industrialisation and reindustrialisation, improve the business environment, foster research, development and innovation, and support SMEs.

Sustainable industry

The EU's updated New Industrial Strategy for Europe (2021) aims to support industry to shift towards climate neutrality and to build a more circular economy.

The EU Bioeconomy Strategy (2018) supports the greening of EU industry, materials and products within planetary boundaries.

The Green Deal Industrial Plan (2023) seeks to enhance the competitiveness of Europe's net-zero industry and support the fast transition to climate neutrality.

Sustainable infrastructure

The Sustainable and Smart Mobility Strategy sets various milestones for smart and sustainable transport modes to reach the climate targets of the European Green Deal.

The Trans-European Transport Network (TEN-T) policy aims to implement and develop an effective, EU-wide and multimodal network of roads, railway lines, inland waterways, ports, airports and rail-road terminals. The Action Plan to boost long-distance and cross-border passenger rail services and the proposed revision of the TEN-T Regulation aim to contribute to more attractive cross-border options with rail transport.

The 2030 Digital Compass presents a vision for Europe's digital transformation and sets the target that all households should be covered by a gigabit network by 2030.

Industry, innovation and infrastructure in the EU: overview and key trends

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 and for supporting the digital and green transitions. 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, public security or health protection and promotion.

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. This is monitored here by looking at gross domestic expenditure on R&D in relation to GDP, referred to as R&D intensity. R&D intensity thus reflects both growth in spending on R&D and growth in GDP.

2.26 %
of GDP was spent on R&D in the EU in 2021

Despite the EU's long-standing 3 % target, the EU's R&D intensity has grown only modestly over the past 20 years. After prolonged stagnation between 2000 and 2007, the EU's R&D intensity has increased slowly, reaching 2.30 % in 2020. Most recently however, the R&D intensity has declined again, to 2.26 % in 2021. This corresponded to an R&D expenditure of about EUR 328 billion. In absolute terms, expenditure in 2021 was therefore higher than in 2020 (EUR 310 billion) and 2011 (EUR 228 billion) ([1]). With a gap of 0.74 percentage points, the EU remains at some distance from its ambition of raising R&D intensity to 3 % by 2030.

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 2021 remained the business enterprise sector (66.0 % of total R&D expenditure) and the higher education sector (21.6 %). The share of the government sector was 11.8 %, while the private non-profit sector accounted for less than 1 % of total R&D expenditure ([2]).

The business enterprise sector accounts for the lion's share of total R&D expenditure and has increased its R&D intensity by 0.4 percentage points over the past 15 years, from 1.13 % of GDP in 2005 to 1.49 % in 2021. Simultaneously the higher education sector increased its R&D intensity from 0.39 % (2005) to 0.49 % of GDP in 2021. In contrast, the R&D intensities of the government and private non-profit sectors have more or less stagnated at lower levels.

67 500
patent applications from within the EU were submitted to the European Patent Office in 2022

The number of patent applications to the European Patent Office has grown

Patent applications provide a valuable measure of the creative and innovative capacity of countries, regions and companies and of the economic exploitation of research results. In 2021, 67 500 patent applications from within the EU were submitted to the European Patent Office. This figure was reached after an almost continuous period of growth since 2007, when 57 255 applications were submitted. The only year to record a strong year-on-year drop in applications was 2009 as a result of the economic crisis (3).

The availability of human capital for a knowledge-based society is growing, but gender disparities remain

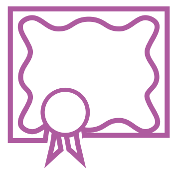
The growing knowledge orientation of the EU's economy and society, together with developments in the labour market and demographic trends, make human capital increasingly important. Achieving the SDGs will require ambitious investments in research and development (R&D) and significant innovation, including further investment in skills development and in lifelong learning (4).

R&D personnel consists of researchers engaged directly in R&D as well as those persons providing direct services for the R&D activities (such as R&D managers, administrators, technicians and clerical staff) (5). The share of R&D personnel in the labour force has increased steadily since 2006, from 0.97 % to 1.50 % in 2021 (full-time equivalent). This trend was mainly driven by the business enterprise sector, which employed about 60 % of the R&D workforce in 2021.

1.50 %
of the economically active population in the EU worked in R&D in 2021

An analysis by sex, however, reveals that women remain considerably underrepresented among researchers based on head count in the EU, accounting for only 32.9 % in 2019. There has been no considerable progress since 2005, when the share stood at 30.2 %. This underrepresentation is particularly strong in the business enterprise sector, where women only made up 21.3 % of researchers in 2019. In contrast, women accounted for more than 40 % of researchers in the other three sectors (government, higher education and non-profit sector), with the private non-profit sector being the closest to achieving parity at 48.4 % in 2019. Compared with the other sectors, the higher education sector recorded the largest increase in female researchers: between 2005 and 2019, it increased by 6.5 percentage points, from 36.5 % to 43.0 % (6).

Data on tertiary educational attainment show a general long-term increase in the EU population's skill levels. Between 2007 and 2022, the share of 25- to 34-year olds with a university degree or similar increased from 28.9 % to 42.0 %. The EU is therefore well on track to reaching its target of raising this share to at least 45 % by 2030, as set out in the Council Resolution from 2021 on the European Education Area. However, differences between the sexes remain considerable, and when compared with the situation for R&D personnel, the gender imbalance is reversed. While 47.6 % of women aged 25 to 34 years had accomplished tertiary education in 2022, only 36.5 % of men in this age group had done so. This gender gap has been widening almost continuously since 2007. For further details on tertiary education and the gender gap, see the chapters on SDG 4 'Quality education' on page 87 and SDG 5 'Gender equality' on page 103.



42.0 %
of the EU population aged 25 to 34 had accomplished tertiary education in 2022

Sustainable industry

Mobilising industry for a clean and circular economy is one of the key priorities of the European Green Deal, which seeks to support and accelerate the EU's industry transition to a sustainable model of inclusive growth. This requires a massive reduction in harmful air emissions emitted through industrial production alongside increased use of greener products and services.

The air emissions intensity of EU industry has improved in recent years

Industry is vital for Europe's prosperity and future development. The EU industrial sector accounts for more than 20 % of the EU economy and employs about 35 million people (7). However, industry is also a source of many environmental pressures such as material consumption and the emission of greenhouse gases and other air pollutants. This analysis focuses on air pollutants emitted by industry, using particulate matter emissions from manufacturing as a proxy. For an analysis of greenhouse gas emissions from industry, see the chapter on SDG 13 'Climate action' on page 235.

Poor air quality causes premature deaths, impacts quality of life and damages ecosystems (8). Particulate matter, especially fine particulate matter ($PM_{2.5}$), is one of the most harmful components of air pollution for human health (9). Exposure to air pollution by $PM_{2.5}$ caused 237 810 premature deaths in the EU in 2020 (see chapters on SDG 3 'Good health and well-being' on page 69 and on SDG 11 'Sustainable cities' on page 203). In 2020, the EU's manufacturing sector was responsible for about a fifth (21.7 %) of total $PM_{2.5}$ emissions. In comparison, in the same year, about a third (33.0 %) of total $PM_{2.5}$ emissions could be attributed to transportation and storage, and almost a quarter (24.2 %) to agriculture, forestry and fishing (10).

12.5 %
improvement in the manufacturing sector's emissions intensity of fine particulate matter between 2015 and 2020

Data on emissions intensity monitor a sector's air emissions relative to its economic output in terms of gross value added (GVA). Between 2008 and 2020, the air emissions intensity of fine particulate matter ($PM_{2.5}$) of the EU's manufacturing sector dropped by 36.4 %, from 0.11 grams per euro to 0.07 grams per euro. This improvement is a result of the sector's $PM_{2.5}$ emissions falling by 30.3 % between 2008 and 2020 while its GVA grew almost continuously until the onset of the COVID-19 pandemic. In 2019 — the year before the pandemic — the sector's GVA was 13.5 % higher than in 2008. In 2020, GVA was still higher than in 2008, albeit only by 5.3 %. From 2019 to 2020, the sector thus experienced a stronger fall in its GVA (by 7.2 %) than in its $PM_{2.5}$ emissions (by 5.4 %).

Between 2015 and 2020, $PM_{2.5}$ emissions from manufacturing decreased by 6.6 %, alongside a 1.9 % increase in the sector's GVA (11). This resulted in a 12.5 % improvement in the sector's emissions intensity over this most recent five-year period. The manufacturing sector's emissions intensity for the broader group of fine and coarse particulate matter (PM_{10}) experienced a similar improvement, decreasing by 33.3 % between 2008 and 2020 and by 9.1 % between 2015 and 2020.

Gross value added of environmental goods and services has grown strongly

The EU's updated New Industrial Strategy for Europe strives for a greener industry. Products and services that, for instance, prevent or limit environmental pollution, repair and correct resource depletion or protect biodiversity may contribute to a so-called green economy. These kinds of environmental goods and services (EGSS) are gaining in importance. In 2020, they accounted for a gross value added of EUR 300.1 billion. This is a 68.6 % increase compared with 2005, when the EU's GVA of environmental goods and services amounted to EUR 178.0 billion. In relation to the whole economy, the environmental goods and services sector grew from 1.7 % of GDP in 2005 to 2.5 % in 2020. This indicates the sector grew — in gross value added terms — disproportionally faster than other economic sectors. Notably, the sector's GVA continued to grow in 2020 (by 1.9 %) when the EU's GDP fell by 5.6 % as a result of the COVID-19 pandemic.

300.1
billion EUR of gross value added were generated by the EU's environmental goods and services sector in 2020

Employment (in full-time equivalent) in the sector has also increased since 2005, by 47.5 %. In 2020, the sector employed slightly more than 5 million people in the EU ([12]). The development is related to multiple factors, which, among other things, include growth in private investments in environmental goods and services, encouraged by increasing government interventions in this area ([13]).

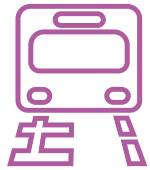
Sustainable infrastructure

The European Green Deal aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy. To achieve this vision, the EU needs to address the twin challenge of the green and the digital transition. In this context, the Green Deal calls for an acceleration in the shift to sustainable and smart mobility as well as for investment in digitalisation to support the green transition. Multimodal and energy efficient freight transport as well as automated and connected multimodal mobility will consequently need to play an increasing role, together with smart traffic management systems enabled by digitalisation.

Use of public transport dropped considerably during the pandemic

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 trains and buses.

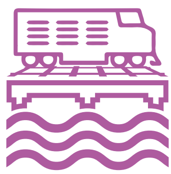
In 2020 the modal share of buses and trains in inland passenger transport in the EU fell significantly compared with previous years ([14]). While their share in terms of passenger-km has stagnated between 16.9 % and 18.0 % since 2000, and accounted for 17.5 % in 2019, it dropped to 12.8 % in 2020. This corresponds to a 4.7 percentage point decrease within one year. Conversely, the share of passenger-km covered by cars — which remain by far the dominant mode for inland passenger transport — increased to 87.2 % in 2020 ([15]). This drastic development can be essentially attributed to the effects of the COVID-19 pandemic. A study published by the European Parliament shows that measures such as restrictions on domestic and international travels, teleworking policies as well as changed mobility habits as a consequence of the pandemic led to a significant decline in public transport use in 2020. According to an EU-wide survey on passenger mobility carried out in 2021, 64 % of the respondents reported that their travel behaviour was impacted by the COVID-19 pandemic.



12.8 %
of passenger-km in the EU were covered by buses and trains in 2020

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

Despite the EU policy objective of shifting freight from road to rail and inland waterways, road continues to have by far the largest share in EU freight transport among the three inland transport modes analysed in this report (road, rail and inland waterways). Since 2012, the share of rail and inland waterways in total freight transport in the EU has declined almost continuously. It accounted for 22.7 % in 2021, which corresponds to a 3.8 percentage point decrease compared with the peak of 26.5 % in 2012.



22.7 %
of freight tonne-km in the EU was carried out via rail and inland waterways in 2021

Considerable differences do exist at country level though. In 2021, three countries (Lithuania, Latvia and Romania) had higher shares for rail and inland waterways than for road in inland freight transport. Particularly high shares of rail transport were reported from the Baltic countries Lithuania (62.5 %), Latvia (53.4 %) and Estonia (40.1 %). In the Netherlands, freight transport via inland waterways still plays an important role, with a modal split of 41.9 % in 2021.

Considerable progress has been made in rolling out fixed very high capacity network connections across the EU

Digital connections are crucial for today's economies and societies. Instant communication between individuals, bank transfers, office work, public dissemination of information, or data analysis are only some of the activities that depend on the internet. Especially in rural and remote areas, fast internet connection can significantly improve access to various services such as health care and education. Regions without fast internet connections have serious social and economic disadvantages in a digitalised world. The 2030 Digital Compass thus proposed the target that by 2030 all European households should be covered by a gigabit network, with all populated areas covered by 5G.

70.2 %
of EU households had high-speed internet coverage in 2021

Data collected by the European Commission services for the key dimensions of the European information society ([16]) show that the uptake of fixed very high capacity network (VHCN) connectivity — referring to fibre connections or other networks offering similar bandwidth ([17]) — has improved considerably in the EU over the past few years. While only 25.2 % of EU households had access to such connectivity in 2016, this share has risen considerably, reaching 70.2 % of households in 2021. If VHCN roll-out continues at this pace, the EU will reach 100 % coverage well ahead of 2030. VHCN connectivity has also improved in rural areas ([18]). Between 2016 and 2021, the share of rural households with fixed VCHN connection increased from 7.7 % to 37.1 % across the EU. Despite this positive development, VCHN connectivity in rural areas remains at some distance from the 2030 target. In addition, basic digital skills for all citizens (see the chapter on SDG 4 'Quality education' on page 87) are a general prerequisite for ensuring they benefit from digital developments ([19]).

Presentation of the main indicators

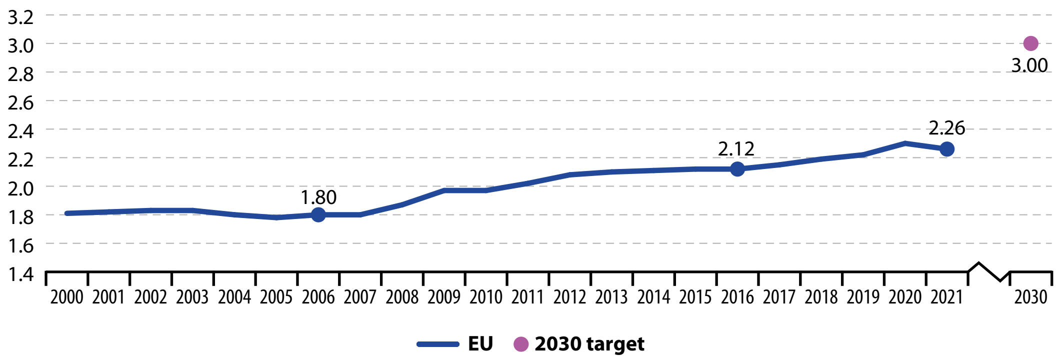
LONG TERM
2006–2021

SHORT TERM
2016–2021

Gross domestic expenditure on R&D

This indicator measures gross domestic expenditure on R&D (GERD) as a percentage of gross domestic product (GDP) — also called R&D intensity. The OECD's Frascati Manual on collecting R&D data defines research and experimental development (R&D) as creative and systematic work undertaken in order to increase the stock of knowledge — including knowledge of humankind, culture and society — and to devise new applications of available knowledge.

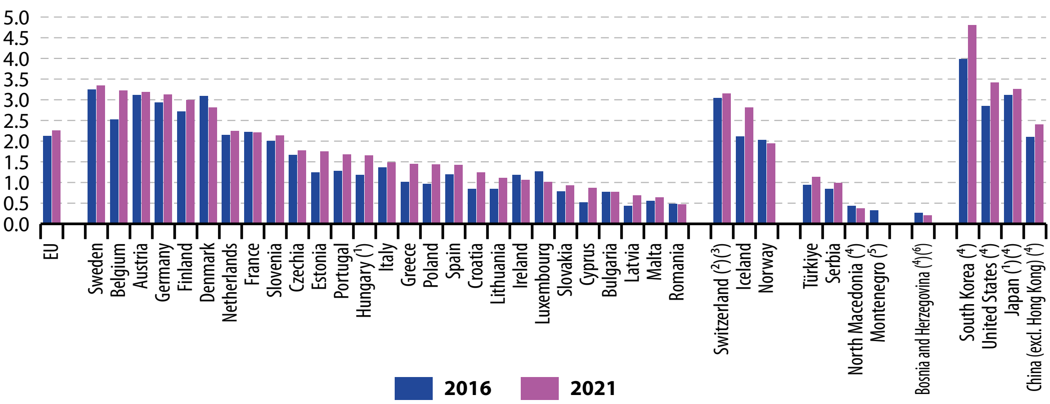
Figure 9.1: Gross domestic expenditure on R&D, EU, 2000–2021
(% of GDP)



Note: Data for 2000 to 2020 are estimated; 2021 data are provisional.

Source: Eurostat (online data code: sdg_09_10)

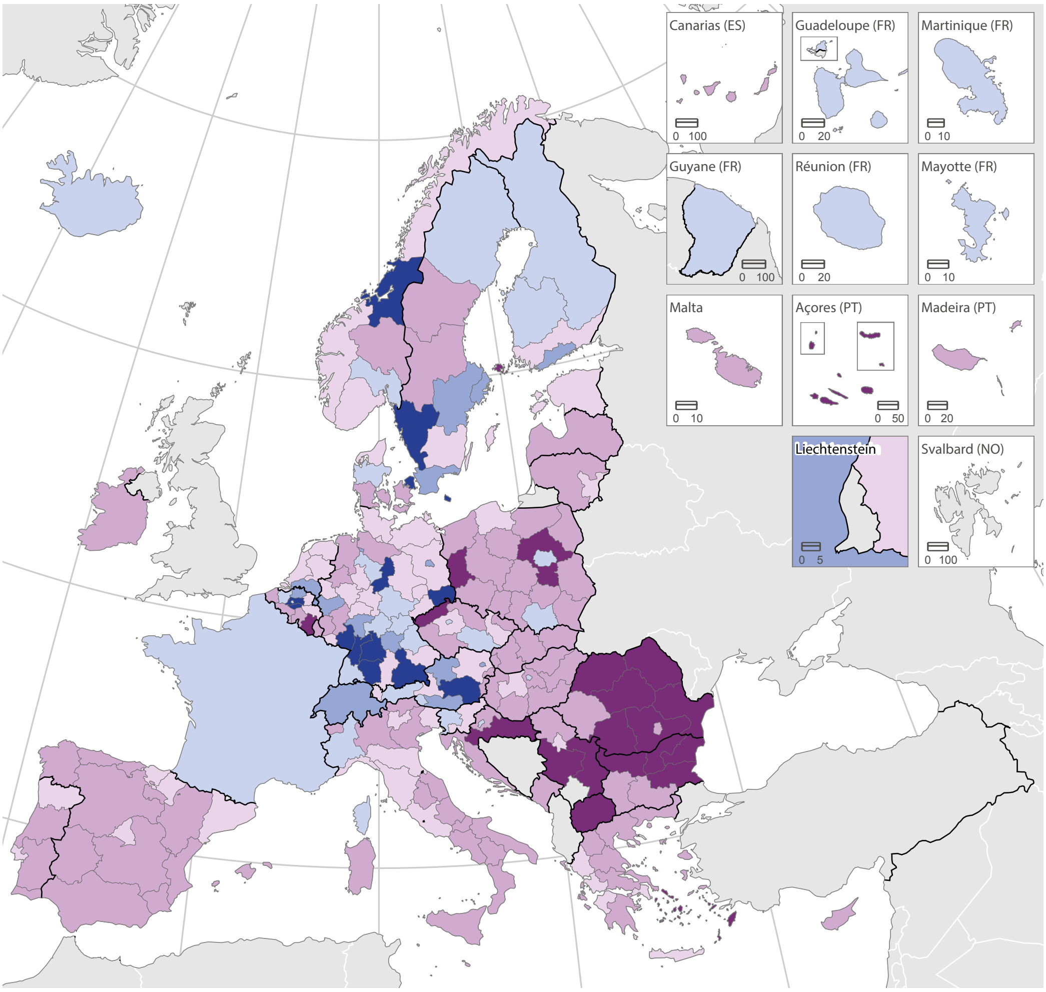
Figure 9.2: Gross domestic expenditure on R&D, by country, 2016 and 2021
(% of GDP)



Note: 2021 are provisional data for many countries.
([1]) Break(s) in time series between the two years shown.
([2]) 2015 data (instead of 2016).
([3]) 2019 data (instead of 2021).
([4]) 2020 data (instead of 2021).
([5]) No data for 2021.
([6]) 2014 data (instead of 2016).

Source: Eurostat (online data codes: sdg_09_10 and rd_e_gerdtot)

Map 9.1: Gross domestic expenditure on R&D, by NUTS 2 region, 2020
(% of GDP)



EU = 2.3

Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 04/2023

- ≥ 4
- 3 – < 4
- 2.3 – < 3
- 1.5 – < 2.3
- 0.5 – < 1.5
- < 0.5
- Data not available

Note: National data for Ireland, France and Switzerland; NUTS 1 data for the Netherlands; 2015 data for Småland med öarna and Mellersta Norrland (SE); 2017 data for all regions in Belgium (except Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest); 2018 data for Montenegro; 2019 data for Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest (BE) and all regions in Denmark, Germany, Austria, Sweden (except Småland med öarna and Mellersta Norrland), Norway as well as for Switzerland.

Source: Eurostat (online data code: rd_e_gerdreg)

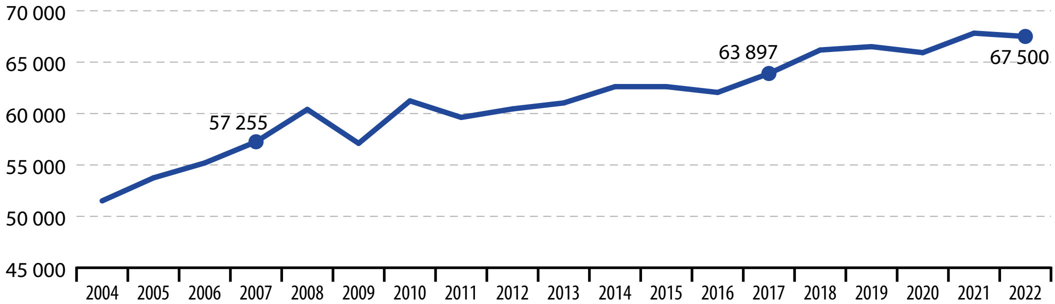
Patent applications to the European Patent Office

LONG TERM 2007–2022

SHORT TERM 2017–2022

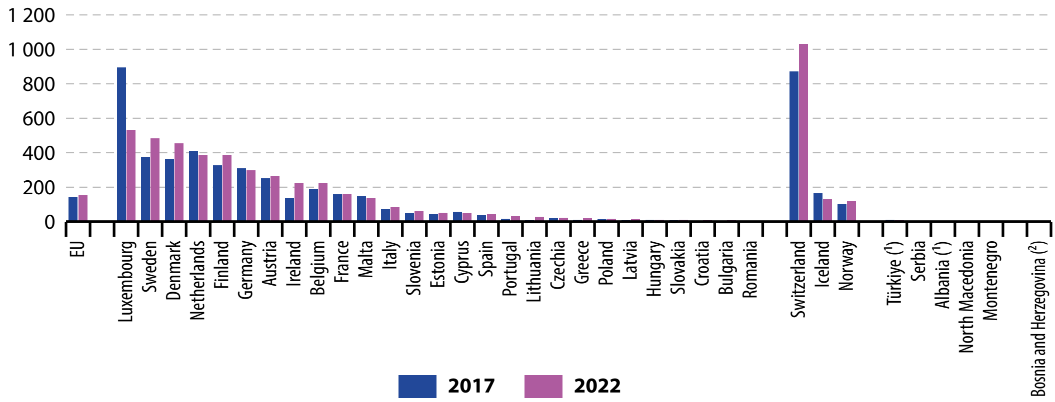
This indicator measures requests for the protection of an invention filed with the European Patent Office (EPO) regardless of whether they are granted or not. Applications are allocated according to the country of residence of the first applicant listed on the application form (first-named applicant principle) as well as according to the country of residence of the inventor.

Figure 9.3: Patent applications to the European Patent Office (EPO), by country of applicant, EU, 2004–2022
(number)



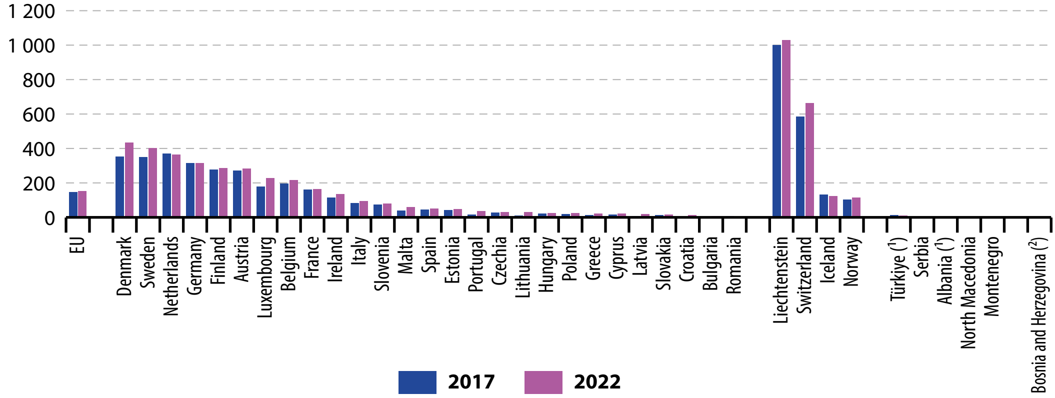
Note: 2022 data are provisional.
Source: EPO (Eurostat online data code: sdg_09_40)

Figure 9.4: Patent applications to the European Patent Office (EPO), by country of applicant, 2017 and 2022
(per million inhabitants)



Note: 2022 data are provisional. Liechtenstein not shown with a value of 11 600 applications per million inhabitants.
(1) 2021 data (instead of 2022).
(2) No data for 2022.
Source: EPO, Eurostat (online data code: sdg_09_40)

Figure 9.5: Patent applications to the European Patent Office (EPO), by country of inventor, 2017 and 2022
(per million inhabitants)



Note: 2022 data are provisional.
(1) 2021 data (instead of 2022).
(2) No data for 2022.

Source: EPO, Eurostat (online data code: sdg_09_40)

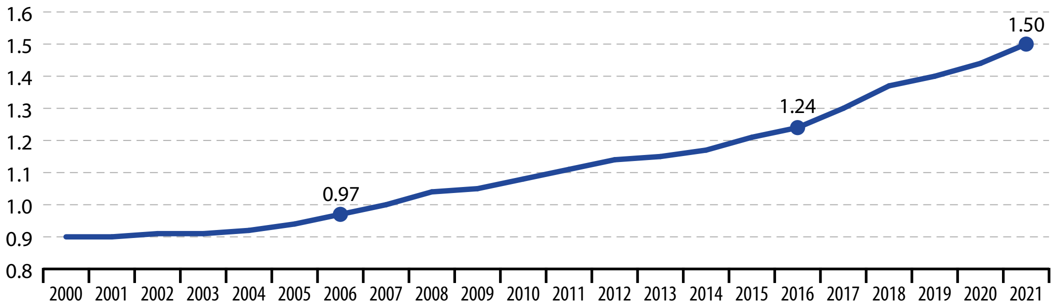
R&D personnel

LONG TERM 2006–2021

SHORT TERM 2016–2021

This indicator measures the share of R&D personnel in the following institutional sectors: business enterprise, government, higher education and private non-profit. Data are presented in full-time equivalents as a share of the labour force. R&D personnel consists of persons engaged directly in R&D, which refers to the creative and systematic work undertaken to increase the stock of knowledge, including knowledge of humankind, culture and society, and to devise new applications of available knowledge. In addition, R&D personnel also includes those providing direct services for the R&D activities, such as R&D managers, administrators, technicians and clerical staff.

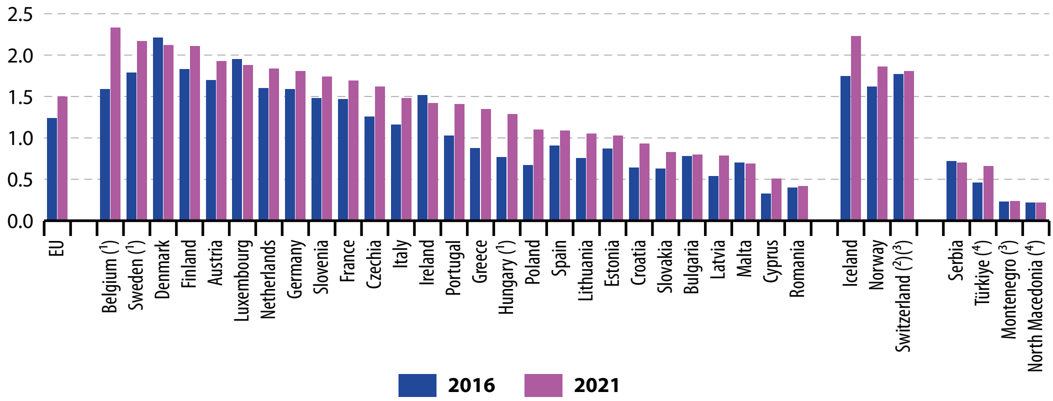
Figure 9.6: R&D personnel, EU, 2000–2021
(% of population in the labour force)



Note: Data for 2000–2020 are estimated; 2021 data are provisional.

Source: Eurostat (online data code: sdg_09_30)

Figure 9.7: R&D personnel, by country, 2016 and 2021
(% of population in the labour force)



Note: 2021 data are provisional for many countries.
(1) Break(s) in time series between the two years shown.
(2) 2015 data (instead of 2016).
(3) 2019 data (instead of 2021).
(4) 2020 data (instead of 2021).

Source: Eurostat (online data code: sdg_09_30)

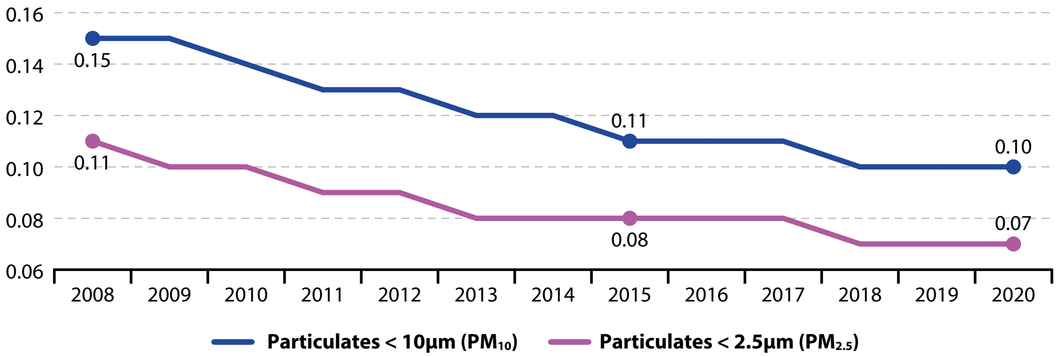
LONG TERM
2008–2020

SHORT TERM
2015–2020

Air emissions intensity of industry

This indicator measures the emissions intensity of particulate matter (PM_{10} and $PM_{2.5}$) from the manufacturing sector (NACE Rev. 2 sector 'C'). Air emissions are defined as flows of gaseous and particulate materials emitted into the atmosphere. Fine and coarse particulates (PM_{10}) are less than 10 micrometres in diameter and can be carried deep into the lungs, where they can cause inflammation and exacerbate the condition of people suffering from heart and lung diseases. Fine particulates ($PM_{2.5}$) are less than 2.5 micrometres in diameter and are therefore a subset of the PM_{10} particles. Their negative health impacts are more serious than PM_{10} because they can be drawn further into the lungs and may be more toxic. Emission intensity is calculated by dividing the sector's PM emissions by its gross value added (GVA), which is defined as output (at basic prices) minus intermediate consumption (at purchaser prices).

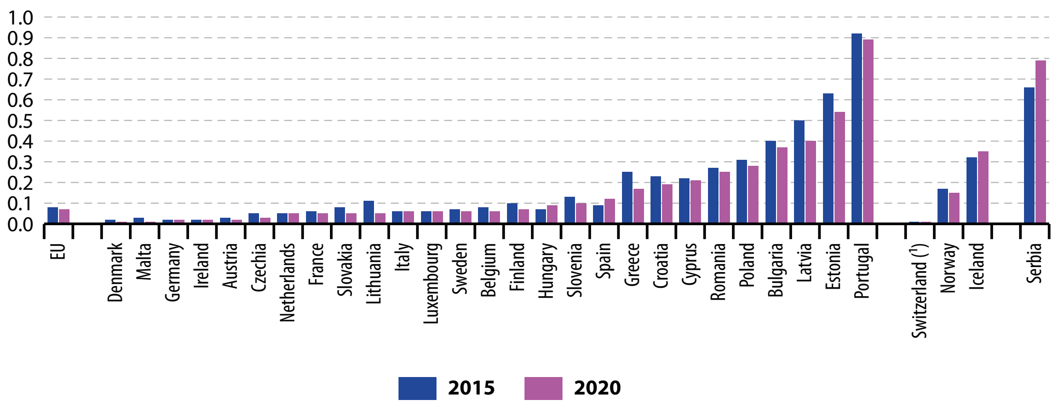
Figure 9.8: Air emissions intensity of industry for particulate matter, EU, 2008–2020
(grams per euro, chain-linked volumes, 2010)



Note: 2008 data are Eurostat estimates.

Source: Eurostat (online data code: sdg_09_70)

Figure 9.9: Air emissions intensity of industry for particulate matter ($PM_{2.5}$), by country, 2015 and 2020
(grams per euro, chain-linked volumes, 2010)



([1]) 2019 data (instead of 2020).

Source: Eurostat (online data code: sdg_09_70)

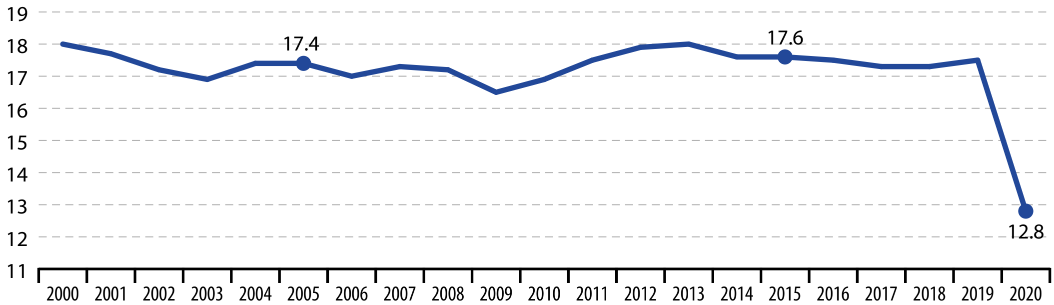
Share of buses and trains in inland passenger transport

LONG TERM
2005–2020

SHORT TERM
2015–2020

This indicator measures the share of buses, including coaches and trolley-buses, and trains in inland passenger transport, expressed in passenger-kilometres (pkm). Passenger transport here includes transport by passenger cars, buses and coaches, and trains, but excludes inland waterways, air and sea transport. All data are based on movements within national territories, regardless of the vehicle's nationality. Road data stem from a voluntary collection and are not fully harmonised at the EU level. Tram and metro systems are not included because the data collection methodology for these means of transport is not sufficiently harmonised between Member States.

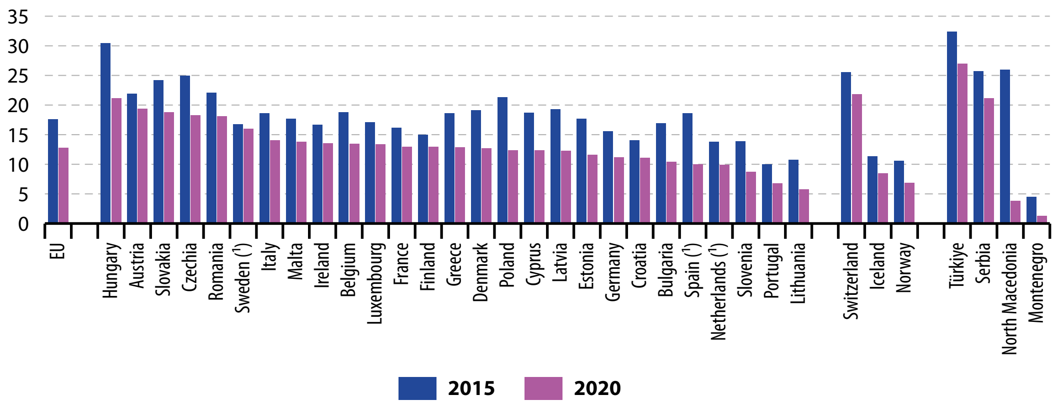
Figure 9.10: Share of buses and trains in inland passenger transport, EU, 2000–2020
(% of passenger-km)



Note: Estimated data.

Source: Eurostat (online data code: sdg_09_50)

Figure 9.11: Share of buses and trains in inland passenger transport, by country, 2015 and 2020
(% of passenger-km)



Note: Estimated data for EU and many countries.
([1]) Break(s) in time series between the two years shown.

Source: Eurostat (online data code: sdg_09_50)

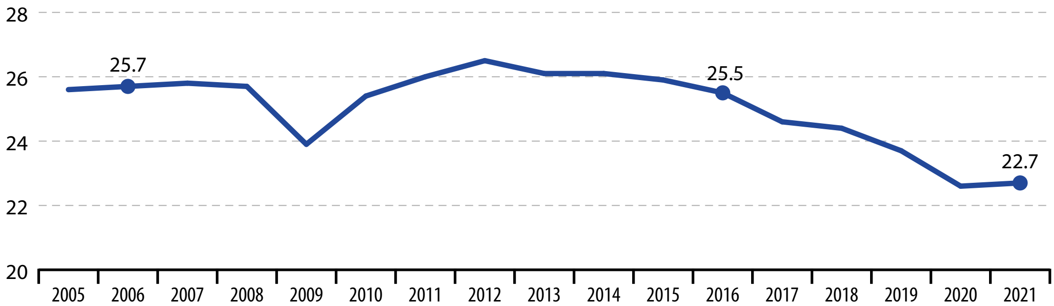
LONG TERM 2006–2021

SHORT TERM 2016–2021

Share of rail and inland waterways in inland freight transport

This indicator measures the share of rail and inland waterways in inland freight transport, expressed in tonne-kilometres (tkm). Inland freight transport includes road, rail and inland waterways. All data are based on movements on national territory; rail and inland waterways transport are collected based on movements on national territory, regardless of the nationality of the train or vessel. Road transport activity is collected according to the country of registration of the vehicle, regardless of the territory where the activity is performed. The activity is redistributed to the territory where the activity is actually performed by modelling the likely journey itinerary on the European road network. Neither sea nor air freight transport are included.

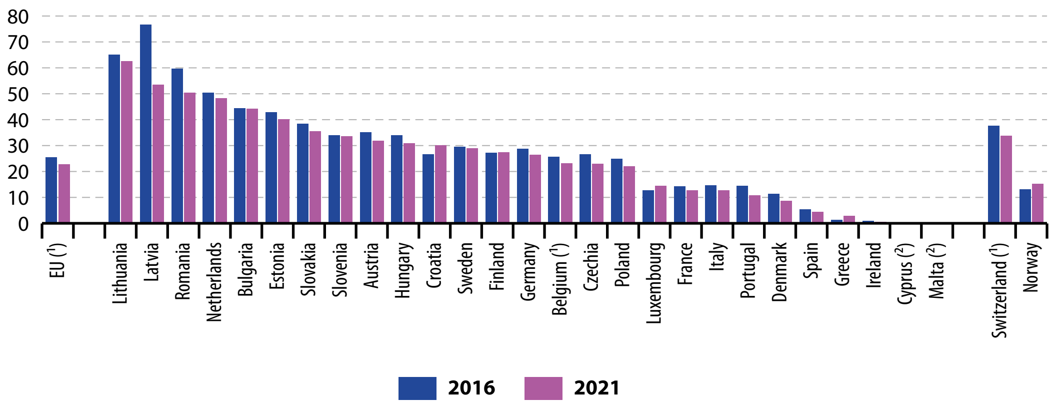
Figure 9.12: Share of rail and inland waterways in inland freight transport, EU, 2005–2021
(% of freight tonne-km)



Note: Data for 2005–2008 and 2012–2021 are estimated.

Source: Eurostat (online data code: sdg_09_60)

Figure 9.13: Share of rail and inland waterways in inland freight transport, by country, 2016 and 2021
(% of freight tonne-km)



(1) Estimated data.
(2) Not applicable (no rail or inland waterways).

Source: Eurostat (online data code: sdg_09_60)

Notes

(1) Eurostat (online data code: rd_e_gerdtot).
(2) Ibid.
(3) European Patent Office (2009), *Annual Report 2009*, p. 13.
(4) International Labour Organization (2021), *World Employment and Social Outlook — Trends 2021*, p. 114.
(5) Eurostat (2022), *Research and development (R&D) — Reference Metadata*.
(6) Eurostat (online data code: rd_p_femres).
(7) European Commission (2020), *A New Industrial Strategy for Europe*, p. 2.
(8) European Commission (2022), *Clean air*.
(9) World Health Organization (2021), *Ambient (outdoor) air pollution*, (Factsheet, 21 September 2021).
(10) Eurostat (online data code: env_ac_ainah_r2).
(11) Eurostat (online data codes: env_ac_ainah_r2 and nama_10_a10).
(12) Source: Eurostat (online data code: env_ac_egss1).
(13) European Environmental Agency (2019): *Environmental Goods and Services Sector: employment and value added*.
(14) Tram and metro systems are not included because the data collection methodology for these means of transport is not sufficiently harmonised between Member States.
(15) Eurostat (online data code: tran_hv_psmod).
(16) See European Commission, *Key Indicators*.
(17) Data until 2018 refer to FTTP (fiber to the premises) only, while data from 2019 onwards refer to both FTTP and DOCSIS 3.1 (Data Over Cable Service Interface Specification). DOCSIS allows adding high-bandwidth data transfer to existing cable television systems.
(18) In the context of the EU's digital agenda scoreboard indicators, rural areas are defined as those with fewer than 100 people per km^2.
(19) European Commission 2021: *2030 Digital Compass: the European way for the Digital Decade*, p. 6.

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 and calls for support for safe migration and mobility of people.

It is widely agreed that economic prosperity alone will not achieve social progress. High levels of inequality risk leaving much human potential unrealised, damage social cohesion, hinder economic activity and undermine democratic participation. Leaving no one behind is thus a crucial part of achieving the SDGs. Monitoring SDG 10 in an EU context thus focuses on inequalities within countries, inequalities between countries, and migration and social inclusion. Over the five-year period assessed, the EU has made moderate progress towards addressing income inequalities within countries, even though the impacts of the COVID-19 pandemic may have slightly widened the income gap between rich and poor people in 2021. The trends in economic disparities between EU countries show a long-term convergence of Member States in terms of GDP and income. The picture remains less clear for migration and social inclusion of people with a migrant background. Despite progress in certain areas, the EU still faces challenges in eliminating differences in social and labour market inclusion between home-country nationals and non-EU citizens.

Table 10.1: Indicators measuring progress towards SDG 10, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Inequalities within countries				
Income quintile share ratio	2010–2021	0.1 %	↘	page 192
	2016–2021	– 0.7 %	↗	
Income share of the bottom 40 % of the population	2010–2021	– 0.04 %	↘	page 193
	2016–2021	0.3 %	↗	
Relative median at-risk-of-poverty gap	2010–2021	0.5 %	↘	page 194
	2016–2021	– 0.8 %	↗	
Urban–rural gap for risk of poverty or social exclusion (*)	Time series too short for long-term assessment		:	page 199
	2016–2021	– 28.0 % (1)	↑	
Inequalities between countries				
Disparities in GDP per capita	2007–2022	– 0.4 % (2)	↗	page 195
	2017–2022	– 0.1 % (2)	↗	
Disparities in household income per capita	2006–2021	– 2.2 % (2)	↑	page 197
	2016–2021	– 2.5 % (2)	↑	

Migration and social inclusion				
Asylum applications	No assessment due to lack of policy targets		:	page 198
Citizenship gap for risk of monetary poverty after social transfers (*)	2010–2021	0.3 % (3)	↘	page 200
	2016–2021	– 1.2 % (3)	↑	
Citizenship gap for early leavers from education and training (*)	2007–2022	– 2.0 % (3)	↑	page 200
	2017–2022	2.3 % (3)	↓	
Citizenship gap for young people neither in employment nor in education and training (NEET) (*)	2007–2022	– 0.6 % (3)	↗	page 201
	2017–2022	– 3.6 % (3)	↑	
Citizenship gap for employment rate (*)	2007–2022	3.5 % (3)	↓	page 201
	2017–2022	– 2.1 % (3)	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) 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.

Policy context

Inequalities within countries

The European Pillar of Social Rights sets out 20 key principles to support fair and well-functioning labour markets and welfare systems and to tackle inequalities. It serves as a 'social rulebook' that ensures solidarity between generations and creates opportunities for all.

The Just Transition Mechanism supports those who will be most affected by the transition to a climate-neutral society. The Council Recommendation on ensuring a fair transition towards climate neutrality provides guidance for addressing the relevant employment and social aspects linked to the green transition. The Social Climate Fund will help vulnerable households, micro-enterprises and transport users to cope with the price impacts of an emissions trading system on the road transport and building sectors.

The Fund for European Aid to the Most Deprived supports the most vulnerable in society by providing them with basic material assistance and social assistance.

The Communication on better assessing the distributional impact of Member States' policies calls for the impact of planned measures and investments on various income groups to be made more transparent.

The revised European Social Fund Plus (ESF+), with a budget of EUR 88 billion from the Multiannual Financial Framework 2021–2027, will help to reduce inequalities. The ESF+ will contribute to equal opportunities for children, a fair start for young people, more inclusive labour markets, and social integration for more disadvantaged people.

The Commission has committed to making progress towards a Union of Equality and has adopted five equality strategies in 2020 and 2021. These include the Gender Equality Strategy 2020–2025, the LGBTIQ Equality Strategy 2020–2025, the EU anti-racism action plan 2020–2025, the EU Roma strategic framework for equality, inclusion and participation and the Strategy for the Rights of Persons with Disabilities 2021–2030.

Inequalities between countries

By reducing disparities in the levels of development of European regions, the European Regional Development Fund strengthens economic and social cohesion in the EU.

The 2021–2027 EU Cohesion Policy focuses on five main objectives that drive investments to ensure all EU regions participate in the green and digital transitions in a fair and territorially balanced way.

Migration and social inclusion

The European Commission's New Pact on Migration and Asylum aims to create faster migration processes and stronger governance of migration and border policies.

The European Commission's Action Plan on Integration and Inclusion (2021–2027) sets out actions that support migrants' inclusion in education and employment, as well as access to health services and affordable housing.

The EU Skills Profile Tool for Third Country Nationals assists displaced persons, migrants and citizens of non-EU countries in profiling their skills and work qualifications to reception, employment and education services.

Reduced inequalities in the EU: overview and key trends

Inequalities within countries

High levels of inequality harm society in many ways. They can hamper social cohesion, result in lost opportunities for many, hinder economic activity, reduce social trust in institutions, lead to disproportionate exposure to adverse environmental impacts such as climate change and pollution, and undermine democratic participation [1]. Technological innovation and financial globalisation in particular have driven inequality within countries by favouring people with specific skills or accumulated wealth [2]. Similarly, the transition to a climate-neutral society will have to be managed well to prevent rising inequality.

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 who have the highest equivalised disposable income with the income of the 20 % with the lowest equivalised disposable income. The higher this ratio, the bigger the income inequality between the bottom and the top ends of the income distribution. In the EU, this ratio had been decreasing in recent years, falling from 5.22 in 2014 to 4.89 in 2020. However, in 2021, this trend reversed, with the ratio rising again to 4.97. This means that in 2021 the richest 20 % of the EU population earned almost five times as much as the poorest 20 % [3].

In 2021, the income of the richest 20 % of the population in the EU was 4.97 times higher than 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 had been increasing between 2014 and 2019, followed by a stagnation in 2020 and a decline in 2021 to 21.3 %. The recent deterioration for both the income quintile share ratio and the income share of the bottom 40 % in 2021 might reflect the first impacts of the pandemic. However, it needs to be noted that recent trends might also be affected by a methodological change in the data collection in 2020 in a number of Member States, in particular in Germany and France [4]. Moreover, as data collected in 2021 refer to people's income in 2020, the extent of the recovery after the pandemic remains to be seen.

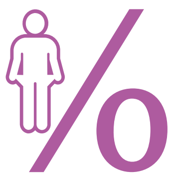
21.3 % was the share of total income earned by the bottom 40 % of the EU population in 2021

Economic inequality affects children's long-term opportunities

Inequality is also of particular concern regarding the long-term outcomes and opportunities for children. It puts those affected at a disadvantage from the start in areas with long-lasting consequences, such as physical and mental health and education, thus undermining their development and human potential. To evaluate these disadvantages, indicators on several dimensions of childhood inequality of opportunity, such as income [5] and education [6], have been developed. The COVID-19 pandemic has had negative effects on children's physical and mental health and exacerbated societal inequality [7]. Moreover, there are wide variations between EU Member States regarding the childcare gap, which refers to a period in which families with young children are unable to benefit from childcare leave or a guaranteed place in early childhood care. While some Member States experience no childcare gap (for example, Denmark and Slovenia), others offer a relatively short period of childcare leave and guarantee a place in early childhood care only relatively late in the child's life, at around 5 years of age (for example, the Netherlands and Ireland). Additionally, affordability of childcare remains an issue, especially for parents with multiple children and who are from low-income households [8].

The poverty gap and the at-risk-of-poverty-or-social-exclusion gap between urban and rural areas have narrowed in recent years

Inequality and poverty are closely interrelated. The poverty gap, defined as the distance between the median (equivalised disposable) income of people at risk of poverty and the poverty threshold (set at 60 % of the national median equivalised disposable income after social transfers), has decreased since 2016. In 2021, this gap amounted to 24.4% in the EU, which means the median income of those below the poverty threshold was 24.4 % lower than the poverty threshold. This is a 1.0 percentage point narrowing of the gap since 2016, representing a moderate short-term improvement. However, relative to 2010, this gap has widened by 1.3 percentage points, indicating a longer-term deterioration in the 'depth' of monetary poverty in the EU.



24.4 %
median distance from the poverty threshold for those at risk of poverty in 2021

Furthermore, the distribution of resources within a country has a direct impact on the extent and depth of poverty. In 2021, 21.7 % of the EU population were at risk of poverty or social exclusion. However, this rate differs between cities and rural areas. In 2021, the urban–rural gap in the at-risk-of-poverty-or-social-exclusion rate amounted to 0.6 percentage points, with 21.9 % of people living in cities being in this situation, compared with 22.5 % of people in rural areas. The lowest share of people at risk of poverty or social exclusion was observed in towns and suburbs, with 20.8 % of people at risk in 2021.

The gap in the risk of poverty or social exclusion rate between cities and rural areas at EU level has thus significantly narrowed compared with 2016, when it was 3.1 percentage points. This development is the result of a stronger improvement in rural areas, where the share of people at risk of poverty or social exclusion has fallen by 3.8 percentage points since 2016. In contrast, the rate in cities has decreased by only 1.3 percentage points over the same time span.

However, the overall EU figure masks the full scope of the broad variations in gaps among Member States. Rural poverty remains extremely high in some European countries, such as Bulgaria and Romania, where 42.5 % and 50.3 % of the rural population were at risk of poverty or social exclusion in 2021. This amounted to an urban-rural gap of 18.1 and 34.2 percentage points in these two countries, respectively. However, while rural areas generally tend to be at a higher risk of poverty due to out-migration and limited access to services, infrastructure, labour markets and educational opportunities [9], this does not account for all Member States. Countries such as Austria, France and Belgium are reporting much higher poverty rates in cities than in rural areas.

The share of people at risk of poverty or social exclusion in rural areas was
0.6
percentage points higher than in cities in 2021

Additionally, certain minorities such as Roma are at a much higher risk of monetary poverty. As of 2021, 80 % of Roma were at risk of monetary poverty, with their situation remaining unchanged since 2016. Moreover, 48 % of Roma were living in severe material deprivation in 2021, a reduction of 14 percentage points compared with 2016. Roma children under the age of 18 are particularly affected by poverty, with 83 % of those being at risk of poverty and 54 % living in households with severe material deprivation in 2021. This further adds to the vulnerability of the Roma population ([10]).

The gap between the rich and the poor extends to their carbon footprint

In recent years, research has increasingly pointed to the greenhouse gas (GHG) emissions gap between the rich and the poor. This emissions gap highlights that the poorer sections of the society contribute less to the climate crisis. Research has shown that reaching the EU's 2030 target to reduce GHG emissions to at least 55 % below 1990 levels necessitates addressing carbon inequality within the EU ([11]). Data from the World Inequality Database ([12]) show that in the EU, the carbon footprint, referring to per capita CO_2 emissions from consumption, of the richest 10 % of the population was 5.0 times higher than that of the poorest 50 % in 2020. The ratio has stagnated at this level since 2015. The Member States with the widest carbon footprint gap between the top 10 % and the bottom 50% were Luxembourg, Romania and Austria, with ratios of 7.1, 6.5 and 6.3, respectively, in 2020. In comparison, the gap was the narrowest in Malta and the Netherlands, at 3.9 and 4.0, respectively. Overall, carbon footprint inequality in the EU is somewhat smaller than in other parts of the world. For example, the ratio amounted to 5.8 in Japan and 6.5 in the United States. A much higher carbon inequality was measured in India and China, with ratios of 10.2 and 12.6, respectively.

Inequalities between countries

We live in an interconnected world, where problems and challenges — such as 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 (see chapter on SDG 17 'Partnerships for the goals' on page 299). Cohesion between Member States is one of the EU's objectives, as mentioned in the Treaty on European Union (article 3.3).

North–south and west–east divides in economic disparities between EU countries remain

Not only have economic performance, incomes and living standards improved across the EU as a whole over time, they have also converged between countries. A way to measure such conversion is by looking at the coefficient of variation, expressed as the ratio of the standard deviation to the mean (in %). A lower coefficient of variation indicates less disparities between Member States. The two indicators used to measure this convergence show that inequalities between EU countries have decreased over the 15-year period assessed, even though the short-term trends are mixed.

42.9 %
variation in GDP per capita between Member States in 2022

The coefficient of variation in gross domestic product (GDP) per capita — expressed in purchasing power standards (PPS) — shows that economic disparities between Member States have narrowed since 2000, reaching 42.9 % in 2022. Most of this convergence took place in the period leading up to the 2008 economic crisis and between 2015 and 2019. However, during the COVID-19 crisis of 2020 and 2021, economic disparities between countries increased by 3.5 percentage points compared with the pre-pandemic levels of 2019. The coefficient of variation in GDP per capita returned to a downward trend in 2022, decreasing by 0.4 percentage points compared with 2021. At Member State level, purchasing power adjusted GDP per capita ranged from 59 % of the EU

24.2 %
variation in household disposable income across the EU in 2021

average in Bulgaria to 261 % in Luxembourg in 2022.

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 24.2 % in 2021. This figure is 3.2 percentage points less than in 2016 and a 9.8 percentage point improvement since 2006.

However, a clear north–south and west–east divide is evident when looking at the geographical distribution of GDP per capita and household income (from national accounts) in the EU in 2021. 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.

Migration and social inclusion

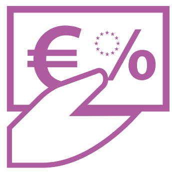
The Syrian conflict, unstable situations in Afghanistan and some African countries, crises in several Latin American countries such as Venezuela, Colombia, Honduras and Nicaragua, and the war in Iraq have contributed to an unprecedented surge of migration into the EU over the past few years. Russia's invasion of Ukraine has led to a mass influx of people fleeing the war to seek protection in the EU. 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 that will enable their participation in society, including their active participation in education and training and their integration into the labour market. Successful integration of migrants into the EU labour force has the potential to slow down the ongoing trend of population ageing and to address skills shortages.

1 973 first time asylum applications per million inhabitants were submitted in the EU in 2022

The number of asylum applications in the EU has fallen considerably in recent years

The urge to seek international protection is one of the main reasons why people cross borders. In 2022, the EU received 881 220 first-time asylum applications (13), which is an almost 64 % increase since 2021. During 2022, slightly more than 310 000 people were granted protection status at the first instance in the EU (14). In relation to the EU population, these numbers equal 1 973 first-time asylum applications and 695 positive first-instance decisions per million EU inhabitants in 2022.

Following a considerable fall (by one-third) in the number of first-time asylum seekers applying for international protection between 2019 and 2020, owing to the COVID-19 pandemic and related emergency measures such as movement restrictions (15), the EU has since seen a consistent rise in asylum applications. The recent increase in first-time asylum applications and positive first instances can be attributed to the ongoing Russian invasion of Ukraine, which began in the first quarter of 2022. Following the displacement caused, the Council Decision of March 2022 enabled non-EU citizens fleeing Ukraine to receive immediate and temporary protection. At the end of December 2022, close to 3.8 million displaced people were beneficiaries of this temporary protection in the EU (16). Poland and Germany, followed by Czechia, hosted the highest absolute number of

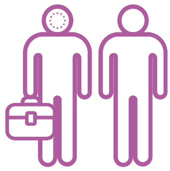


The monetary poverty rate for non-EU citizens was 23.9 percentage points higher than for home-country nationals in the EU in 2021

beneficiaries, providing temporary protection to around 61.8 % of all beneficiaries in the EU.

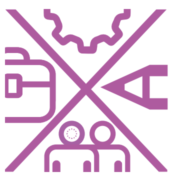
Despite some improvements in recent years, the social inclusion of non-EU citizens remains a challenge

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 —referred to as 'home-country nationals' in this publication — in the areas of poverty, education and the labour market. In all these areas, people from outside the EU fare less well than EU nationals. However, short-term trends have been mostly favourable, with the gap between home-country nationals and non-EU citizens closing or at least stagnating in almost all areas monitored here.



The employment rate for non-EU citizens was 13.5 percentage points lower than for EU home-country nationals in 2022

Trends in the citizenship gap for people at risk of monetary poverty after social transfers show that between 2016 and 2021, poverty rates remained quite stable for both non-EU citizens and EU home-country nationals. Still, the gap remains large, with 38.7 % of non-EU citizens being at risk of monetary poverty (after social transfers) in 2021, compared with only 14.8 % of home-country nationals.



The NEET rate for non-EU citizens was 11.4 percentage points higher than for EU home-country nationals in 2022

Between 2017 and 2022, the employment rate for EU home-country nationals aged 20 to 64 increased by 3.4 percentage points, while the rate for non-EU citizens grew by 4.9 percentage points. As a result, the gap between the two groups has narrowed by 1.5 percentage points since 2017. While 75.4 % of EU home-country nationals were employed in 2022, the rate for non-EU citizens stood at 61.9 %. Thus, despite the stronger improvement for non-EU citizens since 2017, the gap remains considerable, at 13.5 percentage points in 2022.

The gaps between home-country nationals and non-EU citizens in the area of education and training have evolved differently in recent years. The shares of young people not in employment nor in education and training (NEET) decreased for both groups between 2017 and 2022. The NEET rate for 15- to 29-year old non-EU citizens fell by 4.2 percentage points, reaching 22.3 % in 2022. For home-country nationals of the same age, the NEET rate decreased by 1.9 percentage points in the same period, amounting to 10.9 % in 2022. Thus, a narrowing of the gap by 2.3 percentage points has been visible since 2017. Despite these improvements, the citizenship gap between the two groups still amounted to 11.4 percentage points in 2022.

The share of early school leavers among non-EU citizens was 17.8 percentage points higher than for EU home-country nationals in 2022

The most striking difference between non-EU citizens and EU home-country nationals is visible for 18- to 24-year old early leavers from education and training. The early leaving rate of home-country nationals has fallen continuously since 2017, reaching 8.3 % in 2022. In contrast, the early leaving rate for non-EU citizens increased by 0.8 percentage points over the same period, reaching 26.1 % in 2022. As a result, the citizenship gap has widened by 1.9 percentage points since 2017, reaching 17.8 percentage points in 2022. 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 societies.

Presentation of main indicators

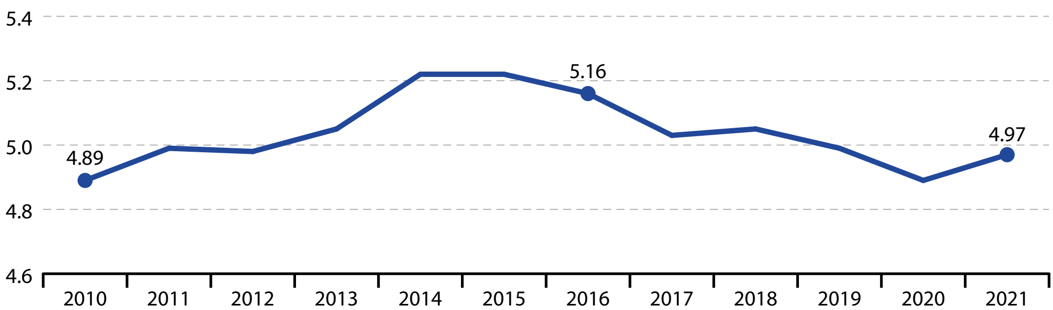
LONG TERM
2010–2021

SHORT TERM
2016–2021

Income quintile share ratio

The distribution of income can be measured by using, among others [17], the ratio of total equivalised disposable income received by the 20 % of the population with the highest income (top quintile) to that received by the 20 % of the population with the lowest income (lowest quintile). Equivalised disposable income is the total income of a household (after taxes and other deductions) that is available for spending or saving, divided by the number of household members converted into equivalised adults. Data presented in this section stem from the EU Statistics on Income and Living Conditions (EU-SILC).

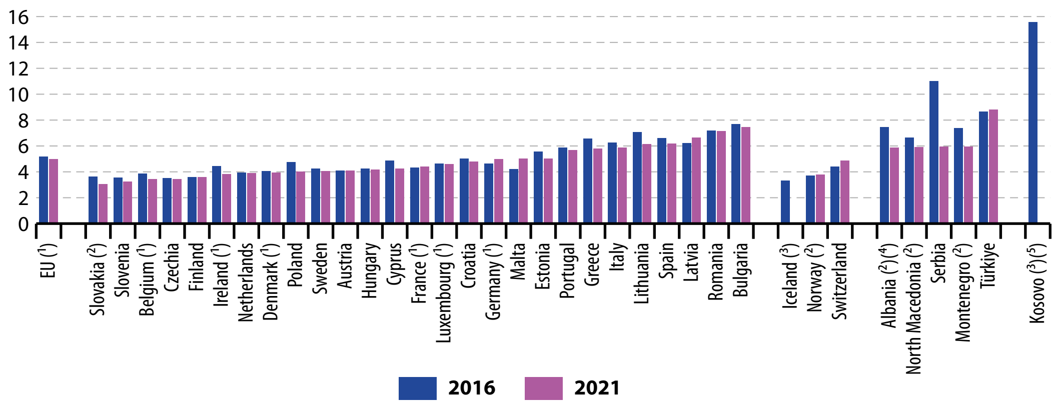
Figure 10.1: Income distribution, EU, 2010–2021
(income quintile share ratio)



Note: 2014–2019 data are estimated; break in time series in 2020.

Source: Eurostat (online data code: sdg_10_41)

Figure 10.2: Income distribution, by country, 2016 and 2021
(income quintile share ratio)



(1) Break(s) in time series between the two years shown.
(2) 2020 data (instead of 2021).
(3) No data for 2021.
(4) 2017 data (instead of 2016).
(5) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_10_41)

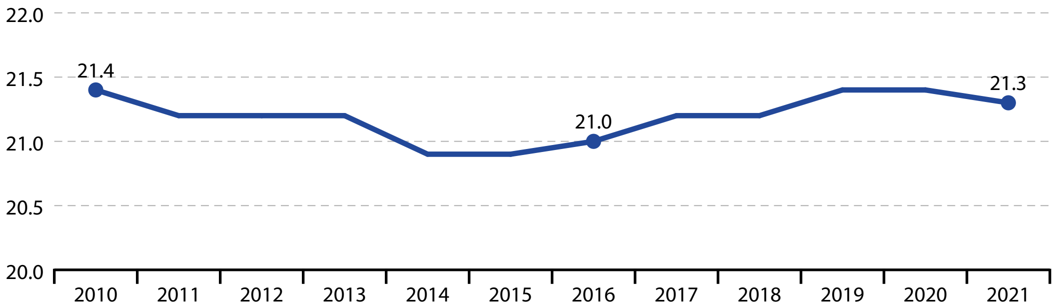
Income share of the bottom 40 % of the population

LONG TERM 2010–2021

SHORT TERM 2016–2021

This indicator measures the income share received by the bottom 40 % of the population (in terms of income). The income concept used is the total disposable household income, which is a households' total income (after taxes and other deductions) that is available for spending or saving. Data presented in this section stem from the EU Statistics on Income and Living Conditions (EU-SILC).

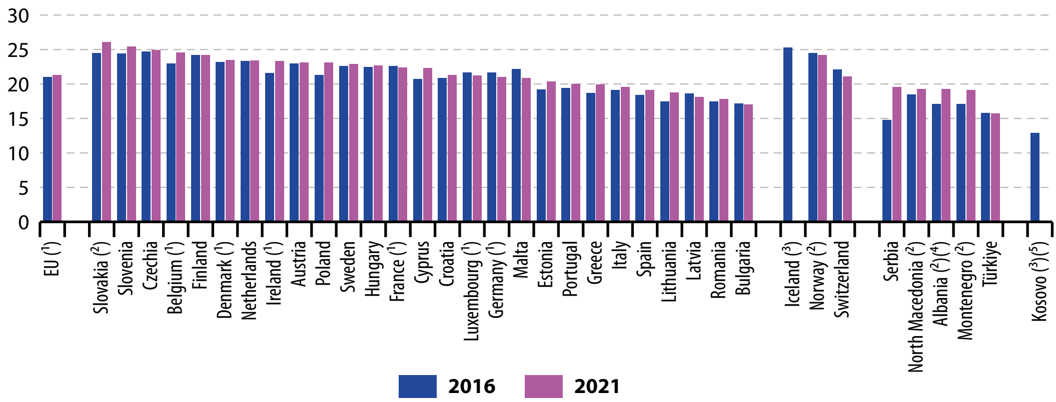
Figure 10.3: Income share of the bottom 40 % of the population, EU, 2010–2021
(% of income)



Note: 2014–2019 data are estimated; break in time series in 2020.

Source: Eurostat (online data code: sdg_10_50)

Figure 10.4: Income share of the bottom 40 % of the population, by country, 2016 and 2021
(% of income)



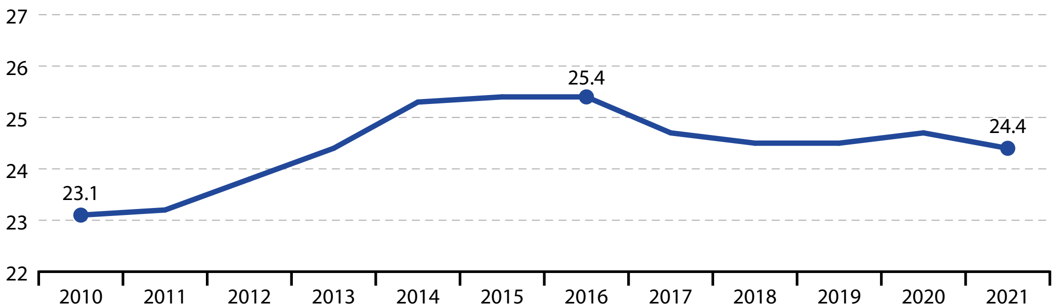
([1]) Break(s) in time series between the two years shown.
([2]) 2020 data (instead of 2021).
([3]) No data for 2021.
([4]) 2017 data (instead of 2016).
([5]) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_10_50)

Relative median at-risk-of-poverty gap

The relative median at-risk-of-poverty gap helps to quantify how poor the poor are by showing the distance between the median income of people living below the poverty threshold and the threshold itself, expressed in relation to the poverty threshold. The poverty threshold is set at 60 % of the national median equivalised disposable income of all people in a country and not for the EU as a whole.
Data presented in this section stem from the EU Statistics on Income and Living Conditions (EU-SILC).

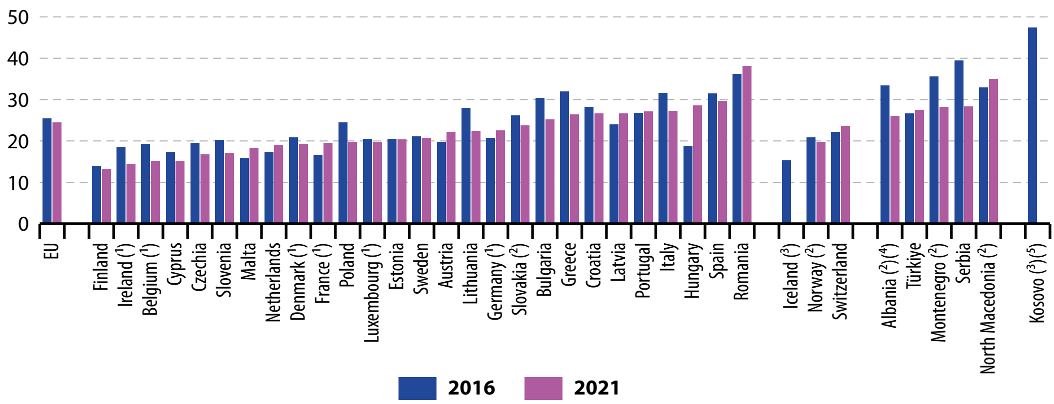
Figure 10.5: Relative median at-risk-of-poverty gap, EU, 2010–2021
(% distance to poverty threshold)



Note: 2014-2019 data are estimated.

Source: Eurostat (online data code: sdg_10_30)

Figure 10.6: Relative median at-risk-of-poverty gap, by country, 2016 and 2021
(% distance to poverty threshold)



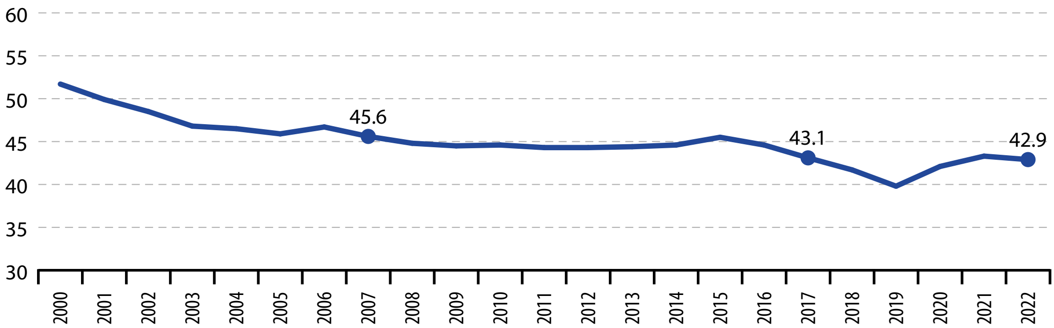
([1]) Break(s) in time series between the two years shown.
([2]) 2020 data (instead of 2021).
([3]) No data for 2021.
([4]) 2017 data (instead of 2016).
([5]) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_10_30)

Disparities in GDP per capita

GDP per capita is calculated as the ratio of GDP to the average population in a specific year. Basic figures are expressed in purchasing power standards (PPS) which represent a common currency that eliminates differences in price levels between countries to allow meaningful volume comparisons of GDP. The disparities indicator for the EU is calculated as the coefficient of variation of the national figures.

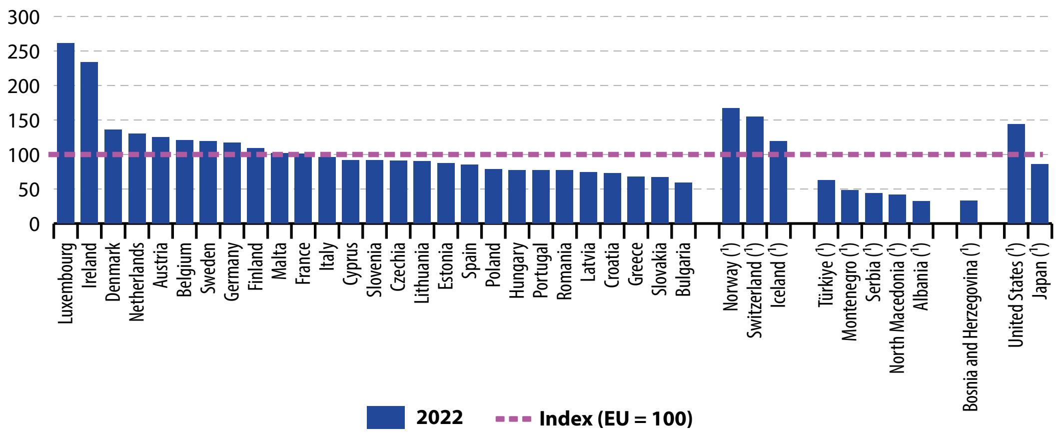
Figure 10.7: Disparities in purchasing power adjusted GDP per capita, EU, 2000–2022
(coefficient of variation, in %)



Note: 2022 data are provisional estimates.

Source: Eurostat (online data code: sdg_10_10)

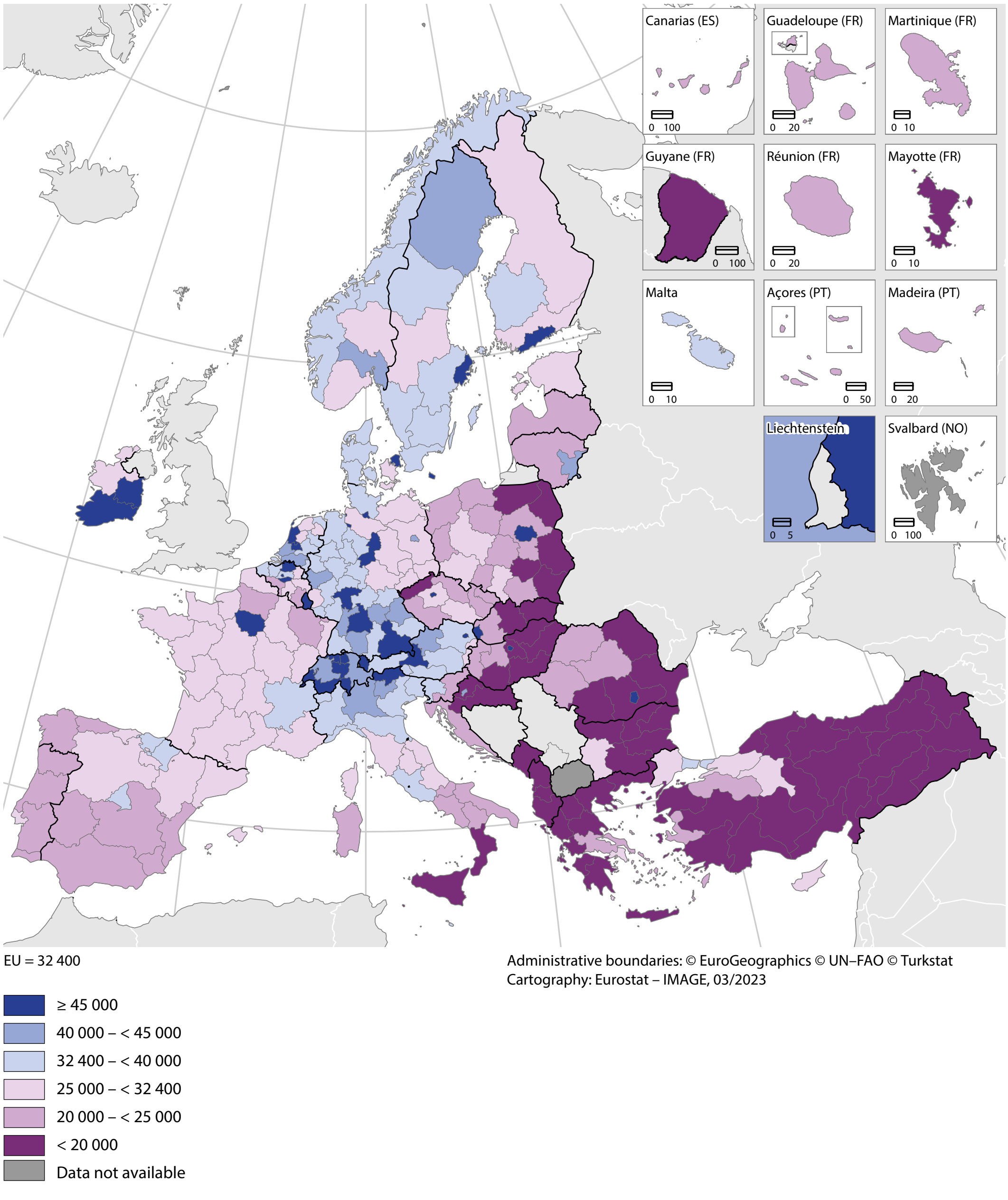
Figure 10.8: Purchasing power adjusted GDP per capita, by country, 2022
(index EU = 100)



(¹) 2021 data.

Source: Eurostat (online data code: sdg_10_10)

Map 10.1: Purchasing power adjusted GDP per capita, by NUTS 2 region, 2021
(PPS per inhabitant)



2018 data for all regions in Switzerland; 2020 data for all regions in Norway and Albania.
Source: Eurostat (online data code: NAMA_10R_2GDP)

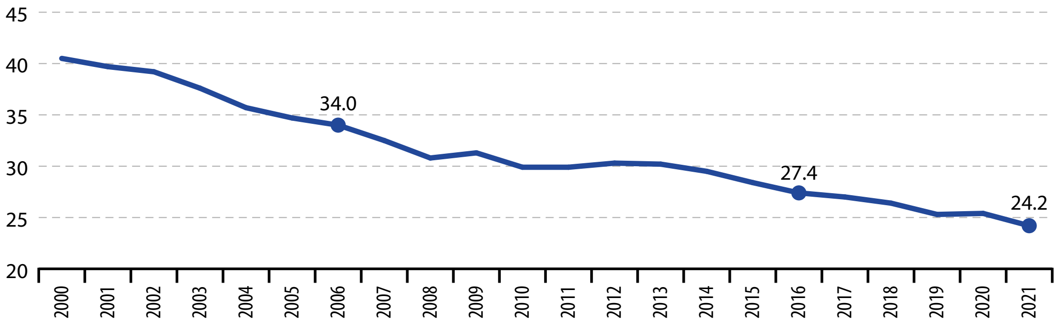
Disparities in household income per capita

LONG TERM
2006–2021

SHORT TERM
2016–2021

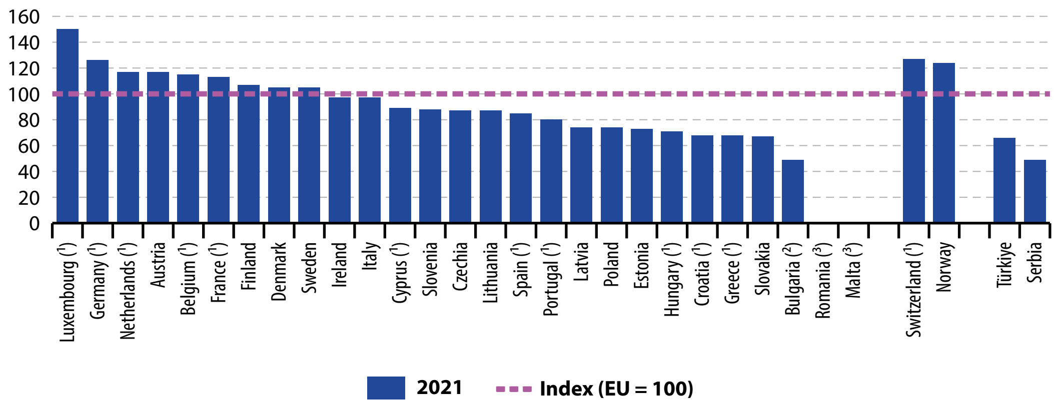
The adjusted gross disposable income of households reflects the purchasing power of households and their ability to invest in goods and services or save for the future, by accounting for taxes and social contributions and monetary in-kind social benefits. The disparities indicator for the EU is calculated as the coefficient of variation of the national figures in PPS per capita.

Figure 10.9: Disparities in adjusted gross disposable income of households per capita, EU, 2000–2021
(coefficient of variation, in %)



Note: EU coefficient of variation excluding Malta and Romania (whole time series); 2018–2021 data are provisional estimates.
Source: Eurostat (online data code: sdg_10_20)

Figure 10.10: Adjusted gross disposable income of households per capita, by country, 2021
(index EU = 100)



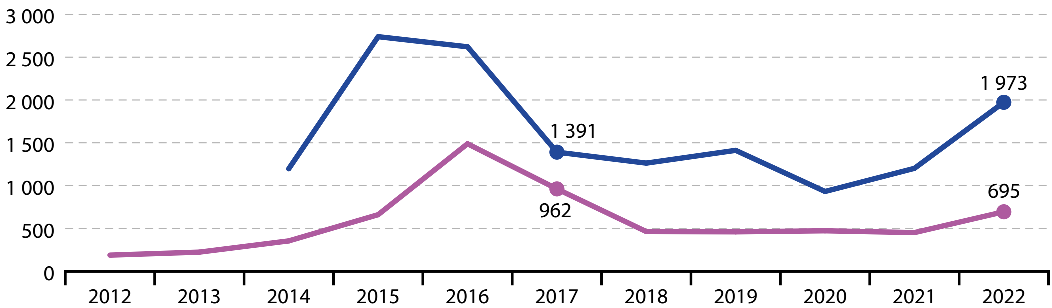
(¹) Provisional data.
(²) 2017 data.
(³) No data.
Source: Eurostat (online data code: sdg_10_20)

X Assessment of progress not applicable due to lack of policy targets

Asylum applications

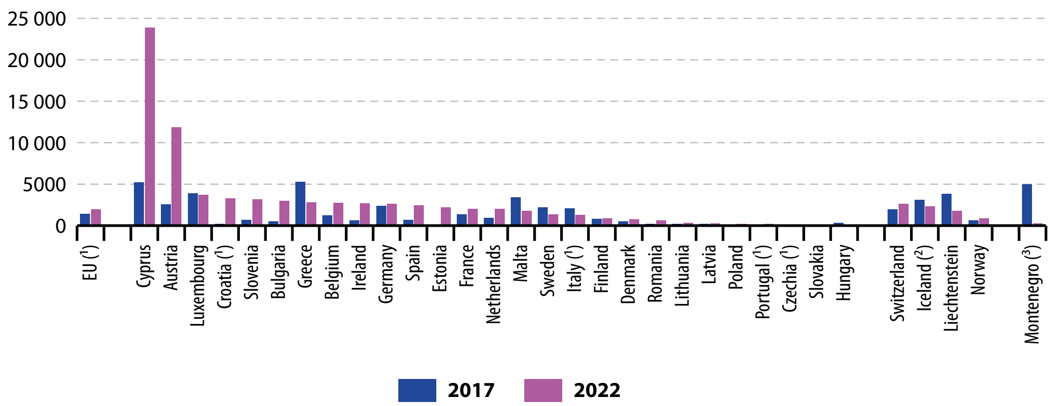
This indicator shows the number of first-time asylum applicants per million inhabitants and the number of positive first instance decisions per million inhabitants. A first-time applicant for international protection is a person who lodged an application for asylum for the first time in a given Member State. First-instance decisions are decisions granted by the respective authority acting as a first instance of the administrative or judicial asylum procedure in the receiving country. The source data are supplied to Eurostat by the national ministries of interior and related official agencies.

Figure 10.11: Asylum applications and decisions, EU, 2012–2022
(number per million inhabitants)



Note: Multiple breaks in population data time series; 2018–2022 population data are provisional and/or estimated.
Source: Eurostat (online data code: sdg_10_60)

Figure 10.12: First time asylum applications, by country, 2017 and 2022
(number per million inhabitants)



Note: 2022 data are provisional and/or estimated for many countries.
(¹) Break(s) in population data time series between the two years shown.
(²) 2021 data (instead of 2022).
(³) 2018 data (instead of 2017).
Source: Eurostat (online data code: sdg_10_60)

Presentation of additional multi-purpose indicators

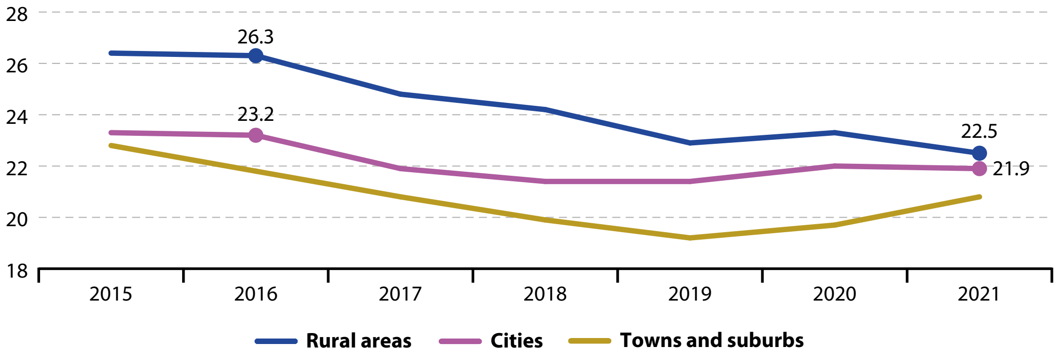
Urban–rural gap for risk of poverty or social exclusion

X LONG TERM Time series too short

SHORT TERM 2016–2021

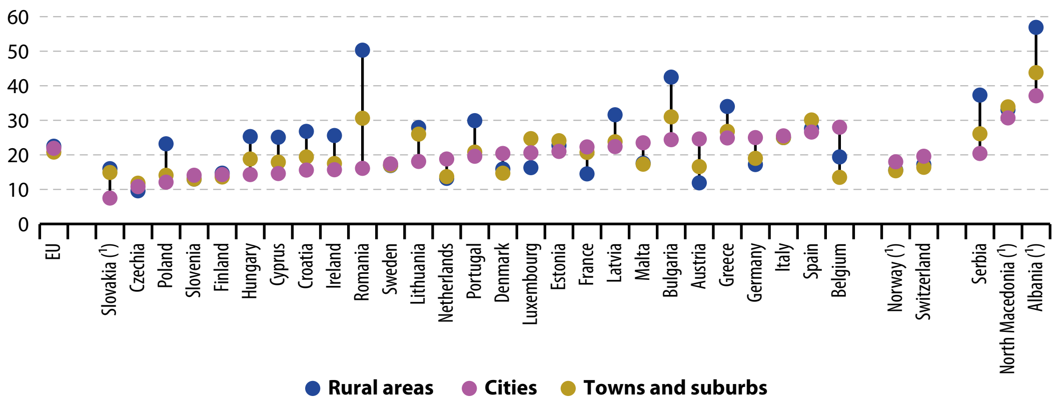
Statistics on the degree of urbanisation classify local administrative units as 'cities', 'towns and suburbs' or 'rural areas' depending on population density and the total number of inhabitants. This classification is used to determine the difference in the shares of people at risk of poverty or social exclusion (see page 47 for a description of the main indicator) between cities and rural areas. Data presented in this section stem from the EU Statistics on Income and Living Conditions (EU-SILC).

Figure 10.13: People at risk of poverty or social exclusion, by degree of urbanisation, EU, 2015–2021
(% of population)



Note: 2015–2018 data are estimated.
Source: Eurostat (online data code: sdg_01_10a)

Figure 10.14: People at risk of poverty or social exclusion, by degree of urbanisation, by country, 2021
(% of population)



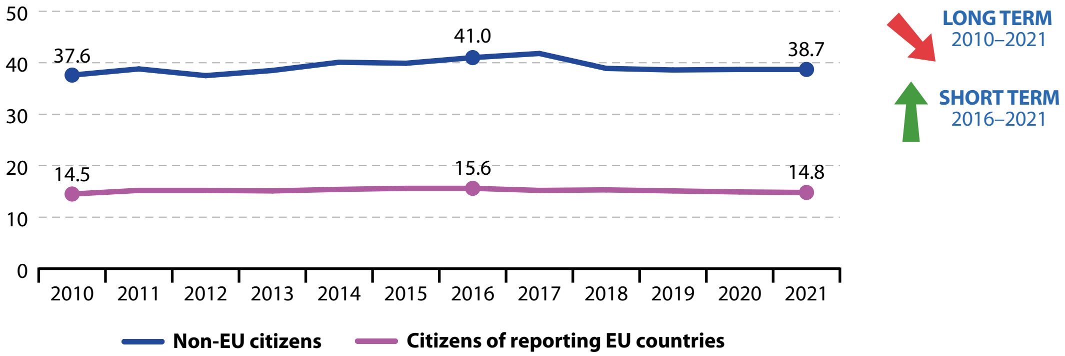
(¹) 2020 data (instead of 2021).
Source: Eurostat (online data code: sdg_01_10a)

Citizenship gaps between non-EU citizens and citizens of reporting EU countries

This section provides data for different indicators by citizenship. Data are shown for non-EU citizens, referring to citizens of non-EU Member States, and for citizens of the reporting countries, referring to citizens of EU Member States that reside in their home country. Data presented in this section stem from the EU Statistics on Income and Living Conditions (EU-SILC) and from the EU Labour Force Survey (EU-LFS).

Figure 10.15: People at risk of monetary poverty after social transfers, by citizenship, EU, 2010–2021

(% of population aged 18 years or over)

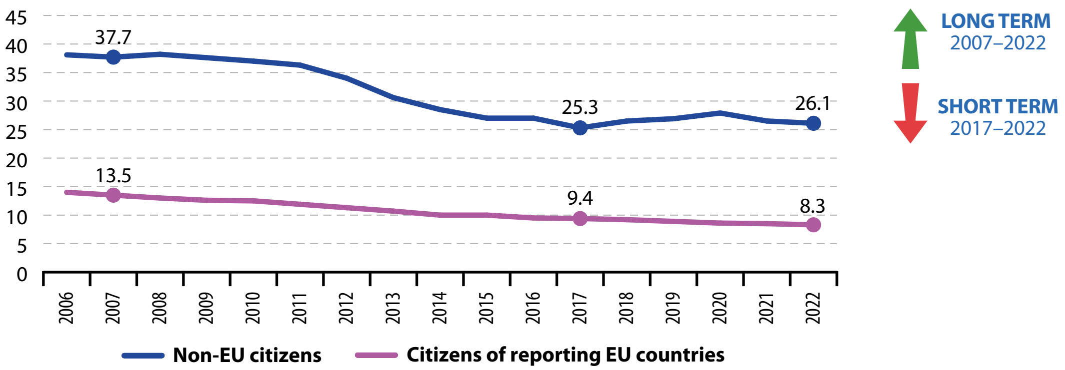


Note: 2010–2019 data are estimated; 2010–2011 data for non-EU citizens have low reliability.

Source: Eurostat (online data code: sdg_01_20a)

Figure 10.16: Early leavers from education and training, by citizenship, EU, 2006–2022

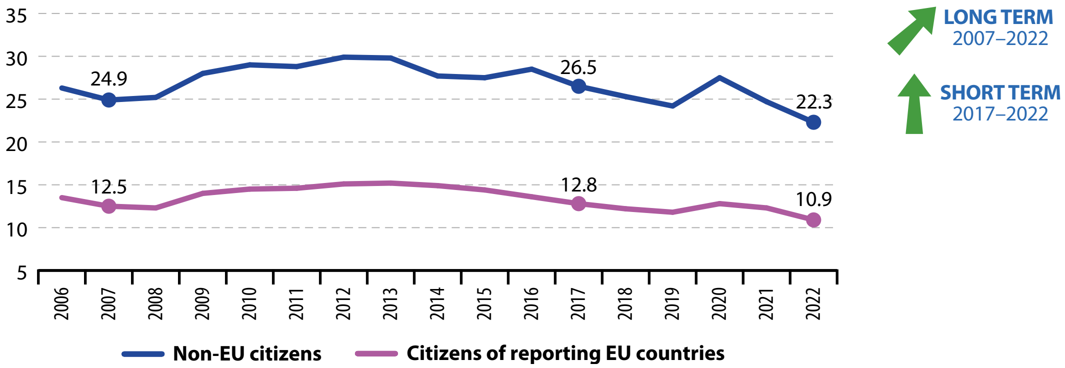
(% of population aged 18–24)



Note: Breaks in time series in 2014 and 2021.

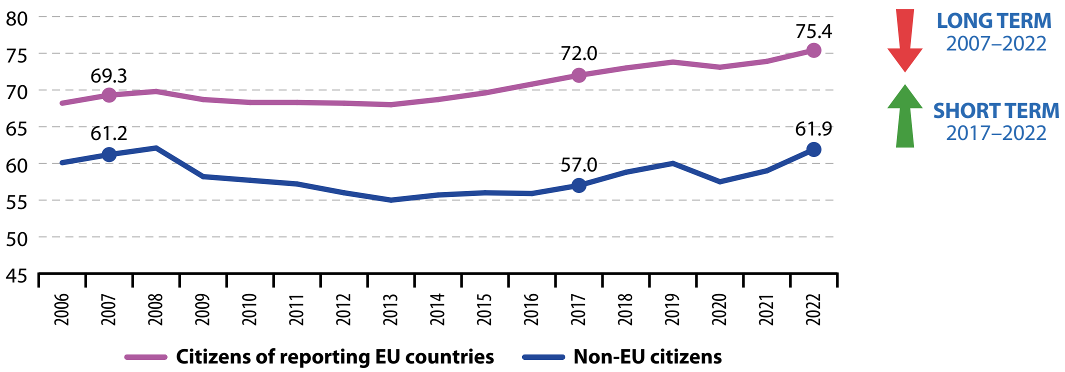
Source: Eurostat (online data code: sdg_04_10a)

Figure 10.17: Young people neither in employment nor in education and training (NEET), by citizenship, EU, 2006–2022
(% of population aged 15–29)



Note: Break in time series in 2021.
Source: Eurostat (online data code: sdg_08_20a)

Figure 10.18: Employment rate, by citizenship, EU, 2006–2022
(% of population aged 20–64)



Note: Break in time series in 2021.
Source: Eurostat (online data code: sdg_08_30a)

Notes

(1) OECD (2017), *Understanding the socio-economic divide in Europe. Background report*.
(2) Darvas, Z. and Wolff, B. (2016), *An Anatomy of Inclusive Growth in Europe*, pp. 14–15.
(3) Income data collected for SILC refer to the situation in the previous year, meaning that data labelled as 2021 refer to people's incomes in 2020.
(4) The change in data collection methods in several countries, in particular Germany and France, between 2019 and 2020 affected also the EU total but not the direction of change from 2020 to 2021.
(5) European Commission, *EU social indicators dataset: Inequality of opportunity — income dimension*.
(6) European Commission, *EU social indicators dataset: Inequality of opportunity — education dimension*.
(7) Eurochild (2020), *Growing up in lockdown. Europe's children in the age of COVID-19*.
(8) European Platform for Investing in Children (EPIC) (2020), *The Childcare Gap in EU Member States*, Publications Office of the European Union, Luxembourg.
(9) Volonteurope (2016), *Rural isolation of citizens in Europe*.
(10) European Union Agency for Fundamental Rights (2022), *Roma in 10 European Countries. Main results*, Vienna.
(11) Oxfam (2020), *Confronting Carbon Inequality in the European Union*.
(12) See: World Inequality Database, https://wid.world/data/.
(13) Source: Eurostat (online data code: MIGR_ASYAPPCTZA).
(14) Source: Eurostat (online data code: MIGR_ASYDCFSTA).
(15) European Asylum Support Office (2021), *Asylum Trends 2020 preliminary overview*.
(16) Source: Eurostat (online code: migr_asytpsm) and Eurostat (2022), *Statistics Explained: Temporary protection for persons fleeing Ukraine — monthly statistics*.
(17) The income quintile share ratio looks at the two ends of the income distribution. Other indicators, such as the Gini index, measures total inequality along the whole income distribution.

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 impacts.

11 SUSTAINABLE CITIES AND COMMUNITIES

Around 325 million people or almost three-quarters of the EU population live in urban areas — cities, towns and suburbs — with almost 40 % residing in cities alone [1]. With the share of Europe's urban population projected to rise to just over 80 % by 2050 [2], sustainable cities, towns and suburbs are therefore essential for citizens' well-being and quality of life. 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. Overall, the EU has made only modest progress towards SDG 11 over the past few years. While there has been strong progress in increasing the quality of life in cities and communities, trends in the area of sustainable mobility are less clear-cut and are moreover impacted by the COVID-19 pandemic. The picture is similarly diverse when it comes to adverse environmental impacts, with both sustainable and unsustainable trends visible.

Table 11.1: Indicators measuring progress towards SDG 11, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Quality of life in cities and communities				
Severe housing deprivation rate	2010–2020	– 3.4 %	↑	page 211
	2015–2020	– 4.1 %	↑	
Population living in households suffering from noise	2010–2020	– 1.6 %	↑	page 212
	2015–2020	– 0.8 %	↗	
Premature deaths due to exposure to fine particulate matter ($PM_{2.5}$)	2005–2020	Observed: – 3.9 % Required: – 3.1 %	↑	page 213
	2015–2020	Observed: – 5.8 % Required: – 3.3 %	↑	
Population reporting crime, violence or vandalism in their area (*)	2010–2020	– 2.0 %	↑	SDG 16, page 292
	2015–2020	– 4.1 %	↑	
Sustainable mobility				
Road traffic deaths	2006–2021	Observed: – 4.6 % Required: – 5.1 %	↗	page 214
	2016–2021	Observed: – 3.5 % Required: – 5.1 %	↗	
Share of buses and trains in inland passenger transport (*)	2005–2020	– 2.0 %	↓	SDG 9, page 179
	2015–2020	– 6.2 %	↓	
Environmental impacts				
Settlement area per capita	Time series too short for long-term assessment		:	page 216
	2015–2018	1.1 %	↓	
Recycling rate of municipal waste	2006–2021	Observed: 2.7 % Required: 2.5 %	↑	page 217
	2016–2021	Observed: 1.6 % Required: 1.9 %	↗	
Population connected to at least secondary waste water treatment (*)	2005–2020	0.8 %	↗	SDG 6, page 127
	2015–2020	0.6 %	↗	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.

Policy context

Quality of life in cities and communities and environmental impacts

Under the EU Cohesion Policy, a minimum of 8 % of the European Regional Development Fund of each national envelope is dedicated to supporting sustainable urban development. This is accompanied by the European Urban Initiative supporting innovation, capacity and knowledge-building in urban areas.

The Environmental Noise Directive is the main EU instrument for identifying and combatting noise pollution.

The EU addresses air pollution directly through specific legislation on air quality and emission sources, such as the Clean Air Package, and indirectly by implementing certain climate policies to reduce pollution. The EU emission standards for road vehicles will further help improving air quality in cities.

The affordable housing initiative is part of the Commission's renovation wave strategy and ensures that social and affordable housing facilities also benefit from the wave.

The Action Plan 'Towards Zero Pollution for Air, Water and Soil' includes the target of reducing the health impacts due to air pollution by 55 % by 2030, compared with 2005. The 2022 Zero Pollution package proposed stricter rules for cleaner air and water.

The EU Soil Strategy for 2030 sets out a framework and concrete measures for protecting and restoring soils, and ensuring they are used sustainably. The strategy contains a goal of no net land take by 2050.

The 2015 Circular Economy Package supports the transition to a stronger and more circular economy. In 2018, the legally binding targets for recycling and reuse of municipal waste entered into force. EU countries will now be required to recycle at least 55 % of their municipal waste by 2025, 60 % by 2030 and 65 % by 2035. The 2022 Circular Economy package aims to reduce packaging waste and increase recycling.

The New European Bauhaus initiative brings citizens, experts, businesses and institutions together to reimagine sustainable living in Europe and beyond, along the values of sustainability, aesthetics, and inclusion.

Sustainable mobility

The EU guidelines for sustainable urban mobility planning and funding for related projects, combined with the Sustainable and Smart Mobility Strategy adopted in 2020, support the green and digital transformation of the EU transport system.

The Communication on the Urban Mobility Framework (2021) reinforces the EU framework for Member States, enabling regions and cities to develop safe, accessible, inclusive, smart, resilient and zero-emission urban mobility.

The Strategic Action Plan on Road Safety and the EU road safety policy framework 2021–2030 set a 50 % reduction target for deaths and for serious injuries by 2030 compared with 2019 and ambitious road safety plans to move close to zero road deaths by 2050 ('Vision Zero').

Sustainable cities and communities in the EU: overview and key trends

Quality of life in cities and communities

While European cities and communities provide opportunities for employment, as well as 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 and which impact quality of life.

Quality of housing in the EU has improved since 2010

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 exposure to environmental hazards.

4.3 %
of the EU population experienced severe housing deprivation in 2020

The severe housing deprivation rate refers to the share of the population living in an overcrowded household while also experiencing types of housing deprivation such as a leaking roof, damp walls, floors or foundations; rot in window frames or floors; lacking sanitary facilities; or a dwelling that is considered too dark. Between 2010 and 2020, the share of EU residents who lived in such conditions fell by 1.8 percentage points, which indicates an improvement in the perceived quality of the EU's housing stock.

Europeans perceive their residential areas as quieter and safer

17.6 %
of the EU population experienced noise disturbance in 2020

Noise disturbance can cause annoyance, stress, sleep deprivation, poor mental health and well-being, as well as harm to the cardiovascular and metabolic system ([3]). Likewise, crime and vandalism can also reduce quality of life and housing satisfaction in a residential area. In 2020, 17.6 % of the EU population (about 78 million people) said their household suffered from noise disturbance, compared with 20.6 % in 2010 ([4]). Crime, violence and vandalism in the neighbourhood were perceived by 10.7 % of the EU population in 2020, compared with 13.1 % in 2010.

The EU's zero pollution action plan aims to reduce the share of people chronically disturbed by transport noise by 30 % by 2030 compared with 2017. At 55 decibels (dB) noise levels can start to have critical effects, ranging from severe annoyance and sleep disturbance to hearing impairment ([5]). The more recent WHO guidelines for Europe are even more stringent, recommending that the noise level from road traffic should be below 53 dB during the day and below 45 dB at night. Despite improvements in perceived exposure to noise, 95 million people in the EU were estimated to be exposed to road traffic noise at levels of 55 dB or higher on an annual average for day, evening and night in 2017. While railways and airports represent further significant sources of local noise pollution, their impact on the overall population is much lower. The number of people exposed to harmful noise levels has not decreased significantly since 2012 ([6]). A recent outlook from the European Environment

Agency (EEA) suggests that meeting the 30 % reduction target of the zero pollution action plan will be challenging, with the most optimistic scenario only estimating a 19 % reduction by 2030.

Exposure to fine particulate matter in the EU leads to premature deaths

Pollutants such as fine particulate matter ($PM_{2.5}$) suspended in the air reduce people's life expectancy, and can lead to or aggravate many chronic and acute respiratory and cardiovascular diseases ([7]). Exposure to air pollution is of particular concern in cities, as they contain both a large number of potential emission sources (due to the concentration of economic activities) and large number of people being affected by air pollutants (due to the high population density).

According to data from the EEA, in 2020 almost all EU Member States registered annual mean $PM_{2.5}$ concentrations below the EU limit value of 25 µg/m³ ([8]). This effect is partly due to lockdown measures introduced by most governments during the COVID-19 pandemic. However, when considering the more stringent 2021 WHO air quality guideline of 5 µg/m³, almost all EU city dwellers (96 %) were estimated to be exposed to $PM_{2.5}$ concentration levels deemed harmful to human health. The European Commission has proposed aligning EU ambient air quality standards more closely with WHO recommendations, and improving air quality monitoring, modelling and plans.

238 000

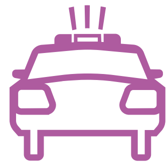
people died prematurely in the EU in 2020 due to $PM_{2.5}$ exposure

In the EU, long-term exposure to fine particulate matter was responsible for around 238 000 premature deaths in 2020. Since 2005, the number of premature deaths has already fallen by around 45 %, and the EU thus appears on track to meeting the zero pollution action plan target for 2030, which aims to reduce the number of premature deaths due to fine particulate matter exposure by more than 55 % compared with 2005 ([9]). However, achieving the zero pollution target would require Member States to successfully implement current and planned policies, including the climate and energy targets put in place by the EU for 2030 ([10]).

City dwellers experience more noise pollution and crime

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 urban centres, Eurostat differentiates between three types of area: 'cities', 'towns and suburbs' and 'rural areas' ([11]).

The severe housing deprivation rate in the EU in 2020 was higher in rural areas (4.9 %) than in cities (4.8 %) and in towns and suburbs (3.4 %) ([12]). The perceived level of noise pollution varied greatly depending on the degree of urbanisation. In 2020, people living in EU cities were more likely to report noise from neighbours or from the street (23.9 %) compared with those living in towns and suburbs (16.3 %) or in rural areas (10.5 %) ([13]). Similarly, the perceived occurrence of crime and vandalism in cities (16.3 %) was almost three times higher than in rural areas (5.8 %) and above the level observed in towns and suburbs (8.4 %) in 2020 ([14]).



16.3 %

of people living in EU cities reported occurrence of crime and vandalism in their area in 2020

Only two-thirds of the EU's urban population can enjoy green urban spaces within walking distance

Green spaces in cities have a great potential to boost human health and well-being, and play a crucial role for children, the elderly and those with lower incomes, who may otherwise have limited access to nature. Universal accessibility to green spaces that are safe, inclusive and open is thus essential. In the EU, 66.7 % of the urban centre population had access to green urban areas within a 400-metre walk in 2018. This share has remained stable since 2012. When considering green urban areas that are at least one hectare large, only 56.3 % of the urban centre population had access within a 400-metre walk in 2018. Among the EU Member States, Finland held the largest share of urban population with access to a green space within walking distance (93.9 %) in 2018, while Cyprus had the lowest (26.1 %) ([15]).

Sustainable mobility

A functioning transport system is necessary for people to reach their places of work, education, services and social activities, all of which affect quality of life and equal opportunities for everyone. In addition to availability, the type, quality and safety of transport systems are also crucial when designing sustainable and inclusive cities and communities.

Use of public transport modes dropped considerably during the pandemic

The EU aims to improve citizens' quality of life and to strengthen the economy by promoting sustainable urban mobility and greater use of clean and energy-efficient vehicles, together with reducing the demand for individual car transport. 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.

Since 2000, the share of buses and trains in inland passenger transport has stagnated well below 20 %, accounting for only 17.5 % in 2019. With the onset of the pandemic in 2020, this share fell drastically by 4.7 percentage points compared with 2019, to 12.8 %. The precautionary measures put in place, including domestic and international travel restrictions, quarantine restrictions, introduction of remote-working policies and changing mobility habits led to a reduction in the use of public transport ([16]) and passengers' perceptions about safety and comfort. Consequently, the share of private mobility, including cycling, walking and private cars has increased. This decline in the shares of public modes of mobility is also reflected in the long- and short-term trends, showing a reduction by 4.6 percentage points since 2005 and by 4.8 percentage points since 2015.

12.8 %
of inland journeys were taken by buses and trains in 2020

Cars continue to remain the dominant form of passenger mobility in the EU. The decline in the use of public transport in 2020 coincides with an increase in the share of passenger kilometres travelled by car, which rose from 82.5 % in 2019 to 87.2 % ([17]). According to an EU-wide survey on passenger mobility carried out in 2021, 64 % of the respondents reported that their travel behaviour was impacted by the COVID-19 pandemic. The extent of the recovery of public transport modes relative to private ones — especially cars — thus remains to be seen for 2022 and beyond.

Deaths from road crashes have fallen, but greater progress will be necessary to meet the 2030 target

Road traffic injuries are a public health issue and have a huge economic cost. About 120 000 people are estimated to be seriously injured in road accidents in the EU each year ([18]). In 2021, about 55 people a day lost their lives on EU roads. This corresponds to slightly more than 19 900 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 compared with 2002 and 2010, when road deaths amounted to about 50 000 and 30 000, respectively. In recent years, the figures have experienced some fluctuations, in part explained by significant changes in traffic volumes as a result of to the COVID-19 pandemic. Between 2020 and 2021, road traffic deaths increased by 6 % following an unprecedented fall of 18 % between 2019 and 2020. The most recent figures, based on preliminary data for 2022, show the number of road deaths were 10 % lower than in relation

19 917
people were killed in road crashes in the EU in 2021

to 2019. However, while the underlying trend in relation to the pre-pandemic level continues to be downward, the EU as a whole is not on track to meet its 2030 target of halving the total death toll on EU roads compared with 2019.

The highest share of road-traffic fatalities in 2021 was recorded on non-motorway roads outside urban areas (52 %), followed by roads inside urban areas (39 %) and motorways (9 %) ([19]). While the overall number of fatalities fell by 23.1 % between 2010 and 2019, the number of cyclists killed in urban areas actually increased by 3.1 % ([20]). Indeed, EU-wide, almost 70 % of fatalities in urban areas involve vulnerable road users such as pedestrians, motorcyclists and cyclists. This is therefore a key area when it comes to introducing new policy measures to tackle road safety.

Environmental impacts

While cities, towns and suburbs are 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 for more sustainable societies ([21]). EU progress in reducing the environmental impacts of cities and communities is monitored by three indicators on the management of municipal waste, waste water treatment and artificial land cover.

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

The settlement area per capita has increased

Offering numerous cultural, educational and job opportunities, an urban lifestyle is attractive to many people. However, growth in the urban population has also come with increased land take. Land take is described as the process of transforming agricultural, forest and other semi-natural and natural areas into artificial areas. It often means growth in the settlement area over time, usually at the expense of rural areas. As a result of land take, urban areas may severely hamper the functioning of ecosystems and the related delivery of ecosystem services ([22]).

The settlement area indicator captures the amount of settlement area due to land take. In the EU, settlement area per capita has increased over the past few years. In 2018, for each EU inhabitant, 703.4 square metres (m²) of land was covered by settlement area (comprising both sealed and non-sealed surfaces — for example, buildings, industrial and commercial area, infrastructure as well as parks and sportsgrounds), which is 3.3 % more than in 2015.

Despite continuous improvements in municipal waste recycling, the EU might miss its targets

The 'waste hierarchy' is the overarching logic that guides EU waste policy. It prioritises waste prevention, followed by preparing for reuse, 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 the weight of total waste generated in the EU ([23]), 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 a target to recycle or prepare for reuse at least 60 % of its municipal waste by 2030 ([24]).

49.6 %
of total municipal waste generated in the EU was recycled in 2021

In 2021, the EU residents generated 236.8 million tonnes of municipal waste, corresponding to 530 kilograms (kg) of waste per capita per year ([25]). Since 2016, the annual amount of waste generated per capita increased by 37 kg, which represents an increase of 7.5 % between 2016 and 2021. Although the EU has not reduced its municipal waste generation, it has clearly shifted to more recycling. Since 2000, the recycling rate of municipal waste — covering both recycling and preparing for re-use — has increased continuously from 27.3 % to 49.6 % in 2021. However, the trend has slowed since 2016, with the share of recycled municipal waste increasing by only 3.7 percentage points between 2016 and 2021. Further efforts are therefore needed to put the EU back on track towards meeting its recycling targets by 2030.

Connection rates to waste water treatment have been 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. The share of the EU population connected to at least secondary waste water treatment plants, which decompose most of the organic material and retain some of the nutrients, has been steadily growing since 2000 and reached 81.1 % in 2020. In seven Member States, more than 90 % of the population were connected to such services according to most recent data (which refer to 2015, 2019 or 2020, depending on the country). 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 (see chapter on SDG 6 'Clean water and sanitation' on page 119).

81.1 %
of the EU population were connected to at least secondary waste water treatment in 2020

Presentation of the main indicators

Severe housing deprivation rate

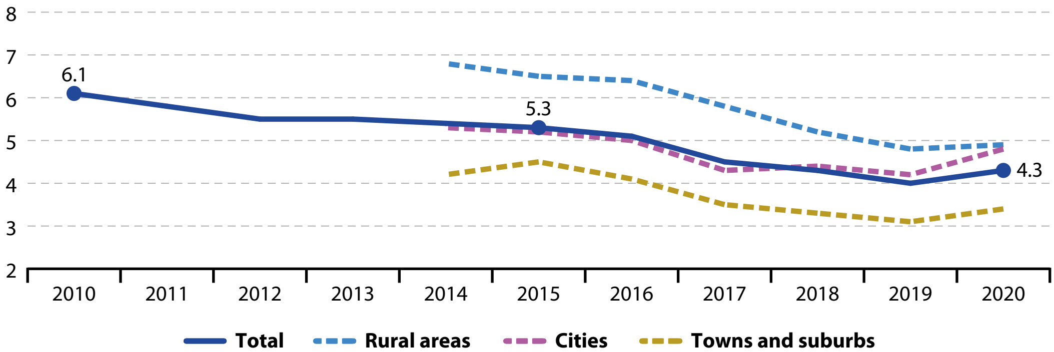
LONG TERM 2010–2020

SHORT TERM 2015–2020

The severe housing deprivation rate is defined as the percentage of the population living in a dwelling which is considered to be overcrowded, while also exhibiting at least one of the following housing deprivation measures: i) a leaking roof, ii) no bath/shower and no indoor toilet, and iii) considered too dark. The data stem from the EU Statistics on Income and Living Conditions (EU-SILC).

Figure 11.1: Severe housing deprivation rate, by degree of urbanisation, EU, 2010–2020

(% of population)

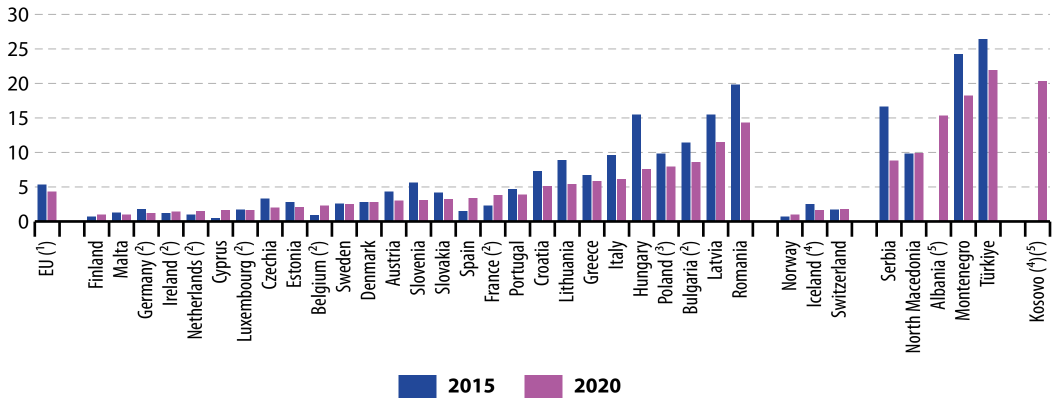


Note: Estimated data. The frequency of the data collection has been changed from annually to every three years, meaning no data were collected for 2021 and 2022.

Source: Eurostat (online data codes: sdg_11_11 and ilc_mdho06d)

Figure 11.2: Severe housing deprivation rate, by country, 2015 and 2020

(% of population)



(1) Estimated data.
(2) Break(s) in time series between the two years shown.
(3) 2019 data (instead of 2020).
(4) 2018 data (instead of 2020).
(5) No data for 2015.

Source: Eurostat (online data code: sdg_11_11)

LONG TERM
2010–2020

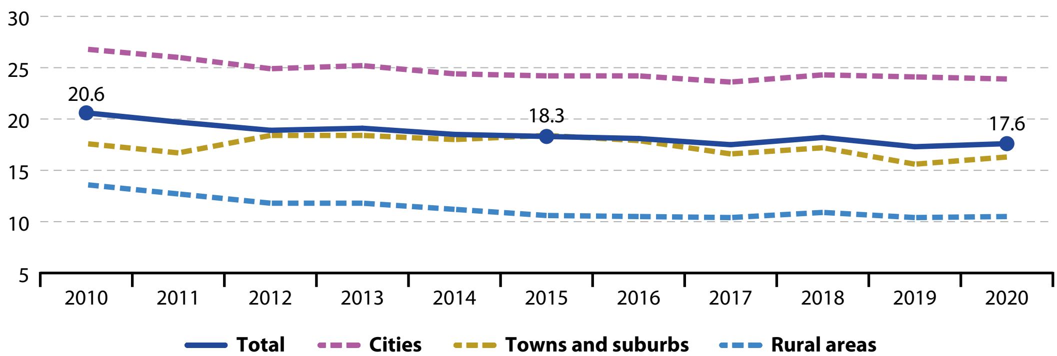
SHORT TERM
2015–2020

Population living in households suffering from noise

This indicator measures the share of the population who declare they are affected either by noise from neighbours or from the street. Because the assessment of noise pollution is subjective, it should be noted that the indicator accounts for both the levels of noise pollution as well as people's standards of what level they consider to be acceptable. Therefore, an increase in the value of the indicator may not necessarily indicate a similar increase in noise pollution levels but also a decrease in the levels that European citizens are willing to tolerate and vice versa. In fact, there is empirical evidence that perceived environmental quality by individuals is not always consistent with the actual environmental quality assessed using 'objective' indicators, particularly for noise. The data stem from the EU Statistics on Income and Living Conditions (EU-SILC).

Figure 11.3: Population living in households considering that they suffer from noise, by degree of urbanisation, EU, 2010–2020

(% of population)

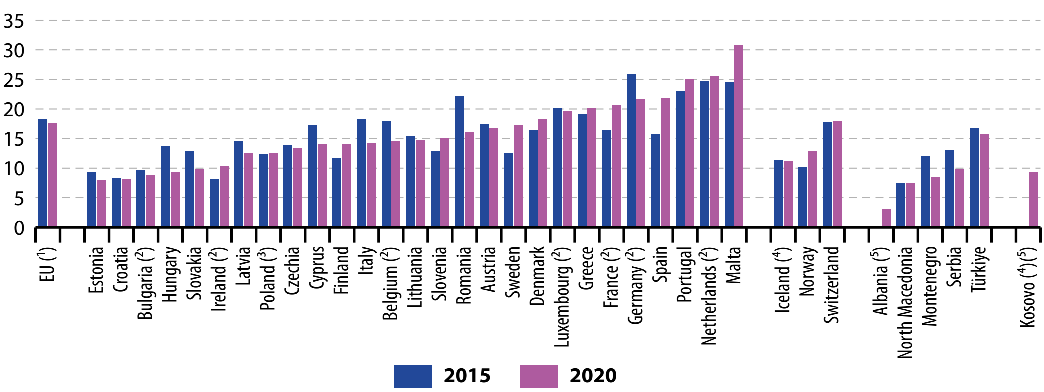


Note: Estimated data. The frequency of the data collection has been changed from annually to every three years, meaning no data were collected for 2021 and 2022.

Source: Eurostat (online data codes: sdg_11_20 and ilc_mddw04)

Figure 11.4: Population living in households considering that they suffer from noise, by country, 2015 and 2020

(% of population)



(1) Estimated data.
(2) Break(s) in time series between the two years shown.
(3) 2019 data (instead of 2020).
(4) 2018 data (instead of 2020).
(5) No data for 2015.
Source: Eurostat (online data code: sdg_11_20)

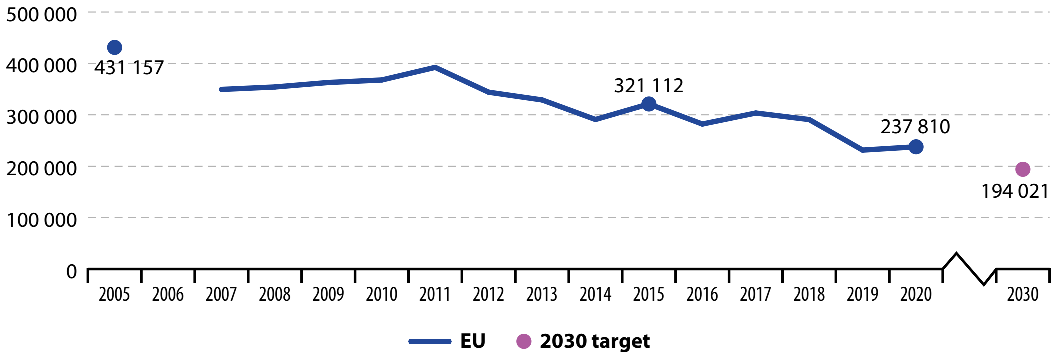
Premature deaths due to exposure to fine particulate matter ($PM_{2.5}$)

LONG TERM 2010–2020

SHORT TERM 2015–2020

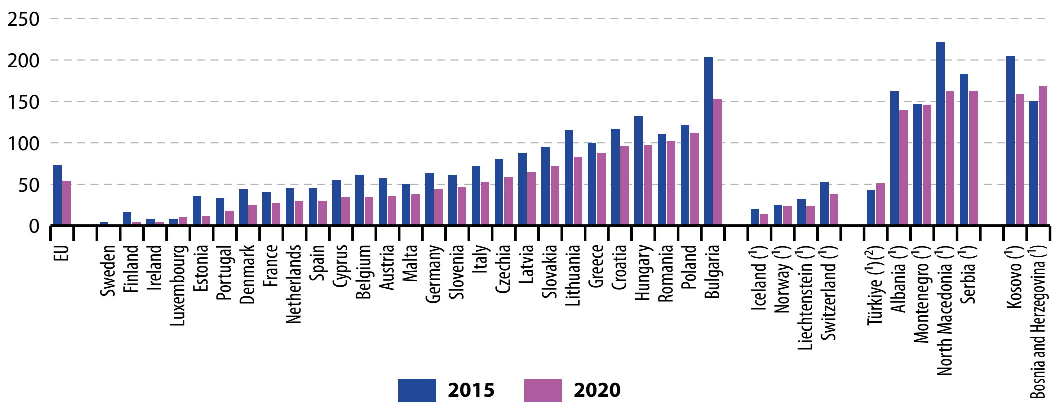
The indicator measures the number of premature deaths due to exposure to particulate matter. Fine particulates ($PM_{2.5}$) are particulates whose diameter is less than 2.5 micrometres, meaning they can be carried deep into the lungs where they can cause inflammation and exacerbate the condition of people suffering heart and lung diseases. Premature deaths refer to deaths that occur before the expected age of death. This expected age is typically determined by the life expectancy in the country, stratified by sex and age. The data stem from the European Environment Agency.

Figure 11.5: Premature deaths due to exposure to fine particulate matter ($PM_{2.5}$), EU, 2005–2020
(number)



Source: EEA (Eurostat online data code: sdg_11_52)

Figure 11.6: Premature deaths due to exposure to fine particulate matter ($PM_{2.5}$), by country, 2015 and 2020
(number per 100 000 people)



(¹) 2019 data (instead of 2020).
(²) 2016 data (instead of 2015).

Source: EEA (Eurostat online data code: sdg_11_52)

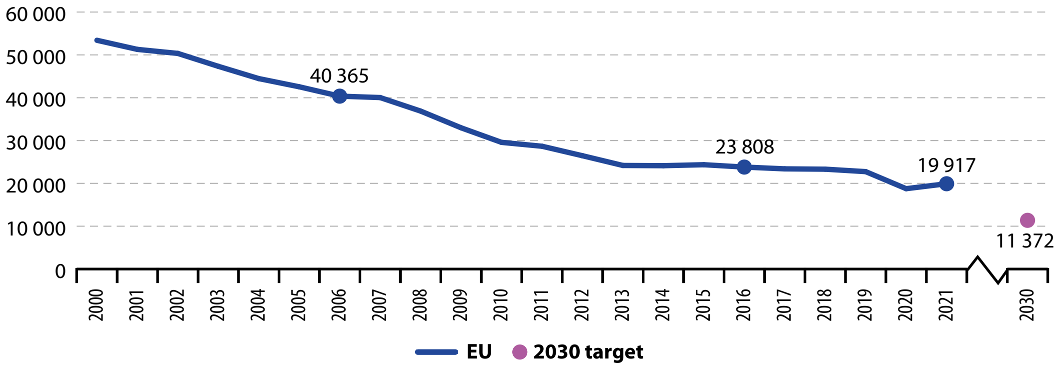
LONG TERM
2006–2021

SHORT TERM
2016–2021

Road traffic deaths

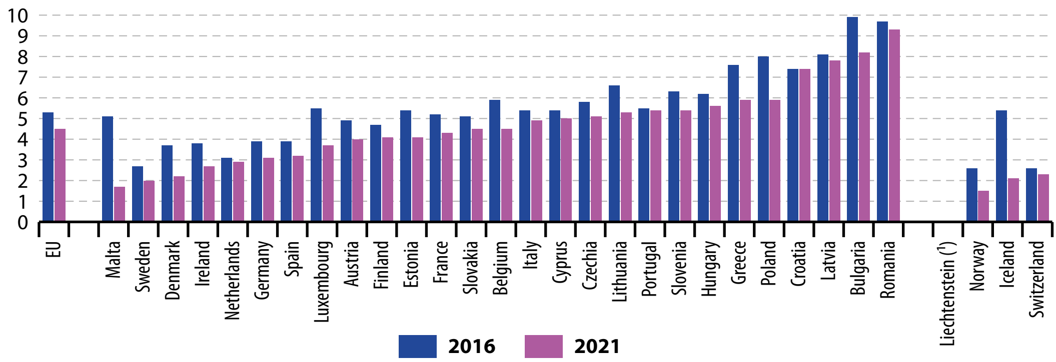
This indicator measures the number of fatalities caused by road crashes, including drivers and passengers of motorised vehicles and pedal cycles, as well as pedestrians. Persons dying as a result of a road crash up to 30 days after the occurrence of the crash are counted as fatalities. The data come from the CARE database managed by DG Mobility and Transport (DG MOVE).

Figure 11.7: Road traffic deaths, EU, 2000–2021
(number of killed people)



Source: European Commission services, DG Mobility and Transport (Eurostat online data code: sdg_11_40)

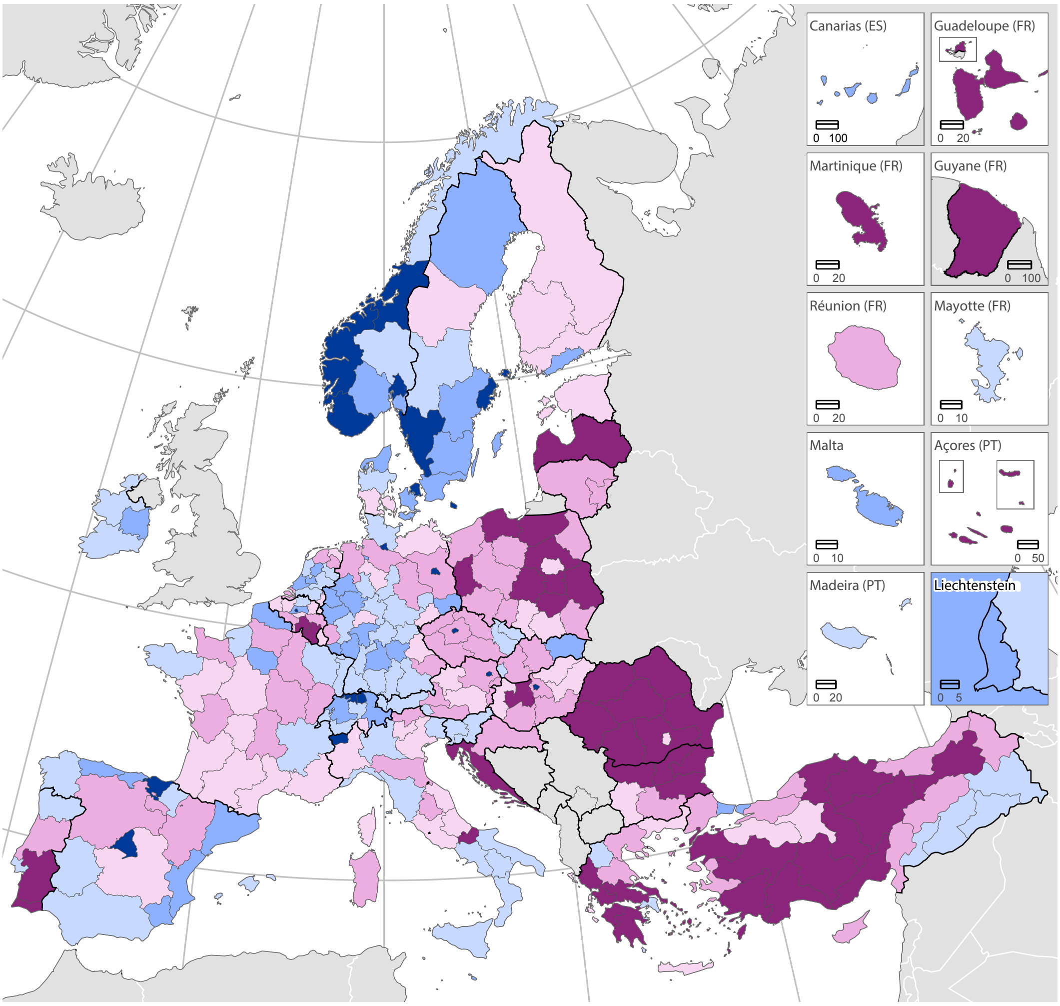
Figure 11.8 Road traffic deaths, by country, 2016 and 2021
(number per 100 000 people)



(¹) 2019 data (instead of 2021).

Source: European Commission services, DG Mobility and Transport (Eurostat online data code: sdg_11_40)

Map 11.1: Road traffic deaths, by NUTS 2 region, 2020
(number per 100 000 people)



EU = 4.2

Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 05/2023

- < 2
- 2 – < 3
- 3 – < 4.2
- 4.2 – < 5
- 5 – < 7
- ≥ 7

Source: Eurostat (online data code: TRAN_R_ACCI)

X LONG TERM
Time series too short

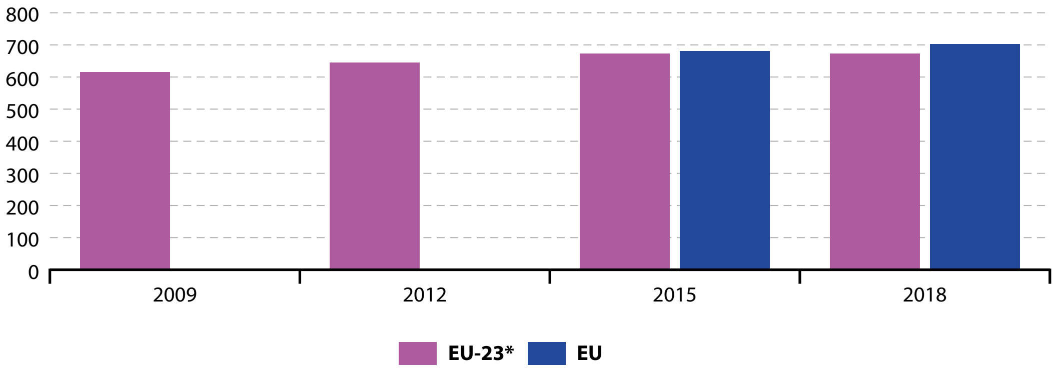
SHORT TERM
2015–2018

Settlement area per capita

This indicator captures the amount of settlement area used for buildings, industrial and commercial areas, infrastructure and sports grounds, and includes both sealed and non-sealed surfaces.

Figure 11.9: Settlement area per capita, EU, 2009–2018

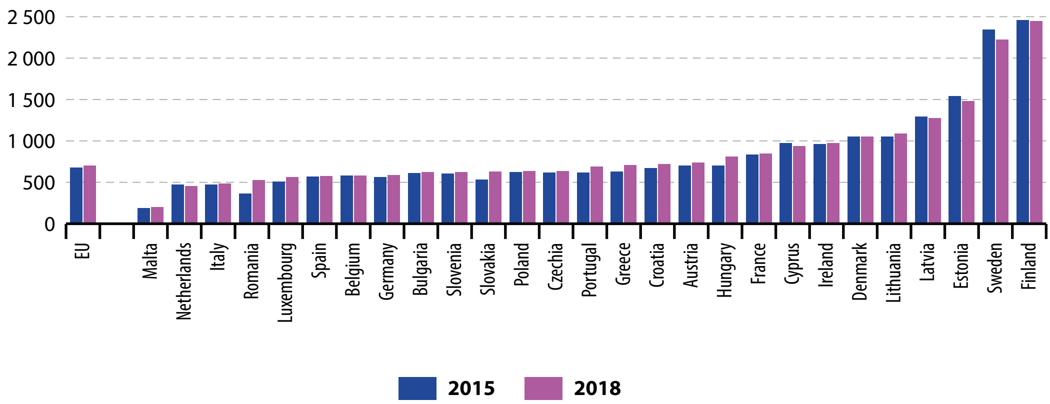
(m²)



Note: EU-23* refers to an aggregate including the UK but excluding Bulgaria, Croatia, Cyprus, Malta and Romania.
Source: Eurostat (online data code: sdg_11_31)

Figure 11.10: Settlement area per capita, by country, 2015 and 2018

(m²)



Source: Eurostat (online data code: sdg_11_31)

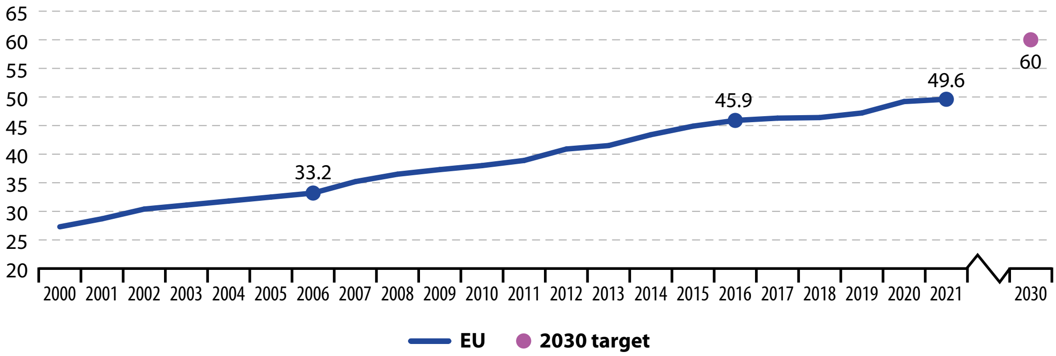
Recycling rate of municipal waste

LONG TERM 2006–2021

SHORT TERM 2016–2021

This indicator measures the tonnage recycled or prepared for re-use from municipal waste divided by the total municipal waste arising. Recycling includes material recycling, composting and anaerobic digestion. Municipal waste consists mostly of waste generated by households but may also include similar wastes generated by small businesses and public institutions and collected by the municipality. This latter part of municipal waste may vary from municipality to municipality and from country to country, depending on the local waste management system. For areas not covered by a municipal waste collection scheme the amount of waste generated is estimated.

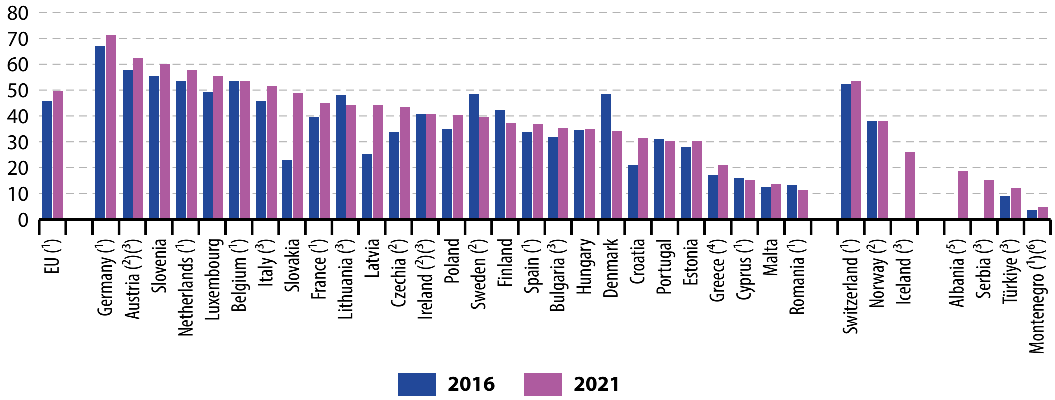
Figure 11.11: Recycling rate of municipal waste, EU, 2000–2021
(% of total municipal waste generated)



Note: 2019–2021 data are Eurostat estimates.

Source: Eurostat (online data code: sdg_11_60)

Figure 11.12: Recycling rate of municipal waste, by country, 2016 and 2021
(% of total municipal waste generated)



(1) Estimated and/or provisional data.
(2) Break(s) in time series between the two years shown.
(3) 2020 data (instead of 2021).
(4) 2019 data (instead of 2021).
(5) No data for 2016.
(6) 2018 data (instead of 2016).

Source: Eurostat (online data code: sdg_11_60)

Notes

(1) 2020 data. Source: Eurostat (online data codes: ilc_lvho01 and demo_gind).
(2) Eurostat (2016), *Urban Europe: Statistics on cities, towns and suburbs, Publications Office of the European Union*, Luxembourg, p. 9.
(3) European Environment Agency (2019), *Population exposure to environmental noise.*
(4) Source: Eurostat (online data codes: sdg_11_20 and demo_gind).
(5) Berglund, B., Lindvall, T., Schwela, D.H. (1999), *Guidelines for Community Noise, World Health Organization (WHO)*, Geneva.
(6) European Environment Agency (2023), *Noise pollution and health.*
(7) WHO (2021), *WHO global air quality guidelines: particulate matter ($PM_{2.5}$ and PM_{10}), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide*, World Health Organization.
(8) For $PM_{2.5}$, the Ambient Air Quality Directive 2008/50/EC introduced a target value to be attained by 2010, which became a limit value starting in 2015. For more information on EU air quality standards see: http://ec.europa.eu/environment/air/quality/standards.htm
(9) European Commission (2022), *Zero Pollution Monitoring and Outlook Report*.
(10) European Environment Agency (2021), *Air quality in Europe — 2021 report*, EEA Report 15/2021, Copenhagen, and European Commission (2022), *The Third Clean Air Outlook.* COM/2022/673 final, Brussels.
(11) Degree of urbanisation classifies local administrative units as 'cities', 'towns and suburbs' or 'rural areas'. In 'cities' at least 50 % of the population lives in an urban centre. If less than 50 % lives in an urban centre but more than 50 % of the population lives in an urban cluster it is classified as 'towns and suburbs', and if more than 50 % of the population lives outside an urban cluster it is classified as a 'rural area'. An urban centre is a cluster of contiguous grid cells of 1 km^2 with a density of at least 1 500 inhabitants per km^2 and a minimum population of 50 000 people. An urban cluster is a cluster of contiguous grid cells of 1 km^2 with a density of at least 300 inhabitants per km^2 and a minimum population of 5 000 people.
(12) Source: Eurostat (online data code: ilc_mdho06D).
(13) Source: Eurostat (online data code: ilc_mddw04).
(14) Source: Eurostat (online data code: ilc_mddw06).
(15) Calculations based on European Commission (2018), *A walk to the park? Assessing access to green areas in Europe's cities*.
(16) European Parliament, Directorate-General for Internal Policies of the Union; Lozzi, G., Ramos, C., Cré, I. (2022), *Relaunching transport and tourism in the EU after COVID-19; Part VI, Public transport*, European Parliament.
(17) Source: Eurostat (online data code: tran_hv_psmod).
(18) European Commission (2020), *Road safety: Europe's roads are getting safer but progress remains too slow*.
(19) European Commission (2022), *Road safety in the EU: fatalities in 2021 remain well below pre-pandemic level*.
(20) European Commission (2021), *European Road Safety Observatory: Annual statistical report on road safety in the EU 2020*, p. 13.
(21) UN-Habitat (2016), *Urbanization and Development: Emerging Futures, World Cities report 2016*, pp. 85–100.
(22) EEA (2016), *Land recycling in Europe: Approaches to measuring extent and impacts*, EEA Report No 31/2016, European Environment Agency.
(23) Eurostat (2021), *Statistics explained: Municipal waste statistics*.
(24) European Commission (2018), Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste (Text with EEA relevance).
(25) Source: Eurostat (online data code: env_wasmun).

12 Ensure sustainable consumption and production patterns

SDG 12 calls for a comprehensive set of actions from businesses, policy-makers and consumers to adapt to sustainable practices. It envisions sustainable production and consumption based on advanced technological capacity, resource efficiency and reduced global waste.

Consumption and production patterns have wide environmental and social impacts. Monitoring SDG 12 in an EU context focuses on developments in the areas of decoupling environmental pressures from economic growth, the green economy, and waste generation and management. Overall, the EU's progress towards this goal over the five-year period assessed has been mixed. While consumption of raw materials and energy productivity have shown positive developments, consumption of hazardous chemicals has increased. The picture is also mixed in the area of waste generation, where circular use of materials is not growing fast enough to meet the target, despite reduced waste generation. On a positive note, the value added from the environmental goods and services sector has been growing.

Table 12.1: Indicators measuring progress towards SDG 12, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Decoupling environmental pressures from economic growth				
Material footprint	2005–2020	– 1.6 %	↑	page 226
	2015–2020	– 0.4 %	↗	
Consumption of hazardous chemicals	2006–2021	– 0.6 %	↗	page 227
	2016–2021	1.0 %	↓	
Average CO_2 emissions per km from new passenger cars	Assessment not possible due to break in time series in 2021		:	page 228
Energy productivity (*)	2006–2021	1.8 %	↑	SDG 7, page 144
	2016–2021	1.8 %	↑	
Green economy				
Gross value added in the environmental goods and services sector	2005–2020	3.5 %	↑	page 230
	2015–2020	3.4 %	↑	
Waste generation and management				
Circular material use rate	2006–2021	Observed: 1.7 % Required: 4.0 %	↘	page 231
	2016–2021	Observed: 0.3 % Required: 5.2 %	↘	
Generation of waste	2006–2020	– 0.6 %	↗	page 232
	2016–2020	– 1.3 %	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.

Policy context

The 8th Environment Action Programme (EAP) aims to accelerate the transition to a climate-neutral, resource-efficient and regenerative economy, recognising that human well-being depends on healthy ecosystems.

The Circular Economy Action Plan from 2020 aims to double the EU's circular material use rate in the coming decade to support the achievement of climate neutrality by 2050, to decouple economic growth from resource use and waste generation and to keep resource consumption within ecological boundaries. In 2022, the European Commission proposed a package on Circular Economy measures to make sustainable products the norm in the EU and boost circular business models. The Council Recommendation on ensuring a fair transition towards climate neutrality calls for facilitating access to sustainable consumption, such as affordable reuse, repair, recycle and sharing schemes, especially for people and households in vulnerable situations.

The Recovery and Resilience Facility supports reforms and investments to boost sustainable consumption and production patterns, for example in the areas of sustainable mobility and circular economy.

The Global Alliance on Circular Economy and Resource Efficiency brings together governments and relevant organisations to advance the circular economy transition.

The New Consumer Agenda aims to empower consumers to engage with the green and digital transitions while enforcing consumer rights and protection.

The revised Waste Framework Directive sets a goal to reduce food waste by 30 % by 2025 and 50 % by 2030. It also establishes a 55 % recycling rate target for municipal waste that will be increased to 65 % by 2035 and emphasises waste prevention.

The 2020 EU industrial strategy and its 2021 update aim to help Europe's industry lead the twin transitions towards climate neutrality and digital leadership. The Green Deal Industrial Plan aims to enhance the competitiveness of Europe's net-zero industry and support the fast transition to climate neutrality.

The REACH framework aims to protect human health and the environment through better identification and management of hazardous chemicals. The framework will be updated in 2023, supported by the Chemicals Strategy for Sustainability, which aims to reduce the harm to humans and the environment from exposure to chemicals.

The 2021 Zero Pollution Action Plan calls for air, water and soil pollution to be reduced to levels no longer considered harmful to health and ecosystems, respecting planetary boundaries and creating a toxic-free environment. In 2022 the Commission adopted a Zero Pollution package proposing stricture rules for cleaner air and water.

EU legislation sets mandatory CO_2 emission targets for cars and vans and CO_2 emission standards for heavy-duty vehicles applying from 2025. A recently adopted Regulation strengthens the CO_2 emission performance standards for new passenger cars and new light commercial vehicles. The revised Clean Vehicles Directive promotes clean mobility solutions in public procurement. In addition, the Smart and Sustainable Mobility Strategy from 2020 aims to contribute to the 2030 and 2050 climate targets and the zero pollution ambition by making at least 30 million zero-emission cars operational in Europe by 2030.

Responsible consumption and production in the EU: overview and key trends

Decoupling environmental pressures from economic growth

Economic growth improves people's well-being but has long been associated with growing resource and energy consumption. Continuous growth in the consumption of finite resources both harms the environment and significantly contributes to climate change. To tackle this challenge, the EU has launched a new growth strategy — the European Green Deal — which 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. It focuses on improving resource- and energy-use efficiency by restructuring economies so they produce more from the same resource and energy inputs.

The EU's material footprint reached a new low in 2020 due to a 5.6 % decrease in the pandemic year

The material footprint, also referred to as raw material consumption (RMC), shows the amount of materials used along the supply chains of goods and services that are finally consumed in a country. The indicator thus measures the extracted materials (both domestic and abroad) needed to produce goods and services consumed by final users inside EU borders and estimates the volume of traded products — imports and exports — in raw material equivalents.

The EU's material footprint had been growing between 2013 and 2019, before falling by 5.6 % in 2020 compared with the previous year. In absolute terms, final users in the EU consumed 6.11 billion tonnes of raw material (in raw material equivalents) in 2020, which translates into a per-capita material footprint of 13.7 tonnes. The most recent drop in the material footprint is likely to be the result of reduced economic activity during the pandemic and has led to the lowest RMC value recorded for past two decades. Nevertheless, the significant increase in the EU's material consumption up to 2019 suggests further efforts might be required to meet the objectives of the European Green Deal, which calls for a reduction in environmental pressures alongside economic growth (also see the section on spillover effects on page 335).

6.11
billion tonnes of globally extracted raw material were consumed in the EU in 2020

The Consumption Footprint — a set of 16 indicators developed by the European Commission's Joint Research Centre (JRC) to quantify the environmental impacts of the EU's consumption — also reveals the need for further efforts to reduce consumption and achieve the EU's policy goals. The results show the EU is responsible for a significant amount of environmental impacts outside its borders. The environmental impact of the EU's consumption within the EU and abroad also increased by around 4 % between 2010 and 2021, due to growth in the amount of consumed goods. The largest increases occurred in the consumption of food (18 %), appliances (5 %) and household goods (5 %) ([1]).

More than half of fossil energy carriers and metal ores used in the EU are imported

Data on material import dependency reveal the extent to which an economy relies on imports to meet its material needs. Material import dependency is calculated as the ratio of imports to direct material input (DMI), which is the sum of imports and domestic extraction. In 2021, imports accounted for 22.9 % of the EU's DMI. Import dependency was highest for fossil energy carriers, at 70.7 % in 2021, followed by metal ores at 51.7 %. The EU's import dependency on fossil energy carriers has increased by about 10 percentage points over the past decade (up from around 60 %), while dependency on metal ore imports has remained stable. In contrast, the EU is almost completely self-sufficient for non-metallic minerals, with an import dependency of only 3.3 % in 2021 (2).

The EU's self-sufficiency is especially relevant for critical raw materials (CRMs), which refer to raw materials that are of high importance to the EU economy combined with a high risk associated with their supply. To address the challenge of ensuring reliable and unhindered access to certain raw materials, the European Commission presents a list of critical raw materials that is reviewed every three years. The CRM list from 2023 contains 34 materials; data on the EU's self-sufficiency are available for eight of them. They show that the EU's self-sufficiency was highest for copper (62.3 % in 2018), lithium (30.1 %), fluorspar (29.0 %) and aluminium (9.8 %). However, the EU economy was (almost) completely dependent on imports for borate (0.0 % self-sufficiency), cobalt (2.6 %), natural graphite (0.3 %) and tantalum (0.0 %) (3). To ensure access to a secure and sustainable supply of the critical raw materials needed for the EU to meet its 2030 climate and digital objectives, the Commission has proposed a Critical Raw Materials (CRM) Act. This would set benchmarks for domestic capacities, such as for extraction or recycling, to be met by 2030.

Resource and energy productivity have increased in the EU over the five-year period assessed

Resource productivity (4) monitors how much output an economy produces per unit of used materials and can provide insights into whether decoupling between the use of natural resources and economic growth is taking place. It is measured as the ratio of gross domestic product (GDP) to domestic material consumption (DMC). Between 2016 and 2021, the EU economy (in terms of GDP) grew by 6.3 %, while DMC grew at a slower pace, by 4.5 % over the same period. This resulted in a 1.4 % increase in the EU's resource productivity, from EUR 2.06 per kilogram (kg) of DMC in 2016 to EUR 2.09 per kg in 2021 (5).

Similar to resource productivity, energy productivity (6) measures economic output (in terms of GDP) per unit of energy used. Observed trends for energy productivity are stronger than for resource productivity, due to larger decreases in energy consumption than in material use. Between 2016 and 2021, the EU increased its energy productivity by 9.1 %, from EUR 7.8 per kg of oil equivalent (kgoe) to 8.5 EUR per kgoe. Over the same period, economic growth of 6.3 % in the EU was accompanied by a reduction in gross available energy (GAE) of 2.6 % (7). However, energy productivity decreased by 0.7 % in 2021 compared with the previous year, due to an increase in GAE.

In 2021, the EU's energy productivity amounted to
8.5
EUR per kgoe

Consumption of hazardous chemicals has been increasing

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 chemical sales worth EUR 594 billion in 2021 (8). The consumption of chemicals provides benefits to society but can also entail environmental and health risks. The level of risk depends on both the hazard presented by the chemicals and exposure to them. Tracking the consumption volumes of industrial (manufactured) chemicals that are hazardous to human and environmental health is, therefore, used as a proxy for human exposure (9).

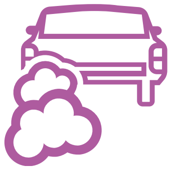
226.0
million tonnes of toxic chemicals were consumed in the EU in 2021

In 2021, 226.0 million tonnes of hazardous chemicals were consumed in the EU. This is 8.3 % less than the amount consumed in 2006. However, the short-term trend appears more negative, with consumption increasing by 5.0 % between 2016 and 2021.

Average CO_2 emissions from new car fleets have fallen over the past decade

Passenger cars are responsible for a considerable share of the EU's total greenhouse gas (GHG) emissions. To reduce those emissions, the EU has set targets for the fleet-wide average emissions of new passenger cars. For each manufacturer's new car fleet, a binding specific emission target is set according to the average mass of its new vehicles, in such a way that the overall target for the EU's average fleet emissions will be met.

Between 2007 and 2020, data on the average CO_2 emissions per km from new passenger cars were collected based on the New European Driving Cycle (NEDC) procedure. In 2021, data collection for the first time was based on the World Harmonised Light-vehicle Test Procedure (WLTP) procedure. Compared to the former NEDC procedure, this leads to higher emission values that are more representative of vehicles' emissions when they are used on the road. To ensure manufacturers' targets are equally stringent, these have been converted to represent WLTP rather than NEDC conditions.



116.3
grams of CO_2 per km were emitted on average by new passenger cars in the EU in 2021

Data collected according to NEDC show that average CO_2 emissions per km from new passenger cars registered in the EU fell almost continuously between 2007 and 2020, reaching 107.9 grams per kilometre (g/km). This is a 9.4 % reduction over the five-year period since 2015. The most recent data collected according to WLTP show average CO_2 emissions per km from new passenger cars were 116.3 g/km in 2021.

Replacing conventional cars with zero emission vehicles will be a crucial step towards achieving the EU's greenhouse gas emission reduction targets, as set out in the European Climate Law and the EU's 2030 Climate Target Plan, and towards climate neutrality by 2050. According to data from the European Alternative Fuels Observatory and statistics from Member States, the share of zero-emission vehicles (including both battery electric vehicles and hydrogen vehicles) in newly registered passenger cars in the EU rose from 0.5 % in 2016 to 9.4 % in 2021. Preliminary data for 2022 show further growth to about 12 %. However, the share differs considerably between European countries. Within the EU, the Netherlands reported the highest share with 19.8 % in 2021, followed by Sweden with 19.0 % and Austria with 13.9 %. In contrast, zero-emission vehicles accounted for less than 1 % of newly registered passenger cars in Bulgaria and Cyprus [10].

Green economy

Another way to help decouple environmental impacts from economic growth is to increase the share of the green economy. The environmental goods and services sector (EGSS) is the part of the economy that produces the goods and services used in environmental protection and resource management activities. 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 also have important socio-economic benefits in terms of value added and employment [11].

300.1
billion EUR of gross value added were generated by the EU's environmental goods and services sector in 2020

The increase in the value added of the environmental goods and services sector has outpaced overall economic growth

The gross value added in the EGSS in the EU has grown by 68.6 % over the 15-year period assessed, from EUR 178.0 billion in 2005 to EUR 300.1 billion in 2020. Growth in the renewable energy and energy efficiency sectors, along with increased spending on green infrastructure, are among the main drivers of this development [12]. In relation to the whole economy, the EGSS grew — in gross value added terms — from 1.7 % of GDP in 2005 to 2.5 % in 2020. This indicates the sector grew disproportionally faster than other economic sectors. Notably, the sector's gross value added continued to grow in 2020, by 1.9 %, when the EU's GDP fell by 5.6 % as a result of the COVID-19 pandemic. Employment (in full-time equivalent) in the sector has also increased, by 47.5 %, since 2005. In 2020, the sector provided around 5 million full-time equivalent jobs throughout the EU ([13]).

Waste generation and management

Production and consumption patterns characterised by products being made, used and disposed of at an ever-faster rate are not sustainable. Therefore, the EU aims to move towards a circular economy where materials and resources are kept in the economy for as long as possible (through repair, recycling and reuse) and waste is minimised or even prevented. Because waste contains resources, recycling can put these materials back into the economy and ensure they are used again to preserve the value embedded within them.

Waste generation has fallen, but the EU is not on-track to meet its circular material use goal

In 2020, 2.2 billion tonnes of waste were generated in the EU by all economic activities and households, corresponding to 4 813 kg of waste per inhabitant. Almost two-thirds (64.0 % or 3.1 tonnes per inhabitant) of this waste was major mineral waste, including dredging spoils and contaminated soils that are mainly created in the mining and construction sectors. Of the total waste, 4.4 % was hazardous to health or the environment, corresponding to 214 kg per resident in 2020. Overall, the amount of waste generated in the EU fell by 4.7 % between 2016 and 2020, likely as a result of the pandemic-related economic slowdown in 2020.

4 813 kg
of waste were generated in the EU per inhabitant in 2020

Total waste excluding major mineral waste constituted one-third (36 %) or 775 million tonnes of total waste generated in the EU in 2020. From this amount, 212 million tonnes were recorded for waste and water services, followed by households (196 million tonnes) and manufacturing activities (167 million tonnes). In 2020, food waste accounted for 59 million tonnes in the EU. More than half (53.5 %) of food waste was generated by household activities, followed by manufacture of food products and beverages (20.2 %) and primary production of food (10.4 %) ([14]).

When not managed sustainably, all of this waste has a huge impact on the environment, causing pollution and greenhouse gas emissions, and significant losses of materials ([15]). Recycling waste and feeding it back into the economy as secondary raw materials is crucial for reducing the EU's demand for primary raw materials and relies heavily on improved waste management systems ([16]). Between 2006 and 2021, the EU circular material use (CMU) rate — the share of used materials derived from collected waste — increased from 9.1 % to 11.7 %. Since 2019, however, the CMU rate has fallen by 0.3 percentage points, meaning the EU will need to make stronger progress in the next few years to meet its goal of 23.4 % of the materials it uses coming from collected waste by 2030.

11.7 %
of the materials used in the EU came from collected waste in 2021

Data for the recycling of waste excluding major mineral wastes show that 58 % of EU waste was recycled in 2020 ([17]). The difference between this relatively high end-of-life recycling rate and the CMU rate (11.7 % in 2021) may seem surprising. However, the comparatively low degree of circularity in the EU can be attributed to two structural barriers. First, a large fraction of the materials extracted, in particular minerals, is used to build and maintain buildings, infrastructure and other long-life goods and is not readily available for recycling. The second barrier is the large amount of materials 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 ([18]).

Presentation of the main indicators

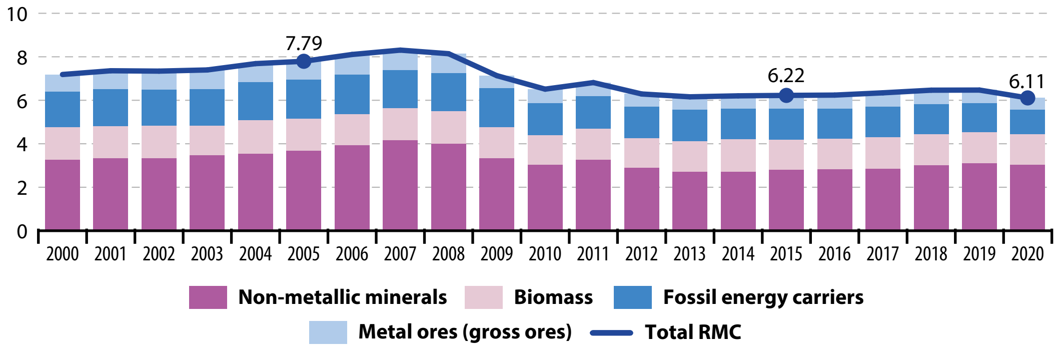
LONG TERM
2005–2020

SHORT TERM
2015–2020

Material footprint

The material footprint, also referred to as raw material consumption (RMC), represents the global demand for the extraction of materials (minerals, metal ore, biomass, fossil energy materials) induced by consumption of goods and services within a geographical reference area. Data for material footprints stem from material flow accounts, which model the flows of natural resources from the environment into the economy. They include domestic extraction of materials measured in tonnes of gross material (for example, gross ore or gross harvest) as well as imports and exports measured by estimates of the raw material equivalents of the products traded (domestic and abroad extraction required to produce the traded products). RMC thus measures the amount of extraction needed to produce the goods demanded by final users in the geographical reference area, irrespective of where in the world the material extraction took place.

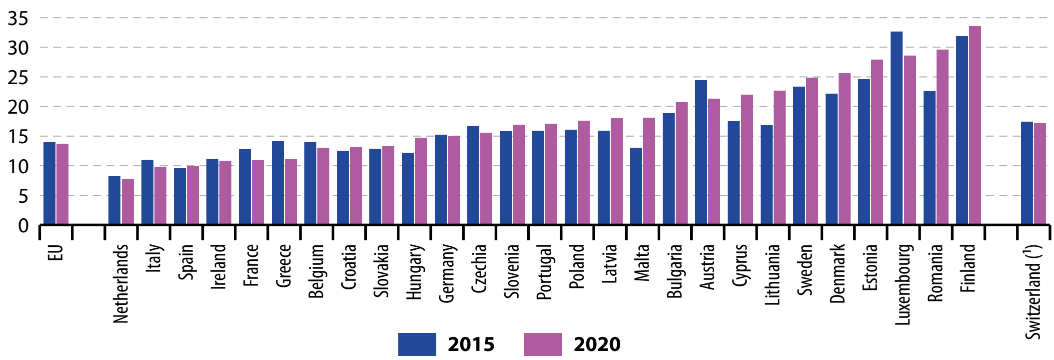
Figure 12.1: Raw material consumption, by material, EU, 2000–2020
(billion tonnes)



Note: Estimated data.

Source: Eurostat (online data code: sdg_12_21 and env_ac_rme)

Figure 12.2: Raw material consumption, by country, 2015 and 2020
(tonnes per inhabitant)



Note: Estimated data for most countries.
(1) 2019 data (instead of 2020).

Source: Eurostat (online data code: sdg_12_21)

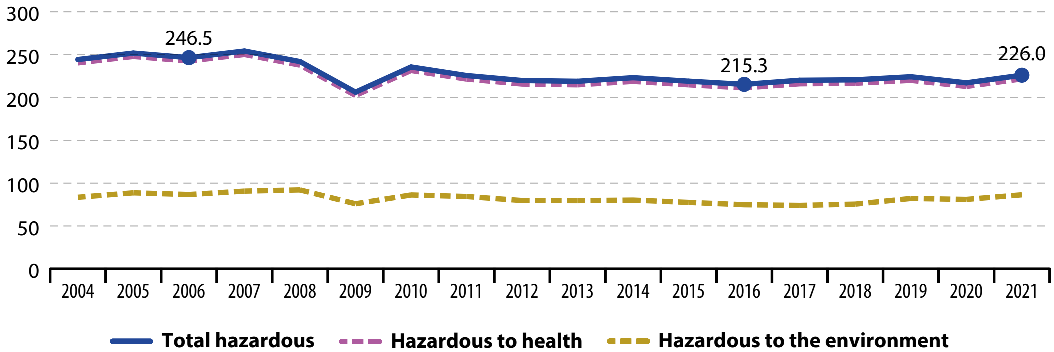
Consumption of hazardous chemicals

LONG TERM
2006–2021

SHORT TERM
2016–2021

This indicator measures the consumption of toxic chemicals, expressed in million tonnes. The consumption of chemicals is calculated as the sum of the production volumes and the net import volumes of the chemicals according to the equation: consumption = production + imports – exports. The two sub-categories of hazardous chemicals — hazardous to human health and hazardous to the environment — overlap by definition and as a result their sum is not equal to the total consumption of hazardous chemicals.

Figure 12.3: Consumption of hazardous chemicals, EU, 2004–2021
(million tonnes)



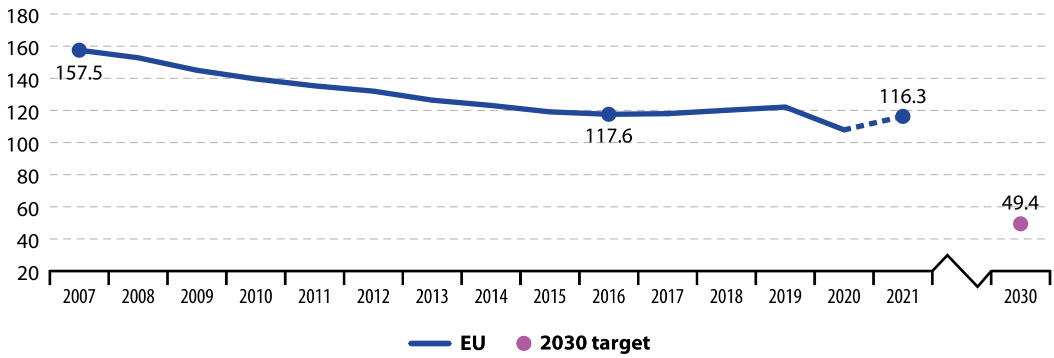
Source: Eurostat (online data code: sdg_12_10)

X Assessment not possible due to break in time series in 2021

Average CO_2 emissions per km from new passenger cars

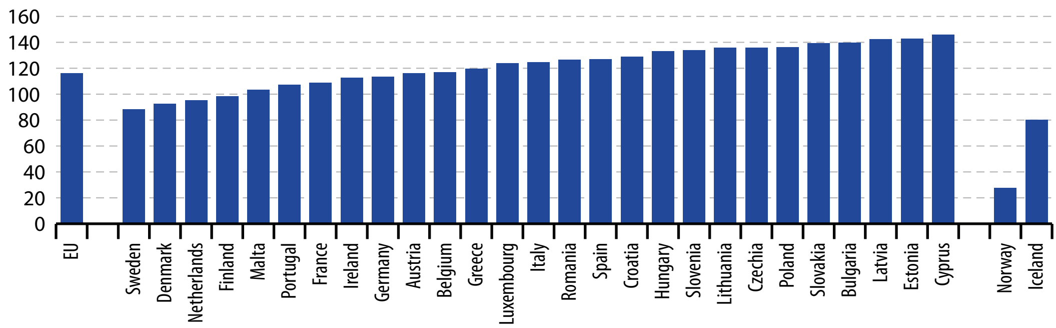
This indicator is defined as the average carbon dioxide (CO_2) emissions per km from new passenger cars registered in a given year. The reported emissions are based on type-approval and can deviate from the actual CO_2 emissions of new cars. Data presented in this section are provided by the European Commission, Directorate-General for Climate Action and the European Environment Agency (EEA). Data up to (and including) 2020 were collected according to the New European Driving Cycle (NEDC) procedure, while the data collection from 2021 onwards is based on the World Harmonised Light-vehicle Test Procedure (WLTP) procedure.

Figure 12.4: Average CO_2 emissions per km from new passenger cars, EU, 2007–2021
(g CO_2 per km)



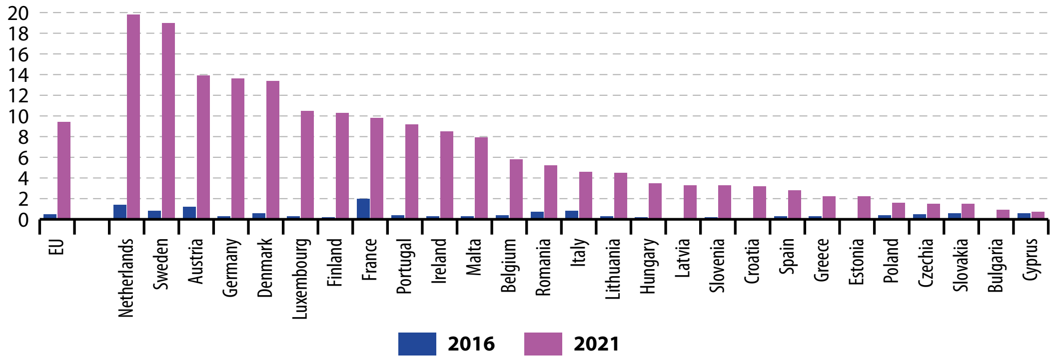
Note: 2007–2012 data are estimated; break in time series in 2021; 2021 data are provisional.
Source: EEA, European Commission services, Eurostat (online data code: sdg_12_30)

Figure 12.5: Average CO_2 emissions per km from new passenger cars, by country, 2021
(g CO_2 per km)



Note: Provisional data.
Source: EEA, European Commission services, Eurostat (online data code: sdg_12_30)

Figure 12.6: Share of zero emissions vehicles, by country, 2016 and 2021
(% of newly registered passenger cars)



Note: Estimated data for many countries.

Source: Eurostat, EAFO (online data code: road_eqr_zevpc)

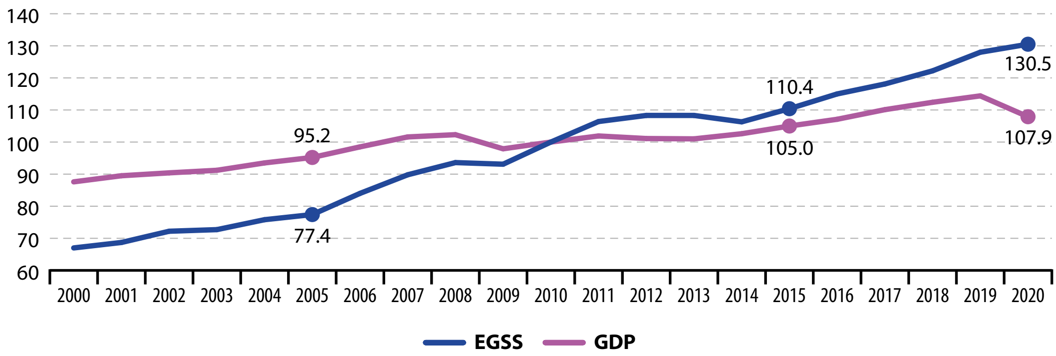
LONG TERM 2005–2020

SHORT TERM 2015–2020

Gross value added in the environmental goods and services sector

The environmental goods and services sector (EGSS) is defined as that part of a country's economy that is engaged in producing the goods and services used in environmental protection and resource management activities either domestically or abroad. Gross value added in EGSS represents the contribution of the environmental goods and services sector to GDP and is defined as the difference between the value of the sector's output and intermediate consumption.

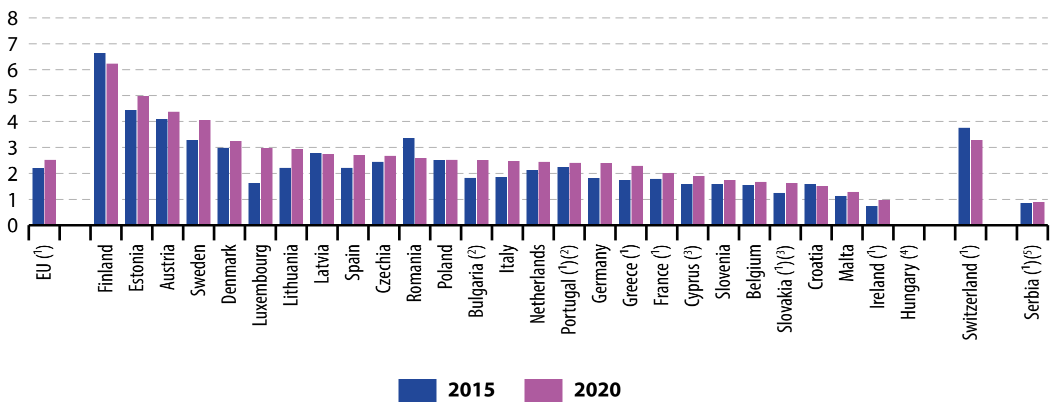
Figure 12.7: Gross value added in the environmental goods and services sector, EU, 2000–2020
(chain-linked volumes, index 2010 = 100)



Note: Data for EGSS are Eurostat estimates.

Source: Eurostat (online data codes: sdg_12_61 and nama_10_gdp)

Figure 12.8: Gross value added in the environmental goods and services sector, by country, 2015 and 2020
(% of GDP)



(¹) Estimated and/or provisional data.
(²) Break(s) in time series between the two years shown.
(³) 2018 data (instead of 2015).
(⁴) No data.
(⁵) 2019 data (instead of 2020).

Source: Eurostat (online data code: sdg_12_61)

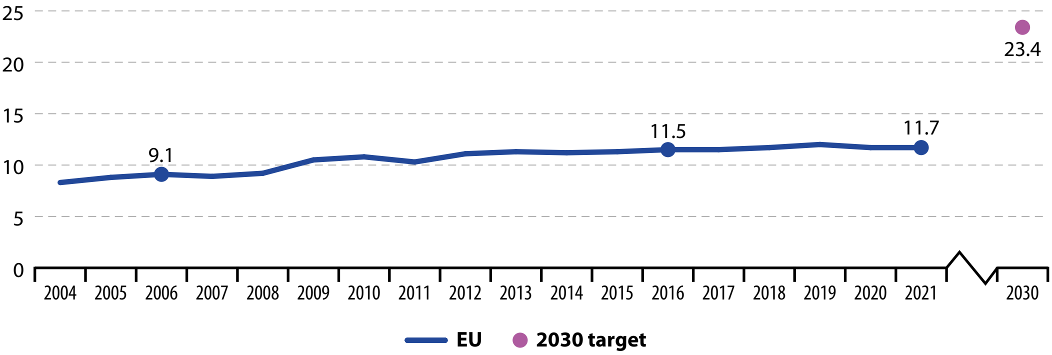
Circular material use rate

LONG TERM 2006–2021

SHORT TERM 2016–2021

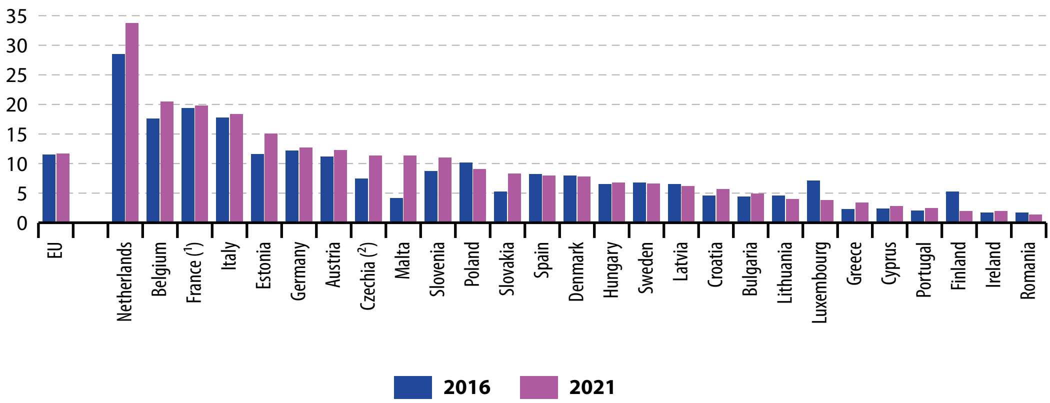
The circular material use rate (CMU) measures the share of material recovered and fed back into the economy in overall material use. The CMU is defined as the ratio of the circular use of materials to the overall material use. The overall material use is measured by summing up the aggregate domestic material consumption (DMC) and the circular use of materials. DMC is defined in economy-wide material flow accounts. The circular use of materials is approximated by the amount of waste recycled in domestic recovery plants minus imported waste destined for recovery plus exported waste destined for recovery abroad. A higher CMU rate value means more secondary materials are being substituted for primary raw materials, thus reducing the environmental impacts of extracting primary material.

Figure 12.9: Circular material use rate, EU, 2004–2021
(% of material input for domestic use)



Note: Data for odd years (2005, 2007, etc.) and for 2020 are estimated; data for 2020 and 2021 are provisional.
Source: Eurostat (online data code: sdg_12_41)

Figure 12.10: Circular material use rate, by country, 2016 and 2021
(% of material input for domestic use)



Note: 2021 data are provisional estimates.
(1) 2016 data are provisional.
(2) Break(s) in time series between the two years shown.
Source: Eurostat (online data code: sdg_12_41)

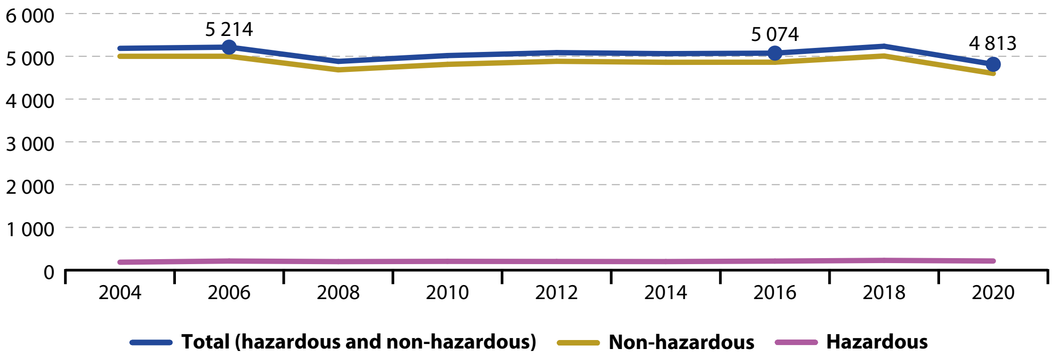
LONG TERM 2006–2020

SHORT TERM 2016–2020

Generation of waste

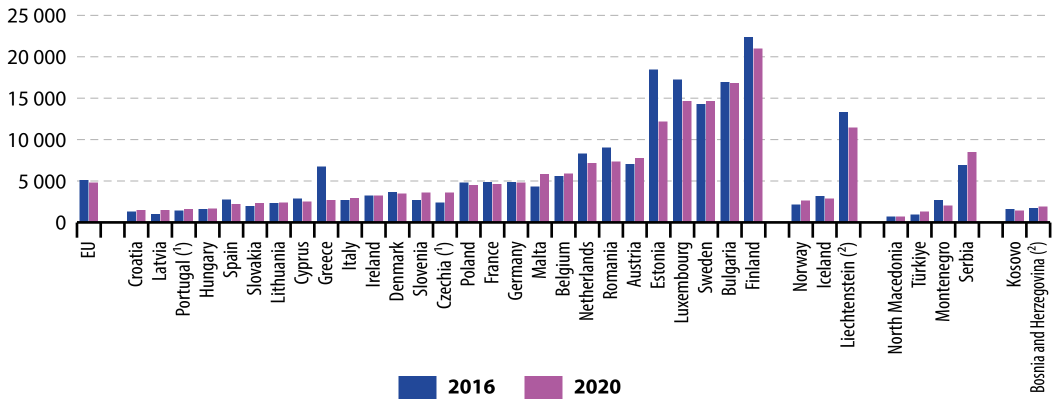
This indicator is defined as all waste generated in a country. It covers waste generated by industrial production (including the waste management sector itself) and by households.

Figure 12.11: Generation of waste, by hazardousness, EU, 2004–2020
(kg per capita)



Source: Eurostat (online data code: sdg_12_51)

Figure 12.12: Generation of waste, by country, 2016 and 2020
(kg per capita)



([1]) Break(s) in time series between the two years shown.
([2]) 2018 data (instead of 2020).

Source: Eurostat (online data code: sdg_12_51)

Notes

(1) Sanye Mengual, E. and Sala, S. (2023), *Consumption Footprint and Domestic Footprint: Assessing the environmental impacts of EU consumption and production*, Luxembourg.
(2) Source: Eurostat (online data code: env_ac_mid).
(3) Source: Eurostat (online data code: CEI_PC010). Copper does not meet the CRM threshold but is included on the CRM list as strategic raw material in line with the Critical Raw Materials Act.
(4) Resource productivity is defined as GDP per unit of domestic material consumption (DMC), measured in EUR per kilogram. Part of these materials is directly consumed by households, which means they are not used as an input to production activities. Thus, resource productivity is not directly comparable to concepts such as labour or capital productivity.
(5) Source: Eurostat (online data codes: sdg_12_20 and nama_10_gdp).
(6) Energy productivity is defined as GDP per unit of gross inland energy consumption, measured in EUR per kg of oil equivalent. Part of the energy considered is consumed by households, which means it is not used as an input to production activities. Thus, energy productivity is not directly comparable to concepts such as labour or capital productivity. Note that the indicator's inverse is energy intensity.
(7) Source: Eurostat (online data codes: nama_10_gdp and nrg_bal_s).
(8) The European Chemical Industry Council (2023), *CEFIC Facts and Figures 2023*.
(9) European Environment Agency (2019), *Consumption of hazardous chemicals*.
(10) Source: Eurostat and European Alternative Fuels Observatory (online data code: road_eqr_zevpc).
(11) European Environment Agency (2019), *Environmental Goods and Services Sector: employment and value added.*
(12) Ibid.
(13) Source: Eurostat (online data code: env_ac_egss1).
(14) Source: Eurostat (online data codes: env_wasgen and env_wasfw).
(15) European Commission (2010), *Being wise with waste: the EU's approach to waste management*, Publication Office of the European Union, Luxembourg.
(16) European Commission (2021), *Green growth: Raw materials*.
(17) Source: Eurostat (online data code: env_wasoper).
(18) Haas, W., Krausmann, F., Wiedenhofer, D., Heinz, M. (2015), *How Circular is the Global Economy?: An Assessment of Material Flows, Waste Production, and Recycling in the European Union and the World in 2005*, Journal of Industrial Ecology 19(5), 765–777.

13 Take urgent action to combat climate change and its impact

SDG 13 seeks to achieve a climate-neutral world by mid-century and to limit global warming to well below 2 °C — with an aim of 1.5 °C — compared with pre-industrial times. It aims to strengthen countries' climate resilience and adaptive capacity, with a special focus on supporting least-developed countries.

Climate change increases global air and ocean temperatures, changes precipitation patterns, raises the global average sea level, provokes extreme weather events, harms biodiversity and increases ocean acidity. Its impacts threaten the viability of social, environmental and economic systems and may make some regions less habitable due to food and water scarcity. Monitoring SDG 13 in an EU context focuses on climate mitigation, climate impacts and initiatives to support climate action. As surface temperatures rise, the EU faces intensifying climate impacts and economic losses from climate-related events which have increased in recent years. Though net greenhouse gas (GHG) emissions partly bounced back in 2021 after falling during the peak of the COVID-19 pandemic in 2020, they remained below their 2019 levels. However, more effort will still be needed to reach the ambitious target of reducing net GHG emissions by 55 % by 2030. These additional efforts are already foreseen in the Fit for 55 package with a revision of the EU emissions trading system (ETS) and the effort-sharing regulation that sets binding annual GHG emissions targets for Member States. The 2030 target includes net GHG removals from land use, land use change and forestry, which have continued to decline and thus have contributed less to progress towards the net GHG target. The share of renewables has kept rising in the EU, but stronger progress will be needed to meet the new, more ambitious 2030 target. More local and regional governments have joined the Covenant of Mayors for Climate and Energy initiative for implementing mitigation and adaptation actions. Significant progress has also been made on financial support, with climate-related expenditure for developing countries being topped up.

Table 13.1: Indicators measuring progress towards SDG 13, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Climate mitigation				
Net greenhouse gas emissions	2006–2021	Observed: – 1.7 %	↘	page 242
		Required: – 2.9 % (1)		
	2016–2021	Observed: – 1.8 %	↘	
		Required: – 3.8 % (1)		
Net greenhouse gas emissions from land use, land use change and forestry	2006–2021	Observed: 3.0 %	↓	page 244
		Allowed: 0.3 % (2)		
	2016–2021	Observed: 6.5 %	↓	
		Required: – 0.3 % (2)		
Share of renewable energy in gross final energy consumption (*)	2006–2021	Observed: 4.8 %	↗	SDG 7, page 145
		Required: 5.9 % (3)		
	2016–2021	Observed: 3.9 %	↗	
		Required: 6.3 % (3)		
Average CO_2 emissions from new passenger cars (*)	Assessment not possible due to break in time series in 2021		:	SDG 12, page 228
Climate impacts and adaptation				
Climate-related economic losses	2009–2021	2.6 %	↓	page 245
	2016–2021	4.6 %	↓	
Population covered by the Covenant of Mayors for Climate and Energy signatories	2010–2022	6.7 %	↑	page 246
	2017–2022	1.8 %	↑	
Financing climate action				
Contribution to the international USD 100bn commitment on climate-related expenditure	Time series too short for long-term assessment		:	page 247
	2016–2021	3.9 %	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.
(1) Assessed against the 55 % net emission reduction target for 2030. Note that this assessment is based on past progress and not on projections of future emissions based on planned legislation and policy measures.
(2) Assessed against the 310 Mt CO_2-equivalent target for 2030. Note that carbon removals in 2006 were already above the target value but have decreased at a higher rate than what would have been allowed to remain on top of this level.
(3) Assessment against the new target of increasing the share of renewables to 42.5 % by 2030, agreed in March 2023.

Policy context

Climate mitigation

The EU signed the Paris Agreement in 2015. The European Climate Law establishes the goal to reduce net GHG emissions by at least 55 % between 1990 and 2030 and to achieve climate-neutrality by 2050, the key objective of the European Green Deal.

In 2021, the European Commission proposed a package of new and revised EU climate and energy legislation — the so-called Fit for 55 package. The package comprises an interconnected set of measures and includes strengthened and expanded carbon pricing, targets, standards and support measures. It also sets a target for natural carbon sinks of 310 million tonnes of CO_2 equivalents. Some of these measures have been adopted already, while for others there are provisional agreements in place or the discussions are still ongoing.

The Just Transition Mechanism supports regions that are the most carbon-intensive or with the most people working in fossil fuels. The Social Climate Fund will support vulnerable households, micro-enterprises and transport users to cope with price impacts of emissions trading in road transport and buildings.

Climate impacts and adaptation

The EU Adaptation Strategy urges smarter, faster and more systematic adaptation so that by 2050 the EU will have become a climate-resilient society, fully adapted to the unavoidable impacts of climate change. The Climate Law mandates continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability.

The EU Action Plan for the Sendai Framework for Disaster Risk Reduction 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. In addition, the EU Civil Protection Mechanism steps in to aid Member States that are in a state of emergency due to disaster, if their national capacities are lacking.

Financing climate action

Support to climate action in the EU comes from the EU budget, the Recovery and Resilience Facility and climate-related funds including the Innovation and the Modernisation Funds. To shift private and public investments towards sustainable activities, the EU introduced a taxonomy for sustainable economic activities, requesting sustainability-related disclosures to investors for financial products and establishing two new climate-friendly benchmarks for investment portfolios. Further work is summarised in the Commission's strategy for financing the transition.

The REPowerEU Plan will bring EUR 210 billion addition investment in energy efficiency, energy infrastructure and renewable energy. The new Green Deal Industrial Plan includes major support to solar panels, wind turbines, heat pumps, hydrogen, energy storage, electric vehicles and critical raw materials extraction, processing and recycling.

To support developing countries, the EU and its Member States contribute to the joint goal of developed countries under the Paris Agreement to provide USD 100 billion per year in climate finance through to 2025.

Climate action in the EU: overview and key trends

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 and practices or encouraging sustainable forest management and land use that enhance carbon removals. The EU has set into law a target to reach climate neutrality with no net GHG emissions by 2050. This means reducing GHG emissions as much as possible while offsetting the residual emissions by removing carbon dioxide (CO_2), for example through natural carbon sinks and using carbon-removal technologies. On its way to the 2050 target, the EU has committed itself to reducing net GHG emissions by at least 55 % by 2030 compared with 1990 levels.

GHG emissions continue to fall compared with pre-pandemic levels, with more to be done to meet the 2030 target

Estimates for net GHG emissions, which include net removals from land use and forestry, suggest that the EU achieved close to a 30 % reduction between 1990 and 2021 ([1]). This means that over the next nine years, emissions will need to fall much quicker if the EU wants to reach its net GHG emission reduction target of 55 % by 2030.

A large proportion of the EU's emission reductions since 1990 have occurred between 2006 and 2021, with net emissions falling by 23.0 % during this period. The short-term trend has been less clear-cut, experiencing both ups and downs. Net GHG emissions increased slightly between 2014 and 2017, but fell again between 2017 and 2020. A remarkable 10.6 % drop occurred in 2020, which can mainly be attributed to the measures taken in response to the COVID-19 pandemic and the related reduction in energy consumption. However, net GHG emissions partially bounced back in 2021, with an increase of 6.0 % compared with 2020. Overall, EU net emissions fell by 8.9 % between 2016 and 2021. GHG emission estimates for the first three quarters of 2022 suggest that GHG emissions have remained below pre-pandemic levels ([2]). However, there is still uncertainty around the impacts of Russia's invasion of Ukraine and the resulting energy crisis on the EU's GHG emissions (see also the chapter on SDG 7 'Affordable and clean energy' on page 133).

The EU reduced its net GHG emissions by
8.9%
between 2016 and 2021

Per capita emissions have fallen in line with the overall reduction in net GHG emissions

Across the EU, net GHG emissions per capita ranged from 0.9 to 16.9 tonnes of CO_2-equivalent in 2021. 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 ([3]). Compared with 2016, net GHG emissions per capita have fallen in all but seven Member States. Latvia reported the strongest increase in net emissions per capita, of 41.7 %, mainly as a result of reduced carbon removal by forest land. Finland and Lithuania also saw a rise in net emissions of more than 10 % between 2016 and 2021. Sweden reported the strongest reduction among Member States, of 50.0 %, followed by Slovenia with 28.9 % ([4]).

The average carbon footprint, which refers to CO_2 emissions from consumption, differs significantly between people according to their incomes. Data from the World Inequality Database ([5]) show that in 2020 the carbon footprint of the richest 10 % of the EU population was five times higher than for the poorest 50 %. This inequality was lowest in Malta (3.9 times) and the Netherlands (4.0) and highest in Luxembourg (7.1), Romania (6.5) and Austria (6.3).

Carbon removals remain on a downward trend

Net GHG removals come from land use and forestry, which is also referred to as the 'land use, land use change and forestry (LULUCF)' sector according to the Intergovernmental Panel on Climate Change (IPCC) classification. Within this sector, forests remove CO_2 from the air (as trees capture CO_2 through photosynthesis), which usually overcompensates for emissions from land use (for example, from the use of fertilisers) and land use change (for example, when grassland is converted to cropland).

In the EU, GHG net removals from land use and forestry fell by 0.6 % between 1990 and 2021. While carbon removals from forest land increased in the first half of the period, the trend reversed between 2006 and 2021, with net removals from all land types falling by 36.4 %. The largest decrease happened over the last five years of this period, when net removals fell by 28.7 %. Due to the large drop in total GHG emissions, net removals still compensated for 6.0 % of emissions in 2021, even though this is a lower share compared with previous years. In absolute numbers, net removals amounted to 211.8 Mt of CO_2-equivalent in 2021. This is well below the EU's net carbon removal target for land use and forestry of at least 310 Mt of CO_2-equivalent by 2030.

Net carbon removal from land use and forestry in the EU in 2021 amounted to

211.8

Mt CO_2-eq

Emissions associated with energy consumption have fallen thanks to reduced energy consumption and increased use of renewables

A sectoral breakdown of the years 1990 and 2021 shows that all sectors of the economy reduced their GHG emissions over this period, except transport ([6]). Fuel combustion in energy industries — which covers electricity and central heat generation — showed the strongest reduction. This was due to a general drop in energy consumption and an increasing share of renewable energy sources, which reached 37.5 % of electricity consumption in 2021. As a result of these developments, fuel combustion by energy users (excluding transport) replaced energy industries as the largest emission source in 2020 and remained the top emitting sector with 27.4 % of total GHG emissions in 2021. Driving this rise in fuel combustion by energy users was a 2.3 % increase in fossil fuel consumption in buildings between 2016 and 2021, despite the share of renewables in heating and cooling growing by 2.5 percentage points over the same period, to reach 22.9 % in 2021. Transport emissions dropped by 8.9 % between 2016 and 2021, following a reduction in fossil fuel use alongside an increase in consumption of renewable fuels ([7]). In total, renewable energy contributed 21.8 % of the EU's gross final energy consumption in 2021. While this was an increase of 3.8 percentage points between 2016 and 2021, stronger progress seems necessary to reach a 42.5 % share of renewable sources in energy consumption by 2030.

21.8 %

of energy consumed in the EU in 2021 came from renewable sources

Average CO_2 emissions per km from new car fleets have fallen over the past decade

Passenger cars are responsible for a considerable share of the EU's total GHG emissions. To reduce those emissions, the EU has set targets for the fleet-wide average emissions of new passenger cars. For each manufacturer's new car fleet, a binding specific emission target has been set based on the average mass of its new vehicles so that the overall target for the EU's average fleet emissions will be met.

Between 2007 and 2020, data on the average CO_2 emissions per km from new passenger cars were collected based on the New European Driving Cycle (NEDC) procedure. In 2021, the data collection method was changed to the World Harmonised Light-vehicle Test Procedure (WLTP), which is more representative of a vehicle's on-road emissions and leads to higher emission values than the NEDC. To ensure manufacturers' targets are as equally stringent, these have also been converted to values based on the WLTP.

116.3 grams of CO_2 per km were emitted on average by new passenger cars in the EU in 2021

Data collected according to NEDC show that the average CO_2 emissions per km from new passenger cars registered in the EU fell almost continuously between 2007 and 2020, reaching 107.9 g/km in 2020, which is a 9.4 % reduction since 2015. The new data collected according to WLTP show average CO_2 emissions per km from new passenger cars were 116.3 g/km in 2021.

Climate impacts and adaptation

Rising concentrations of CO_2 emissions and other GHGs lead to global warming and increased ocean acidity. As a consequence of global anthropogenic GHG emissions, the decade 2012 to 2021 was the warmest on record, with a global mean near-surface temperature increase of 1.11–1.14 °C compared with the pre-industrial level. This means that more than half of the warming towards the global 2 °C limit stipulated in the Paris Agreement has already occurred. The average annual temperature over the European continent has increased by even more, by 1.94–1.99 °C during this decade ([8]).

Climate impacts are a consequence of rising temperatures and the related intensity and quantity of extreme events which affect environmental, social and economic systems. The EU's SDG monitoring focuses on the economic costs that arise from weather- and climate-related extreme events. To minimise the impacts, countries are taking action to adapt to climate change by introducing measures such as flood protection, adapted agricultural practices and forest management, and sustainable urban drainage systems. Climate adaptation is also fully integrated into the Covenant of Mayors initiative, which covers thousands of cities in Europe and worldwide with the aim of mobilising local governments and regions to make voluntary but ambitious climate mitigation and adaptation commitments.

Economic losses from weather- and climate-related extreme events have been considerable in recent decades

Over the period 1980 to 2021, weather- and climate-related economic losses in the EU accumulated to EUR 559.8 billion

Studies have shown that various weather- and climate-related extreme events in Europe and beyond have become more severe and frequent as a result of global climate change ([9]). The resulting impact on human systems and ecosystems has led to measurable losses to economies and people's livelihoods ([10]). Reported economic losses generally reflect monetised direct damages to certain assets and as such are only partial estimates of the full damages. They do not consider losses related to mortality and health, cultural heritage or ecosystems services, which would considerably raise the estimate ([11]).

Over the period 1980 to 2021, weather- and climate-related losses accounted for a total of EUR 559.8 billion. 2021 marked a new negative record, with climate-related economic losses amounting to EUR 56.6 billion in that year, most of which (EUR 43.2 billion) was caused by hydrological events. However, recorded losses vary substantially over time: about 57 % of the total losses have been caused by just 5 % of unique extreme events ([12]). This variability makes the analysis of historical trends difficult. However, a closer look at a 30-year moving average shows an almost steady increase in annual climate-related economic losses, from EUR 11.1 billion in 2009 to EUR 15.2 billion in 2021 ([13]), which corresponds to a 36.5 % increase. The most expensive extreme climate events during the period from 1980 to 2021 included the 1999 storm Lothar and the 2000 flood in France and Italy, the 2002 flood in central Europe, and the severe floods in Germany, Netherlands, Belgium and Luxembourg in July 2021.

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

Communities play a vital role in implementing climate mitigation and adaptation actions on the grounds. In this context, the EU 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 reductions in and outside the EU and increase resilience to climate impacts. 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 [14].

In 2022, Covenant of Mayors signatories covered

44.3 %

of the EU population

In 2022, Covenant of Mayors (CoM) signatories covered 196 million people in the EU, representing about 44 % of the EU population. Since 2010, the population covered by CoM signatories has grown almost steadily. In 13 EU Member States, CoM signatories represented more than half of the population in 2022. The highest share was reported by Belgium, with almost 95 % of the population, followed by Spain and Italy with slightly above 75 % each.

In parallel, by 7 March 2023, 284 regions and local authorities from EU countries (301 with Horizon partner countries also included) had signed up to participate in the Horizon Europe Mission on Adaptation to Climate Change. The Mission will help these regions and local authorities to better understand, prepare for and manage climate risks, as well as to develop innovative solutions to build resilience.

Financing climate action

As part of the transition towards climate neutrality, the EU is endeavouring to redirect public and private investments to areas where they will support this objective. For this reason, the EU has adopted the EU taxonomy as a classification system for sustainable economic activities and a European green bond standard as a voluntary 'gold' standard for the green bond market. At EU level, climate change mitigation and adaptation has been integrated into all major spending programmes [15] and the EU has also committed to support international climate action.

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

In addition to investing in climate action within its borders, the EU and its Member States have committed to raising money to combat climate change and to adapt to climate impacts in developing countries. They are taking part in a commitment made by the world's developed countries to jointly mobilise USD 100 billion per year by 2025 from a wide variety of sources, instruments and channels [16].

In 2021, the EU contribution to the international USD 100 billion commitment amounted to

EUR 23.0 billion

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 23.4 billion in 2020. In 2021, the contribution amounted to EUR 23.0 billion. The two largest contributors in the period were Germany and France. The European Investment Bank (EIB) and the European Commission were the third and fourth largest donors in 2021, respectively. In 2020, the EU, its Member States and the EIB together were the biggest contributors of public climate finance to developing countries worldwide [17]. It is important to note that due to a methodological change, data since 2020 are not directly comparable with earlier years as recent data are based on commitments only, for both bilateral and multilateral finance.

Presentation of the main indicators

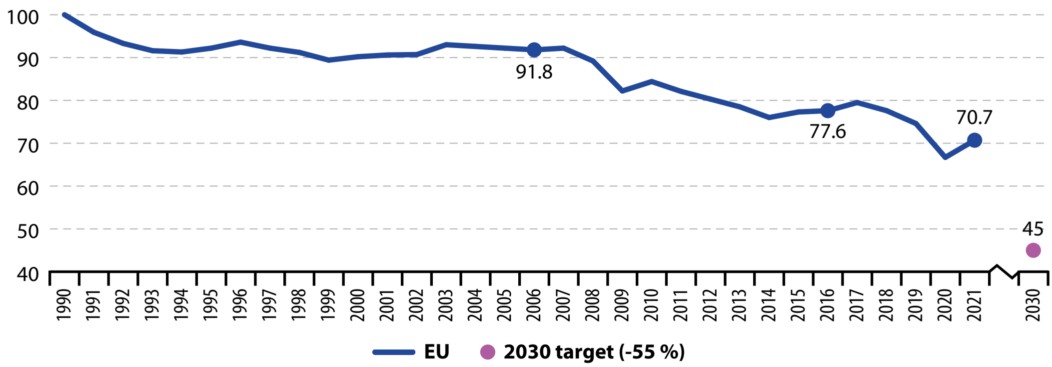
LONG TERM
2006–2021

SHORT TERM
2016–2021

Net greenhouse gas emissions

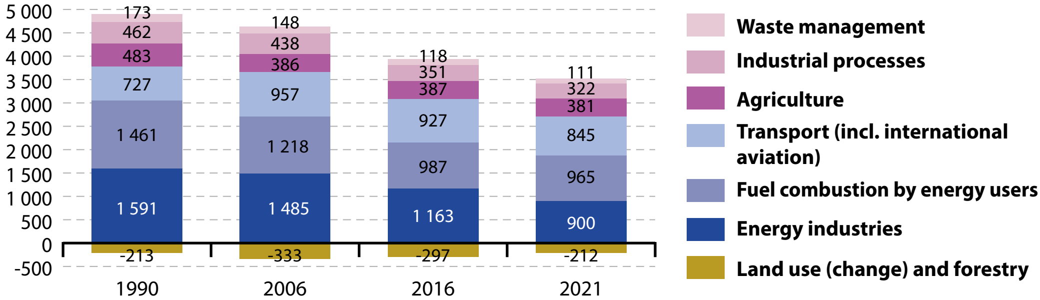
This indicator measures man-made greenhouse gas (GHG) emissions as well as carbon removals on EU territory ([18]). They are integrated into a single indicator — net GHG emissions — expressed in units of CO_2 equivalents based on the global warming potential (GWP) of each gas. At present, carbon removals are accounted for only in the land use, land use change and forestry (LULUCF) sector. The net GHG emissions shown here include international aviation, indirect CO_2 and natural carbon removals from LULUCF. The indicator refers to GHG emissions in the EU territory. GHG emissions derived from the production of goods imported and consumed in the EU are counted in the export country, following rules set by United Nations Framework Convention on Climate Change (UNFCCC). Emissions and removals data, known as GHG inventories, are submitted annually by Member States to the EU and the UNFCCC. The European Environment Agency (EEA) compiles the EU aggregate data and publishes data for the EU and all Member States. Eurostat republishes the EEA data.

Figure 13.1: Net greenhouse gas emissions, EU, 1990–2021
(index 1990 = 100)



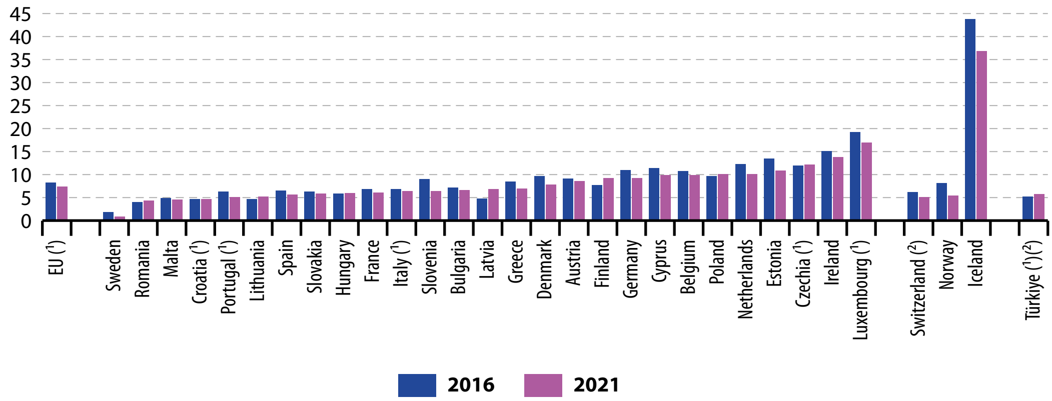
Note: Data for 2021 are provisional estimates based on the EEA approximated GHG inventory for the year 2021.
Source: EEA, Eurostat (online data code: sdg_13_10)

Figure 13.2: Greenhouse gas emissions and removals, by sector, EU, 1990, 2006, 2016 and 2021
(million tonnes of CO_2 equivalent)



Note: Data for 2021 are provisional estimates based on the EEA approximated GHG inventory for the year 2021.
Source: EEA, Eurostat (online data code: env_air_gge)

Figure 13.3: Net greenhouse gas emissions per capita, by country, 2016 and 2021
(tonnes per capita)



Note: Data for 2021 are provisional estimates based on the EEA approximated GHG inventory for the year 2021.
([1]) Break(s) in population data time series between the two years shown.
([2]) 2020 data (instead of 2021).
Source: EEA, Eurostat (online data code: sdg_13_10)

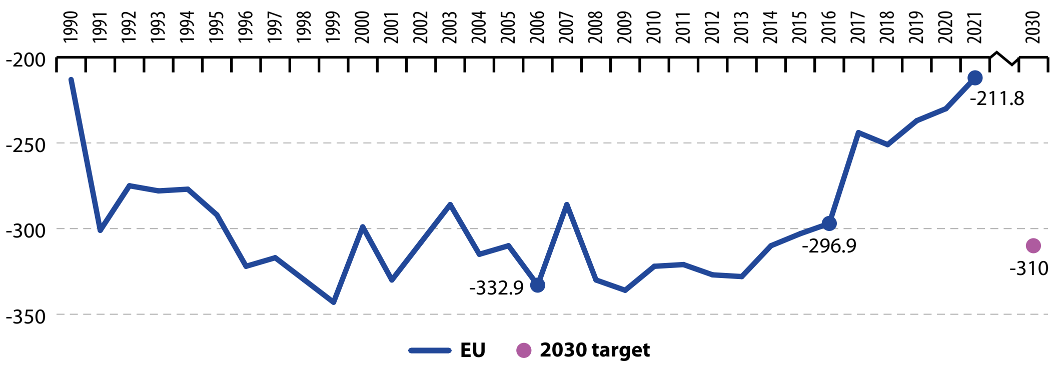
LONG TERM
2006–2021

SHORT TERM
2016–2021

Net greenhouse gas emissions from land use and forestry

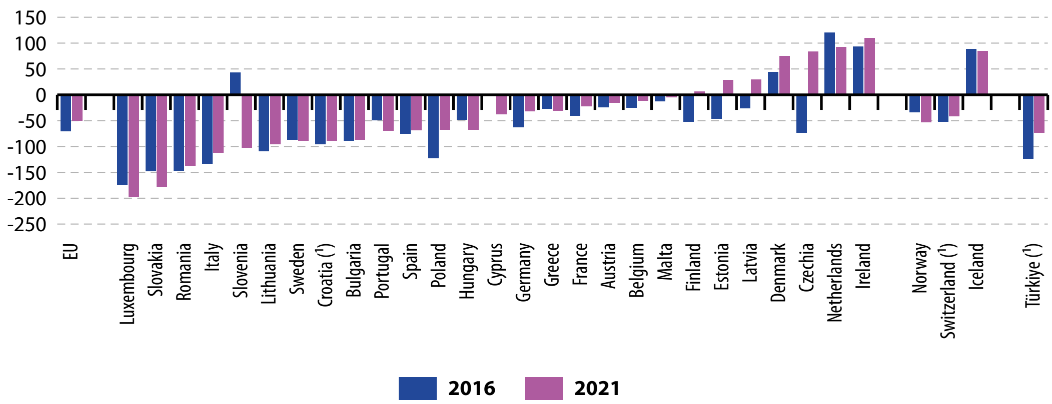
This indicator measures net carbon removals from the land use, land use change and forestry (LULUCF) sector, considering both emissions and removals from the sector. The indicator is expressed as CO_2 equivalents using the global warming potential (GWP) of each gas. Emissions and removals data, known as GHG inventories, are submitted annually by Member States to the EU and the United Nations Framework Convention on Climate Change (UNFCCC). The European Environment Agency (EEA) compiles the EU aggregate data and publishes data for the EU and all Member States. Eurostat republishes the EEA data.

Figure 13.4: Net greenhouse gas emissions from land use and forestry, EU, 1990–2021
(million tonnes of CO_2 equivalent)



Note: Data for 2021 are provisional estimates based on the EEA approximated GHG inventory for the year 2021.
Source: EEA, Eurostat (online data code: sdg_13_21)

Figure 13.5: Net greenhouse gas emissions from land use and forestry, by country, 2016 and 2021
(tonnes of CO_2 equivalent per km²)



Note: Data for 2021 are provisional estimates based on the EEA approximated GHG inventory for the year 2021.
(¹) 2020 data (instead of 2021).
Source: EEA, Eurostat (online data code: sdg_13_21)

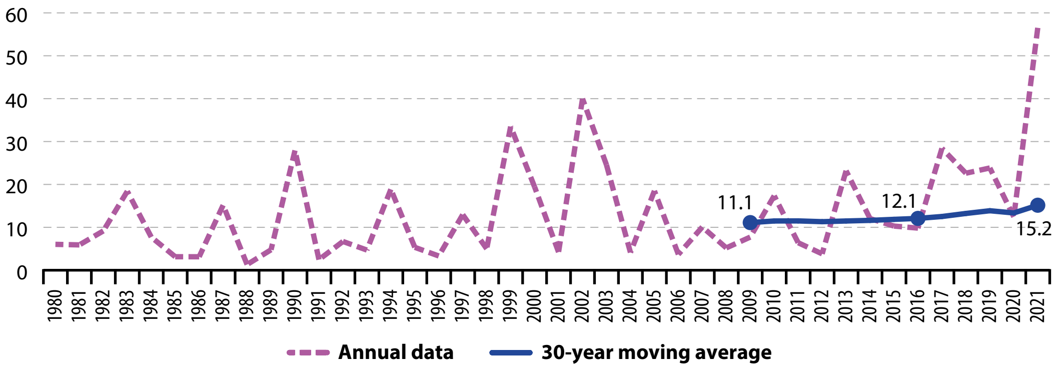
Climate-related economic losses

This indicator includes the overall monetary losses from weather- and climate-related events. The European Environment Agency (EEA) compiles the EU aggregate data from CATDAT of RiskLayer. Eurostat republishes the EEA data. Due to the variability of the annual figures, the data are also presented as a 30-year moving average to facilitate the analysis of historical trends.

LONG TERM 2009–2021

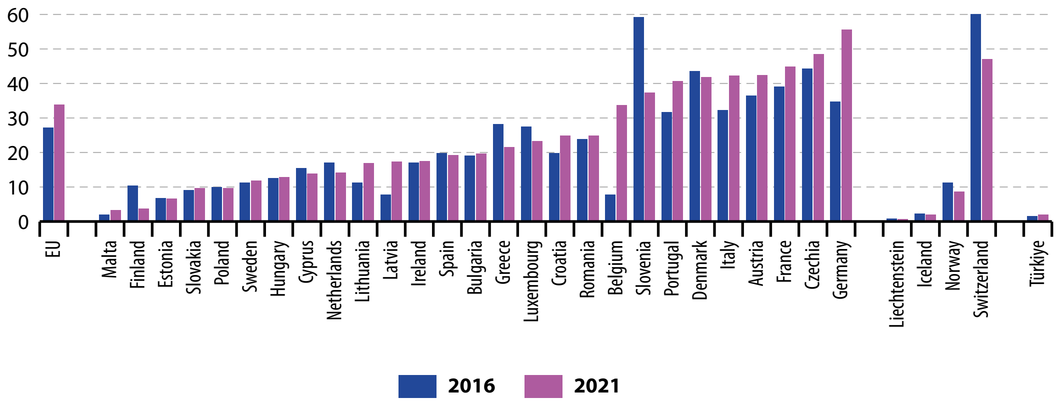
SHORT TERM 2016–2021

Figure 13.6: Climate-related economic losses, EU, 1980–2021
(EUR billion, constant prices)



Note: The annual data points for the 30-year moving average refer to the average over the 30-year period up to these years.
Source: EEA, Eurostat (online data code: sdg_13_40)

Figure 13.7: Climate-related economic losses (30-year moving average) by country, 2016 and 2021
(EUR per capita, constant prices)



Note: Data are shown as 30-year moving average (annual data points refer to the 30-year period up to that year).
Source: EEA, Eurostat (online data code: sdg_13_40)

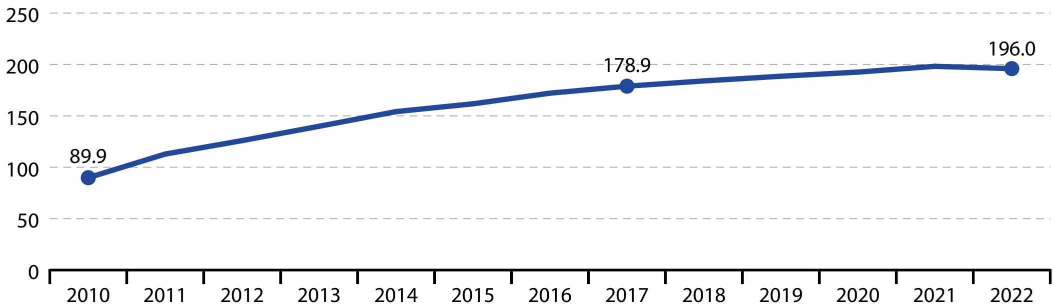
LONG TERM
2010–2022

SHORT TERM
2017–2022

Population covered by the Covenant of Mayors for Climate and Energy signatories

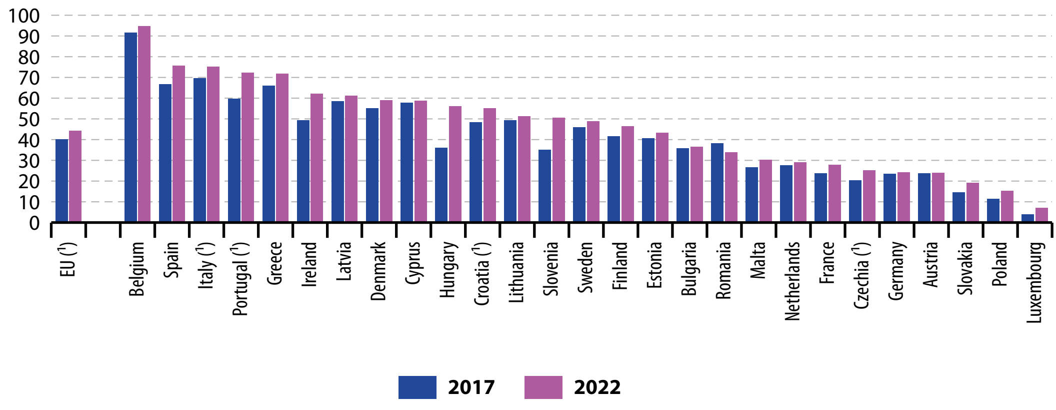
The Covenant of Mayors for Climate and Energy in Europe, now part of the Global Covenant of Mayors for Climate and Energy, represents a climate initiative at multiple levels of governance with actors across the globe pledging to deliver comprehensive climate change mitigation and adaptation and energy action plans and establish a regular monitoring process. Here the number of citizens living within regions that act as signatories to the Covenant of Mayors in Europe is monitored as an indication of the initiative's reach.

Figure 13.8: Population covered by the Covenant of Mayors for Climate and Energy signatories, EU, 2010–2022
(million people)



Note: Break in time series in 2019.
Source: Covenant of Mayors for Climate and Energy (Eurostat online data code: sdg_13_60)

Figure 13.9: Population covered by the Covenant of Mayors for Climate and Energy signatories, by country, 2017 and 2022
(% of population)



Note: 2022 data are provisional for all countries; break in time series in 2019.
([1]) Break(s) in population data time series between the two years shown.
Source: Covenant of Mayors for Climate and Energy, Eurostat (online data code: sdg_13_60)

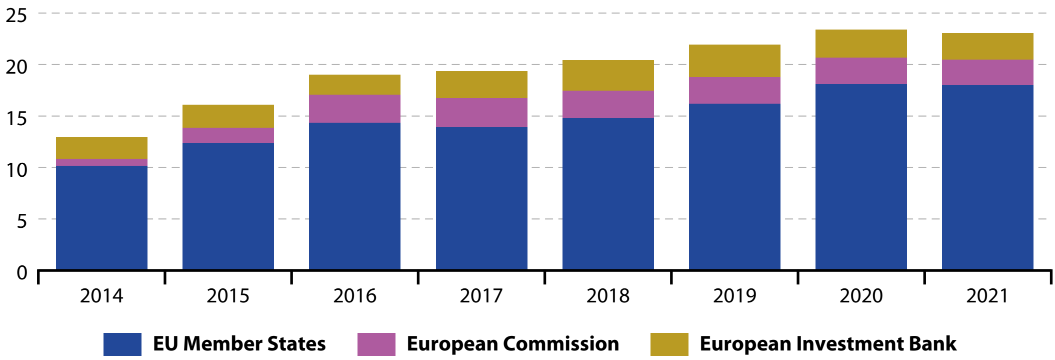
Contribution to the international USD 100bn commitment on climate-related expenditure

LONG TERM
Time series too short

SHORT TERM
2016–2021

The intention of the international commitment on climate finance under the United Nations Framework Convention on Climate Change (UNFCCC) is to enable and support enhanced action by developing countries to advance low-emission and climate-resilient development. The data presented in this section are reported to the European Commission under the Monitoring Mechanism Regulation (Regulation (EU) 525/2013) for the period up to 2019 and under the Governance Regulation (Regulation (EU) 2018/1999) for subsequent years.

Figure 13.10: Contribution to the international USD 100bn commitment on climate-related expenditure, EU, 2014–2021
(EUR billion, current prices)



Note: Break in time series in 2020, due to a methodological change (data from 2020 onwards are based on commitments for both multilateral and bilateral finance).

Source: European Commission services and EIONET (Eurostat online data code: sdg_13_50)

Table 13.2: Contribution to the international USD 100bn commitment on climate-related expenditure, by country, 2016 and 2021
(EUR million, current prices)

Country	2016	2021
EU Member States	**14 338.0**	**17 978.0**
European Commission	**2 730.2**	**2 501.8**
European Investment Bank	**1 947.7**	**2 563.4**
Belgium	100.9	282.6
Bulgaria	:	0.0
Czechia	7.6	11.5
Denmark	173.0	386.1
Germany	8 534.1	7 844.7
Estonia	0.4	2.8
Ireland	52.7	91.8
Greece	0.2	8.3
Spain	595.0	726.7
France	3 334.8	5 781.8
Croatia	:	0.2
Italy	243.0	731.4
Cyprus	:	0.0
Latvia	0.0	0.0
Lithuania	0.5	3.3
Luxembourg	129.5	39.1
Hungary	35.3	19.0
Malta	0.2	0.1
Netherlands	471.9	618.9
Austria	199.3	248.6
Poland	5.4	8.4
Portugal	2.0	2.2
Romania	0.8	5.0
Slovenia	3.0	4.9
Slovakia	3.0	9.3
Finland	43.0	146.5
Sweden	402.4	1 004.6

Note: Break in time series in 2020.

Source: European Commission services and EIONET (Eurostat online data code: sdg_13_50)

Notes

(1) 2021 data for GHG emissions presented in this report have been calculated based on the approximated estimates for greenhouse gas emissions published by the European Environment Agency: EEA (2022), *Approximated estimates for Greenhouse Gas emissions*. The data presented here cover GHG emissions produced inside the EU territory and do not take into account those that occurred outside the EU as a result of EU consumption.
(2) Eurostat (2023), *Quarterly greenhouse gas emissions in the EU*.
(3) Eurostat (2010), *Using official statistics to calculate greenhouse gas emissions — A Statistical Guide*, Publications Office of the European Union, Luxembourg; also see Eurostat (2020), *Commuting between regions*.
(4) 2021 data for GHG emissions presented in this report have been calculated based on the approximated estimates for greenhouse gas emissions published by the European Environment Agency: EEA (2022), *Approximated estimates for Greenhouse Gas emissions*.
(5) See: World Inequality Database.
(6) Eurostat (online data code: env_air_gge) and EEA (2022), *Approximated estimates for Greenhouse Gas emissions.*
(7) Eurostat (online data code: nrg_bal_c).
(8) European Environment Agency (2022), *Global and European temperatures*.
(9) IPCC (2018), *Global Warming of 1.5°C*, Special Report of the Intergovernmental Panel on Climate Change, Cambridge and New York, Cambridge University Press.
(10) IPCC (2021), *Impacts, Adaptation and Vulnerabilities*, Contribution of Working Group II to the Six Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge and New York, Cambridge University Press.
(11) IPBES (2019), *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, Bonn; and European Environment Agency (2016), *Climate change impacts and vulnerability in Europe: An indicator-based report*, Report No. 1/2017, Copenhagen.
(12) European Environment Agency (2023), *Economic losses from climate-related extremes in Europe (temporal coverage 1980–2021)*.
(13) A 30-year moving average shows the average over the past 30 years for a given year. For example, for 2017, the data point shows the average from 1988 to 2017.
(14) European Commission, *European climate adaptation platform — Covenant of Mayors for Climate and Energy*.
(15) European Commission, *Budget — Multiannual Financial Framework programmes*.
(16) European Commission (2018), *A modern budget for a Union that protects, empowers and defends: The Multiannual Financial Framework for 2021–2027*, COM(2018) 321 final, Brussels.
(17) European Commission (2022), *International climate finance*.
(18) The 'Kyoto basket' of GHGs includes carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and the so-called F-gases, i.e., hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride (NF_3) and sulphur hexafluoride (SF_6).

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 reducing marine pollution and ocean acidification, ending overfishing and conserving marine and coastal ecosystems. SDG 14 is strongly related to other SDGs as oceans sustain coastal economies and livelihoods, contribute to food production and function as a carbon sink.

The livelihoods and well-being of Europeans depend heavily on the health and productivity of marine ecosystems. At the same time, the marine and coastal environments are affected by climate change, habitat alteration, biodiversity loss, over-exploitation of marine resources and pollution from various sources. Monitoring SDG 14 within the EU context thus involves looking into trends in the areas of ocean health, marine conservation and sustainable fisheries. The EU has made moderate progress towards SDG 14 over the assessed five-year period. On the positive side, marine protected areas have increased and fish stocks in EU marine waters (especially in the North-East Atlantic) seem to be recovering due to reduced fishing pressure. However, unsustainable trends are visible in the areas of ocean acidification (as a result of carbon dioxide emissions from human activities) and eutrophication.

Table 14.1: Indicators measuring progress towards SDG 14, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Ocean health				
Global mean surface seawater acidity	2006–2021	– 0.02 %		page 258
	2016–2021	– 0.03 %		
Marine waters affected by eutrophication	2007–2022	4.2 % (1)		page 259
	2017–2022	19.5 % (1)		
Coastal bathing sites with excellent water quality	2011–2021	0.8 %		page 260
	2016–2021	0.1 %		
Marine conservation				
Marine protected areas	Time series too short for long-term assessment		:	page 261
	2016–2021	Observed: 10.3 %		
		Required: 10.5 %		
Sustainable fisheries				
Estimated trends in fish stock biomass	2005–2020	1.3 %		page 262
	2015–2020	2.6 %		
Estimated trends in fishing pressure	2005–2020	– 3.1 %		page 263
	2015–2020	– 3.0 %		

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(1) Trend assessment based on a four-year moving average.

Policy context

Ocean health and marine conservation

The Marine Strategy Framework Directive (MSFD) aims to ensure EU marine waters achieve good environmental status. The MSFD also promotes the establishment of marine protected areas, which, according to the Maritime Spatial Planning Directive (MSPD), have to be considered in maritime spatial planning.

The Water Framework Directive requires Member States to draw up management plans to ensure good ecological status of coastal waters. The EU Bathing Water Directive lays down provisions for monitoring bathing water quality at designated bathing sites.

The UN Biodiversity Conference (COP 15) in 2022 adopted a global biodiversity framework to protect at least 30 % of the global sea areas by 2030. This goal was taken up by the landmark Treaty of the High Seas to protect the ocean.

The EU Biodiversity Strategy for 2030 aims to enhance the protection of marine ecosystems with the objective of achieving good environmental status. At the same time, the Commission's proposal for a Nature Restoration Law aims to restore European habitats in poor condition, including marine ecosystems.

The Habitats Directive contributes to the conservation of marine habitat types and species. The Birds Directive lists bird species that depend on marine habitats.

Making ocean sustainability a reality by 2030 is one of the four pillars of the EU's updated International Ocean Governance Agenda.

To tackle marine pollution, the EU uses a wide set of legal instruments, including the regulations on waste management and prevention, port reception facilities for ship-generated waste and cargo residues and the Directive on Single Use Plastics.

The Zero Pollution Action Plan for Air, Water and Soil sets out key actions to improve water quality by reducing emissions of waste, plastic litter at sea and microplastics.

The EU's new approach for a sustainable blue economy fosters activities that preserve marine ecosystems, reduce pollution and increase resilience to climate change.

The International Convention for the Prevention of Pollution from Ships (MARPOL) aims to protect oceans and seas against pollution caused by maritime transport.

The EU strategy on adaptation to climate change aims to stop ocean acidification and encourage nature-based solutions for sustaining Europe's seas.

Sustainable fisheries

The Common Fisheries Policy (CFP) aims to ensure the long-term sustainability of the sector by ensuring the highest sustainable yield and conserving marine resources.

The Action plan on protecting and restoring marine ecosystems for sustainable and resilient fisheries contributes to the delivery of the EU Biodiversity Strategy for 2030.

The updated EU Arctic policy stresses the utmost importance of conserving and sustainably using Arctic marine living resources, including fish stocks.

Life below water in the EU: overview and key trends

Ocean health

Accomplishing the goal of clean, healthy and productive oceans requires an integrated approach that addresses different pressures. To monitor SDG 14 in the EU context, indicators have been chosen that focus on ocean acidification, eutrophication and bathing water quality. The EU is committed to improving water quality in marine waters and coastal areas in the sea basins around the EU. It aims to do this through a range of land-based and marine policies, and by active engagement in Regional Sea Conventions, the EU sea-basin and macro-regional strategies, and support to its outermost regions. 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. Oceans, however, have continued to acidify as a result of global climate change.

Seawater acidification poses a risk to the marine environment and global climate regulation

Seawater acidification occurs when increased levels of carbon dioxide (CO_2) in the atmosphere are absorbed by the sea. 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. 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 [2].

In 2021, the mean pH level of global ocean surface water reached a new low of

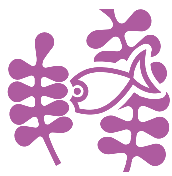
8.049

Before industrialisation, pH levels varied between 8.3 and 8.2. Since 1985, these levels have been declining at a steady rate, with the global mean surface seawater pH reaching an unprecedented low of 8.049 in 2021. EU leadership to mitigate climate change (see SDG 13) is thus of vital importance for reaching the SDG target 14.3 on minimising seawater acidification.

Pollution continues to threaten the marine environment

In addition to acidification, Europe's marine ecosystem remains at threat from organic and chemical pollutants from human activities, as well as marine litter and noise pollution. Excessive nutrient loads from agriculture and municipal waste water — in particular compounds of phosphorus and nitrogen — cause eutrophication, which can lead to problematic algal blooms and oxygen depletion with severe consequences for the marine ecosystem health and biodiversity.

The Copernicus Marine Service monitors all EU sea basins for oxygen depletion and measures anomalies in chlorophyll-a levels as an indicator of eutrophication. The chlorophyll data show strong annual fluctuations in the area of EU marine waters affected. For most of the years in the time series from 2000 to 2022, less than 20 000 square kilometres (km^2) were affected, corresponding to less than 0.4 % of the EU's exclusive economic zone (EEZ). However, in some years — for example 2007, 2008, 2018 and 2022 — more than twice that area was affected, highlighting strong annual variability. In 2022, 54 920 km^2 of EU marine waters were affected by eutrophication, corresponding to



1.0 %

of marine waters in the EU's exclusive economic zones were classified as eutrophic in 2022

1.0 % of the EU's EEZ. Using a smoothed four-year moving average to allow a clearer trend assessment confirms that over the five-year period assessed, from 2017 to 2022, the area affected by eutrophication was on the rise in the EU.

Another threat to the marine environment is chemical pollution from hazardous substances and marine plastic litter and microplastics. Chemical pollution stems 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 bioaccumulate in the food chain. Marine litter, such as plastic bottles and packaging, can also break down into smaller particles through photodegradation, releasing chemicals such as bisphenol A (BPA) and phthalates into the water. All in all, the transfer of toxic chemicals from the litter into the food chain is already taking place at large scale and may ultimately have combined effects on marine life and human health.

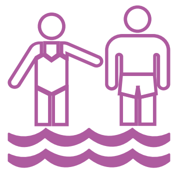
Estimates of plastic litter entering Europe's oceans are highly tentative, due to a lack of data. However, the European Commission estimates that 150 000 to 500 000 tonnes of plastic enter the EU's marine waters every year. Plastic pollution has many harmful effects on the marine environment, for example it may trap or strangle marine animals or be ingested by them. Marine plastic can come from both land- and sea-based sources. Single-use plastics account for about 50 % of all marine litter on European beaches [3]. Based on a Commission initiative, in 2019 the European Parliament and the Council adopted the new European Directive on Single Use Plastics targeting these plastics and fishing gear alongside other plastic products.

Human-induced eutrophication, contaminant concentrations, marine litter and noise pollution are common multiple pressures that must be minimised for marine waters to achieve good environmental status under the Marine Strategy Framework Directive (MSFD) and good ecological status for coastal waters under the Water Framework Directive (WFD).

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

Coastal water quality is affected by land-based pollution from sewage, agriculture run-off, and surface run-off from coastal cities, which can carry hazardous chemicals, nutrients, and plastic litter and microplastics. The resulting pollution exerts significant pressure on aquatic ecosystems and underwater life.

In the EU, recent developments have been quite favourable in this regard, and as a result the water quality of the EU's coastal bathing sites has improved almost continuously since 2011. The most important factors affecting the quality of these waters are microbiological contamination and marine litter. Between 2011 and 2021, the share of European coastal bathing sites with 'excellent' water quality grew more or less steadily, reaching 88.3 % in 2021. It should be noted though that the bathing water indicator provides only a limited view of pollution in European seas because it is focused on the shore and excludes transitional waters or waters further away from the coast [4]. In addition, because the classification of bathing water quality considers datasets reported for the past four bathing seasons, this indicator does not tend to fluctuate greatly from year to year.



88.3 %
of EU coastal water bathing sites had excellent water quality in 2021

Marine conservation

The lives of European citizens depend in many ways on the services marine ecosystems provide, including climate regulation, fish and seafood provision, coastal protection, cultural value, recreation and tourism. Against this backdrop, the European Commission and Member States have taken multiple steps to combat the degradation of aquatic and coastal habitats and biodiversity, which pose a serious threat to human livelihoods, food security and climate stability (5). A crucial step has been the designation of a network of marine protected areas (MPAs) (6), in which some 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 may range from a total ban on fishing, mining or wind power generation, to a more moderate protection regime where economic activity is restricted, for example, allowing only certain types of fishing methods. However, many MPAs still lack comprehensive management plans or permit potentially harmful activities (7). One of the commitments taken by the international community at the 2022 One Ocean summit and the UN COP15 on Biodiversity has been to designate new MPAs to achieve the goal of 30 % of marine space under protection by 2030. This goal is also supported by the landmark Treaty of the High Seas to protect the ocean of the high ambition coalition on Biodiversity Beyond National Jurisdiction (BBNJ) and was already included it in the EU Biodiversity Strategy for 2030. With the ambition to accelerate the implementation of SDG 14 globally, the EU pledged 52 commitments worth up to EUR 7 billion at the UN Ocean Conference in June 2022.

While the extent of marine protected areas has been growing in the EU, the conservation status of marine habitats and species remains unfavourable

A report by the European Environment Agency (EEA) revealed that a high proportion of marine species and habitats across Europe's seas are still in 'unfavourable conservation status' and that the marine ecosystem condition is generally not 'good'. One approach to protect the state of marine ecosystems is the designation of MPAs.

12.1 %
of the EU's marine area were protected in 2021

Between 2012 and 2021, the extent of marine protected areas grew considerably, from 216 742 km² to 611 550 km². Even though this means MPAs represented only 12.1 % of overall EU marine area in 2021, the EU is on track to meet its 30 % target by 2030. Since 2016, MPA coverage has grown significantly in 12 out of the 22 EU Member states with a sea border. The largest relative improvements in MPA size were reported from France, Greece, Cyprus and Spain.

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 how effective the management plans associated with designated MPAs in EU regional seas are. In a special report on the marine environment, the European Court of Auditors concluded that EU MPAs provide limited protection in practice.

To gain a better picture on MPAs, information on their connectivity, status and the implementation of conservation measures is needed. The Biodiversity Strategy for 2030 requires the Commission, in cooperation with Member States and the European Environment Agency (EEA), to advance criteria and guidelines for the identification and designation of new protected areas, as well as for coherent management planning. The European Commission adopted an action plan for protecting and restoring marine ecosystems for sustainable and resilient fisheries. This action plan calls on the EU Member States to take measures for minimising the by-catch of sensitive species and for prohibiting mobile bottom fishing in MPAs, owing to their high impact on seabed species and habitats.

Sustainable fisheries

Besides pollution, the unsustainable use of living resources is the main threat to marine habitats and species in the EU. An ecosystem-based approach to managing Europe's fishing fleets is provided for under the EU's common fishing policy and is required for biodiversity conservation.

Governance of fisheries in EU waters mainly focuses on fair access and sustainable supply. The European Common Fisheries Policy (CFP) aims to ensure that EU fisheries are managed sustainably by setting catch limits at the maximum sustainable yield. It limits the total amount of fish catches and controls who is allowed to fish how, when and where to prevent damage to vulnerable marine ecosystems and preserve fish stocks. Thus, the CFP's ambition and implementation will directly affect whether SDG 14 is achieved, in particular the aim of ending overfishing, destructive and/or illegal, unreported and unregulated fishing practices, and subsidies that encourage these activities. In addition, unsustainable fisheries are a major threat to marine ecosystems through the bycatch of non-target species (such as birds and cetaceans) and seabed degradation. The CFP empowers Members States and the Commission to regulate fisheries in a way that it is also compliant with the obligations of the Birds and Habitats Directives and the MSFD.

Between 2005 and 2020, fishing pressure in EU marine waters decreased by

37 %

Improved sustainability of fisheries in EU marine waters

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 caught by fisheries during one year. For fisheries to be sustainable, fishing mortality should not exceed the maximum sustainable yield value (F_{MSY}), which will provide the largest catch that can be taken from a fish stock over an indefinite period without harming it.

The model based median value of all F/F_{MSY} stock assessments can be used to estimate fishing pressures on fish stocks. Values above 1.0 mean the current fishing mortality exceeds the estimated maximum sustainable yield. The results for EU marine waters mirror the downward trend in overexploited overall stocks and show a 37 % reduction in fishing pressure, from 1.87 in 2005 to 1.17 in 2020. However, this overall figure masks the fact that while fish stocks in the North-East Atlantic (including the Baltic Sea) — where about three-quarters of the EU's catch originates — were on average fished sustainably (F/F_{MSY} median of 0.76 in 2021), the Mediterranean and Black Sea fish stocks were still heavily overfished (F/F_{MSY} median of 1.71 in 2020). If the EU is to meet its own targets for sustainable fisheries, efforts need to be increased substantially in these sea regions.

At the same time, there has been an improvement in the number of stocks fished below F_{MSY} in the North-East Atlantic. In 2003, only 27 % of stocks in this region were fished below F_{MSY}, whereas in 2021, this figure had risen to 74 % ([8]). In turn, however, this means that a quarter of North-East Atlantic stocks were still overfished.

The EU's approach to sustainable fisheries is not limited to respecting MSY. The Marine Strategy Framework Directive requires commercially exploited fish and shellfish populations to have a healthy distribution of age and size.

The status of stocks and their reproductive capacity can be measured and described by fish stock biomass as well as by spawning stock biomass (SSB). Biomass estimates are, 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 ([9]). For this reason, analyses of stock biomass trends should always focus on longer term patterns. There has been an estimated 22 % increase in biomass in EU marine waters between 2005 and 2020. The increase has been stronger in the North-East Atlantic, gaining about 43 %, while stock biomass only grew by only 3 % in the Mediterranean and Black Sea.

Between 2005 and 2020, fish stock biomass in EU marine waters increased by

22 %

Presentation of the main indicators

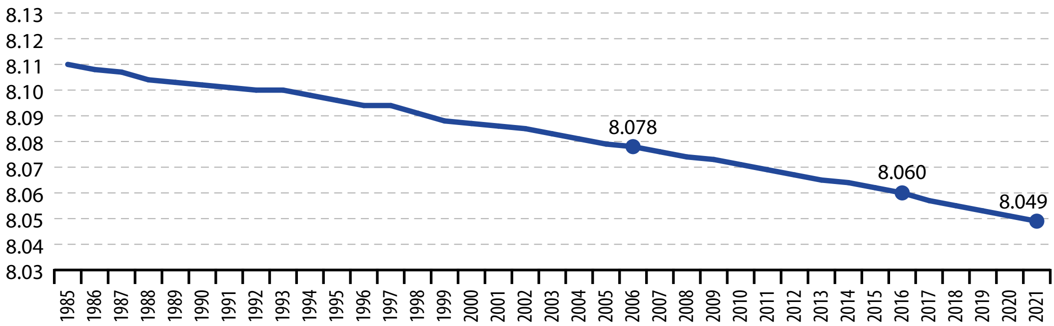
LONG TERM
2006–2021

SHORT TERM
2016–2021

Global mean surface seawater acidity

This indicator shows the global yearly mean surface seawater acidity expressed as pH value. The decline in pH observed on a global scale corresponds to an increase in seawater acidity. This trend is caused by an increase in atmospheric CO_2, which increases the uptake of CO_2 by oceans. This is directly correlated with seawater pH. The Copernicus Marine Service has reconstructed the global yearly mean surface seawater pH from 1985 onwards.

Figure 14.1: Global mean surface seawater acidity, 1985–2021
(pH value)



Note: As the pH scale is logarithmic, the actual increase in acidity is higher. The change in pH value of around −0.01 between 2016 and 2021 means an increase in acidity of about 2 %.

Source: EEA, Copernicus Marine Service (Eurostat online data code: sdg_14_50)

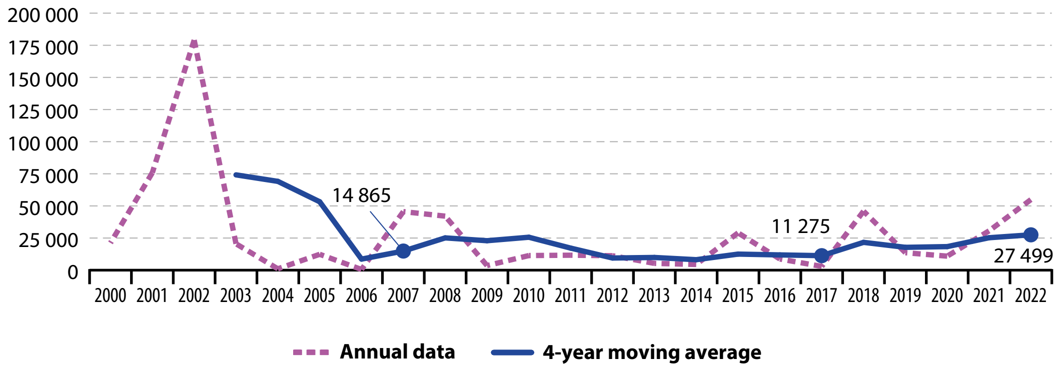
Marine waters affected by eutrophication

LONG TERM
2007–2022

SHORT TERM
2017–2022

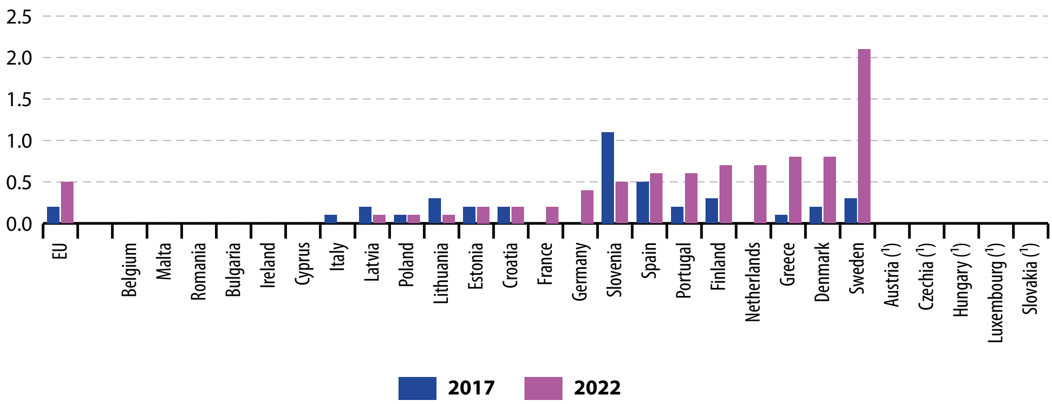
This indicator shows the extent of eutrophic marine waters in the EU's exclusive economic zone (EEZ). An area is classified as eutrophic if chlorophyll-a concentrations, as a proxy, are above the 90th percentile of the 1998–2017 reference base line for more than 25 % of the observation days in a given year. Eutrophication is the process by which an excess of nutrients — mainly phosphorus and nitrogen — leads to increased growth of plant material, particularly planktonic algae, in an aquatic body, resulting in a decrease in water quality. This can, in turn, cause death by hypoxia of aquatic organisms. Anthropogenic activities, such as farming, agriculture, aquaculture, industry and sewage, are the main source of nutrient input in problem areas. The Copernicus Marine Service calculates the indicator from satellite imagery.

Figure 14.2: Marine waters affected by eutrophication, EU, 2000–2022
(km²)



Source: Mercator Ocean International, Copernicus Marine Service (Eurostat online data code: sdg_14_60)

Figure 14.3: Marine waters affected by eutrophication, by country, 2017 and 2022
(% of exclusive economic zone (EEZ))



Note: Data are presented as four-year moving average.
(¹) Not applicable (landlocked country).

Source: Mercator Ocean International, Copernicus Marine Service (Eurostat online data code: sdg_14_60)

LONG TERM 2011–2021 * **

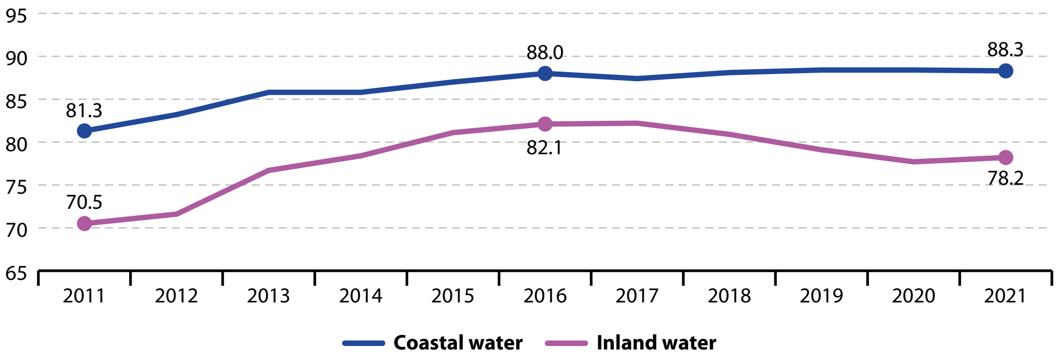
SHORT TERM 2016–2021 * **

* Coastal water sites
** Inland water sites

Bathing sites with excellent water quality

This indicator shows the share of inland and coastal bathing sites with excellent water quality in the EU and is calculated based on the moving average of 16 sampling events in four years to be sure that most weather events are covered. Bathing water quality is assessed according to standards for microbiological parameters (intestinal *Enterococci* and *Escherichia coli*). The Bathing Water Directive (BWD) requires Member States to identify and assess the quality of all inland and marine bathing waters and to classify these waters as 'poor', 'sufficient', 'good' or 'excellent' depending on the levels of faecal bacteria detected. The data presented in this section stem from the European Environment Agency (EEA) and are based on Member States reporting under the BWD.

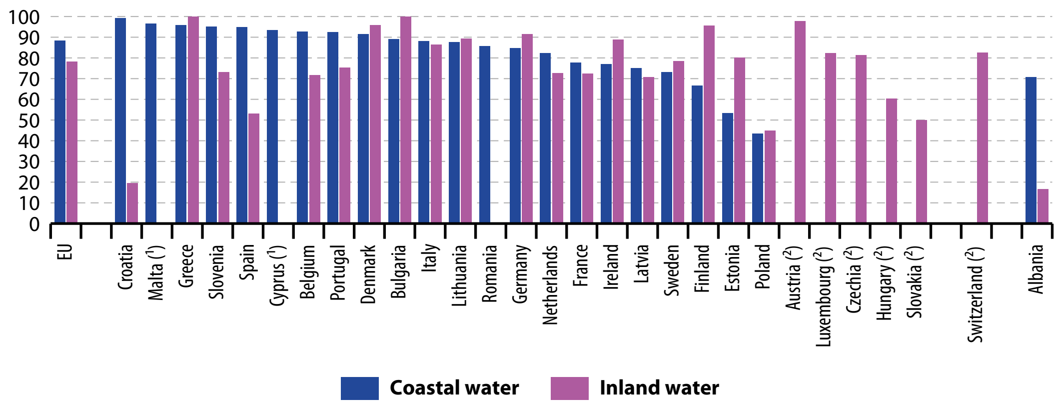
Figure 14.4: Bathing sites with excellent water quality, by locality, EU, 2011–2021
(% of bathing sites with excellent water quality)



Note: EU aggregate refers to 22 Member States for coastal water (no data for landlocked countries) and 25 Member States for inland water (no data for Cyprus and Malta); see Figure 14.5.

Source: EEA (Eurostat online data code: sdg_14_40)

Figure 14.5: Bathing sites with excellent water quality, by locality, by country, 2021
(% of bathing sites with excellent water quality)



(¹) No measurements of inland water bathing sites.
(²) No coastal water bathing sites (landlocked country).

Source: EEA (Eurostat online data code: sdg_14_40)

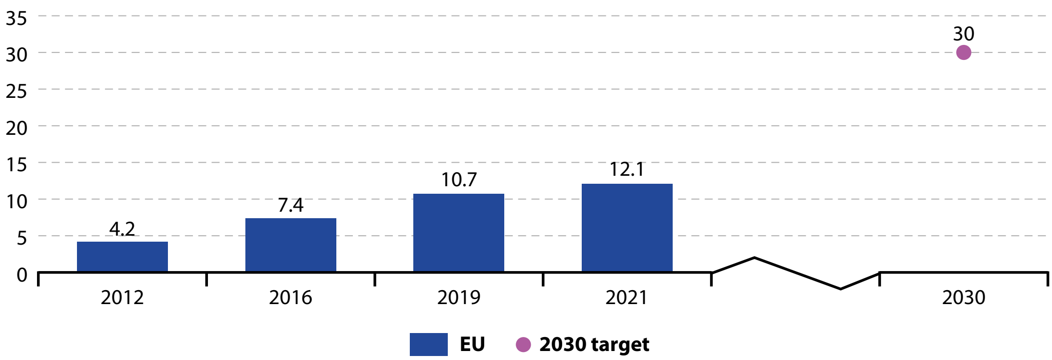
Marine protected areas

LONG TERM
Time series too short

SHORT TERM
2016–2021

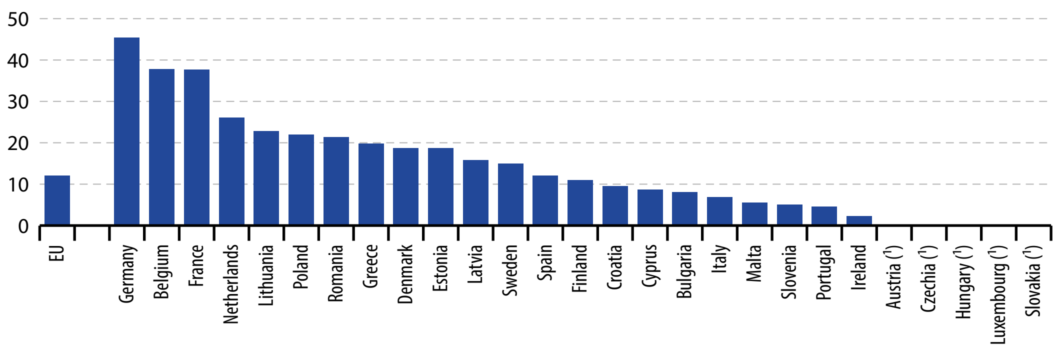
This indicator measures the extent of marine protected areas (MPAs) in EU marine waters. MPAs are biodiversity 'hotspots' and can serve various objectives including species and habitats protection, biodiversity conservation and restoration, but also resource use within defined ecological boundaries. MPAs may also positively impact neighbouring areas. For all MPAs, specific management objectives are set, often consisting of different zones with permitted and non-permitted uses. The indicator comprises nationally designated protected areas and Natura 2000 sites. A nationally designated area is an area protected by national legislation. The Natura 2000 network comprises both marine and terrestrial protected areas designated under the EU Habitats and Birds Directives with the goal to maintain or restore a favourable conservation status for habitat types and species of EU interest. The EU biodiversity strategy for 2030 aims to protect at least 30 % of land and sea in Europe, including both nationally designated sites and Natura 2000 sites. Data provided by the Member States to the Commission are consolidated by the European Environment Agency and collected by European Commission Directorate-General for the Environment.

Figure 14.6: Marine protected areas, EU, 2012–2021
(% of marine area)



Note: Break in time series in 2021. Source: EEA (Eurostat online data code: sdg_14_10)

Figure 14.7: Marine protected areas, by country, 2021
(% of marine area)



(¹) Not applicable (landlocked country). Source: EEA (Eurostat online data code: sdg_14_10)

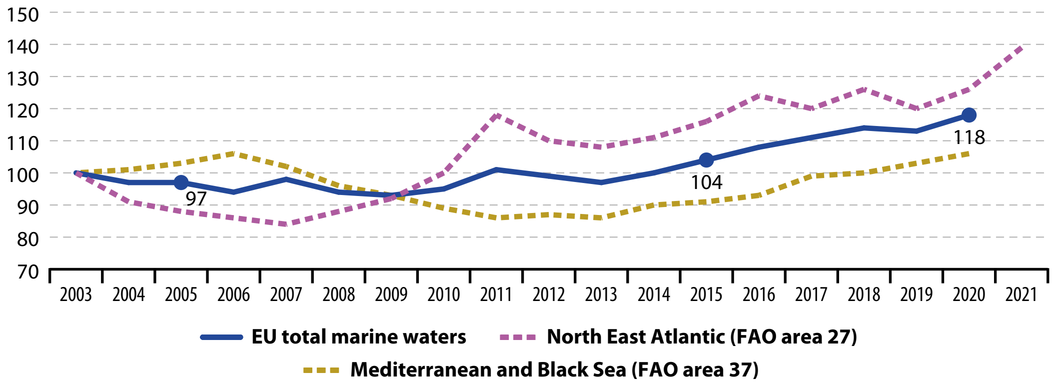
LONG TERM
2005–2020

SHORT TERM
2015–2020

Estimated trends in fish stock biomass

Fish stock biomass is a function of biological characteristics such as abundance and weight and can indicate the status of a fish stock when measured against reference values. This is a model-based indicator that is computed using results from single-species quantitative stock assessments. It shows the median value of fish stock biomass relative to 2003 ([10]). Time series for stock biomass estimates are provided by the International Council for the Exploration of the Sea (ICES).

Figure 14.8: Estimated trends in fish stock biomass, 2003–2021
(index 2003 = 100)



Note: Estimated data; data for Mediterranean and Black Sea (FAO area 37) are only available until 2020.

Source: Joint Research Centre (JRC) — Scientific, Technical and Economic Committee for Fisheries (STECF) (Eurostat online data code: sdg_14_21)

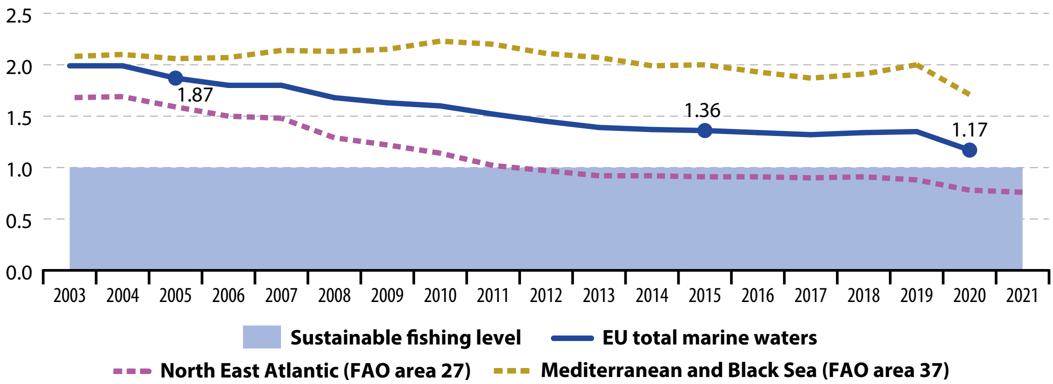
Estimated trends in fishing pressure

LONG TERM
2005–2020

SHORT TERM
2015–2020

To ensure fish stocks are exploited sustainably, the CFP aims to rebuild stocks above levels at which they can produce the maximum sustainable yield (MSY). MSY is determined by the long-term average stock size that allows fishing at this level. The indicator shows the model-based median value of current fishing mortality (F) relative to the estimated maximum sustainable yield (F_{MSY}), expressed with the term F/F_{MSY}. Values below 1 indicate sustainable fishing levels ($F \leq F_{MSY}$). The modelled trend for total EU waters is dominated by the more stable situation in the North East Atlantic, while the heavier fishing pressure in the Mediterranean and the Black Sea has lower weight in the model. Time series data on fishing mortality are provided by the International Council for the Exploration of the Sea (ICES).

Figure 14.9: Estimated trends in fishing pressure, 2003–2021
(model-based median value of fishing pressure (F/F_{MSY}))



Note: Estimated data; data for Mediterranean and Black Sea (FAO area 37) are only available until 2020.

Source: Joint Research Centre (JRC) — Scientific, Technical and Economic Committee for Fisheries (STECF) (Eurostat online data code: sdg_14_30)

Notes

(1) Hoegh-Guldberg, O., R. Cai, E.S. Poloczanska, P.G. Brewer, S. Sundby, K. Hilmi, V.J. Fabry, and S. Jung (2014), *The Ocean,* In: Climate Change (2014), *Impacts, Adaptation, and Vulnerability.* Part B: Regional Aspects, Cambridge University Press, Cambridge, pp. 1655–1731.
(2) European Environment Agency (2017), *Climate change, impacts and vulnerability in Europe 2016 — An indicator-based report*, EEA Report No 1/2017, Copenhagen.
(3) Addamo, A. M., Laroche, P., Hanke, G. (2017), *Top Marine Beach Litter Items in Europe*, Publications Office of the European Union, Luxembourg.
(4) Article 5 of the United Nations Convention on the Law of the Sea (UNCLOS) defines the normal baseline as the low-water mark as marked on large scale-charts by the coastal State.
(5) European Commission (2021), *Assessment of the existing EU policy tools in the field of Sustainable Development Goal (SDG) 14 and other ocean-related Agenda 2030.*
(6) European Environment Agency (2015), *Marine protected areas in Europe's seas — An overview and perspectives for the future*, EEA Report No 3/2015, Copenhagen.
(7) Dureuil M., Boerder K., Burnett K. A., Froese R. and Worm B. (2018), *Elevated trawling inside protected areas undermines conservation outcomes in a global fishing hot spot*, Science 362 (6421), 1403–1407.
(8) Calculations based on: Scientific, Technical and Economic Committee for Fisheries (STECF) (2023), *Monitoring the performance of the Common Fisheries Policy (STECF-Adhoc-23-01),* Publications Office of the European Union, Luxembourg.
(9) Measuring the Effect of Catch Shares, *Has the status of fish stocks changed? Biological indicators: Biomass*.
(10) Model-based indicators are preferable to arithmetic mean estimates, which are sensitive to outliers.

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 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.

SDG 15 is one of the key goals at international level that addresses biodiversity and ecosystems. In the EU, this goal ensures that the health and functioning of terrestrial ecosystems and the delivery of ecosystem services remain a priority, especially in the face of global trends such as population growth, accelerating urbanisation and an increasing need for natural resources. Monitoring SDG 15 in an EU context focuses on trends in ecosystem status, land degradation and biodiversity. The EU has on average slightly moved away from SDG 15 objectives over the past few years. While the EU's terrestrial protected areas and forest area have grown, recent trends for pollutant concentrations in EU rivers have been mixed. Indicators on species' biodiversity show a long-term and continued decline in common birds and grassland butterflies in the EU.

Table 15.1: Indicators measuring progress towards SDG 15, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Ecosystem status				
Share of forest area	Time series too short for long-term assessment		:	page 273
	2015–2018	0.7 %	↗	
Biochemical oxygen demand in rivers (*)	2005–2020	– 0.8 % (1)	↗	SDG 6, page 128
	2015–2020	– 2.7 % (1)	↑	
Phosphate in rivers (*)	2005–2020	– 0.5 % (1)	↗	SDG 6, page 130
	2015–2020	4.4 % (1)	↓	
Land degradation				
Soil sealing index	Assessment not possible due to break in time series in 2018		:	page 274
Estimated severe soil erosion by water	2000–2016	– 0.9 %	↗	page 275
	2010–2016	– 0.1 %	↗	
Biodiversity				
Terrestrial protected areas	Time series too short for long-term assessment		:	page 277
	2016–2021	Observed: 2.0 % Required: 1.7 %		
Common bird index	2006–2021	– 0.5 % (2)	↘	page 278
	2016–2021	– 0.4 % (2)	↘	
Grassland butterfly index	2005–2020	– 1.8 % (1)	↓	page 279
	2015–2020	– 6.6 % (1)	↓	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(*) Multi-purpose indicator.
(1) Data refer to an EU aggregate based on 18 Member States.
(2) Data refer to an EU aggregate that changes over time depending on when countries joined the Pan-European Common Birds Monitoring Scheme.

Policy context

The EU Biodiversity Strategy for 2030 aims to put Europe's biodiversity on a path to recovery by 2030, by establishing a larger EU-wide network of protected areas on land and at sea, launching a nature restoration plan, and introducing measures to enable the necessary transformative change and to tackle the global biodiversity challenge.

The Proposal for a Nature Restoration Law from 2022 is a key element of the EU Biodiversity Strategy for 2030. It calls for legally binding targets to restore degraded ecosystems, in particular those that can best capture and store carbon as well as prevent and reduce the impact of natural disasters.

The EU Birds Directive and the Habitats Directive aim to maintain or restore a favourable conservation status of protected habitats and species, and safeguard their sustainable use and management. The Birds Directive protects all wild bird species and their habitats. The Habitats Directive introduces similar measures but extends its coverage to more than 1 300 other rare, threatened or endemic species of wild animals and plants. In addition, the Habitats Directives covers 233 natural habitat types.

The EU Forest Strategy for 2030 aims to improve the quantity and quality of EU forests and strengthen their protection, restoration and resilience. It includes a roadmap outlining how to achieve the 3 billion additional trees commitment in line with the ecological principles set out in the EU Biodiversity Strategy for 2030. A high proportion of forests are also covered in the Habitats Directive.

The EU Soil Strategy for 2030 sets out a framework and concrete measures for protecting and restoring soils and ensuring they are used sustainably.

The Water Framework Directive imposes restrictions on activities that could pollute and damage Europe's freshwater resources. This legislation is complemented by the EU Drinking Water Directive and Nitrates Directive, which also restrict levels of chemicals and minerals in Europe's freshwater resources.

The LIFE Programme is the EU's key funding instrument for environmental and nature conservation projects. It plays an important role in restoring and safeguarding the condition of terrestrial and freshwater ecosystems.

The Zero Pollution Action Plan for Air, Water and Soil maximises synergies with relevant EU policies, such as limiting soil sealing and urban sprawl.

Europe's Common Agricultural Policy (CAP) requires that utilised agricultural area covered by income support (under the system of conditionality) protects the climate and the environment, including water, soil and biodiversity of ecosystems. The CAP establishes a framework of standards that aim, among other things, to prevent soil erosion, protect biodiversity and landscape. Additional funding is available for farmers through the European Agricultural Fund for Rural Development to implement environmental and climate-related interventions, among other objectives aimed at protecting nature and safeguarding biodiversity.

The revised EU Initiative on Pollinators represents an integrated framework to tackle the causes of pollinator decline, improve knowledge and mobilise all actors across society.

Life on land in the EU: overview and key trends

Ecosystem status

Humans benefit greatly from many ecosystem services, such as clean air, purified water and food provision. In addition, terrestrial ecosystems provide natural resources used in industrial processes and cultural services such as outdoor recreation. Other services that ecosystems offer include protection from natural disasters, such as flooding, and mitigation of the negative effects of climate change. Human activities that degrade ecosystems, including pollution and the overuse of resources, threaten animals and plants and, as a result, the provision of ecosystem services and their benefits to human well-being ([1]).

In 2019, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) released a Global Assessment Report on Biodiversity and Ecosystem Services. The key findings of the report indicate that negative trends in biodiversity and ecosystem services are expected to hinder progress towards the Agenda 2030 and its SDGs. As such, current global conservation and sustainability goals will not be met unless transformative change is implemented. In 2021, the European Commission published the report Accounting for ecosystems and their services in the European Union (INCA), which delivered an integrated system of ecosystem accounts for the EU. The report's key findings suggest that between 2000 and 2018, changes in the extent of most ecosystem types were small in relative terms. However, urban ecosystems saw a significant increase in their extent, indicating a continued expansion of urbanised areas at the expense of semi-natural ecosystems and farmland. The report also suggests that sites in the Natura 2000 network tend to have a higher degree of ecosystem stability than those outside the network ([2]). Reacting to the negative biodiversity trends, the 15th meeting of the Conference of Parties to the UN Convention on Biological Diversity (CBD-COP15) in December 2022 agreed on the 'Kunming-Montreal Global Biodiversity Framework' (GBF). The framework announced four long-term goals related to the 2050 Vision for Biodiversity and included 23 global biodiversity targets to be achieved by 2030. It adopted a global monitoring framework to observe the implementation.

Some types of terrestrial ecosystems (for example, wetlands, heathlands and scrub) and the pressures placed on them (such as invasive species, habitat fragmentation, and noise and light pollution) are not monitored in this report due to data shortcomings. It is therefore important to recognise the limitations in presenting a full and complete picture of Europe's terrestrial ecosystems, the status of which cannot be fully assessed with the long-term datasets currently available.

Organic and phosphate pollution levels in EU rivers have been decreasing 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. While these indicators paint a somewhat favourable picture of the EU's progress in making rivers cleaner over the past 20 years, the short-term developments have been less clear-cut.

In 2020, the biochemical oxygen demand in European rivers amounted to

2.65 mg/L

Biochemical oxygen demand (BOD) in rivers is an indicator of organic water pollution and the effectiveness of water treatment. When a high level of oxygen (O_2) is required for the microbiological decomposition of organic compounds in water there is less O_2 available for other river species. As such, biochemical oxygen demand provides an indication of a river system's overall health. In 2020, the biochemical oxygen demand in EU rivers was 2.65 milligrams (mg) of O_2 per litre (L) of water, representing a 21.1 % reduction from 3.36 mg/L in 2000. Between 2015 and 2020, 11 out of 16 reporting Member States saw reductions in BOD in their rivers, with the EU's levels falling by 12.8 % over this period.

Phosphate (PO_4) in rivers can originate from agricultural production, urban waste water and industrial discharges. Heavy loads of phosphate in rivers can harm the environment by causing biodiversity loss and water eutrophication. European phosphate concentrations have fallen by 17.2 % since 2000, reaching 0.072 mg/L in 2020. Overall, this reduction can be linked to the introduction of measures by national and European legislation, such as the Urban Waste Water Treatment Directive ([3]) and a switch to phosphate-free detergents ([4]).

Declines in phosphate concentrations in EU rivers, however, levelled off in 2011 and have even increased slightly in recent years. Between 2015 and 2020, phosphate concentrations in EU rivers increased by 24.1 %. This tendency may be related to slower reductions in phosphorus emissions from the agricultural sector ([5]) and a rise in phosphorus fertiliser consumption since 2010 in some Member States ([6]). Of all the reporting Member States, rivers in Finland and Sweden on average had the lowest concentrations of phosphate between 2015 and 2020. This is likely to be a result of their low population densities and high levels of waste water collection and treatment. In contrast, relatively high concentrations were found in some Member States with high population densities and/or intensive agriculture. The high and increasing short-term values observed, particularly in Bulgaria, Belgium and Lithuania, may lead to freshwater eutrophication ([7]).

0.072 mg/L

of phosphates were present in European rivers in 2020

The share of forest area in the EU is growing

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. In 2018, forests and other wooded land covered 43.5 % of the EU's total area. As a proportion of total land area, the EU's share of forests and other wooded land increased slightly, by 0.9 percentage points, between 2015 and 2018.

Currently, forests are affected by pressures from habitat degradation and loss, invasive alien species, pollutants and excessive nutrient loads, as well as climate change ([8]), which has resulted in persistent droughts and heatwaves. This means that EU efforts to retain and sustainably manage its forested areas are increasingly important. According to the latest assessment of the State of Nature in the EU, only around 14 % of forest habitats at the EU level are in good conservation status, while the rest are in poor and bad conservation status. Nevertheless, the report shows that forest habitats have experienced the most improvement compared with other habitats.

43.5 %

of the EU area was covered by forest and other wooded land in 2018

Land degradation

Land degradation is linked to the long-term functionality and biological productivity of land or land-based ecosystems. It is a complex phenomenon bringing together several elements, including soil degradation and the capacity of land to support water resources, biodiversity and primary productivity ([9]). 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 ([10]). Not all of these threats to soil quality can be covered in this indicator set, so the analysis has been limited to changes in imperviousness and soil erosion by water.

Land take is continuing to increase in the EU

Land take is described as the process of transforming agricultural, forest and other semi-natural and natural areas into artificial areas. It often means an increase in settlement area over time, usually at the expense of agricultural areas. Land take can be monitored using the Copernicus CORINE land cover datasets, which have been published every six years since 2000. Net land take includes the 'reverse land take process', which occurs when artificial areas are returned to non-artificial land categories through recultivation and renaturalisation. According to data from the European Environment Agency (EEA), net land take in the EU amounted to 11 845 square kilometres (km^2) between 2000 and 2018, equalling an average annual net land take of 658 km^2. Even though the rate of net land take has fallen by more than 40 % over the three observation periods, there is still a long way to go to meet the 'no net land take' policy target for 2050.

In 2018, the area of sealed soil surface in the EU was 1.8 %

Soil sealing is the most intense form of land take and is essentially an irreversible process. It destroys or covers soils with layers of partly or completely impermeable artificial material such as asphalt and concrete ([11]). Increases in the area of sealed land can be used to estimate land-use change for human use or intensification. The area of sealed soil in the EU has increased in all Member States since 2006. Between 2006 and 2015, the total area covered with impervious materials grew by 2 983 km^2 or 4.5 %. Between 2015 and 2018, it increased by 3.7 %. A substantial but unknown share of the increase is due to improvements in methodology and spatial resolution of the underlying remote-sensing data. According to the newest methodology, 1.8 % of the EU was covered with impervious materials in 2018.

In all three observation periods, EEA data show that agricultural areas were the most likely to be converted to artificial surfaces, reducing the amount of land available for food and feed production. This results in increased fragmentation and loss of natural habitats. Furthermore, artificial areas create plots that are isolated from functional ecosystems and can lead to increased flood risk and more frequent rapid surface runoff ([12]). Moreover, sealed lands cannot store carbon and thereby contribute to greenhouse gas emissions and climate change.

Fewer areas in the EU are now at risk of severe soil erosion by water

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. Maintaining soil health ensures the continued provision of these benefits. While soil erosion by water poses the biggest threat to EU soils, multiple erosion processes, including water, tillage, wind and crop harvesting erosion contribute to soil degradation simultaneously or subsequently. Co-occurring processes may enhance and trigger each other or lead to self-reinforcing feedback loops, and thus enhance the severity of soil degradation ([13]).

Severe soil erosion by water is estimated to affect more than 5 % of the non-artificial erodible land area in the EU and is responsible for 52 % of total soil loss in Europe ([14]). Overall, water erosion is the major cause of soil displacement, both quantitatively (51 % of the total displacement) and spatially (57 % of the total area). Tillage erosion is in second place (36 %), followed by wind erosion (10 %) and crop harvesting (2.7 %) ([15]). There are hotspots in some European regions, in particular in the Mediterranean and continental areas, mainly due to a combination of steep topography and high rainfall erosivity ([16]). Modelling results up to 2070 show that water erosion could rise by up to two-thirds compared with today ([17]). In addition, there are other erosion processes that can be attributed to about 40 % of the soil displacement in EU arable landscapes. Because of their ephemeral nature, these processes often occur almost unnoticed without leaving substantial geomorphic evidence but may act as a trigger and enhance soil degradation. Accordingly, new evidence suggests that countries

Between 2010 and 2016, the estimated land area at risk of severe soil erosion by water in the EU fell by 0.9 %

such as Denmark and the Netherlands, which are generally considered to be little affected by soil erosion, are very prone to wind erosion risks ([18]).

However, efforts to address and mitigate soil erosion by water have helped to reduce the estimated EU land area at risk of severe soil erosion (soil loss of more than 10 tonnes per hectare per year) by water, from 198 607 km^2 in 2010 to 196 853 km^2 in 2016, equalling a decrease of 0.9 %. This represents a considerable slowdown compared with the period 2000 to 2010, when the estimated area at risk fell by 12.6 %.

Between 2010 and 2016, arable land experienced the greatest reduction in area at risk of soil erosion compared with other land types ([19]). Here, improvements due to the implementation of agro-environmental standards under the Common Agricultural Policy (CAP) may have helped to reduce the mean rate of soil loss by water erosion. This includes the application of soil conservation 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 ([20]).

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/Special Areas of Conservation (SCIs/SACs; Habitats Directive). These sites, collectively known as the Natura 2000 network, should enable protected habitats and species to reach favourable conservation status in the EU. The Natura 2000 network is complemented by nationally designated terrestrial protected areas that are established under each Member State's national framework. The EU Biodiversity Strategy for 2030 includes a target for at least 30 % of EU land to be protected.

Despite an increase in protected areas, many terrestrial habitats and species in the EU have not reached 'favourable conservation status'

26.0 %
of the EU land area was protected in 2021

In 2021, the EU and its Member States protected 1 074 254 km^2 of terrestrial habitats, covering 26.0 % of the EU's land area. This is an increase of almost 35 % compared with 2013, when only 798 550 km^2, equalling 18.9 % of the EU's area, were protected. Even though the designation of new protected areas has slowed in recent years, the EU appears to be on track to meet its 30 % target by 2030 if it can maintain the pace observed between 2016 and 2021. The Member States with the largest protected areas relative to country size in 2021 included Luxembourg (55.8 %), Bulgaria (41.0 %) and Slovenia (40.5 %). In contrast, the shares of protected areas were smallest in Finland (13.3 %) and Ireland (13.9 %).

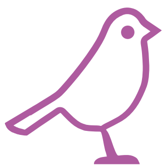
The latest assessment of the State of Nature in the EU reveals that many species and habitats of European interest are still in unfavourable conservation status. The conservation status of habitats did not improve over the reporting period (2013–2018), but for species other than birds a slight improvement can be stated. Across the EU, about a quarter (27 %) of species assessments and 15 % of the habitat assessments show a good conservation status, compared with 23 % and 16 %, respectively, reported in the assessment from 2015. The majority of the assessments considered, however, have a poor or bad conservation status at EU level (63 % for species and 81 % for habitats). Moreover, a look at the trends reveals that only 6 % of species assessments and 9 % of habitat assessments showed improving trends in the reporting period, while 35 % and 36 % indicated a deteriorating trend at EU level, respectively.

The State of Nature report also shows that fish and molluscs continue to have a particularly high proportion of species (around 30 % each) with a bad conservation status, while reptiles and vascular plant species have the highest proportion of good conservation status (36 % and 40 % respectively). Habitats in dunes, bogs, mires and fens have the highest share of assessments showing a bad conservation status (around 50 % each). Grasslands, which contain some species-rich habitats that are particularly suitable for pollinator species, also have one of the highest proportions of bad conservation status assessments (49 %).

Common birds and grassland butterflies are in long-term decline in the EU

Changes in land use and overuse of ecosystems can harm biodiversity. Because biodiversity supports all ecosystem functions and contributes to their capacity to provide ecosystem services ([21]), it needs to be monitored so it can be preserved and restored. 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.

The EU common bird index tracks the population abundance and diversity of a selection of common bird species in the EU, further typified by common forest and common farmland bird species. The index shows an 11.8 % decline of common birds and a dramatic 35.9 % fall in the abundance of common farmland birds between 1990 and 2021. Common forest birds have declined slightly, with their index falling 4.7 % over the whole period. 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, such as pesticides, and changes in ploughing times for cereals have also affected common farmland birds, disrupting breeding and reducing available food sources, in particular insect populations ([22]). Shorter-term trends show a continued decline for all common birds and common farmland bird populations. For all common birds there has been a 6.8 % decline since 2006 and a 2.2 % decline since 2016, while common farmland birds continued to show an even stronger decline, by 20.2 % since 2006 and 7.8 % since 2016.



Between 2006 and 2021, common bird populations in the EU declined by

6.8 %

Butterflies, which are among the most common plant pollinators, are well suited to acting as signals of environmental and habitat health. They occur in a wide range of habitat types and are sensitive to environmental change. The SPRING (Strengthening Pollinator Recovery through INdicators and monitorinG) and ABLE (Assessing Butterflies in Europe) projects have generated a butterfly indicator for widespread species of grassland butterflies.

The grassland butterfly index is based on data from 18 Member States, measuring the population trends of 17 butterfly species within the national Butterfly Monitoring Schemes ([23]). According to estimates from these monitoring efforts, butterfly populations declined by 29.5 % between 1991 and 2020, signifying a dramatic loss of grassland biodiversity. While moderate climate warming aided a temporary increase in butterfly populations between 2002 and 2012, the increasing frequency of extreme temperatures led to even stronger declines in the subsequent years ([24]). Overall, grassland butterfly populations thus fell by 24.3 % between 2005 and 2020, and by 28.9 % between 2015 and 2020. The main causes for this decline can be attributed to land use changes in rural areas, in particular stemming from intensification of agricultural grasslands, and deposition of nitrogen in protected areas, mainly in north-western Europe. In the rest of Europe, grassland abandonment is a threat ([25]). Butterflies show a decline in non-urban areas but they have been stable within urban areas across Europe, suggesting that parks and other green parts of the urban environment are becoming increasingly suitable and are being managed in a butterfly-friendly way. However, the situation of butterflies in urban areas requires further research, as different studies offer contrasting findings ([26]).

Between 2005 and 2020, grassland butterfly populations in Europe shrank by

24.3 %

Presentation of the main indicators

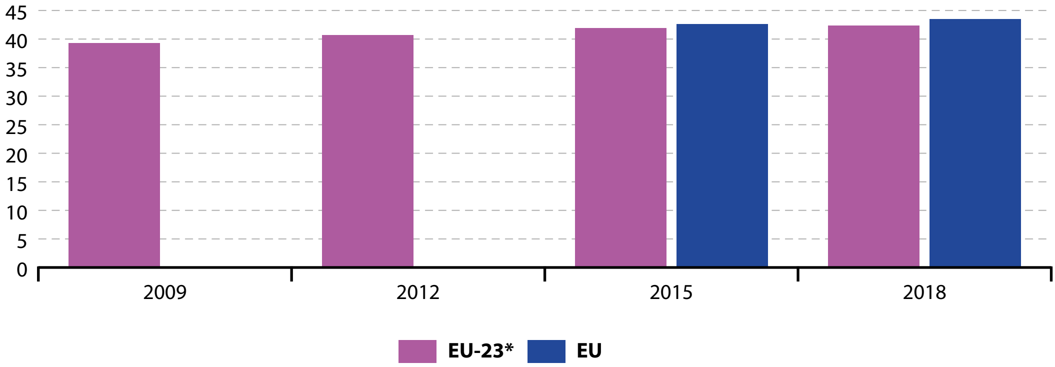
Share of forest area

This indicator measures the proportion of forest ecosystems in comparison to the total area. Data used for this indicator is derived from the Land Use and Cover Area frame Survey (LUCAS). The LUCAS land use and land cover classification has been adapted to FAO forest definitions, distinguishing between the categories 'forests' and 'other wooded land' ([27]).

X **LONG TERM**
Time series too short

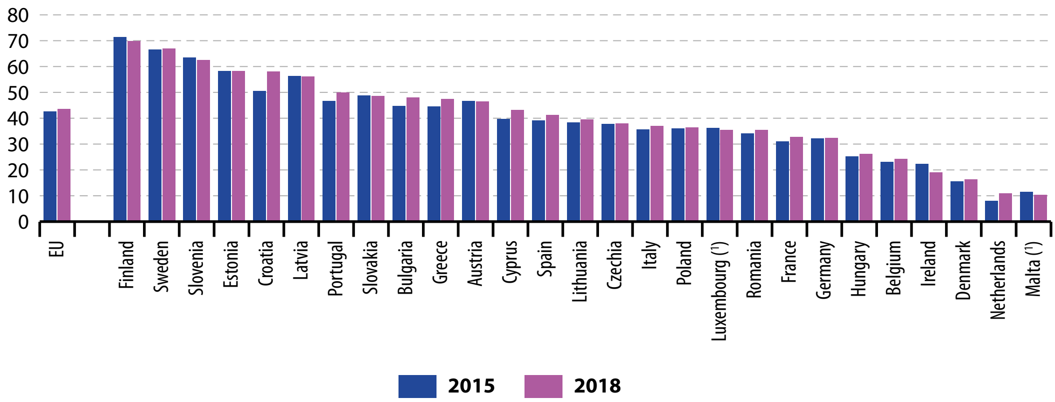
SHORT TERM
2015–2018

Figure 15.1: Share of forest area, EU, 2009–2018
(% of total area)



Note: EU-23* refers to an aggregate including the UK but excluding Bulgaria, Croatia, Cyprus, Malta and Romania.
Source: Eurostat (online data code: sdg_15_10)

Figure 15.2: Share of forest area, by country, 2015 and 2018
(% of total area)



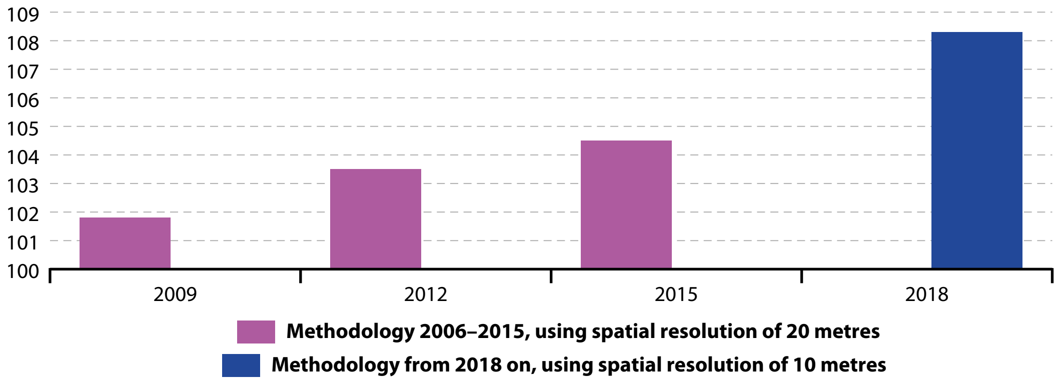
([1]) Data have lower reliability.
Source: Eurostat (online data code: sdg_15_10)

X Assessment of progress not possible due to break in time series in 2018

Soil sealing index

This indicator estimates the increase in sealed soil surfaces with impervious materials due to development and construction (such as buildings, constructions and laying of completely or partially impermeable artificial material, such as asphalt, metal, glass, plastic or concrete). This provides an indication of the rate of soil sealing, which occurs when there is a change in land use towards artificial and urban land use [28]. The indicator builds on data from the Imperviousness High Resolution Layer (a product of the Copernicus Land Monitoring Service).

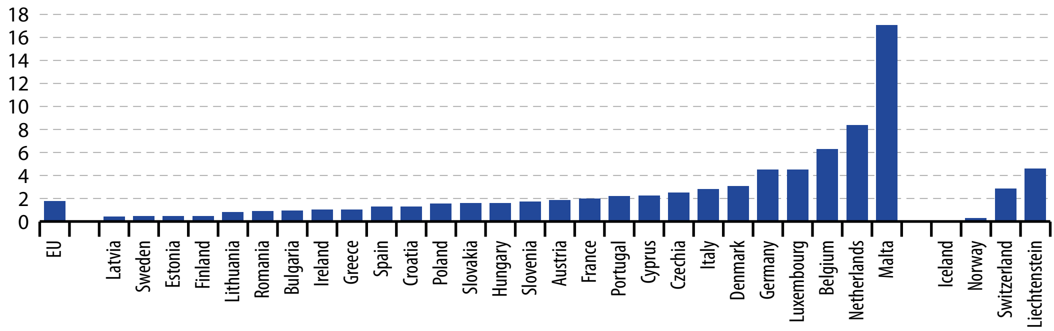
Figure 15.3: Soil sealing index, EU, 2006–2018
(index 2006 = 100)



Note: Break in time series in 2018.

Source: EEA (Eurostat online data code: sdg_15_41)

Figure 15.4: Soil sealing, by country, 2018
(% of total surface)



Source: EEA (Eurostat online data code: sdg_15_41)

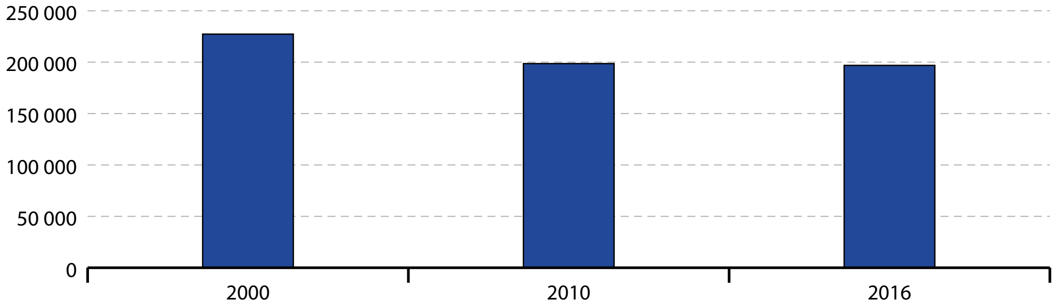
Estimated severe soil erosion by water

LONG TERM 2000–2016

SHORT TERM 2010–2016

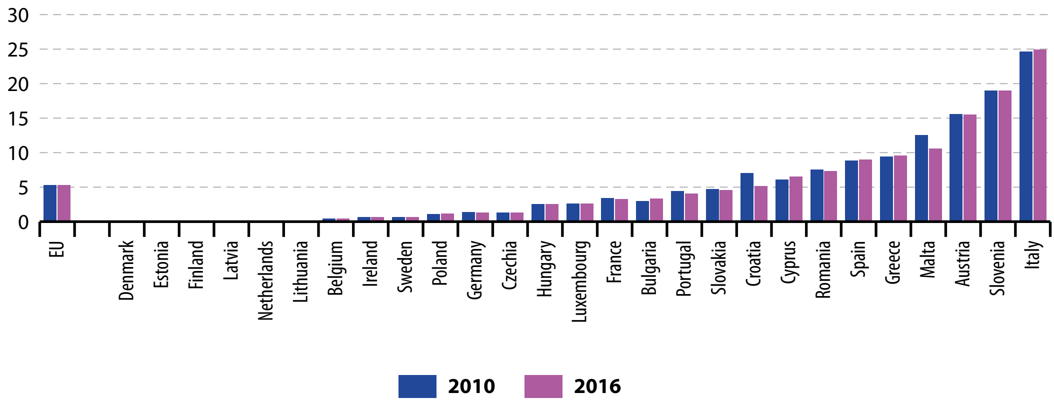
This indicator estimates the area potentially affected by severe erosion by water such as rain splash, sheet-wash and rills (soil loss greater than 10 tonnes/hectare/year). This area is expressed in square kilometres (km²) and as a percentage of the total non-artificial, erodible area in the country. These numbers are estimated from soil-erosion susceptibility models and should not be taken as measured values. Data presented in this section stem from the JRC's soil erosion database.

Figure 15.5: Estimated severe soil erosion by water, EU, 2000, 2010 and 2016
(km²)



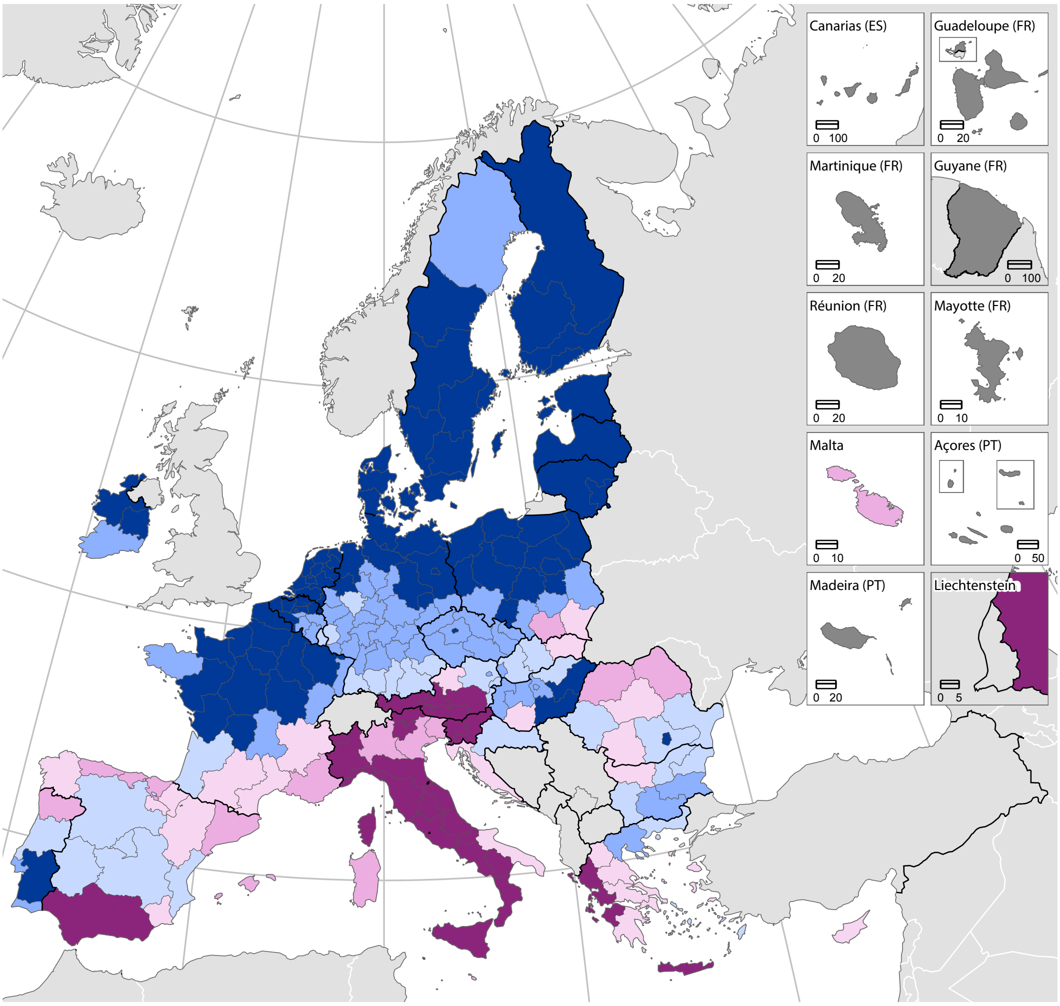
Source: Joint Research Centre (Eurostat online data code: sdg_15_50)

Figure 15.6: Estimated severe soil erosion by water, by country, 2010 and 2016
(% of the non-artificial erodible area)



Source: Joint Research Centre (Eurostat online data code: sdg_15_50)

Map 15.1: Estimated severe soil erosion by water, by NUTS 2 region, 2016
(% of the non-artificial erodible area)



EU = 5.31

Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 03/2023

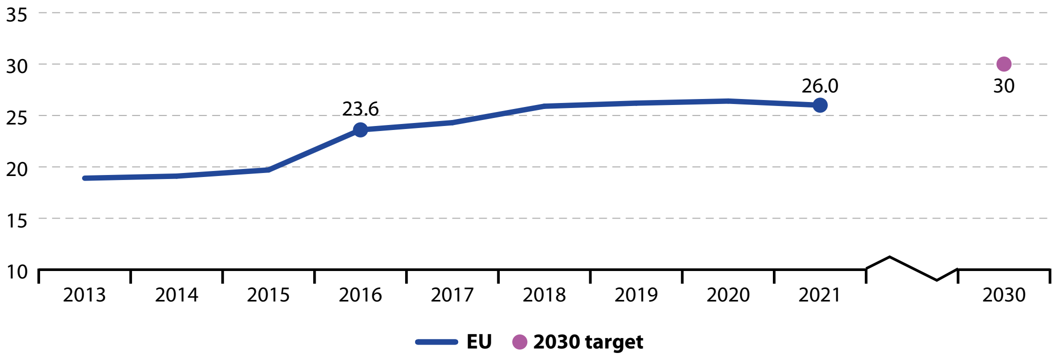
- < 0.5
- 0.5 – < 2.5
- 2.5 – < 5.31
- 5.31 – < 10
- 10 – < 15
- ≥ 15
- Data not available

Source: Eurostat (online data code: AEI_PR_SOILER)

Terrestrial protected areas

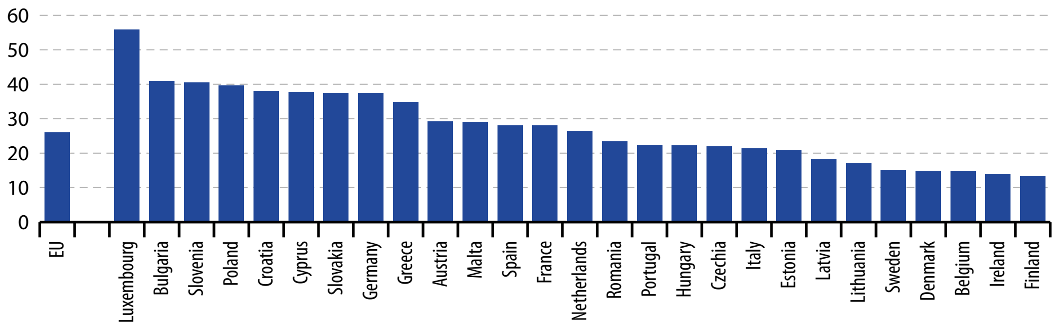
This indicator measures the extent of terrestrial protected areas, comprising nationally designated protected areas and Natura 2000 sites. A nationally designated area is an area protected by national legislation. The Natura 2000 network comprises both marine and terrestrial protected areas designated under the EU Habitats and Birds Directives with the goal to maintain or restore a favourable conservation status for habitat types and species of EU interest. The EU biodiversity strategy aims to protect at least 30 % of land and sea in Europe including both nationally designated sites and Natura 2000 sites. Data provided by the Member States to the Commission are consolidated at least yearly by the European Environment Agency and the European Topic Centre on Biological Diversity (EEA ETC/BD) and collected by European Commission Directorate-General for the Environment.

Figure 15.7: Terrestrial protected areas, EU, 2013–2021
(% of total area)



Note: Break in time series in 2021.
Source: EEA (Eurostat online data code: sdg_15_20)

Figure 15.8: Terrestrial protected areas, by country, 2021
(% of total area)



Source: EEA (Eurostat online data code: sdg_15_20)

LONG TERM
* ** 2006–2021

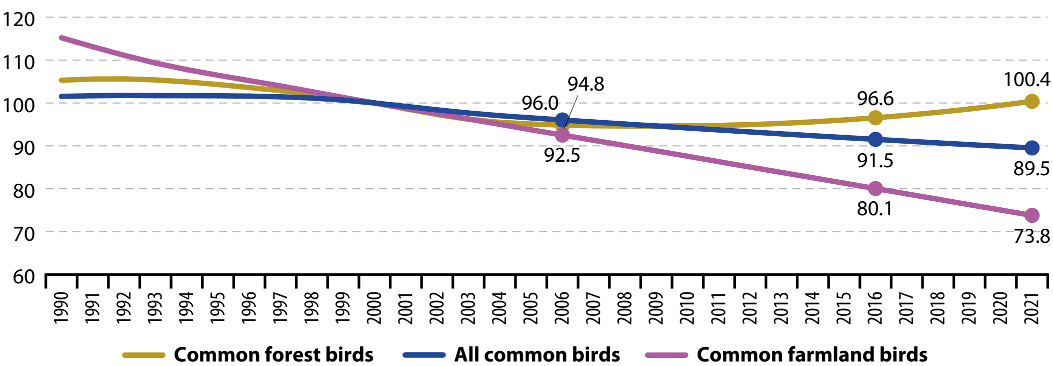
SHORT TERM
* ** 2016–2021

* All common birds
** Common farmland birds

Common bird index

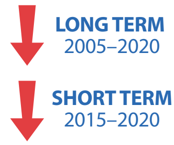
This indicator is an index integrating the abundance and diversity of a selection of common bird species associated with specific habitats for feeding and nesting. Rare species are excluded, although some species common in certain Member States may be considered rare in others. Three groups of bird species are represented: common farmland species (39 species), common forest species (34 species) and all common bird species (168 species; including farmland species, forest species and common generalists' species). The indices are presented for EU-aggregates only and with smoothed values. The index draws from data produced by the European Bird Census Council and its Pan-European Common Bird Monitoring Scheme programme. Data coverage has increased from nine to 25 EU Member States over the period 1990 to 2014, with 26 countries covered as of the reference year 2015 ([29]).

Figure 15.9: Common bird index, by type of species, EU, 1990–2021
(index 2000 = 100)



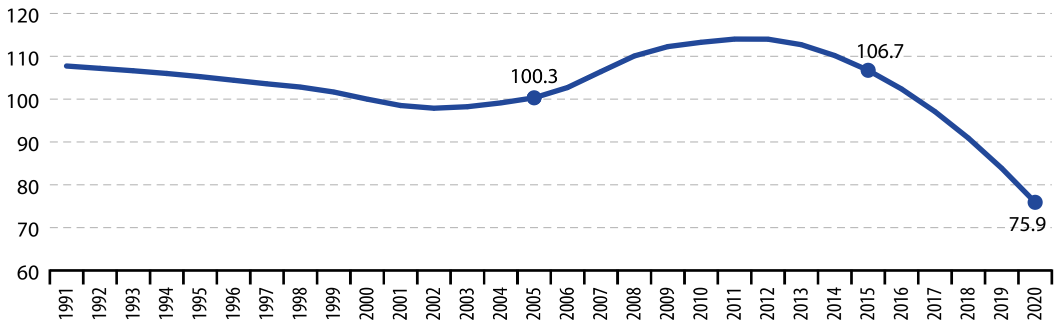
Note: The EU aggregate changes depending on when countries joined the Pan-European Common Birds Monitoring Scheme.
Source: European Bird Census Council (EBCC)/BirdLife/Statistics Netherlands (Eurostat online data code: sdg_15_60)

Grassland butterfly index



This indicator measures the population trends of 17 butterfly species at EU-level. The index is presented as an EU-aggregate only and with smoothed values. The indicator is based on data from 18 EU Member States (Austria, Belgium, Czechia, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Romania, Slovenia, Spain, Sweden), but with a limited number of long time-series available ([30]). The data are integrated and provided by the Butterfly Conservation Europe, European Butterfly Monitoring Scheme partnership, SPRING project. For technical details see the European Grassland Butterfly Indicator 1990–2020 report.

Figure 15.10: Grassland butterfly index, EU, 1991–2020
(index 2000 = 100)



Source: Butterfly Conservation Europe, European Butterfly Monitoring Scheme partnership, SPRING project (Eurostat online data code: sdg_15_61)

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([28]) European Environment Agency (2020), *Imperviousness and imperviousness change*.

([29]) Eurostat (2020), *Metadata Biodiversity (env_biodiv)*.

([30]) Van Swaay, C.A.M., Dennis, E.B., Schmucki, R., Sevilleja, C.G., Åström, S., Balalaikins, M., Barea-Azcón, J.M., Bonelli, S., Botham, M., Cancela, J.P., Collins, S., De Flores, M., Dapporto, L., Dopagne, C., Dziekanska, I., Escobés, R., Faltynek Fric, Z., Fernández-García, J.M., Fontaine, B., Glocovcan. P., Gracianteparaluceta, A., Harpke, A., Harrower, C., Heliölä, J., Houard, X., Kolev, Z., Komac, B., Kühn, E., Kuussaari, M., Judge, M., Lang, A., Lysaght, L., Maes, D., McGowan,D., Mestdagh, X., Middlebrook, I., Monasterio, Y., Monteiro, E., Munguira, M.L., Musche, M., Olivares, F.J., Õunap, E., Ozden, O., Pavlíčko, A., Pendl, M., Pettersson, L.B., Rákosy, L., Roth, T., Rüdisser, J., Šašić, M., Scalercio, S., Settele, J., , Sielezniew, M., Sobczyk-Moran, G., Stefanescu, C., Švitra, G., Szabadfalvi, A., Tiitsaar, A., Titeux, N., Tzirkalli, E., Ubach, A., Verovnik, R., Vray, S., Warren, M.S., Wynhoff, I., & Roy, D.B. (2022), *European Grassland Butterfly Indicator 1990-2020 Technical report*. Butterfly Conservation Europe & SPRING/eBMS & Vlinderstichting report VS2022.039.

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.

Peace and security are a prerequisite for sustainable development, in line with the integrated nature of the 2030 Agenda. Peace, security, democracy, the rule of law and respect for fundamental rights are also founding values of the EU. Monitoring SDG 16 in an EU context focuses on personal security, access to justice and trust in institutions within the EU. Over the past few years, the EU has become a safer and more just place to live, as deaths due to homicide or assault and perceived occurrence of crime, violence and vandalism have fallen considerably. Government expenditure on law courts has increased significantly and more than half of Europeans consider their justice system to be independent. The assessment of corruption in the EU has remained stable. However, challenges persist in some areas of access to justice and trust in the EU institutions has fluctuated over the past few years.

Table 16.1: Indicators measuring progress towards SDG 16, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Peace and personal security				
Standardised death rate due to homicide	2005–2020	– 3.9 %	↑	page 290
	2015–2020	– 2.8 %	↑	
Population reporting crime, violence or vandalism in their area	2010–2020	– 2.0 %	↑	page 292
	2015–2020	– 4.1 %	↑	
Access to justice				
General government total expenditure on law courts	2006–2021	2.7 %	↑	page 293
	2016–2021	3.7 %	↑	
Perceived independence of the justice system: very or fairly good	Time series too short for long-term assessment		:	page 294
	2017–2022	– 0.4 %	↘	
Trust in institutions				
Corruption Perceptions Index	2012–2022	0.2 %	↗	page 295
	2017–2022	0.0 %	→	
Population with confidence in EU institutions	2008–2023	– 0.7 % (1)	↘	page 296
	2018–2023	– 0.4 % (2)	↘	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.
(1) Trend refers to worst performance among the three institutions (European Central Bank).
(2) Trend refers to worst performance among the three institutions (European Parliament).

Policy context

Peace and personal security

In 2020, the European Commission set out a new EU Security Union Strategy for the period from 2020 to 2025. It maps out the main actions, tools and measures to ensure European security, both in the physical and digital worlds, and across all parts of society. The strategy identified three priorities: fighting organised crime and human trafficking, countering terrorism and radicalisation, and fighting cybercrime.

Access to justice

Improving the effectiveness of justice systems in Member States has been identified as a key component for structural reforms in the European Semester. With the help of the EU justice scoreboard, the EU monitors the efficiency, quality and independence of Member States' justice systems.

Trust in institutions

With the adoption of the Stockholm Programme, the Commission has been given a political mandate to measure efforts in the fight against corruption and to develop a comprehensive EU anti-corruption policy.

In EU legislation, the fight against corruption is covered by the 1997 Convention on fighting corruption involving officials of the EU or officials of Member States and the 2003 Framework Decision on combating corruption in the private sector.

Peace, justice and strong institutions in the EU: overview and key trends

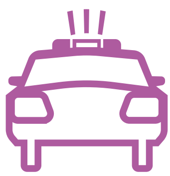
Peace and personal security

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.

0.7
deaths per 100 000 people in the EU in 2020 were caused by homicides

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 2005, reaching a rate of 0.7 deaths per 100 000 people in 2020. This corresponds to a reduction of 45 % over the assessed 15-year period. In the short-term, however, the trend has stagnated, remaining at roughly the same level since 2016. The decrease 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 2020, 10.7 % of the population felt affected by these issues, which is 2.4 percentage points less than in 2010 and the lowest value recorded.



10.7 %
of the EU population reported crime, violence or vandalism in their area in 2020

The perception of being affected by crime, violence or vandalism differs across socio-demographic subgroups of the EU population and across degrees of urbanisation. While 13.7 % of the population living in households with an equivalised disposable income below the poverty threshold — set at 60 % of the national median equivalised income — felt affected by such problems in 2020, this was only the case for 10.2 % of the population living in households above the poverty threshold. Similarly, in 2020 the perceived occurrence of crime, violence or vandalism in cities (16.3 %) was almost three times higher than in rural areas (5.8 %) and almost twice as high as in towns and suburbs (8.4 %) ([1]).

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 2020 was eight times higher in the most affected country (19.1 % of the population in Bulgaria) than in the least affected country (2.4 % in Croatia). However, country differences in this subjective indicator need to be treated with caution. 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 Ireland, which has the lowest death rate 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, which had rather low shares of people feeling affected by crime, violence or vandalism in their neighbourhood. It should, however, be acknowledged that this comparison may not capture the full picture, as other forms of crime than homicide also contribute to perceived insecurity.

Men are more likely to die from homicide, while women are more likely to be victims of violence in their homes and sexual assaults

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 2020, compared with 0.4 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) and UN Women shows that intimate partner- or family-related homicides accounted for 56 % of women who were killed in 2021 globally, while this was only the case for 11 % of male homicides. Overall in Europe, according to an earlier UNODC report, almost a quarter (24 %) of homicides in 2017 (compared with 18 % globally) were at the hands of an intimate partner or were family-related ([3]). In 2021, 51 % of all femicides were partner- or family-related. Despite an overall decrease in female intimate partner and family-related homicides in Europe since 2010, the number increased in the first pandemic year (2020) in some parts of Europe, specifically in western Europe ([4]). 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.

Data from Eurostat's official crime statistics on intentional homicide and sexual offences show that women are much more likely to be a victim of such crimes than men. In 2020, 49 out of 100 000 women were victims of sexual assault, and 28 out of 100 000 women were victims of rape. The rates were significantly lower for men, with 9 out of 100 000 experiencing sexual assault and 3 out of 100 000 having been victims of rape ([5]). Moreover, women are about twice as likely as men to be a victim of intentional homicide by family and relatives or their intimate partner. In 2020, 0.4 out of 100 000 women were victims of such homicide, compared with only 0.2 per 100 000 men ([6]).

The prevalence of violence varies greatly across the EU. However, cross-country comparisons of the crime statistics should be made with caution. Comparability is affected by different legal definitions concerning offenders and victims, different levels of police efficiency and the stigma associated with disclosing cases of violence against women ([7]) (see the chapter on SDG 5 'Gender equality' on page 103 for more information on gender-based violence).

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'. Because there is no single agreed way to measure the quality of justice systems, the budget actually spent on law courts is used here as a proxy for this topic. 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 to monitor this aspect.

EU expenditure on law courts has grown over the past few years

In the EU, general government expenditure on law courts has risen by 48.7 % since 2006, reaching EUR 47.9 billion in 2021. In per capita terms, this corresponds to a 44.8 % increase from EUR 73.9 per inhabitant in 2006 to EUR 107.0 per inhabitant in 2021. However, when viewed as a share of total government expenditure, spending on law courts remained stable at 0.7 % between 2006 and 2019.

In 2020 and 2021, the share decreased to 0.6 % of total expenditure, largely due to increases in other government expenditure to mitigate the economic and social impact of the COVID-19 pandemic. In relation to GDP, expenditure on law courts has also been stable since 2006, at 0.3 % of GDP [8]. Interestingly, in 2020 seven Member States increased their expenditure on law courts in relation to their GDP, and only one country reduced it.

48 billion

Euro were spent by governments on law courts across the EU in 2021

Just above half of the EU population considers the justice system to be sufficiently independent

In 2022, 53 % of EU inhabitants rated the independence of the courts and judges in their country as 'very good' or 'fairly good', which is one percentage point lower than in 2017. At the same time, the perception of 'very bad' or 'fairly bad' fell by one percentage point, from 36 % to 35 %. Interference or pressure from government and politicians was the most likely reason for a bad rating of perceived independence of courts and judges [9]. The opinion about the independence of courts and judges varied significantly across Member States. While in Finland, Denmark and Austria, the majority of respondents (88 %, 84 % and 83 %, respectively) rated the independence of their courts and judges as 'very good' and 'fairly good', this was only the case for 21 % of respondents in Croatia, 24 % in Poland and 25 % in Slovakia [10].

53 %

of the EU population rated the independence of courts and judges in their country as very or fairly good in 2022

Age, employment status, education and experience with the justice system seem to have a notable effect on the perception of the independence of the justice system. In 2022, 59 % of 15- to 24-year-old respondents in the EU gave a good rating, compared with 50 % of respondents aged 55 or over. Employees (59 %) were more likely to give a good rating than self-employed people (52 %), manual workers (51 %) or people who were not employed (51 %). The longer people remained in education, the more likely they were to rate the independence of courts and judges as good: 57 % of those who completed education aged 20 or above gave a good rating, compared with 40 % of those who completed education aged 15 or younger. 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 (51 %) and bad (45 %) than those who had not been to court (53 % good, 35 % bad) [11].

Trust in institutions

Effective justice systems are a prerequisite for the fight against corruption. Corruption causes social harm, especially when it is instrumentalised by organised crime groups to commit other serious crimes, such as trafficking in drugs and humans. Corruption can undermine trust in democratic institutions and weaken the accountability of political leadership. It also inflicts financial damage by lowering investment levels, hampering the fair operation of the internal market and reducing public finances.

Corruption perception in the EU has stagnated since 2016

Because there is no meaningful way to assess absolute levels of corruption in countries or territories on the basis of hard empirical evidence, capturing the perceptions 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), the EU scored 64 on a scale from 0 (highly corrupt) to 100 (very clean) in 2022. This was 21 points more than the world average score of 43. The EU's score has remained stable at this level since 2016, indicating no significant changes in the perception of corruption in Europe.

On a country level, EU countries continued to rank among the least corrupt globally in 2022 and made up more than a half of the top 10 least-corrupt countries globally. Within the EU, northern European countries achieved the best scores, with Denmark, Finland and Sweden leading the ranking. At the other end of the scale, Hungary, Bulgaria and Romania showed the highest levels of perceived corruption across the EU, ranking at positions 77, 72 and 63, respectively, on the global list (comprising 180 countries in total) ([12]).

64
out of 100 was the EU's Corruption Perception Index score in 2022

Country rankings in the CPI largely correspond to analogous answers collected in 2022 through a Eurobarometer survey ([13]), in which Denmark, Finland and Sweden were identified as having the least 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 to be a widespread national problem. For the EU as a whole, this translates into an average of 68 % of respondents sharing this perception in 2022. This share has fallen by 8 percentage points since 2013. On the other hand, the proportion of the population who think corruption in their country is rare reached a high of 28 % in 2022.

There is 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 16.10). 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 ([14]).

Trust in EU institutions has been fluctuating over the past few years

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.

Trust in three of the EU's main institutions — the European Parliament, the European Commission and the European Central Bank — has experienced periods of growth and decline throughout the past two decades. All three institutions saw a drop in trust in 2020, but data for 2023 indicate they have regained some ground, with 49 % of the population expressing confidence in the European Parliament and 46 % in both the European Commission and the European Central Bank. Compared with 2022, however, trust in the Commission and the Parliament decreased by 1 percentage point, while trust in the European Central Bank increased by 2 percentage points. Throughout the years, the European Parliament has remained the most trusted of the three institutions surveyed.

49 %
of the EU population expressed trust in the European Parliament in 2023, making it the most trusted of the main EU institutions

The economic crisis may have played a role in the decline in trust in EU institutions observed between 2007 and 2015, while the COVID-19 pandemic might have influenced the drop in 2020. High inflation levels due to pressure on energy, food and other commodity prices as a result of Russia's aggression against Ukraine might have caused a decline in trust in the European Central Bank in 2022 and in the Commission and Parliament in 2023. However, surveys show that citizens tend to only have a general idea about the EU and lack a deeper knowledge of the role and powers of the EU institutions, making confidence in the EU more dependent on contextual information than on actual governance ([15]).

Presentation of the main indicators

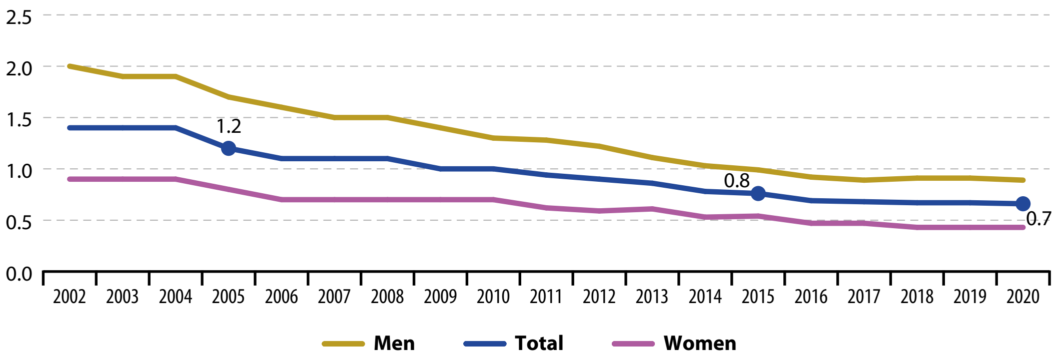
LONG TERM
2005–2020

SHORT TERM
2015–2020

Standardised death rate due to homicide

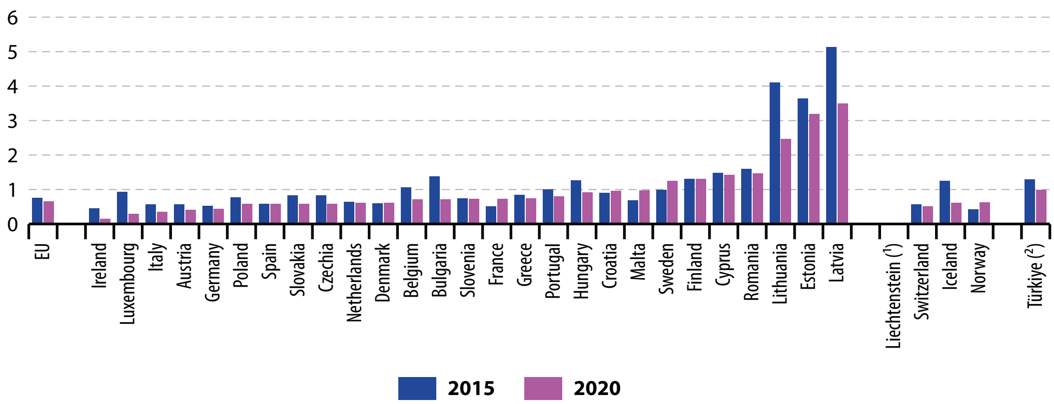
This indicator tracks deaths due to homicide and injuries inflicted by another person with the intent to injure or kill by any means, including 'late effects' from assault (International Classification of Diseases (ICD) codes X85 to Y09 and Y87.1). It does not include deaths due to legal interventions or war (ICD codes Y35 and Y36). The data are presented as standardised death rates, meaning they are adjusted to a standard age distribution in order to measure death rates independently from the population's age structure.

Figure 16.1: Standardised death rate due to homicide, by sex, EU, 2002–2020
(number per 100 000 persons)



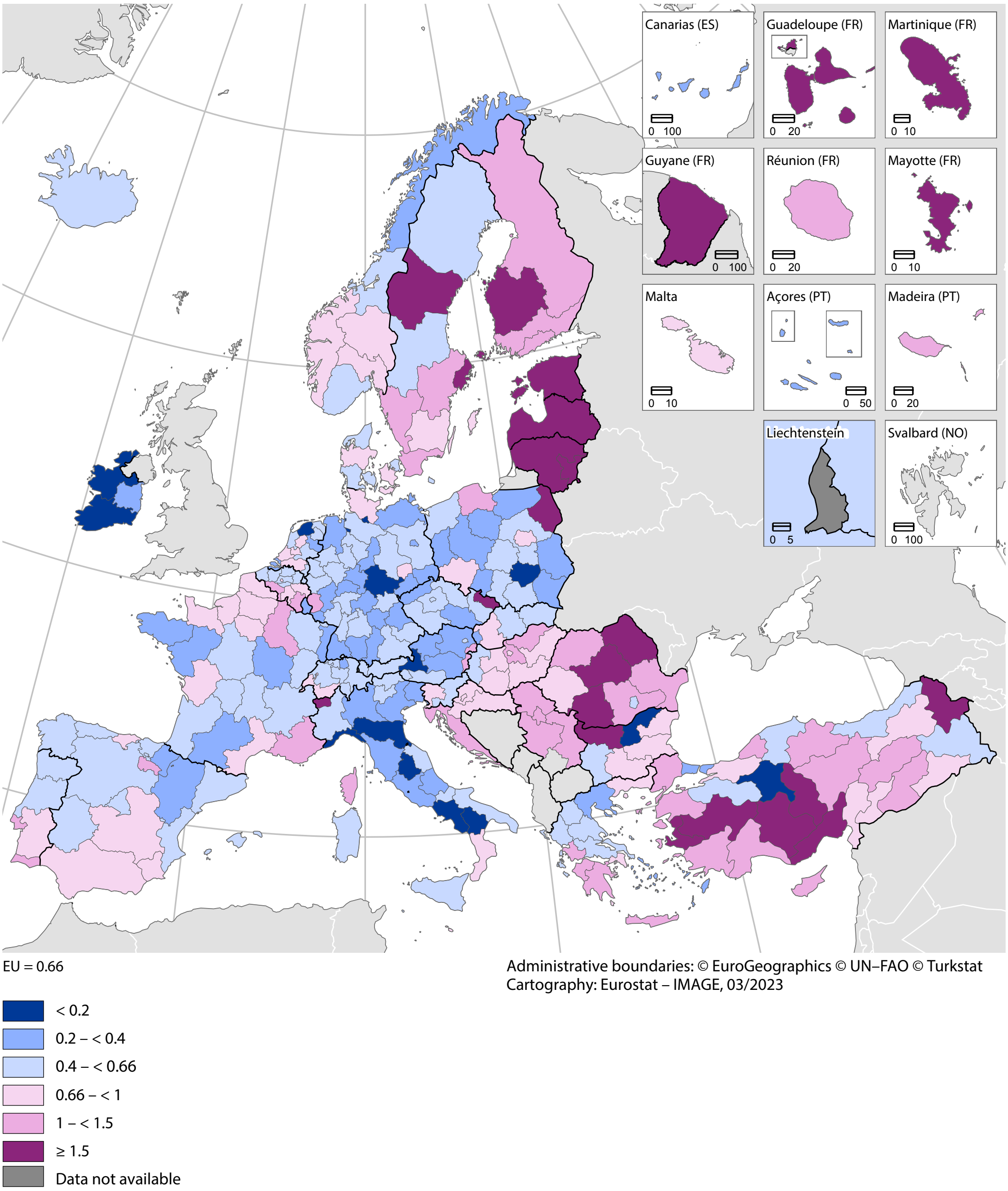
Note: Data for 2002–2010 are estimated; data for 2018 and 2019 are provisional.
Source: Eurostat (online data code: sdg_16_10)

Figure 16.2: Standardised death rate due to homicide, by country, 2015 and 2020
(number per 100 000 persons)



(¹) 2017 data (instead of 2015).
(²) 2019 data (instead of 2020).
Source: Eurostat (online data code: sdg_16_10)

Map 16.1: Standardised death rate due to homicide, by NUTS 2 region, 2020
(number per 100 000 persons)



Administrative boundaries: © EuroGeographics © UN–FAO © Turkstat
Cartography: Eurostat – IMAGE, 03/2023

Note: 2017 data for Dytiki Makedonia (EL); 2018 data for Prov. Luxembourg (BE) and Valle d'Aosta/Vallée d'Aoste (IT); 2019 data for Northern and Western (IE), Cantabria and Comunidad Foral de Navarra (ES), Zeeland (NL), Região Autónoma dos Açores (PT) and all regions in Türkiye.
Source: Eurostat (online data code: HLTH_CD_ASDR2)

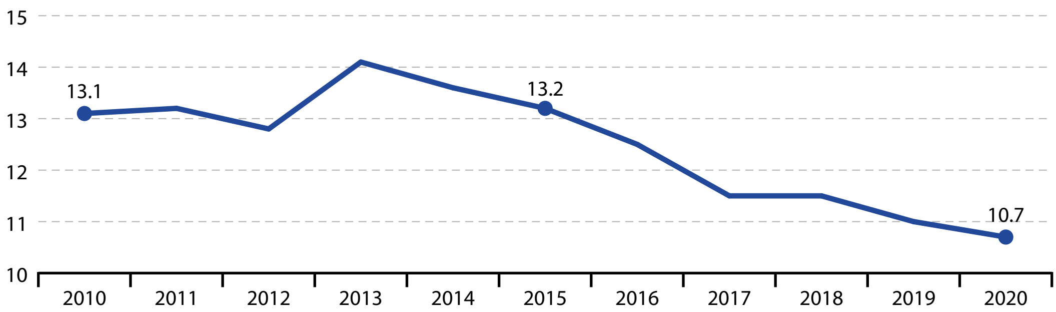
LONG TERM
2010–2020

SHORT TERM
2015–2020

Population reporting crime, violence or vandalism in their area

This indicator shows the share of the population who reported facing the problem of crime, violence or vandalism in their local area. This describes the situation where the respondent feels crime, violence or vandalism in the area to be a problem for the household, although this perception is not necessarily based on personal experience. The data stem from the EU Statistics on Income and Living Conditions (EU-SILC).

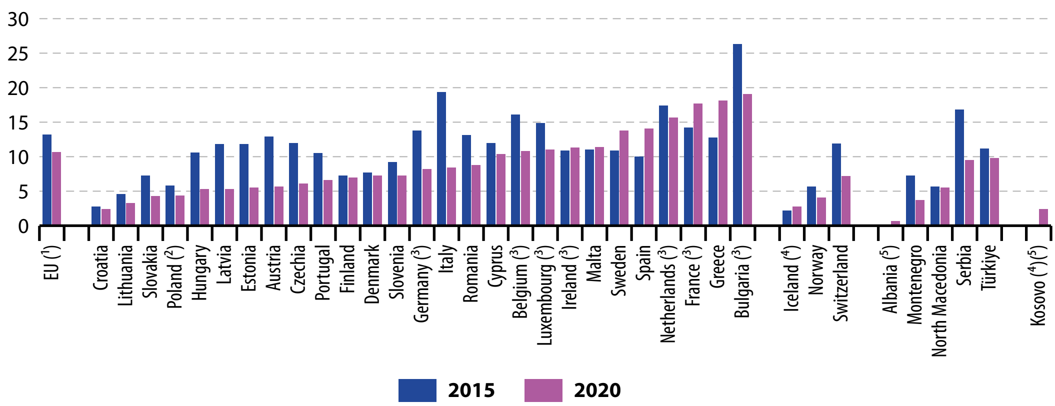
Figure 16.3: Population reporting occurrence of crime, violence or vandalism in their area, EU, 2010–2020
(% of population)



Note: Estimated data. The frequency of the data collection has been changed from annually to every three years, meaning no data were collected for 2021 and 2022.

Source: Eurostat (online data code: sdg_16_20)

Figure 16.4: Population reporting occurrence of crime, violence or vandalism in their area, by country, 2015 and 2020
(% of population)



([1]) Estimated data.
([2]) 2019 data (instead of 2020).
([3]) Break(s) in time series between the two years shown.
([4]) 2018 data (instead of 2020).
([5]) No data for 2015.

Source: Eurostat (online data code: sdg_16_20)

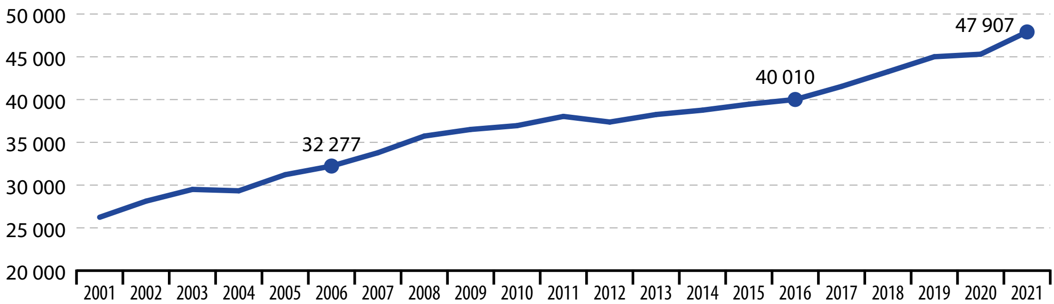
General government total expenditure on law courts

LONG TERM
2006–2021

SHORT TERM
2016–2021

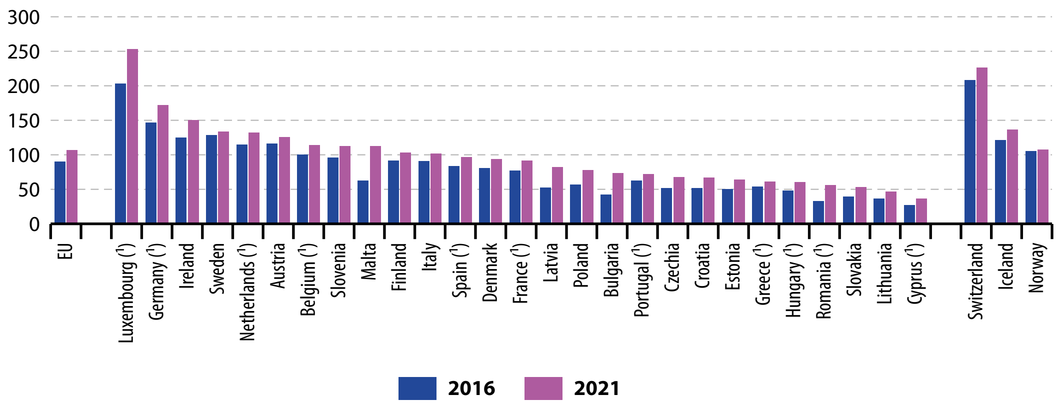
This indicator refers to the general government total expenditure on law courts. It includes expenditure on the administration, operation or support of civil and criminal law courts and the judicial system, including enforcement of fines and legal settlements imposed by the courts. The operation of parole and probation systems, legal representation and advice on behalf of government or on behalf of others provided by government in cash or in services are also taken into account. Law courts include administrative tribunals, ombudsmen and the like, but excludes prison administrations.

Figure 16.5: General government total expenditure on law courts, EU, 2001–2021
(million EUR)



Source: Eurostat (online data code: sdg_16_30)

Figure 16.6: General government total expenditure on law courts, by country, 2016 and 2021
(EUR per inhabitant)



([1]) 2021 data are provisional and/or estimated.
Source: Eurostat (online data code: sdg_16_30)

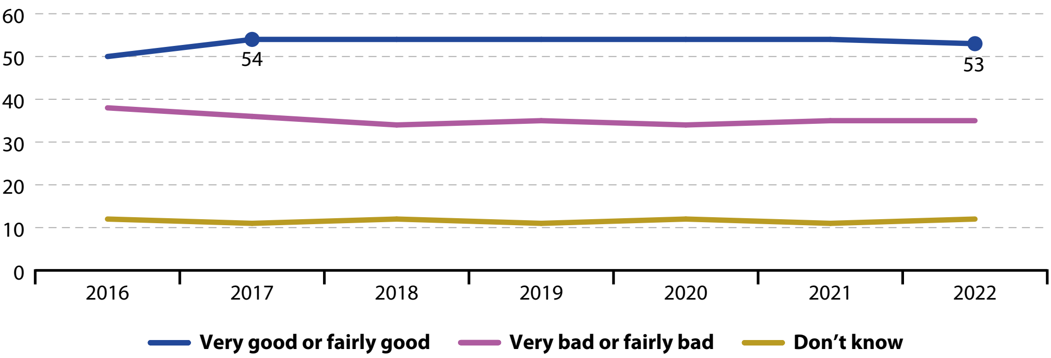
LONG TERM Time series too short

SHORT TERM 2017–2022

Perceived independence of the justice system: very or fairly good

This indicator is designed to explore respondents' perceptions about the independence of the judiciary across EU Member States, looking specifically at the perceived independence of the courts and judges in a country. Data on the perceived independence of the justice system stem from annual Flash Eurobarometer surveys, which started in 2016 on behalf of the European Commission's Directorate-General for Justice and Consumers.

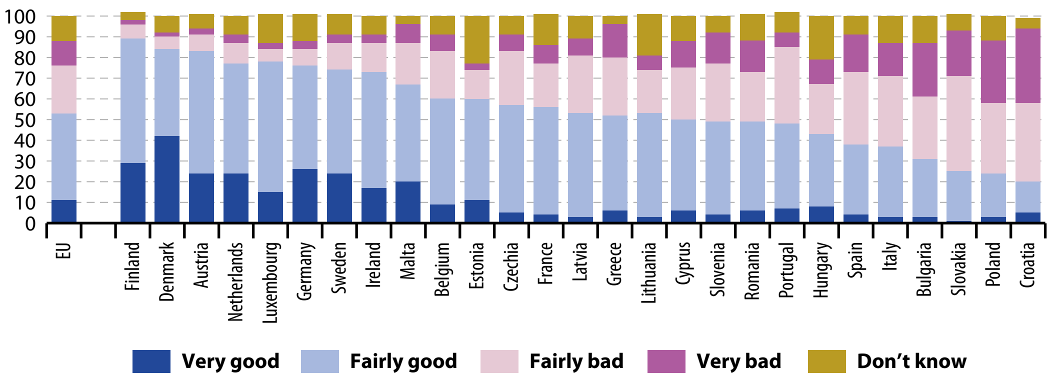
Figure 16.7: Perceived independence of the justice system, EU, 2016–2022
(% of population)



Note: 2016–2020 data are estimated; break in time series in 2021.

Source: European Commission services, Eurobarometer (Eurostat online data code: sdg_16_40)

Figure 16.8: Perceived independence of the justice system, by country, 2022
(% of population)



([1]) Estimated data.

Source: European Commission services, Eurobarometer (Eurostat online data code: sdg_16_40)

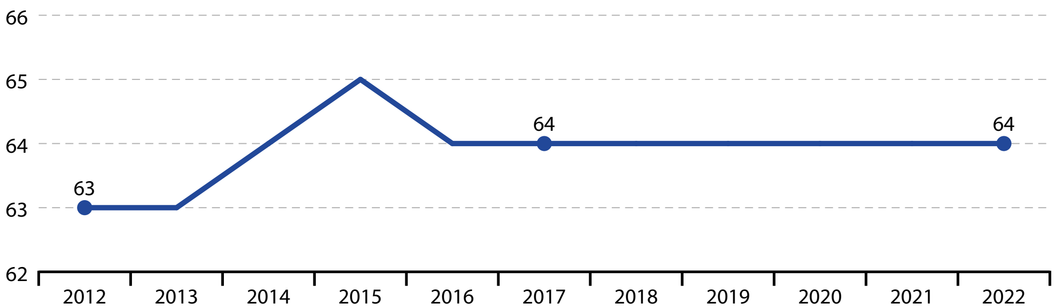
Corruption Perceptions Index

LONG TERM 2012–2022

SHORT TERM 2017–2022

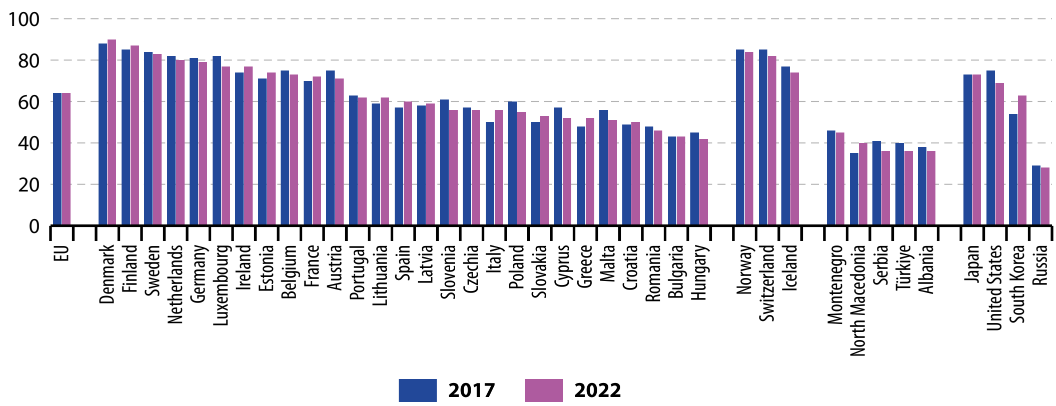
This indicator is a composite index based on a combination of surveys and assessments of corruption from 13 different sources and scores. It ranks countries based on how corrupt their public sector is perceived to be, with a score of 0 representing a very high level of corruption and 100 representing a very clean country. The sources of information used for the Corruption Perception Index (CPI) are based on data gathered in the 24 months preceding the publication of the index. The CPI includes only sources that provide a score for a set of countries/territories and that measure perceptions of corruption in the public sector. For a country/territory to be included in the ranking, it must be included in a minimum of three of the CPI's data sources. The CPI is published by Transparency International.

Figure 16.9: Corruption Perceptions Index, EU, 2012–2022
(score scale of 0 (highly corrupt) to 100 (very clean))



Source: Transparency International (Eurostat online data code: sdg_16_50)

Figure 16.10: Corruption Perceptions Index, by country, 2017 and 2022
(score scale of 0 (highly corrupt) to 100 (very clean))



Source: Transparency International (Eurostat online data code: sdg_16_50)

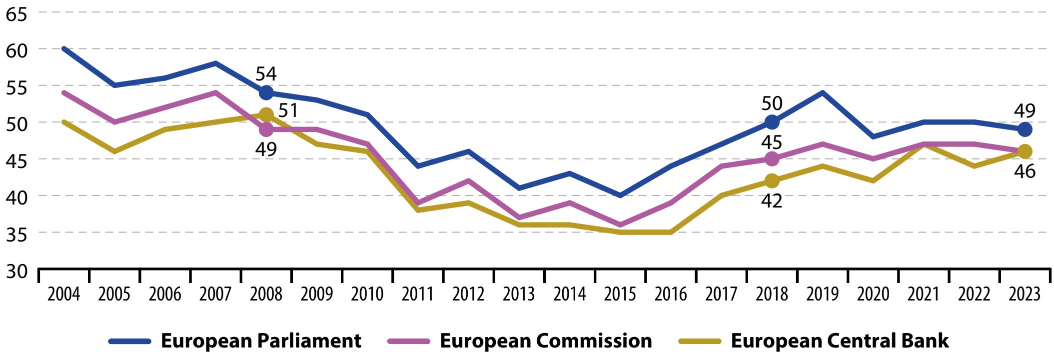
LONG TERM
2008–2023

SHORT TERM
2018–2023

Population with confidence in EU institutions

This indicator measures confidence among EU citizens in three EU institutions: the European Parliament, the European Commission and the European Central Bank. It is expressed as the share of positive opinions (people who declare that they tend to trust) about the institutions. Citizens are asked to express their confidence levels by choosing the following alternatives: 'tend to trust', 'tend not to trust' and 'don't know' or 'no answer'. The indicator is based on the Eurobarometer, a survey which has been conducted twice a year since 1973 to monitor the evolution of public opinion in Member States.

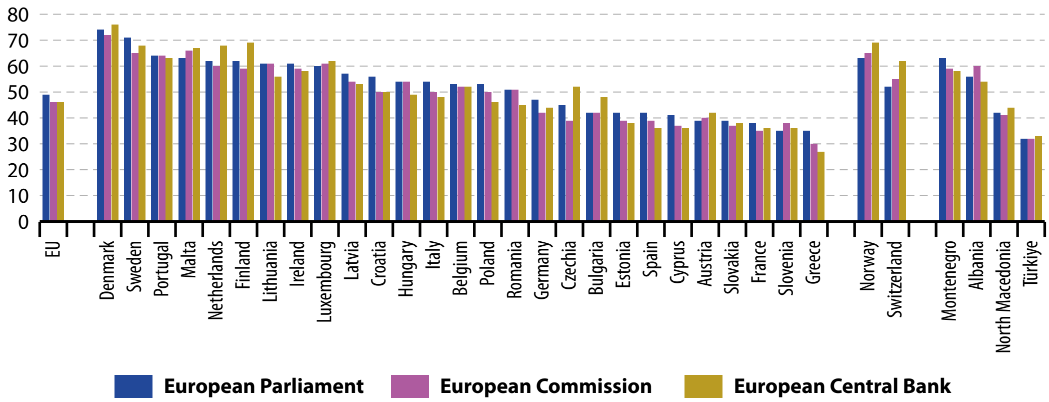
Figure 16.11: Population with confidence in EU institutions, by institution, EU, 2004–2023
(% of population)



Note: 2004–2017 data are estimated.

Source: European Commission services, Eurobarometer (Eurostat online data code: sdg_16_60)

Figure 16.12: Population with confidence in EU institutions, by institution, by country, 2023
(% of population)



Source: European Commission services, Eurobarometer (Eurostat online data code: sdg_16_60)

Notes

(1) Source: Eurostat (online data code: ilc_mdvdw06).
(2) See for example: Rader, N. (2017), *Fear of Crime*, Oxford Research Encyclopedia of Criminology.
(3) UNODC (2018), *Global study on homicide 2018, Gender-related killing of women and girls*, United Nations Office on Drugs and Crime, Vienna, p. 18.
(4) UNODC and UN Women (2022), *Gender-related killings of women and girls (femicide/feminicide)*, United Nations Office on Drugs and Crime, p. 8.
(5) Source: Eurostat (online data code: CRIM_HOM_SOFF).
(6) Source: Eurostat (online data code: CRIM_HOM_VREL).
(7) For more information see Eurostat metadata on Crime and criminal justice (crim) and European Union Agency for Fundamental Rights (2014), *Violence against women: an EU-wide survey, Main results*, Publications Office of the European Union, Luxembourg, pp. 25–26, 32.
(8) Source: Eurostat (online data code: gov_10a_exp).
(9) European Commission (2022), *Flash Eurobarometer 503, Report on Perceived independence of the national justice systems in the EU among the general public*, p. 2.
(10) Ibid, p. 5
(11) Ibid, pp. 6–7.
(12) Transparency International (2023), *Corruption Perceptions Index 2022*.
(13) European Commission (2022), *Special Eurobarometer 523 on Corruption*, pp. 17–18.
(14) Also see European Commission (2016), *European Semester Thematic Factsheet on Effective Justice Systems*.
(15) European Research Centre for Anti-Corruption and State-Building (ERCAS) & Hertie School of Governance (2015), *Public integrity and trust in Europe*, Berlin, p. 19; and Eurofound (2022), *Fifth round of the Living, working and COVID-19 e-survey: Living in a new era of uncertainty*, Publications Office of the European Union, Luxembourg.

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

SDG 17 calls for a global partnership for sustainable development. It highlights the importance of macroeconomic stability and of mobilising financial resources for developing countries. It also stresses the importance of trade and equitable rules for governing it. The goal also emphasises the importance of access to science and technology, in particular internet-based information and communications technology.

17 PARTNERSHIPS FOR THE GOALS

Partnership is at the essence of the EU and an overarching principle to approach the SDGs within and beyond the EU boundaries. Monitoring SDG 17 in an EU context focuses on global partnership, financial governance, and access to technology. Over the assessed five-year period, the EU's progress in the area of global partnership was mixed. While imports from developing countries have grown, financing to these countries has decreased, and the EU is still behind on its path towards its official development assistance target. Moreover, financial governance within the EU remains a challenge, as exemplified by a falling share of environmental taxes in total tax revenues and high levels of general government gross debt. Meanwhile, access to technology in the EU progressed, with a significant increase in the share of households connected to high-speed internet.

Table 17.1: Indicators measuring progress towards SDG 17, EU

Indicator	Period	Annual growth rate	Trend	Where to find out more
Global partnership				
Official development assistance	2006–2021	Observed: 1.2 % Required: 2.3 %	↘	page 307
	2016–2021	Observed: 0.0 % Required: 2.6 %	↘	
EU financing to developing countries	2006–2021	– 0.2 %	↘	page 309
	2016–2021	– 3.8 %	↓	
EU imports from developing countries	2007–2022	6.1 %	↑	page 310
	2017–2022	12.5 %	↑	
Financial governance within the EU				
General government gross debt	2007–2022	2.0 %	↓	page 311
	2017–2022	0.5 %	↘	
Share of environmental taxes in total tax revenues	2006–2021	– 0.9 %	↘	page 312
	2016–2021	– 2.3 %	↓	
Access to technology				
Share of households with high-speed internet connection	Time series too short for long-term assessment		:	page 313
	2016–2021	Observed: 22.7 % Required: 10.3 %	↑	

Note: See Annex I for a description of the methodology used for the growth rate calculation and the trend assessment. For indicators without a target, the growth rates observed over the specified periods are given. For indicators with a quantified EU target, both the observed growth rates and the growth rates that would have been required in the specified periods for meeting the target are given.

Policy context

Global partnership

The New European Consensus on Development outlines the need to dedicate a high proportion of official development assistance to least developed countries (LDCs) and other low-income countries. Hence, 0.15–0.20 % of GNI should be allocated to LDCs in the short term, rising to 0.20 % by 2030.

The European Fund for Sustainable Development Plus (EFSD+) helps mobilise private-sector financing and maintain 'duty free and quota free' market access to LDCs as set out in the Addis Ababa Action Agenda (AAAA).

The EU's 'Generalised Scheme of Preferences' allows developing countries to pay less or no duties on their exports to the EU. The Everything But Arms arrangement grants duty-free and 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.

Global Gateway is the EU strategy to support partner countries to boost smart, clean and secure links in digital, energy and transport sectors, and to strengthen health, education and research systems.

In 2021, the EU renewed its Multilateralism Strategy to further the cooperation on global challenges such as peace and security, human rights and the rule of law, sustainable development, public health and climate change.

In 2022, the Commission reaffirmed the EU's commitment to champion decent work both at home and around the world. As part of this approach, the Commission in 2022 presented a proposal for a regulation to prohibit products made using forced labour, including child labour, on the EU internal market. Also in 2022, the EU reached a provisional agreement on a Carbon Border Adjustment Mechanism (CBAM), a tariff on carbon-intensive imports to encourage cleaner production processes globally.

Financial governance within the EU

The Treaty on the Functioning of the European Union (TFEU) requires a Member State's annual government deficit-to-GDP ratio to not exceed 3 %, and that government debt as a ratio of GDP should be limited to 60 %. The TFEU is complemented by Regulation 1176/2011 on the prevention and correction of macroeconomic imbalances as well as Regulation 1174/2011 on enforcement measures to correct excessive macroeconomic imbalances in the euro area.

Access to technology

In the 2020 Digital Strategy, the EU committed to developing a Global Digital Cooperation Strategy that will reflect the SDGs.

The 2030 Digital Compass presents a vision for Europe's digital transformation and sets the target of all European households to be covered by a gigabit network by 2030.

The Declaration on European Digital Rights and Principles calls for equal access to technology and digital literacy education as a fundamental right.

Partnerships for the goals in the EU: overview and key trends

Global partnership

To achieve the SDGs, partnerships are necessary between governments, the private sector, civil society and other parties. 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 (1). 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 (2) are some of the financial flows from the EU and its Member States to developing countries.

111.3 billion EUR were spent by the EU on financing to developing countries in 2021

Regarding the total volume of financial flows from the EU to developing countries, the Organisation for Economic Co-operation and Development (OECD) estimates that total public and private EU financing to developing countries amounted to EUR 111.3 billion in 2021. When accounting for inflation, this is about the same level as the financial flows provided by the EU fifteen years earlier, and is – in part substantially – lower than the amounts provided between 2014 and 2019. While OOFs and grants by NGOs have remained rather marginal, ODA and private flows combined have accounted for 95 % or more of total estimated EU financing for development since 2014. Overall, ODA has been the most reliable and steady financial flow from the EU to developing countries, while private flows have varied strongly over the years.

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. The EU is committed to reaching the 0.7 % target by 2030, as affirmed in the New European Consensus on Development. Member States that joined the EU after 2002 have committed to provide 0.33 % of their GNI for ODA. As a whole, the EU spent 0.49 % of its GNI on ODA in 2021, slowly descending from 0.50 % in 2020. The peak of 2020 in the EU's ODA to GNI ratio reflected a global trend, with worldwide ODA having reached an overall high as a result of donor efforts in the context of the COVID-19 pandemic (3). In the EU, the decrease in the ODA to GNI ratio from 2020 to 2021 is a result of GNI growing faster (by 8.6 %) than ODA (by 6.3 %) (4).

0.49 % of the EU's gross national income was spent on ODA in 2021

Only four EU countries – Luxembourg, Sweden, Germany and Denmark – achieved the 0.7 % target in 2021, meaning additional efforts will be needed to meet the collective EU target by 2030.

The EU remains the world's biggest ODA donor

In 2021, the EU maintained its position as the biggest ODA donor globally, providing about EUR 71.6 billion. This figure refers to the combined ODA provided by the 27 EU Member States and EU institutions. Moreover, with 0.49 % in 2021, the EU's overall ODA/GNI ratio was significantly higher than for most other Development Assistance Committee's (DAC) donors such as Canada, Japan or the United States. At the same time, aid from emerging donors is gaining in relevance. For example, Saudi Arabia and Türkiye spent about 1 % of their GNI on ODA in 2021 ([5]).

The EU seeks to support least developed countries in particular

To direct 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 2021, the EU's collective official development assistance to LDCs accounted for 0.11 % of GNI, following a period of stagnation around this value since 2012. The EU has thus not progressed towards its 0.20 % target over the past few years. In 2021, only three Member States – Luxembourg, Sweden and Denmark – exceeded the targeted GNI ratio of ODA to LDCs. In addition, Finland exceeded the short-term target, with a ratio of 0.16 %.

ODA is only a part of several financing mechanisms

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 as a catalyst 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, guarantees or equity from public and private financiers.

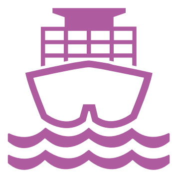
EU financial support, combined with domestic and private revenues, can provide a basis for achieving the 2030 Agenda's goals, allowing for investment in social services, clean energy, infrastructure, transport and information and communications technologies. In the best case, developing countries could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

EU imports from developing countries reached a new record high in 2022

Trade's potential contribution to sustainable development has long been acknowledged. This is reflected in the EU's 2021 Trade Policy Review, along with the European Green Deal which stresses the contribution that trade policy can make to achieving the EU's ambition on sustainable development.

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.

Between 2007 and 2022, EU imports from developing countries more than doubled from EUR 617 billion to EUR 1 508 billion. Over this period, EU imports from developing countries grew by 6.1 % per year on average. Over the short term, since 2017, imports have grown even more strongly, by 12.5 % a year. Both trends were largely driven by a considerable increase in imports from developing countries by almost 40 % in 2022 compared with 2021.



1 508
billion EUR was the value of EU imports from developing countries in 2022

Growth was particularly strong for least-developed countries, whose imports increased by more than 84 % from 2021 to 2022.

Imports from developing countries to the EU as a share of imports from all countries outside the EU increased from 43.2 % in 2007 to 50.2 % in 2022. Similar to 2021, developing countries (including China) thus accounted for half of all extra-EU imports in 2022. China (excluding Hong Kong) alone accounted for 20.9 % of EU imports in 2022. This is almost twice the share of imports from the United States, which accounted for 11.9 %. Conversely, the almost 50 countries classified as least developed by the UN accounted for just over 2 % of all EU imports in 2022 (6).

'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 2020, providing EUR 23 billion, or 47 % of global aid for trade. Just three donors — the EU institutions as well as Germany and France — provided 90 % of this overall sum. The share of aid for trade to LDCs was 13 % of overall aid for trade in 2020, two percentage points lower than in the three years before (7).

Financial governance within the EU

To help other countries to advance their economies, the EU's own economies must also remain 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. Moreover, the EU has pointed out that environmental taxes may offer opportunities to reduced taxes in other areas, for example on labour.

Steady progress in reducing government debt as a share of GDP was halted by the COVID-19 pandemic

In 2022, general government gross debt in the EU as a share of GDP was

84.0 %

According to the Treaty on the Functioning of the European Union, government debt should not exceed 60 % of GDP in EU Member States. As a consequence of the COVID-19 crisis and related public spending, the EU's overall debt-to-GDP ratio rose sharply in 2020 to reach 90.0 %, which is a 12.3 percentage point increase compared with 2019. In 2021 and 2022, the EU's debt-to-GDP ratio fell by 2.0 and 4.0 percentage points compared with the previous year, respectively. In 2022, the ratio thus stood at 84.0 %, which is 2.1 percentage points higher than five years earlier.

In 2022, Member States' debt-to-GDP ratios ranged from 18.4 % in Estonia to 171.3 % in Greece. Thirteen EU countries exceeded the 60 % threshold in 2022 and six Member States had debt-to-GDP ratios above 100 %.

'Greening' the taxation system remains a challenge

Environmental taxes help to provide the right price signals and incentives to producers, users and consumers to encourage less polluting consumption and to contribute to sustainable growth. They may also provide opportunities to reduce taxes in other areas, for example on labour, and if revenue for adequate social protection is protected, they can offer a win–win option for addressing both environmental and employment issues, as laid out in the EU's Action Plan for Fair and Simple Taxation. Environmental taxes support the transition to a climate-neutral economy (8). As indicated in the Communication on Business taxation for the 21st century as regards the EU tax mix, behavioural taxes, such as environmental and health taxes, continue to be of growing importance for EU tax policies. Well-designed environmental taxes help to support the green transition by sending the right price signals, as well as implementing the polluter pays principle. They also generate revenue that could compensate some of the needed labour tax cuts.

In 2021, environmental taxes accounted for only 5.5 % of total tax revenues in the EU, while labour taxes accounted for 53.5 % in 2020 ([9]). Energy taxes constituted the main part of environmental taxes, accounting for 4.3 % of tax revenues in 2021, followed by transport taxes with a share of 1.0 %. In comparison, taxes on pollution and resources – the third component of environmental taxes – remained negligible, accounting for only 0.2 % of total tax revenues in 2021 ([10]). The share of total environmental taxes has fallen considerably since 2016 in parallel to an increase in the share of labour taxes, meaning that in the EU the tax burden is shifting from environment to labour instead of the other way round. Across Member States, the share of environmental taxes in total tax revenues ranged from 3.8 % in Luxembourg to 10.0 % in Greece in 2021. Compared with 2016, their share has further decreased in almost all EU countries. Only Greece — the country with the highest share of environmental taxes in 2021 — reported a 0.2 percentage point increase over this period.

In 2021, the share of environmental taxes in total tax revenues in the EU was

5.5 %

The ratio of labour to environmental taxes shows how much higher a country's share of labour tax revenues is than its share of environmental taxes. In 2020, this ratio ranged from 3.8 to 14.0 across Member States. The ratio has also increased in the majority of countries since 2015, indicating a relative shift in taxation from environment to labour across the EU.

EU Member States spend on average 2 % of their GDP to protect the natural environment

The decline in the prioritisation of environmental taxation is partly reflected in national environmental expenditures. National expenditure on environmental protection measures the amount of resources a country uses to protect the natural environment. It includes current expenditure on environmental protection activities, investments in these activities and net transfers to other parts of the world.

At EU level, environmental protection expenditure has stagnated at about 2 % of GDP since 2010, amounting to EUR 292 billion in 2021. Across EU Member States, in 2019 expenditure ranged from 3.5 % of GDP in Austria to 0.7 % in Ireland. In the majority of Member States, these shares have decreased or remained stable since 2014. Only seven countries increased their environmental protection expenditure relative to GDP between 2014 and 2019, with the strongest growth reported by Poland (1.0 percentage points increase) and Austria (0.4 percentage points) ([11]).

Access to technology

In today's economies and societies, digital connections are crucial. Instant communication between individuals, bank transfers, office work, public dissemination of information and data analysis are only some of the activities that depend on the internet. Regions without fast internet connections have serious social and economic disadvantages in a digitalised world. As a result, making Europe fit for the digital age is one of the six Commission priorities for 2019 to 2024. The aim is to make the digital transformation work for people and businesses while helping to achieve the target of a climate-neutral Europe by 2050.

Considerable progress has been made in rolling out high-speed internet coverage across the EU

70.2 %
of EU households had high-speed internet coverage in 2021

Data collected by the European Commission services for the key dimensions of the European information society ([12]) shows that in the EU the uptake of high-speed internet coverage — referring to fibre connections or other networks offering similar bandwidth — has improved considerably over the past few years. While only 25.2 % of EU households enjoyed such connectivity in 2016, this share has risen considerably, reaching 70.2 % in 2021. If high-speed internet roll-out continues at this pace, the EU will reach 100 % coverage well ahead of 2030. Connectivity has also improved in rural areas ([13]). Between 2016 and 2021, the share of rural households with fixed high-speed internet connection increased from 7.7 % to 37.1 % across the EU.

At Member State level, Malta had already achieved a 100 % fixed high-speed internet connectivity for all households in 2021, followed by Luxembourg, Denmark and Spain with around 95 % of households each. In contrast, fixed high-speed internet connections were the least widespread in Greece, with only 19.8 % of households enjoying such connectivity. All remaining Member States had connection rates to high-speed internet above 40 % in 2021.

Presentation of the main indicators

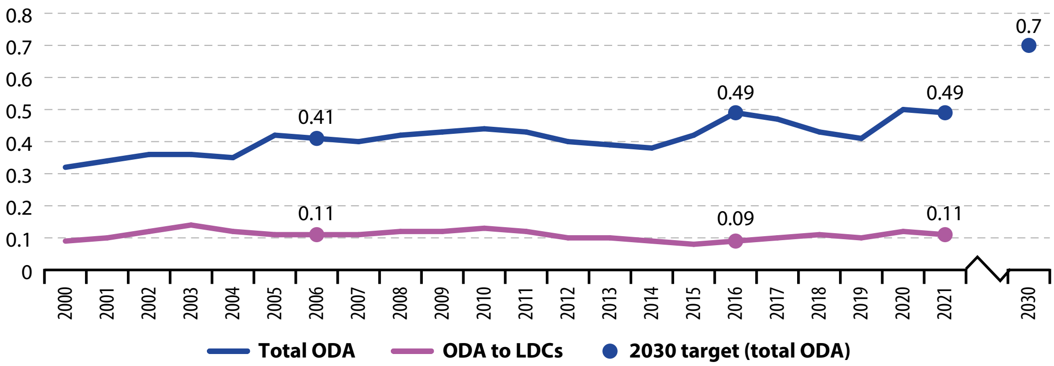
LONG TERM
2006–2021

SHORT TERM
2016–2021

Official development assistance

Official development assistance (ODA) is provided by governments and their executive agencies to support economic development and welfare in developing countries. ODA must be concessional in character, having a grant element that varies in proportion depending on the recipient. Eligible countries are included in the Organisation for Economic Development and Cooperation's (OECD) Development Assistance Committee (DAC) official list of ODA recipients. ODA disbursements and their purpose are reported by donors to the OECD. A new methodology to calculate the ODA value of concessional loans is applied from 2018 data onwards and affects the comparability of data with previous years. Additionally, a new methodology for calculating total ODA to LDCs is applied from 2020 data onwards, by including regional ODA known to benefit LDCs (on top of the bilateral net ODA to LDCs and imputed multilateral ODA to LDCs).

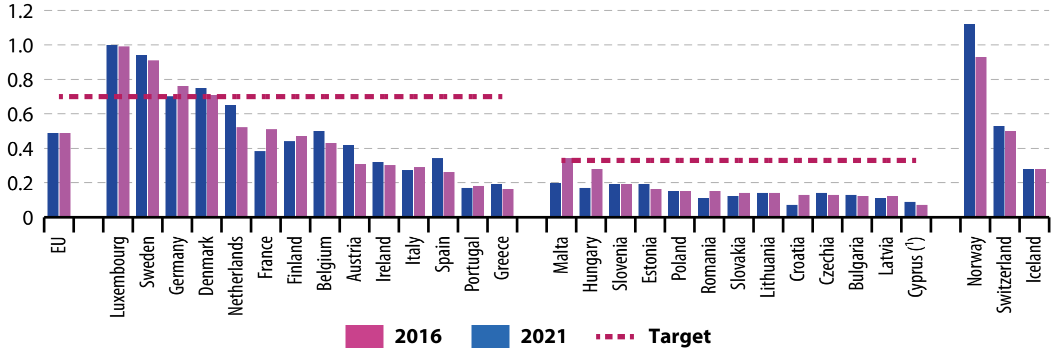
Figure 17.1: Official development assistance as share of gross national income, EU, 2000–2021
(% of GNI)



Note: Break in time series for total ODA in 2018 and for ODA to LDCs in 2020. Data for total ODA include the 27 Member States' ODA and EU institutions' ODA not imputed to Member States. Data for ODA to LDCs include the 27 Member States' ODA to LDCs and EU institutions' regional ODA known to benefit LDCs (excluding the component of the latter that could be imputed back to the UK).

Source: OECD (Eurostat online data code: sdg_17_10)

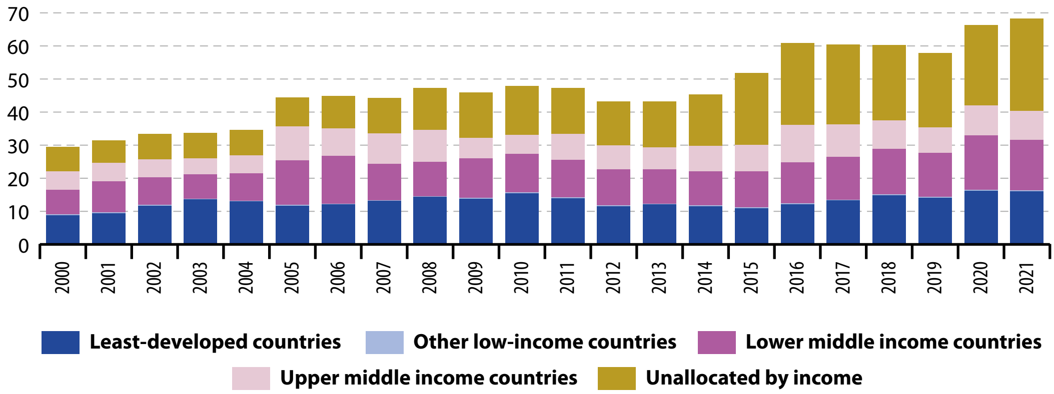
Figure 17.2: Official development assistance as share of gross national income, by country, 2016 and 2021
(% of GNI)



Note: Break in time series in 2018 (all countries). Data for 'EU' include the 27 Member States' ODA and EU institutions' ODA not imputed to Member States.
([1]) 2015 data (instead of 2016).

Source: OECD (Eurostat online data code: sdg_17_10)

Figure 17.3: Official development assistance, by recipient income group, EU, 2000–2021
(EUR billion, constant prices)



Note: Data include the 27 Member States' bilateral net ODA and imputed multilateral ODA; break in time series for ODA to LDCs in 2020.

Source: European Commission services calculations based on OECD data.

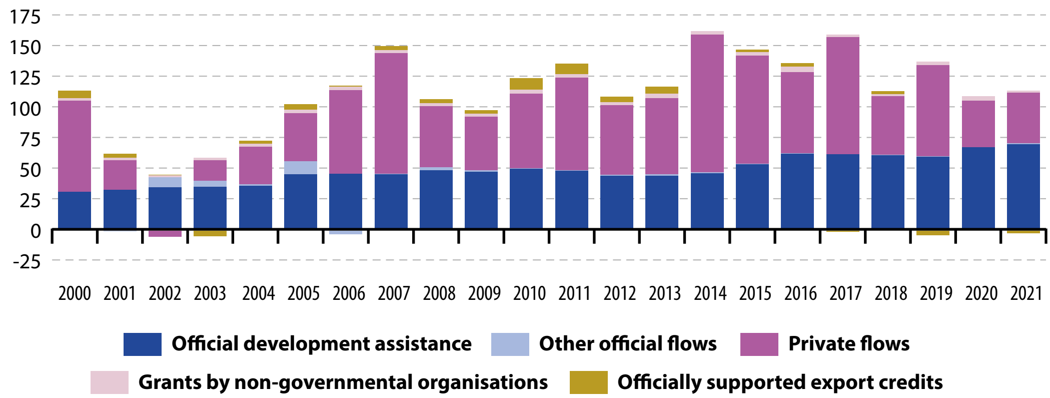
EU financing to developing countries

LONG TERM 2006–2021

SHORT TERM 2016–2021

EU financing to developing countries takes a number of forms. These, as documented by the OECD, include: official development assistance (ODA) (public grants or concessional loans with the aim of supporting economic development and welfare); other official flows (OOFs) (public flows that are not focused on development or with a grant element of less than 25 %); private flows (direct investment, bonds, export credits and multilateral flows); grants by non-governmental organisations (from funds raised for development assistance and disaster relief); and officially supported export credits. Data stem from the OECD (DAC).

Figure 17.4: EU financing to developing countries, by financing source, EU, 2000–2021
(EUR billion, constant prices)



Source: OECD (Eurostat online data code: sdg_17_20)

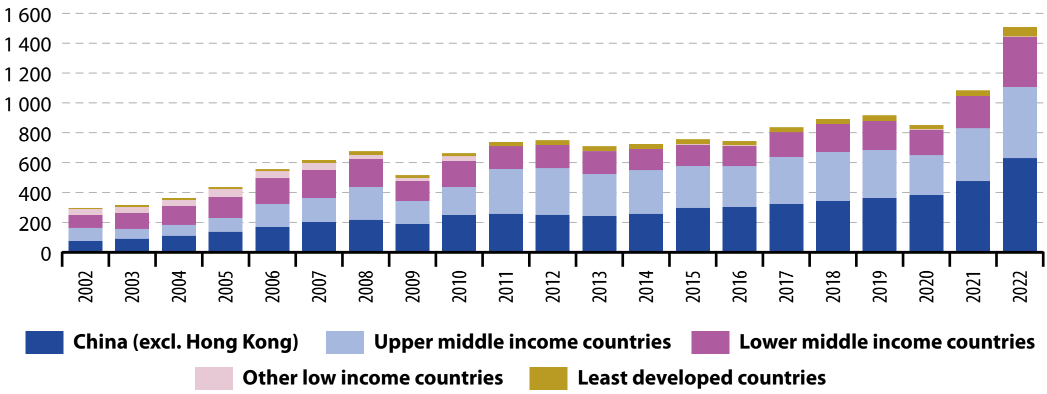
LONG TERM 2007–2022

SHORT TERM 2017–2022

EU imports from developing countries

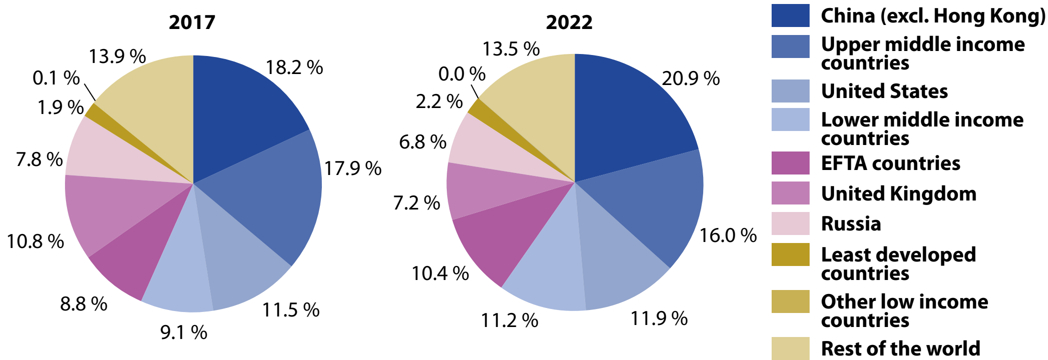
This indicator is defined as the value (at current prices) of EU imports from the countries on the DAC list of ODA beneficiaries. It indicates to what extent products from these countries access the EU market. Information for this indicator is provided by enterprises with a trade volume above a set threshold and is collected on the basis of customs declarations. This information is then adjusted by Member States to account for the impact of trade under this threshold.

Figure 17.5: EU imports from developing countries, by country income group, EU, 2002–2022
(EUR billion, current prices)



Source: Eurostat (online data code: sdg_17_30)

Figure 17.6: Extra-EU imports, by trading partner, EU, 2017 and 2022
(%)



Source: Eurostat (online data codes: sdg_17_30 and ext_lt_maineu)

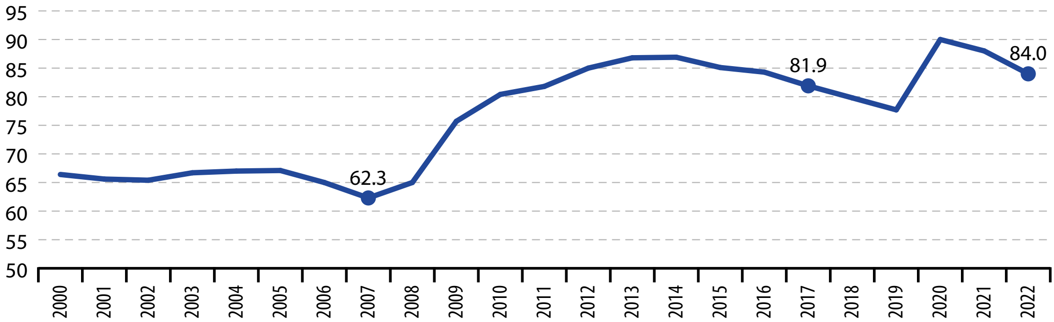
General government gross debt

LONG TERM 2007–2022

SHORT TERM 2017–2022

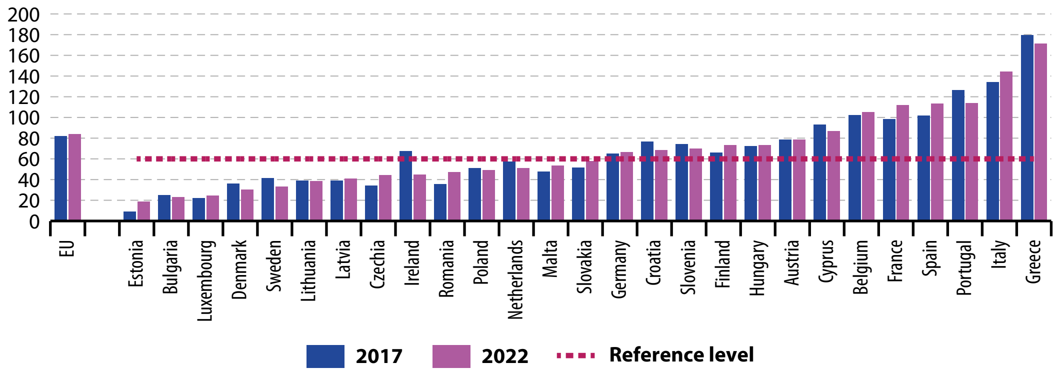
The Treaty on the Functioning of the European Union defines this indicator as the ratio of general government gross debt at the end of the year to gross domestic product at current market prices. For this calculation, general government gross debt is defined as the total consolidated gross debt at nominal (face) value in the following categories of government liabilities, as defined in ESA 2010: currency and deposits, debt securities and loans. The general government sector comprises central government, state government, local government and social security funds.

Figure 17.7: General government gross debt, EU, 2000–2022
(% of GDP)



Source: Eurostat (online data code: sdg_17_40)

Figure 17.8: General government gross debt, by country, 2017 and 2022
(% of GDP)



Source: Eurostat (online data code: sdg_17_40)

LONG TERM
2006–2021

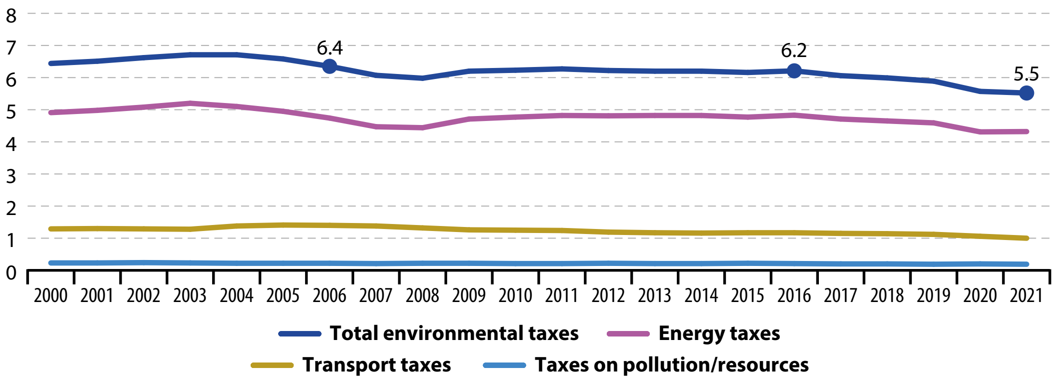
SHORT TERM
2016–2021

Share of environmental taxes in total tax revenues

Environmental taxes are defined as taxes based on a physical unit (or proxy of it) of something that has a proven, specific negative impact on the environment. There are four types of environmental taxes: energy taxes, transport taxes, and pollution taxes and resource taxes.

Figure 17.9: Share of environmental taxes in total tax revenues, EU, 2000–2021

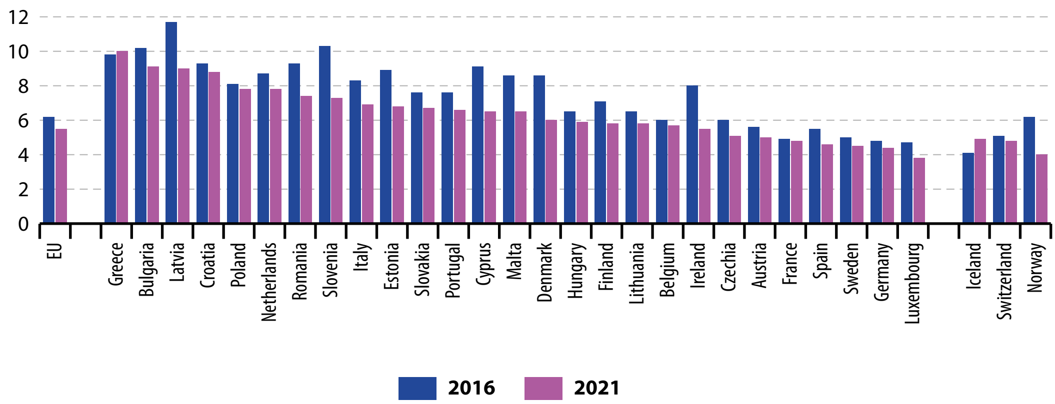
(%)



Source: Eurostat (online data codes: sdg_17_50 and env_ac_tax)

Figure 17.10: Share of environmental taxes in total tax revenues, by country, 2016 and 2021

(%)



Source: Eurostat (online data code: sdg_17_50)

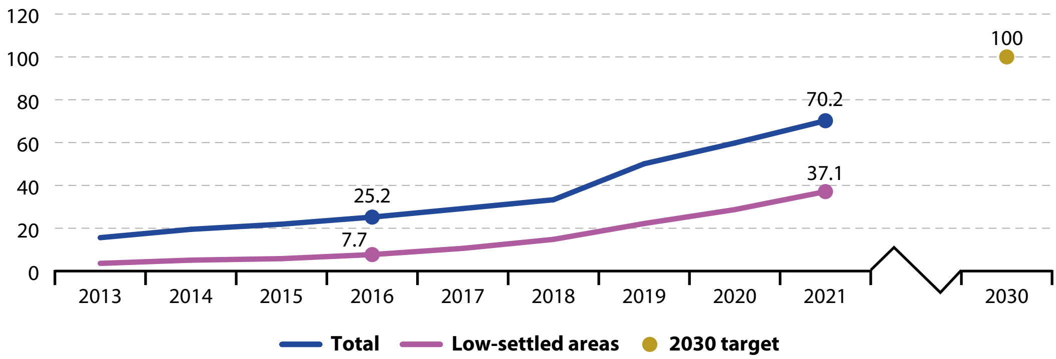
Share of households with high-speed internet connection

LONG TERM
Time series too short

SHORT TERM
2016–2021

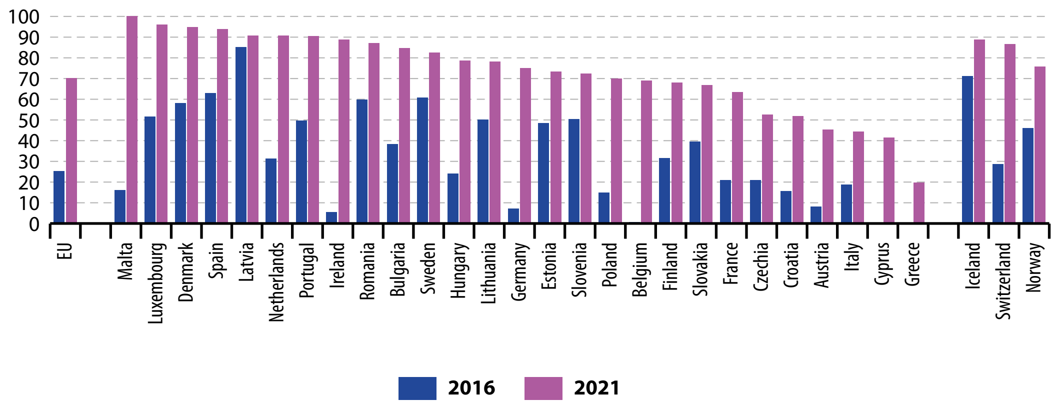
The indicator measures the share of households with fixed very high capacity network (VHCN) connection. Very high capacity network means either an electronic communications network that consists entirely of optical fibre elements at least up to the distribution point at the serving location, or an electronic communications network capable of delivering, under usual peak-time conditions, similar network performance in terms of available downlink and uplink bandwidth, resilience, error-related parameters, and latency and its variation. The data are collected for the Broadband Coverage in Europe studies published by the European Commission. Data until 2018 refer to fibre to the premises (FTTP) only, while data from 2019 onwards refer to both FTTP and Data Over Cable Service Interface Specification (DOCSIS) 3.1. DOCSIS allows adding high-bandwidth data transfer to existing cable television systems.

Figure 17.11: High-speed internet coverage, by type of area, EU, 2013–2021
(% of households)



Source: European Commission services, Eurostat (online data code: sdg_17_60)

Figure 17.12: High-speed internet coverage, by country, 2016 and 2021
(% of households)



Source: European Commission services, Eurostat (online data code: sdg_17_60)

Notes

([1]) Non-financial resources include domestic policy frameworks, effective institutions and support for good governance, democracy, rule of law, human rights, transparency and accountability; see also the Addis Ababa Action Agenda (AAAA).

([2]) The OECD defines export credits as loans for the purpose of trade and which are not represented by a negotiable instrument. They may be extended by the official or the private sector. If extended by the private sector, they may be supported by official guarantees; see http://www.oecd.org/dac/dac-glossary.htm#Export_Credits.

([3]) OECD (2021), *COVID-19 spending helped to lift foreign aid to an all-time high in 2020*.

([4]) Source: Calculations by DG INTPA based on OECD data.

([5]) Source: OECD.Stat, *Total flows by donor (ODA+OOF+Private) [DAC1]*.

([6]) Source: Eurostat (online data code: ext_lt_maineu).

([7]) European Commission (2022), *EU Aid for Trade Progress Report 2022*.

([8]) European Environment Agency (2022), *The role of (environmental) taxation in supporting sustainability transitions*, Briefing.

([9]) Taxes on labour are generally defined as all personal income taxes, payroll taxes and social contributions of employees and employers that are levied on labour income (both employed and non-employed). Data on labour taxes stem from the DG Taxation and Customs Union ('Data on Taxation' webpage).

([10]) Source: Eurostat (online data code: env_ac_tax).

([11]) Source: Eurostat (online data code: ten00135).

([12]) See European Commission, Key Indicators.

([13]) In the context of the EU's digital agenda scoreboard indicators, rural areas are defined as those with less than 100 people per square kilometre.

Overview of status and progress of EU Member States towards the SDGs

This chapter presents a statistical overview of the status and progress of EU Member States towards the 17 SDGs, based on the EU SDG indicator set. The status of each SDG in a Member State is an aggregation of all the indicators of a specific goal relative to the other Member States and the EU average. The progress score of the Member State is based on the average annual growth rates of all assessed indicators in the SDG over the past five years. The same approach towards aggregating individual indicator trends into a synthesised index per SDG is used in the synopsis chapter for the EU ([1]).

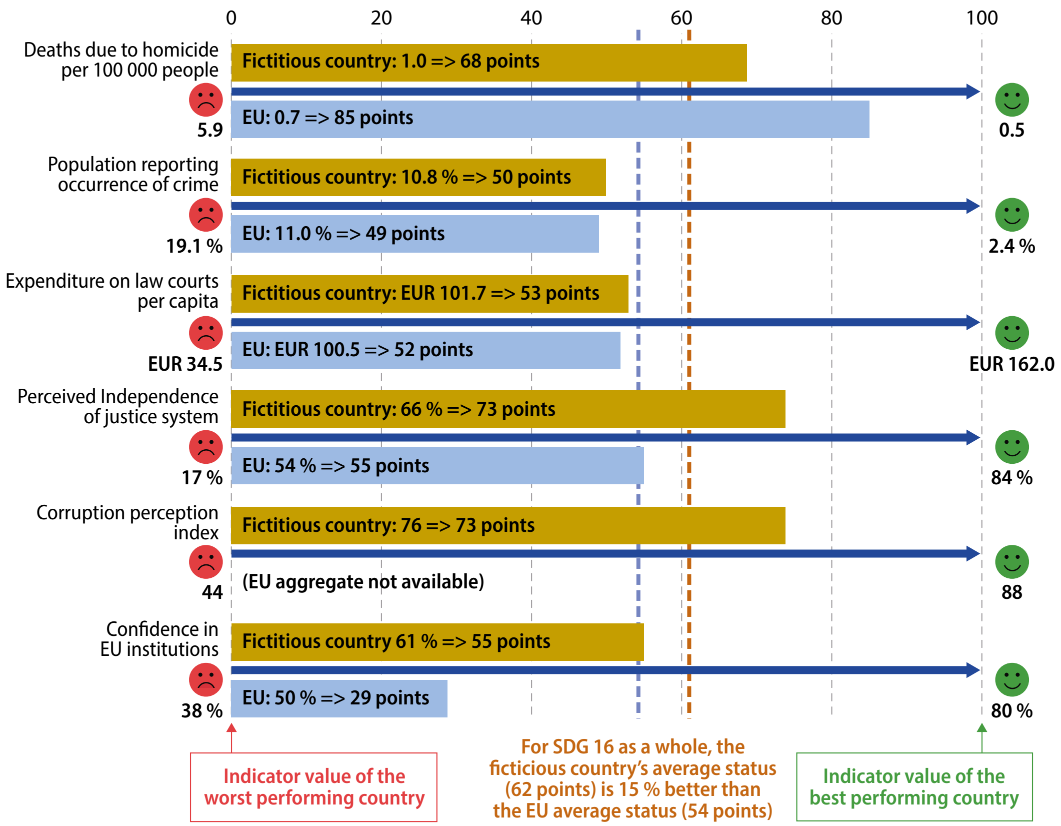
Such a synthesised presentation allows for a quick and easy overview and facilitates communication. However, applied to individual Member States, it entails the risk of simplification and might obscure details about underlying phenomena. Moreover, it has to be kept in mind that a country's status depends to a certain extent on its natural conditions and historical developments. Therefore, users are invited to read the more detailed information at indicator level in the chapters 1 to 17 on each SDG. Detailed data for the EU SDG indicators on a country level are also available on the Eurostat website, for example in the key findings section and in the country overview visualisation.

How is the status and progress assessed?

The status of a specific SDG is an aggregate score encompassing all indicators of that goal, based on the most recent data (mainly referring to 2021 and 2022) ([2]). For each indicator, a country's status score is calculated relative to the range of values from the worst to the best performing country, whereby outliers are excluded ([3]). The status score calculation is based on a min-max-normalisation as described in Annex I. For each country, the status scores at indicator level are aggregated at SDG level using the arithmetic mean, and this goal-level score is then put in relation to the EU aggregate status score of the same goal, to show how much (in %) a country's SDG status is above or below the EU average. Figure 18.1 presents an example of the calculation of the status score for SDG 16 relative to the EU for a fictitious country.

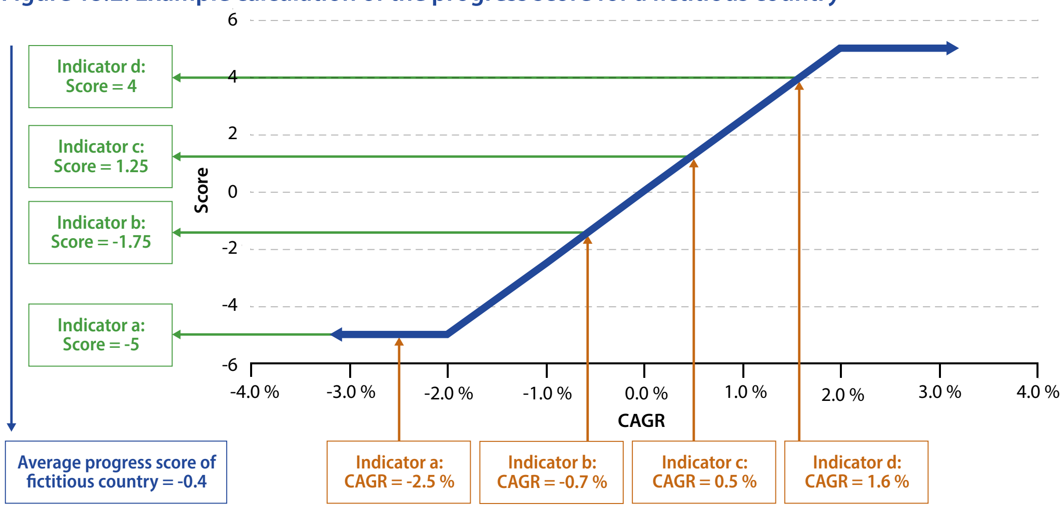
Progress is an aggregate score of the short-term (five-year) growth rates for all the indicators assessed for each goal. The methodology uses a scoring function and is identical to the calculation of progress at EU level as presented in Annex I. Please note that the progress score calculation does not take into account any target values, since most EU policy targets are only valid for the aggregate EU level. Data mainly refer to the periods 2016–2021 or 2017–2022. Due to data availability issues, such as missing data for some years or breaks in time series, some countries' progress score calculations are based on shorter or longer periods. Additionally, some countries' progress scores have been manually adjusted, for example when a country has already achieved the maximum possible value (for example, 100 % of young children participating in early childhood education) and has maintained this level over the past five-year period. In such cases, countries are assigned the best possible score (+5) instead of the

Figure 18.1: Example calculation of the status score for SDG 16 for a fictitious country



Note: the best and worst country values exclude outliers identified by means of the interquartile range (IQR) method, for example for expenditure on law courts.

Figure 18.2: Example calculation of the progress score for a fictitious country



calculated score for no change (0). Depending on data availability per goal, not all 17 SDGs are shown for each country. Figure 18.2 presents an example of the calculation of the progress score for a fictitious country and a fictitious goal containing four indicators (for all of which an increase is the desired direction). It shows how the compound annual growth rates (CAGR) of the indicators are transformed into scores between +5 and -5 that are then averaged at SDG level to calculate a country's goal-level progress score.

Overall, a country's status score is a relative measure, showing its position in relation to other Member States and the EU average. A high status consequently does not mean that a country is close to reaching a specific SDG, but that it has achieved a higher status than many other Member States. On the other hand, a country's progress score is an absolute measure based on the indicator trends over the past five years, and its calculation is not influenced by the progress achieved by other Member States.

How to interpret the graphs?

The vertical axis shows the status of SDGs in the depicted country within the distribution of Member States and relative to the EU average. SDGs in the upper part of the graph have a status above the EU average, and for SDGs in the lower part the status is below the EU average. The right side of the graph displays SDGs where the country has made progress whereas the left side indicates movements away from the SDGs. This results in four 'quadrants' which can be characterised as follows:

III	I
IV	II

I. The country is progressing towards these SDGs, and on average the indicator values are above the EU average.

II. The country is progressing towards these SDGs, but on average the indicator values are below the EU average.

III. The country is moving away from these SDGs, but on average the indicator values are above the EU average.

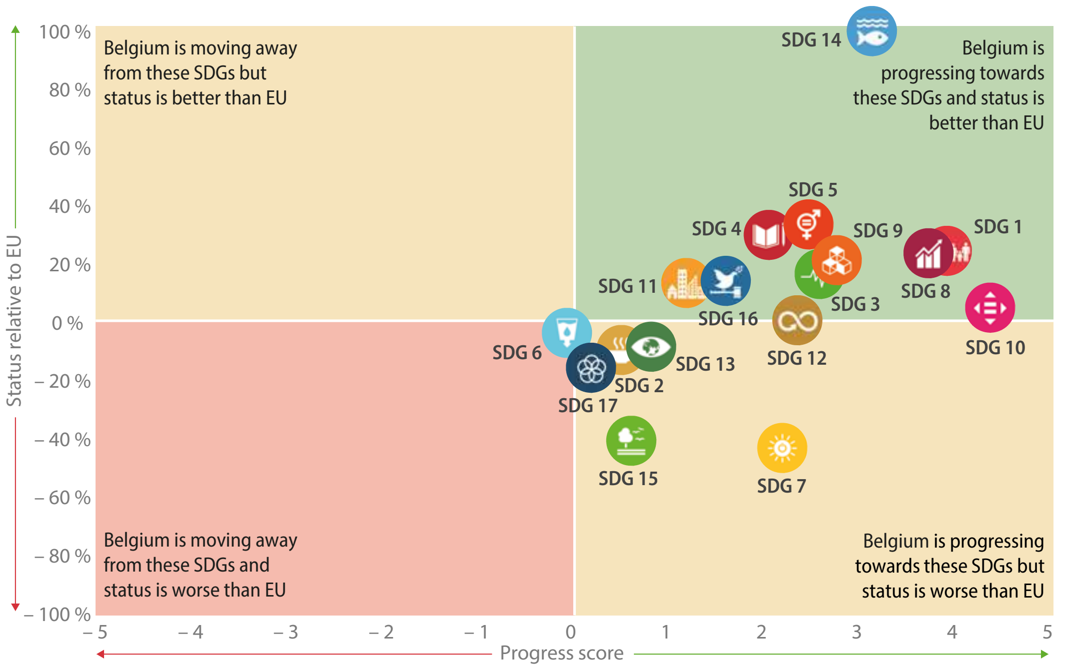
IV. The country is moving away from these SDGs, and on average the indicator values are below the EU average.

Presentation of Member States’ status and progress

Table 18.1: Overview of SDGs

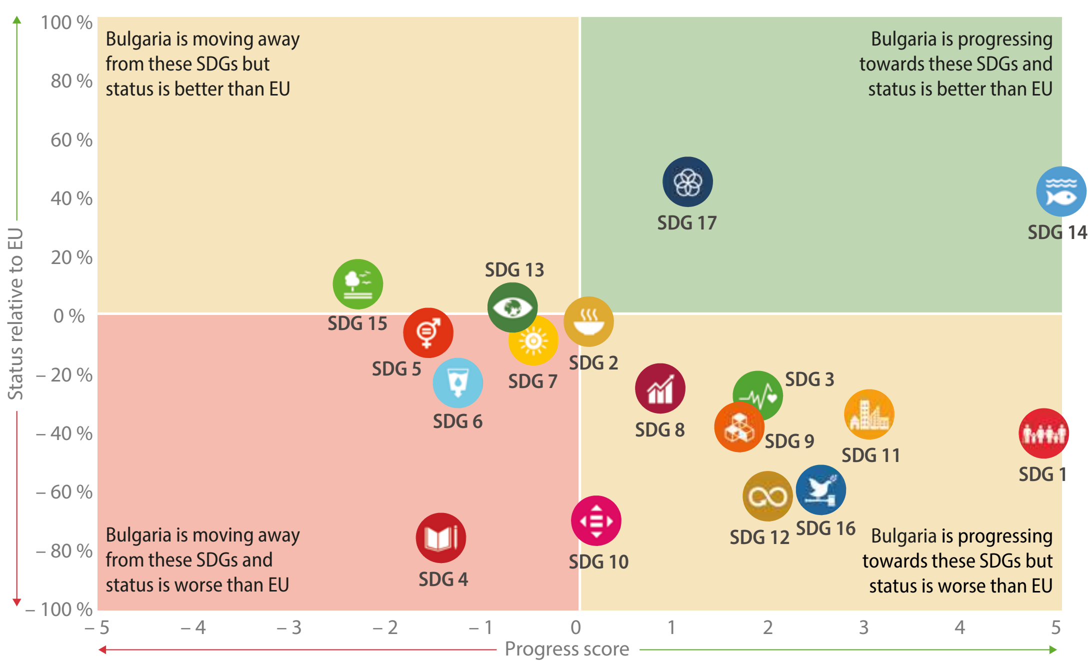
SDG icon	SDG short name
	SDG 1: No poverty
	SDG 2: Zero hunger
	SDG 3: Good health and well-being
	SDG 4: Quality education
	SDG 5: Gender equality
	SDG 6: Clean water and sanitation
	SDG 7: Affordable and clean energy
	SDG 8: Decent work and economic growth
	SDG 9: Industry, innovation and infrastructure
	SDG 10: Reduced inequalities
	SDG 11: Sustainable cities and communities
	SDG 12: Responsible consumption and production
	SDG 13: Climate action
	SDG 14: Life below water
	SDG 15: Life on land
	SDG 16: Peace, justice and strong institutions
	SDG 17: Partnerships for the goals

Figure 18.3: Belgium



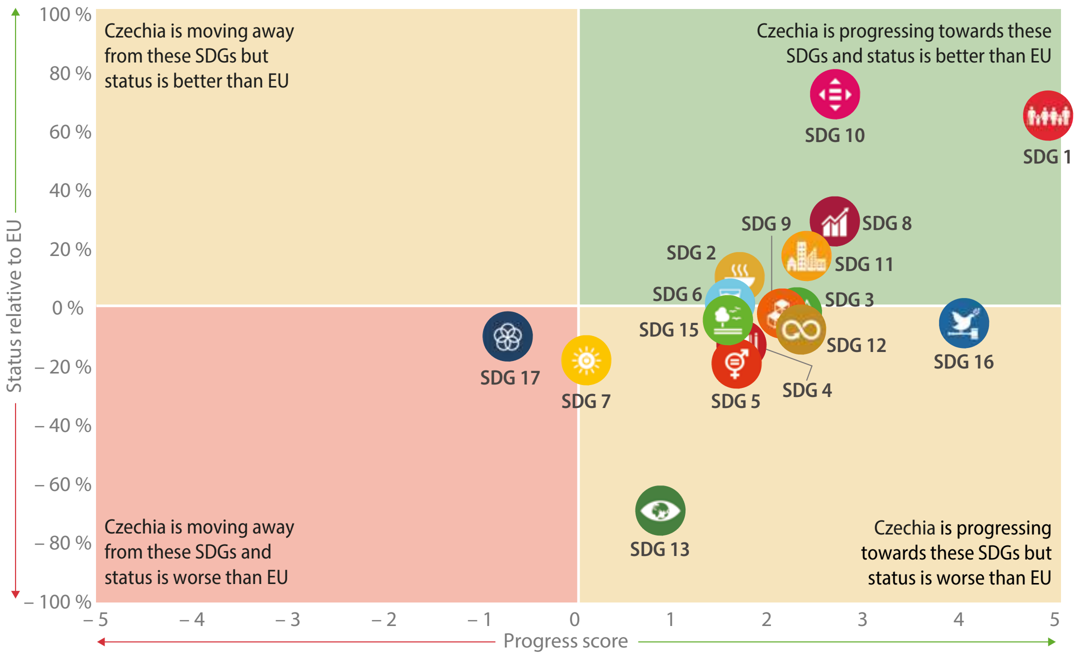
Source: Eurostat

Figure 18.4: Bulgaria



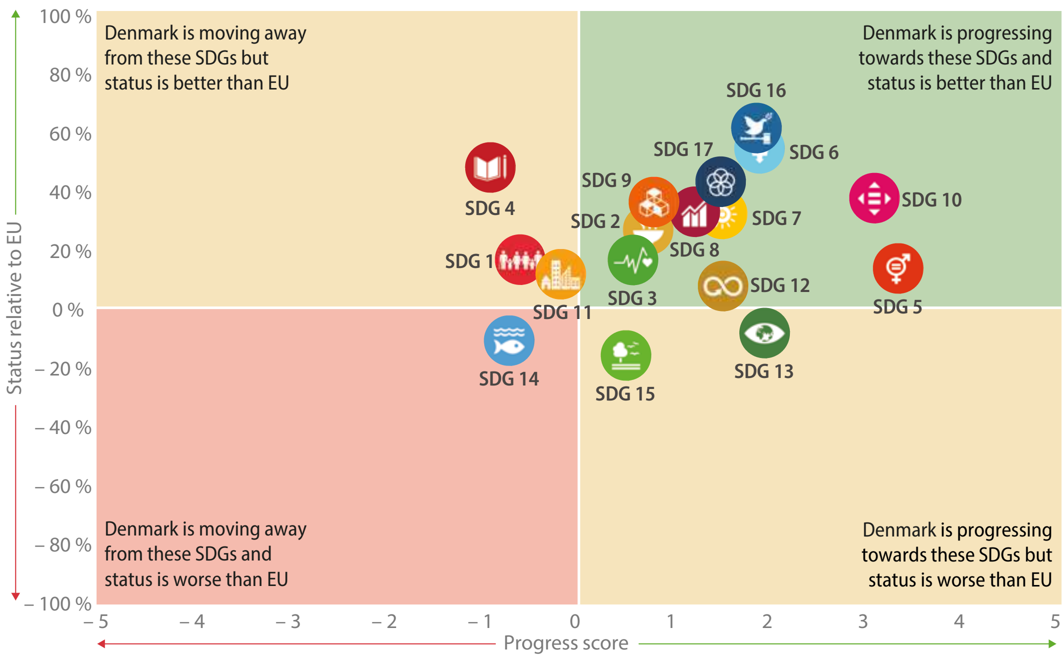
Source: Eurostat

Figure 18.5: Czechia



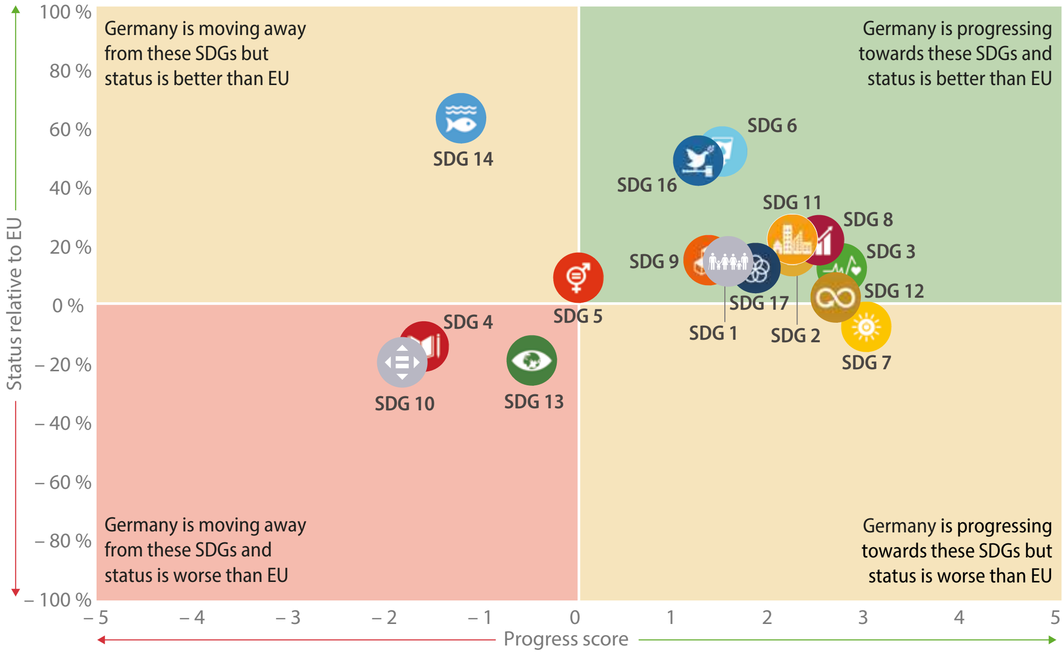
Source: Eurostat

Figure 18.6: Denmark



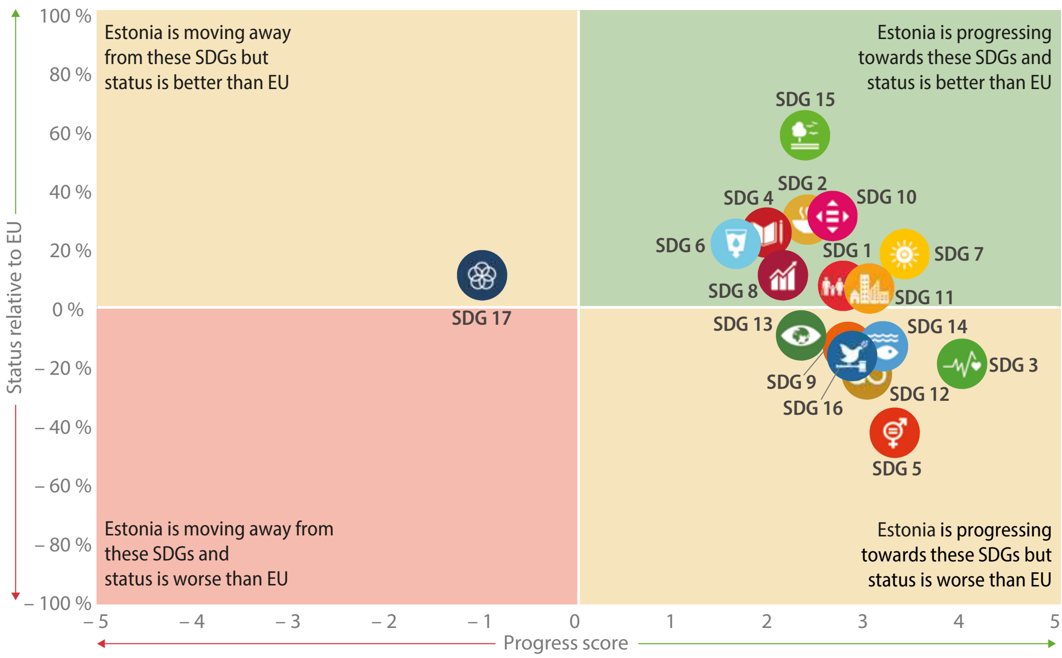
Source: Eurostat

Figure 18.7: Germany



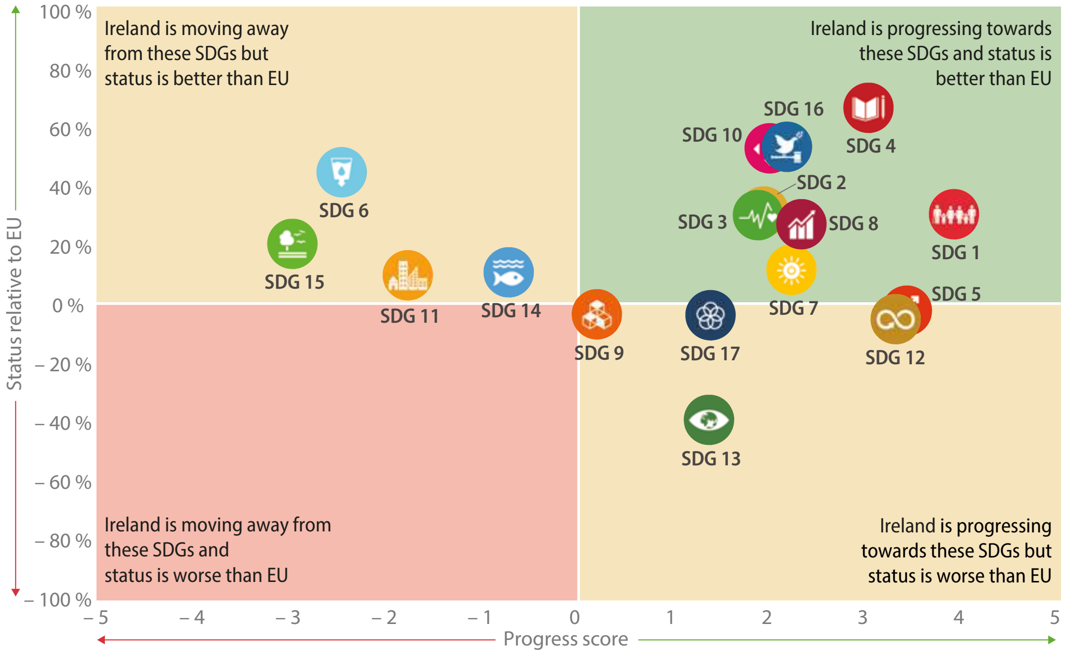
Note: The progress assessment for SDG 1 and 10 is hampered by a methodological change in Germany's EU-SILC survey in 2020.
Source: Eurostat

Figure 18.8: Estonia



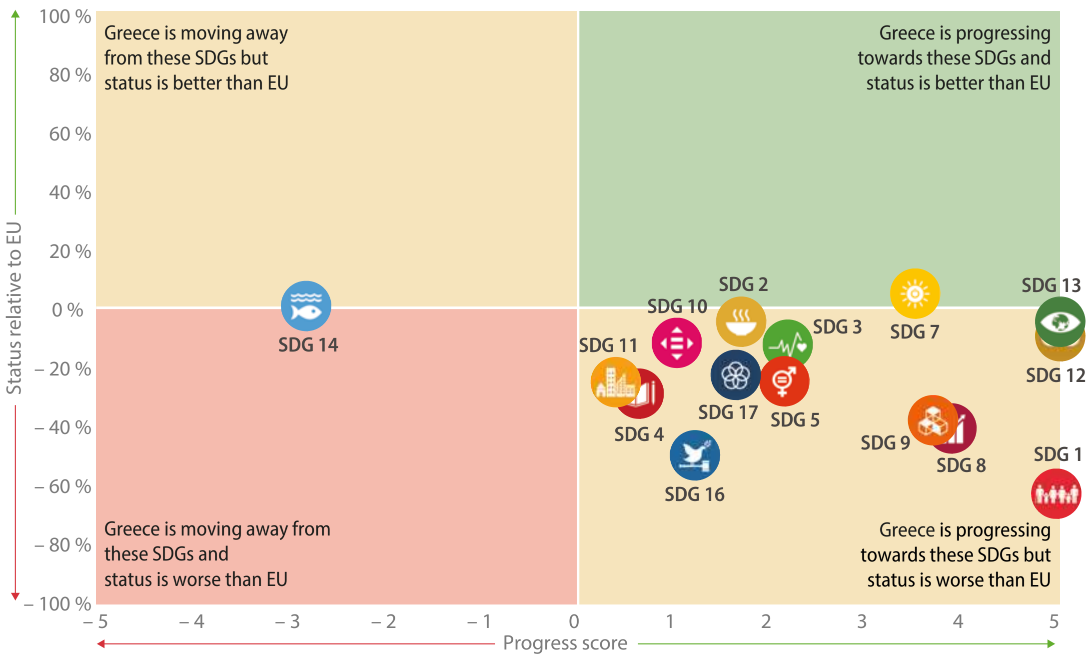
Source: Eurostat

Figure 18.9: Ireland



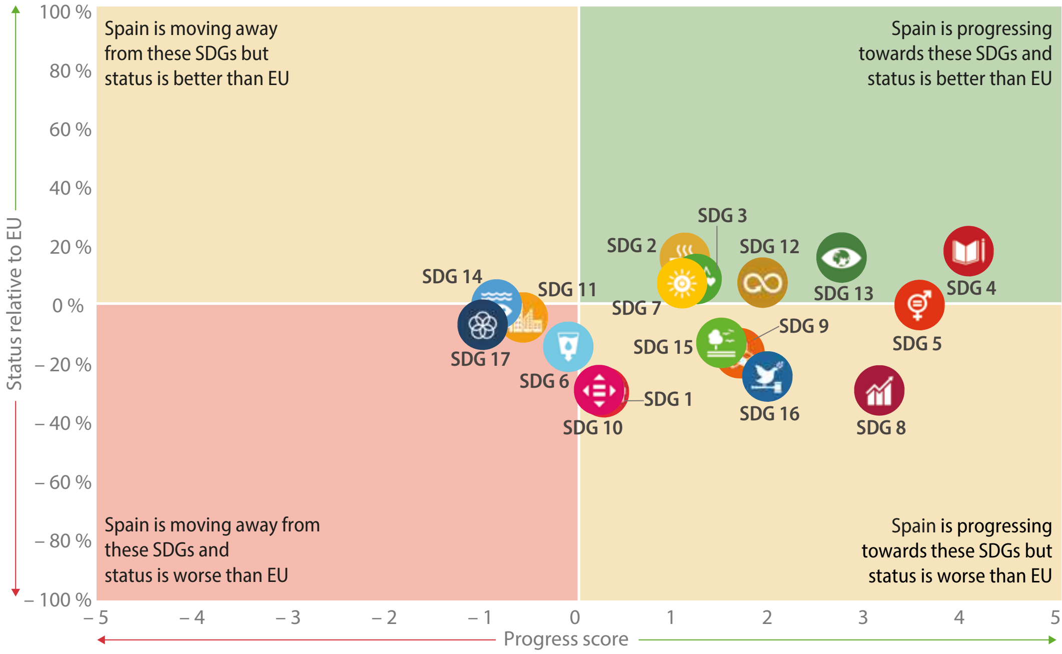
Source: Eurostat

Figure 18.10: Greece



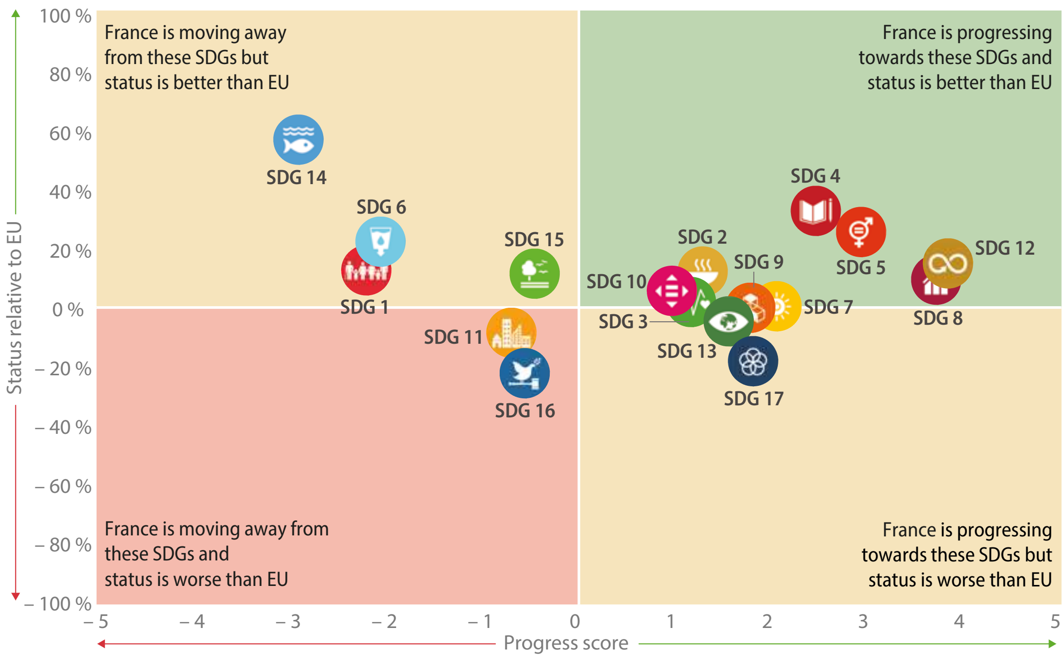
Source: Eurostat

Figure 18.11: Spain



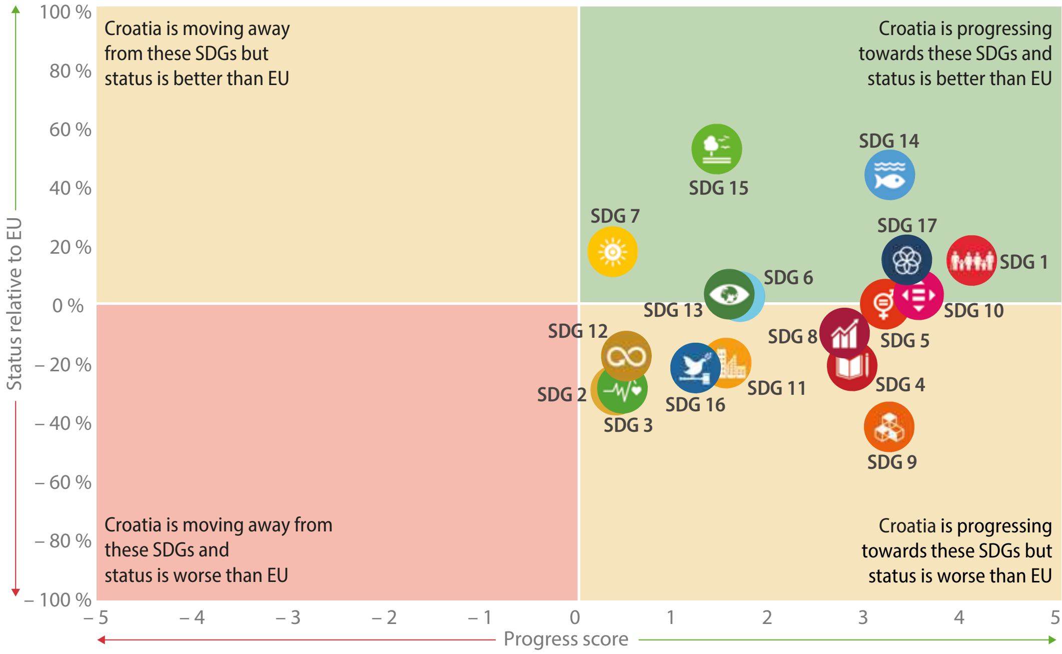
Source: Eurostat

Figure 18.12: France



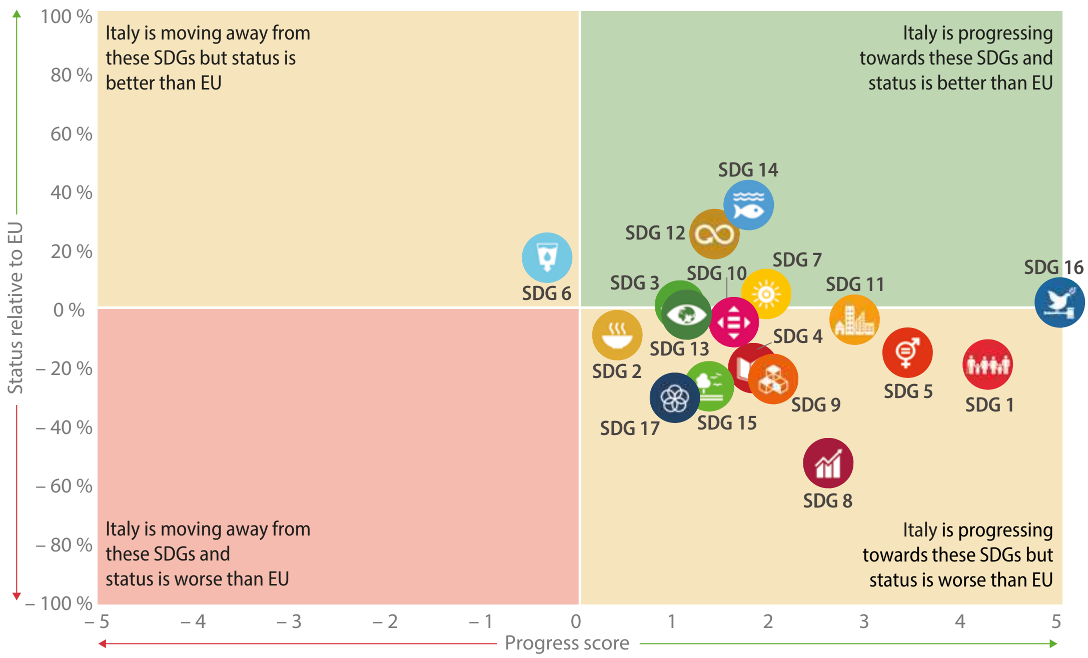
Source: Eurostat

Figure 18.13: Croatia



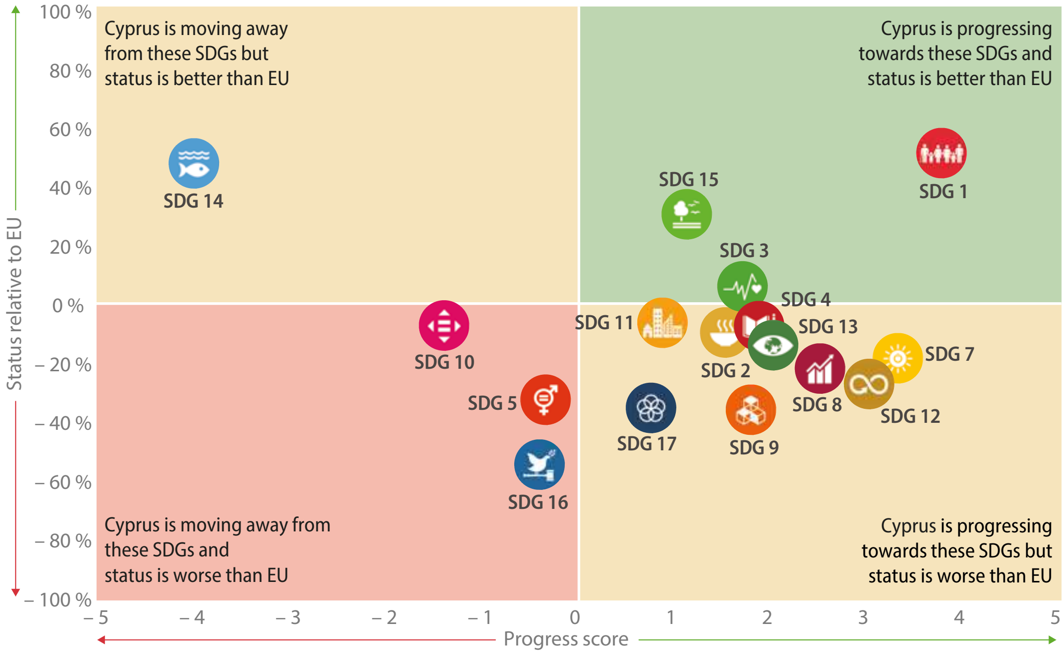
Source: Eurostat

Figure 18.14: Italy



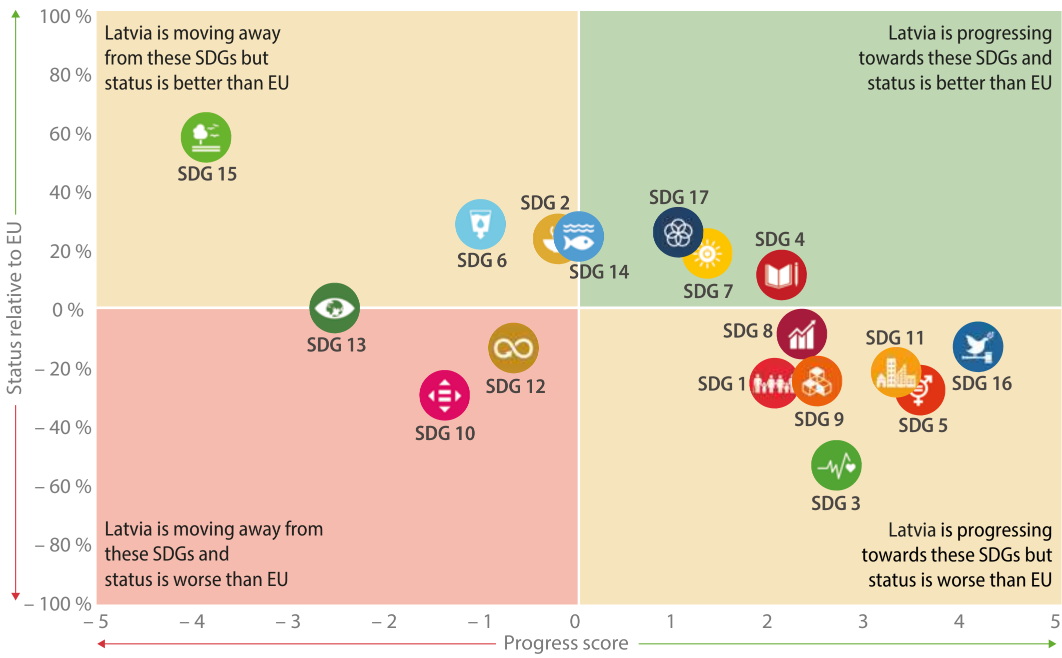
Source: Eurostat

Figure 18.15: Cyprus



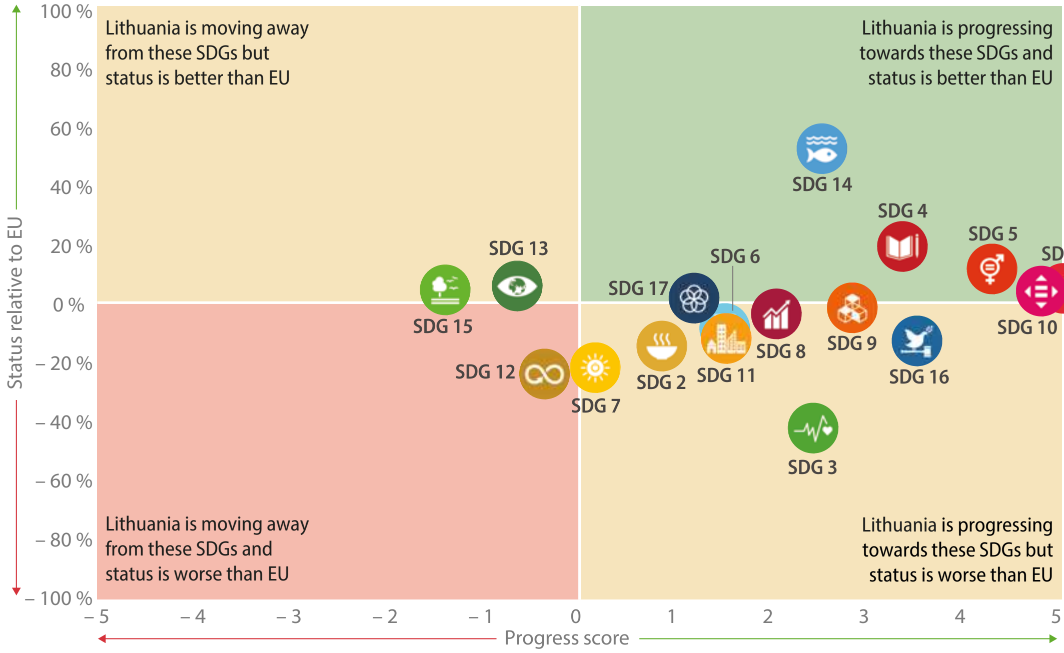
Source: Eurostat

Figure 18.16: Latvia



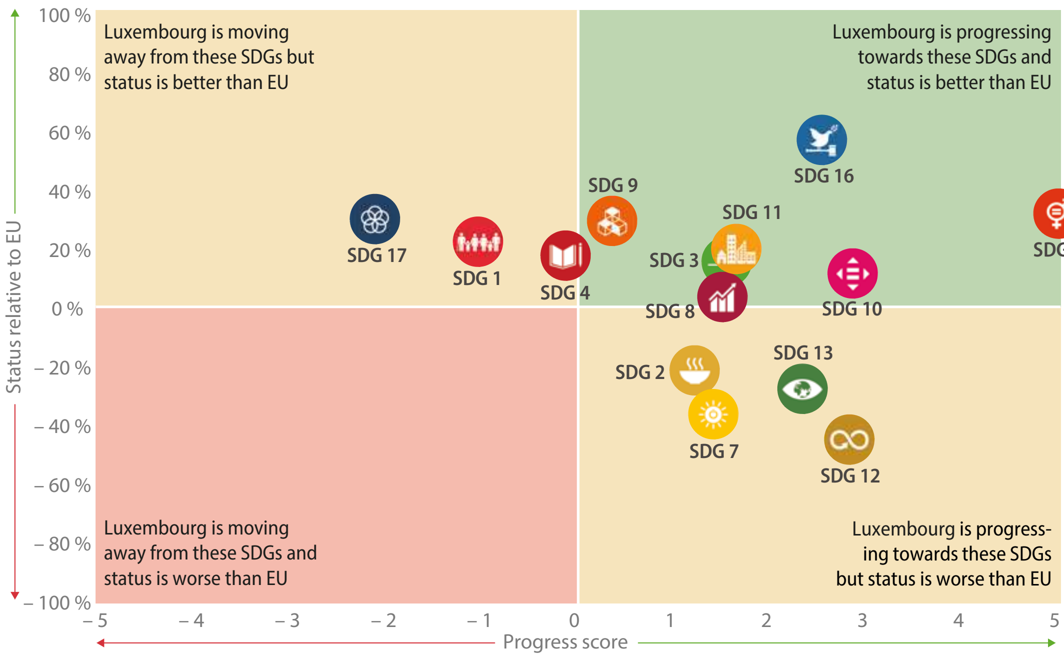
Source: Eurostat

Figure 18.17: Lithuania



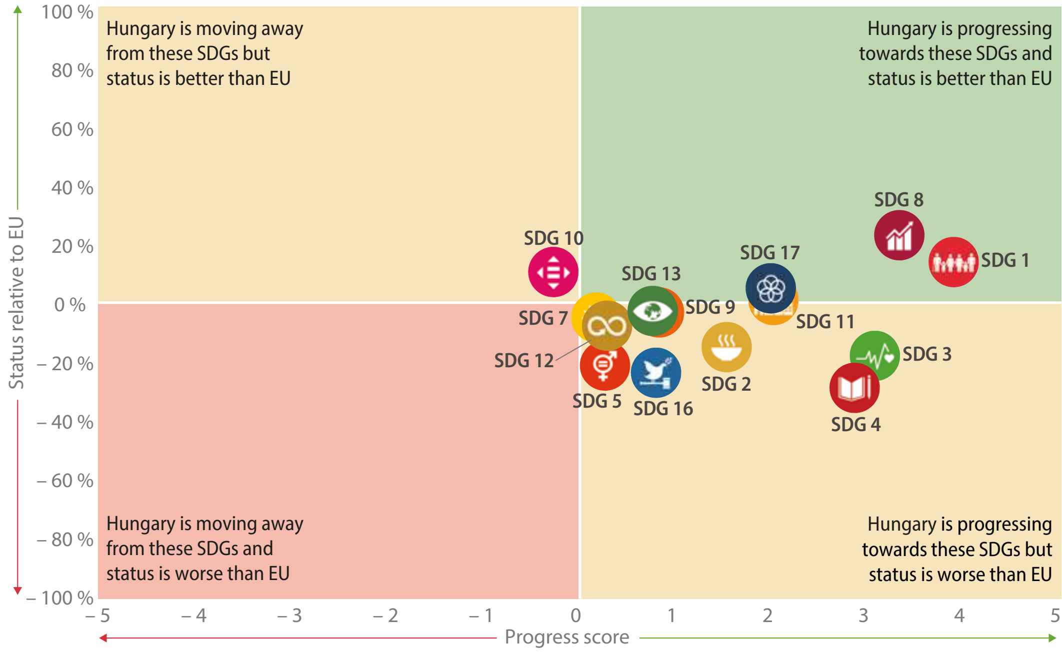
Source: Eurostat

Figure 18.18: Luxembourg



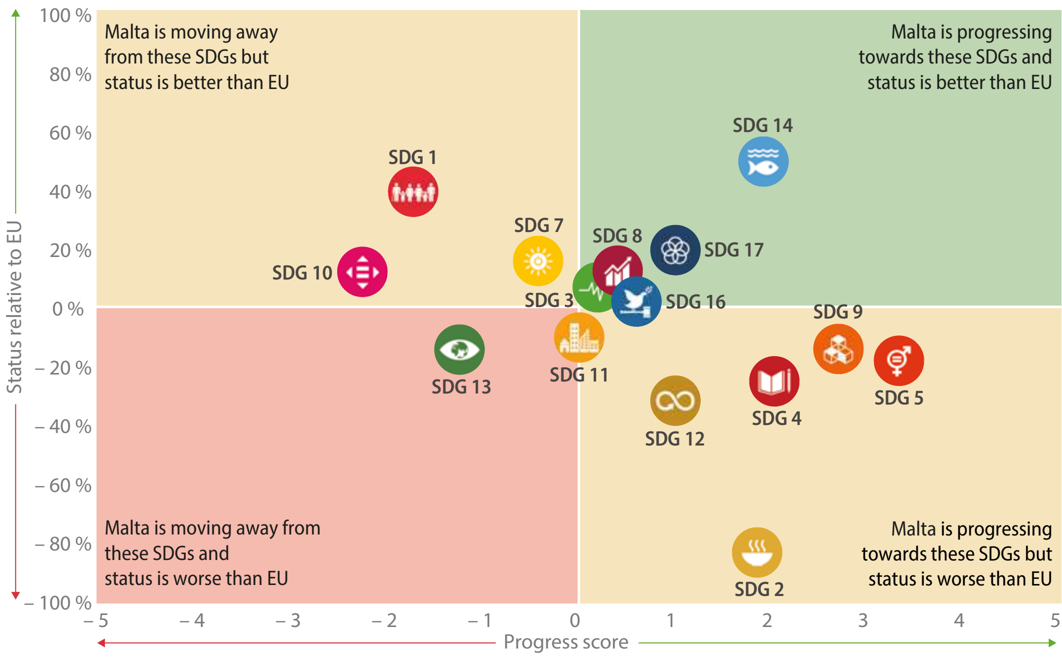
Source: Eurostat

Figure 18.19: Hungary



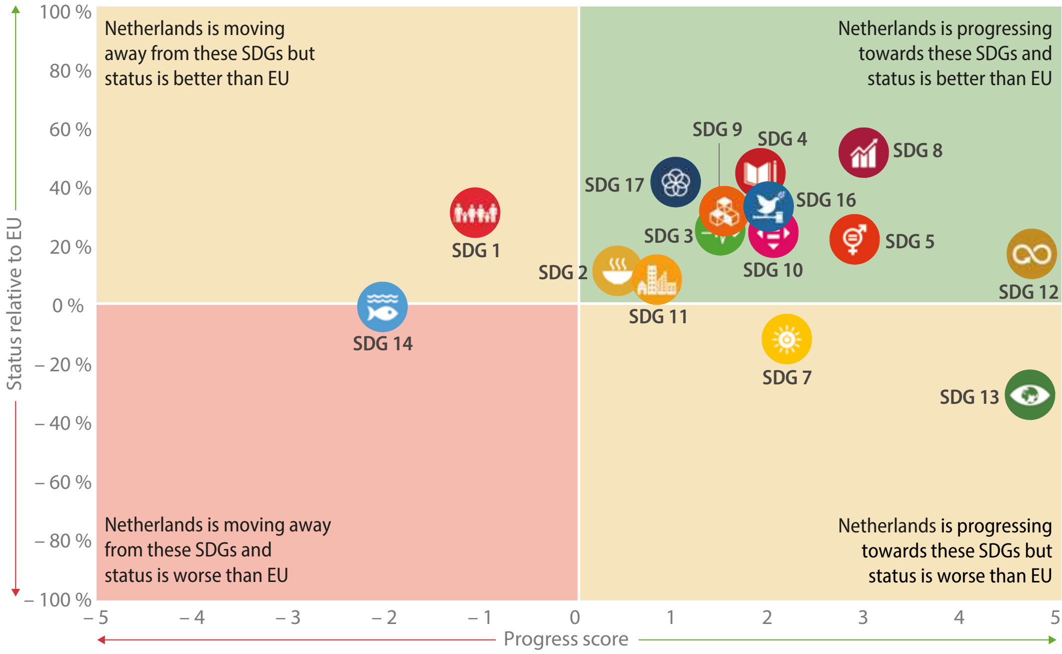
Source: Eurostat

Figure 18.20: Malta



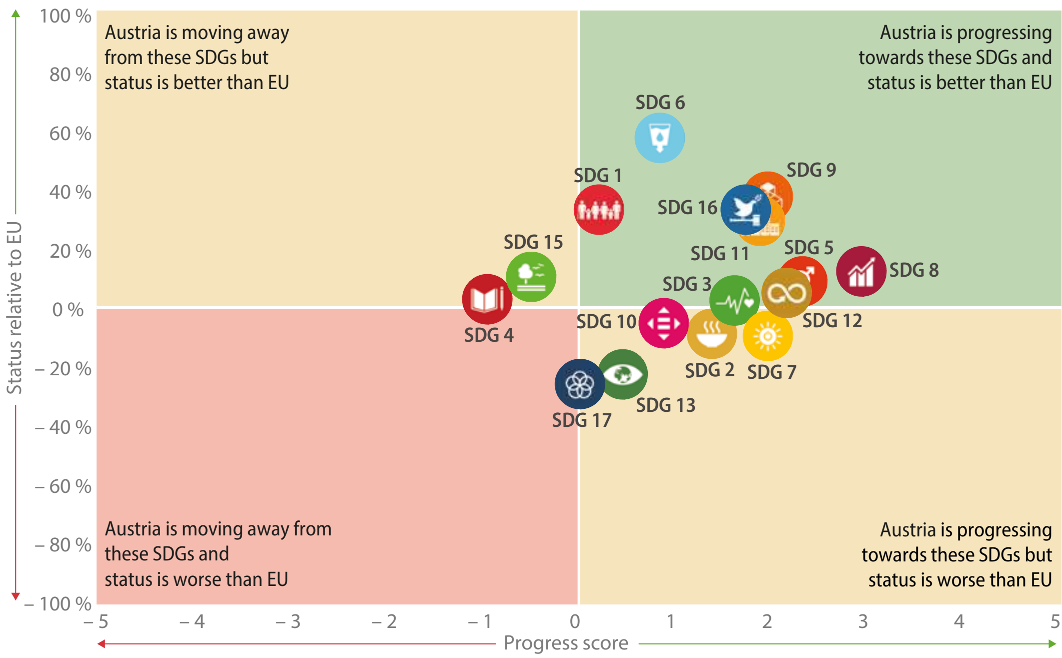
Source: Eurostat

Figure 18.21: Netherlands



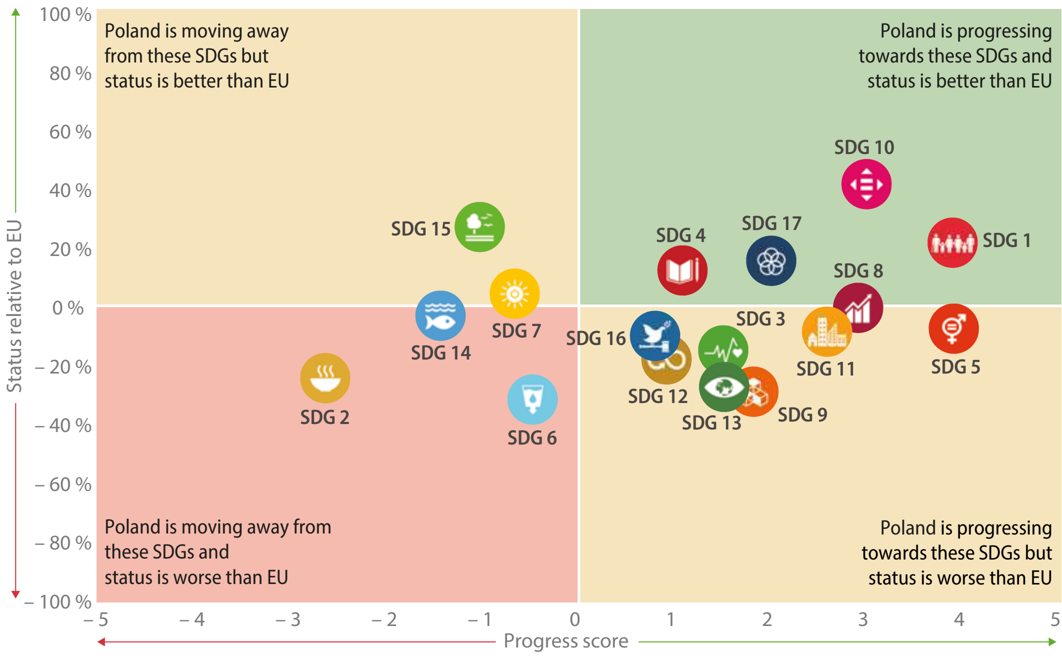
Source: Eurostat

Figure 18.22: Austria



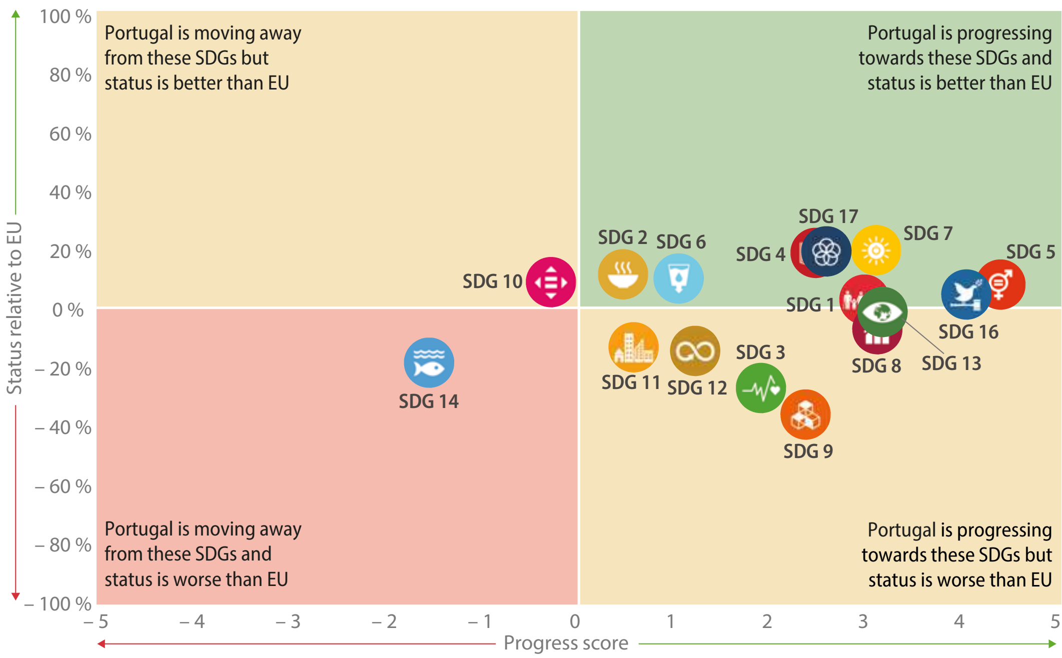
Source: Eurostat

Figure 18.23: Poland



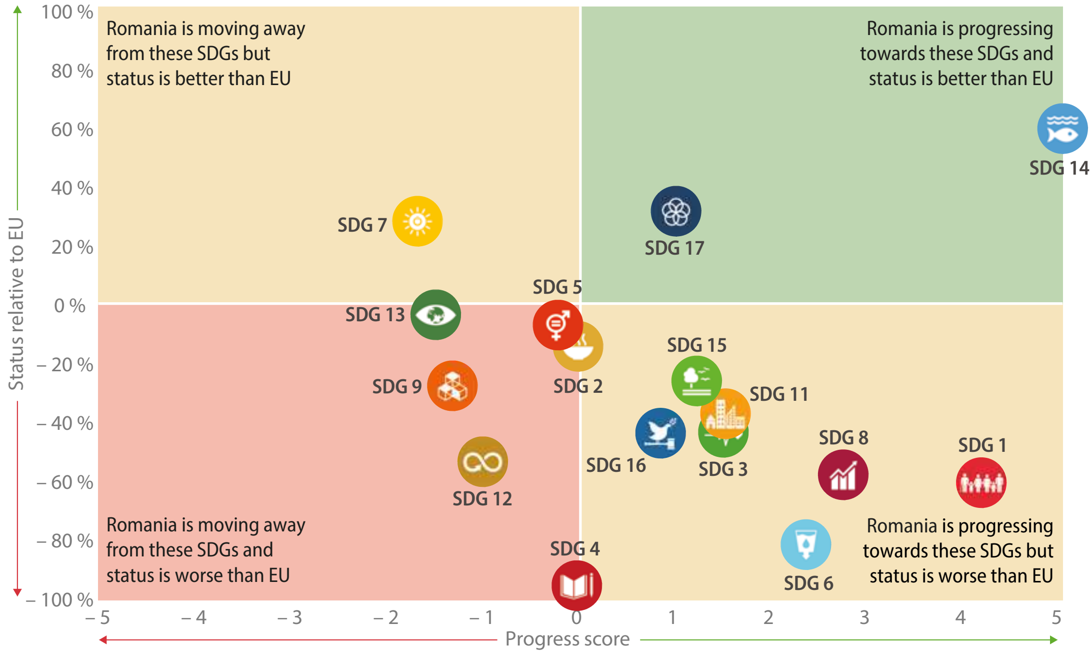
Source: Eurostat

Figure 18.24: Portugal



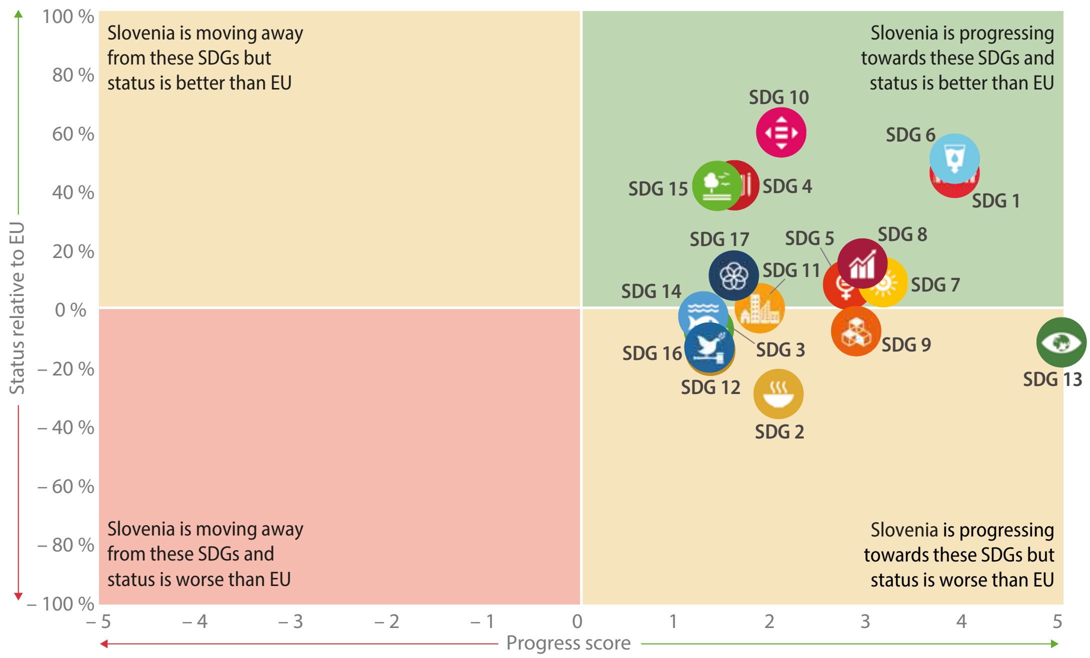
Source: Eurostat

Figure 18.25: Romania



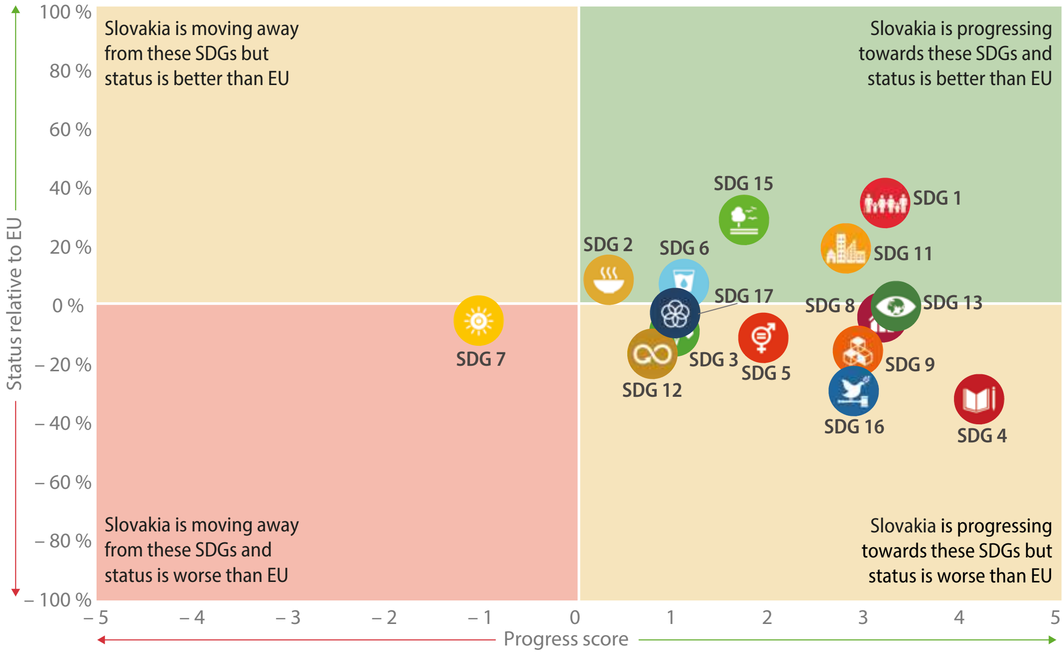
Source: Eurostat

Figure 18.26: Slovenia



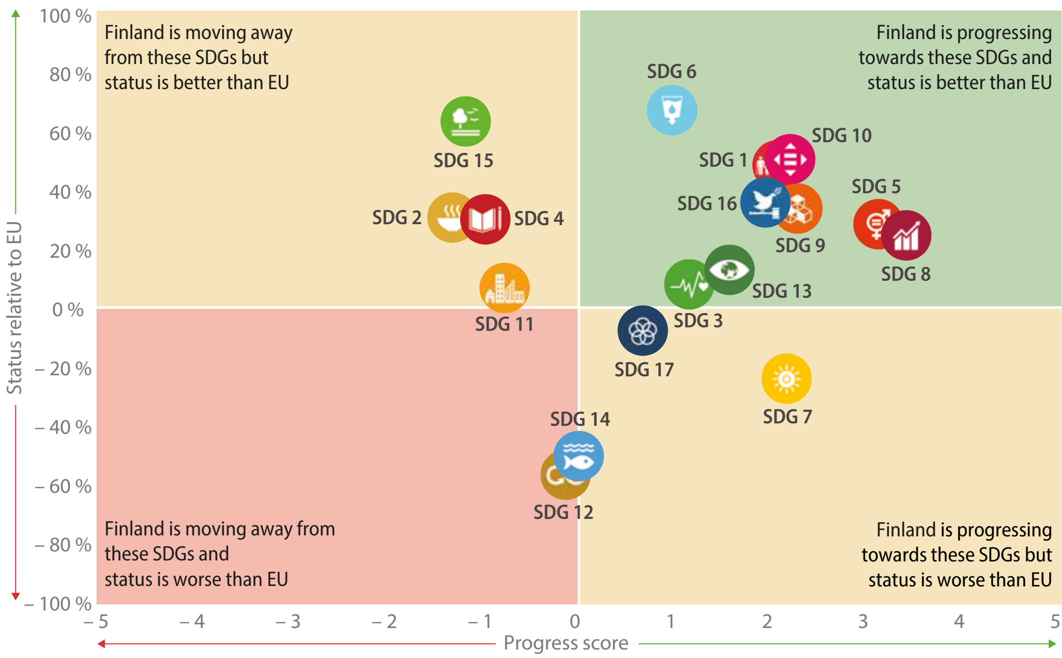
Source: Eurostat

Figure 18.27: Slovakia



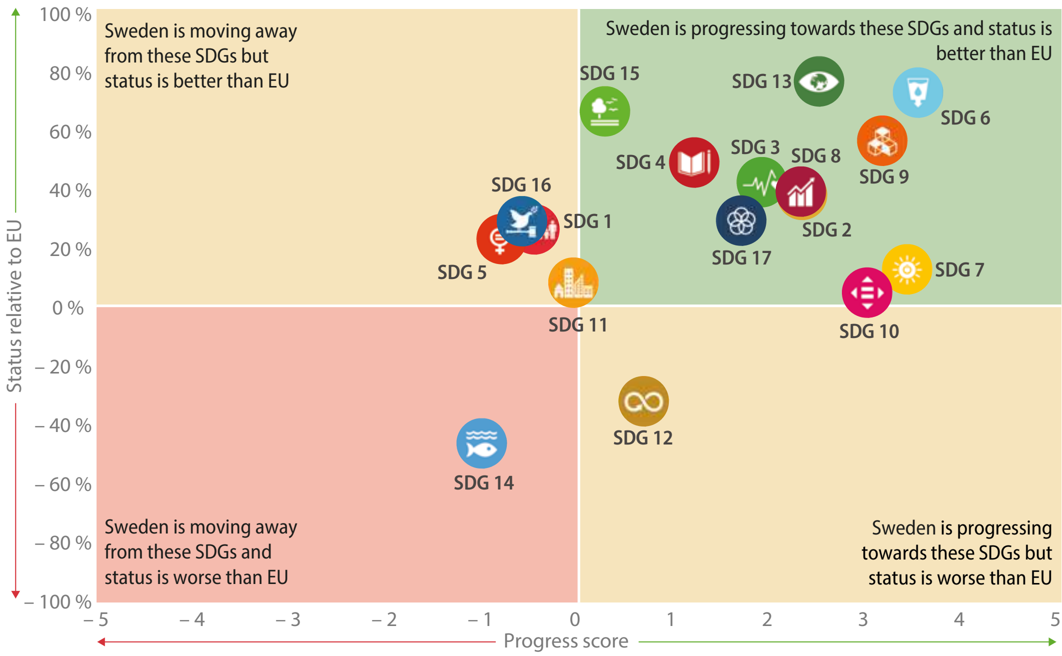
Source: Eurostat

Figure 18.28: Finland



Source: Eurostat

Figure 18.29: Sweden



Source: Eurostat

Notes

([1]) A more detailed description of the methodology used for the country status and progress calculations is available on the Eurostat website.

([2]) The (comparative) status is a composite index based on the relative indicator values so for each indicator in the goal, the worst country value corresponds to 0 points and the best to 100 points. During the indexing at indicator level, outliers are excluded (see next footnote) and are manually assigned an index value of 0 or 100 (depending on which end of the distribution an outlier is situated). The country status is then the average points across all indicators.

([3]) Outliers are identified by means of the interquartile range (IQR) method (see Hoaglin, D. C., Iglewicz, B., & Tukey, J. W. (1986), *Performance of Some Resistant Rules for Outlier Labeling*, Journal of the American Statistical Association, 81(396), 991–999 and Hoaglin, D. C., & Iglewicz, B. (1987), *Fine-Tuning Some Resistant Rules for Outlier Labeling*, Journal of the American Statistical Association, 82(400), 1147–1149). This method involves calculating the first and third quartiles of the country distribution, with the IQR representing the difference between these two values. The boundaries for identifying outliers are then determined by multiplying the IQR by the factor two and by subtracting/adding these values from/to the first/third quartile, respectively. Values below/above these thresholds are considered outliers and are excluded during indexing, meaning that countries identified as outliers with this method are assigned the value of the next best/worst country for the indexing.

Estimating spillover effects of EU consumption

Summary

In a globalised world, countries' actions towards sustainable development may positively or negatively influence other countries and their capacity to achieve the SDGs. Measuring spillover effects is therefore important for designing policies with positive impacts beyond domestic borders. This chapter builds upon consumption-based methods for measuring spillover effects embedded in international trade. The aim is to quantify the EU's spillovers expressed as trade balance (imports minus exports) and to show whether they have increased or decreased over time.

Carbon dioxide (CO_2) footprint: In 2020, 9.3 % of global CO_2 emissions could be traced back to the EU's consumption. In recent years, the EU has been a net importer of CO_2 emissions, meaning that the emissions embodied in imported goods and services for the EU's consumption have been higher than the emissions embodied in the EU's exports. Between 2015 and 2020, the EU's net imports of CO_2 emissions increased, meaning the negative spillover effects of the EU's consumption on other countries have increased.

Material footprint: In 2020, EU inhabitants consumed 6.4 % of raw materials used globally. The EU was also a net importer of raw materials, meaning that more of the materials needed for EU consumption were extracted outside the EU than the EU exported to third countries for their consumption. Since 2015, the EU's net imports of raw materials have decreased, meaning there has been a reduction in the negative spillover effects of the EU's consumption on other countries.

Land footprint: Three types of land footprints are analysed in this chapter: cropland, grassland and forestry land. In 2019, crops cultivated for the EU's consumption constituted about 8 % of the global cropland. Between 2014 and 2019, the EU was a net importer of cropland, with net imports also increasing by around 25 % over the period. Moreover, in 2019, the EU needed only around 2 % of the global grassland for its consumption, but around 7 % of the worldwide forest area.

Gross value added (GVA): Total GVA induced by EU consumption in 2020 was nearly EUR 11 600 billion. In the same year, the GVA generated in the EU as a result of consumption outside the EU was higher than the GVA induced in non-EU economies, making the EU a net exporter of GVA. Since 2015, the net balance between GVA resulting from EU imports and exports has also increased.

The analysis in this chapter shows a mixed picture regarding the developments in the EU's spillover effects on other parts of the world. On the one hand, positive spillovers in the form of GVA increased over the short-term period, while negative effects of the EU's consumption of raw materials decreased. On the other hand, EU consumption continues to affect environmental conditions in the rest of the world, and some of these effects have intensified, as shown by the increases in the CO_2 and cropland footprints.

Table III.1. EU's population, consumption and footprints, 2015 and 2020

	2015	2020	Change 2015–2020	EU share in 2020
Population	444.2 million	447.3 million	0.7 %	5.7 %
CO_2 footprint	3.7 Gt	3.2 Gt	– 13.5 %	9.3 %
Material footprint	6.2 Gt	6.1 Gt	– 1.9 %	6.4 %
Cropland footprint	127 million ha	131 million ha (¹)	3 % (²)	8 % (¹)
GVA	10 503 billion EUR	11 572 billion EUR	10.2 %	16.2 %

(¹) Data refer to 2019.
(²) Change 2015–2019.

To put the EU's emissions and consumption into perspective, the data are compared with the EU's share of the global population. In 2020, the EU's population was 447 million people, which equalled 5.7 % of the world population compared with 6.0 % five years before (¹).

Introduction

To end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity, it is not enough for only a few countries in the world to achieve the SDGs. Instead, the 2030 Agenda must be fulfilled by the entire international community. In a globalised world, countries' actions towards sustainable development may positively or negatively influence other countries and their capacity to achieve the SDGs (²). Therefore, governments and societies need to consider the impacts that their domestic policies and behaviour may have beyond national borders, to avoid negative environmental, social and economic externalities and to foster sustainable development on a global scale (³). The impacts that activities in one sector, region or country have on other sectors, regions or countries are called spillover effects (or simply 'spillovers'). Spillovers may be a result of deliberate transboundary actions, such as official development assistance (ODA), or an unintended consequence of domestically focused policies or of the consumption of natural resources embodied in trade (⁴).

International spillovers have the capacity to either foster mutual sustainable development or to hinder individual countries' efforts towards achieving the SDGs. Therefore, measuring and understanding international spillovers is of high importance for designing sustainable development strategies with positive impacts beyond domestic borders. Different organisations and researchers have used different methods for calculating spillovers. Prominent methods prioritise consumption-based over production-based accounts (⁵), thereby focusing on international environmental, social and economic impacts that are driven by domestic consumption.

International trade in goods and services is one of the most important triggers of international spillovers, both negative and positive. Trade generates jobs in exporting countries and is a crucial source of income and economic activity. Trade and investment liberalisation promote the transfer of environmentally sound technologies, and trade also provides incentives to companies to apply higher environmental and social standards in their business models and supply chains. However, trade also drives negative spillovers that may counteract countries' efforts to achieve the SDGs. For example, environmental spillovers occur when countries import commodities that generate high levels of greenhouse gas emissions in the

International spillovers and policy relevance within the EU context

The trade policy review emphasises the need for EU trade policy to be compatible with a more sustainable growth model, as put forward by the Green Deal. One of its objective is to make supply chains more sustainable by addressing the impacts of the EU's consumption and trade on the rest of the world, in particular by promoting sustainability standards.

The carbon border adjustment mechanism (CBAM) was approved by the European Parliament and the Council in April 2023, and will start applying in its transitional phase in October 2023. CBAM addresses the risk of carbon leakage, which occurs when industries transfer polluting production to other countries with less stringent climate policies, or when EU products are replaced by more carbon-intensive imports. The CBAM will require importers to buy certificates to account for embodied emissions in certain carbon-intensive products, mirroring the EU Emissions Trading System (EU ETS).

In February 2022, the Commission adopted a proposal for a Directive on corporate sustainability due diligence. The aim of this Directive is to foster sustainable and responsible corporate behaviour and to anchor human rights, international labour standards and environmental considerations in companies' operations and corporate governance. The new rules will ensure businesses address any adverse impacts of their actions, including in their value chains inside and outside Europe.

In November 2021, the Commission proposed a Regulation to minimise EU-driven deforestation and forest degradation. The new rules promote the consumption of 'deforestation-free' products in order to decrease the EU's impact on global deforestation embodied in imported agricultural products, thereby reducing greenhouse gas emissions and biodiversity loss.

country where they are made, instead of producing these (and the emissions) themselves. Thus, the importing countries avoid domestic emissions and the emissions are attributed to the producing countries. Eliminating child labour and forced labour as well as ensuring that labour rights are respected along the supply chain are further challenges.

The aim of this chapter is to quantify the EU's spillovers, put them into perspective by comparing them with other world regions and to show whether the EU spillovers expressed as trade balance (imports minus exports) have increased or decreased over time. The chapter is written from a perspective that, when it comes to environmental spillovers, countries should strive to minimise their footprint and achieve a net balance of zero in their trade. Thus, the analysis presented here largely focuses on the question of balance, while the total amount of the EU's consumption and production and its negative impacts are discussed in other parts of the report, especially in the chapter on SDG 12 'Sustainable consumption and production' (see page 219).

Spillover effects in this chapter are measured by four indicators: CO_2 footprint, material footprint, land footprint and gross value added (GVA). CO_2 footprint and GVA have been estimated with the FIGARO multi-regional input–output model (6) while material and land footprints use different, less detailed models. For more information please see the explanatory note on the Eurostat website. The analysis below is structured around the four indicators. First, each indicator is explained, then the EU's share in global emissions and consumption is discussed, and finally, the development of the EU's spillovers over time is presented.

CO_2 footprint

The CO_2 footprint, or carbon footprint, measures carbon dioxide emissions classified by final use of products in the EU. In other words, it measures the amount of CO_2 emissions that can be traced back to consumption within the EU's borders. It comprises both the emissions originating in the EU and those originating abroad but serving the EU's consumption. The CO_2 footprint has been estimated using the FIGARO input–output model.

In 2020, 9.3 % of the global CO_2 emissions could be traced back to the EU

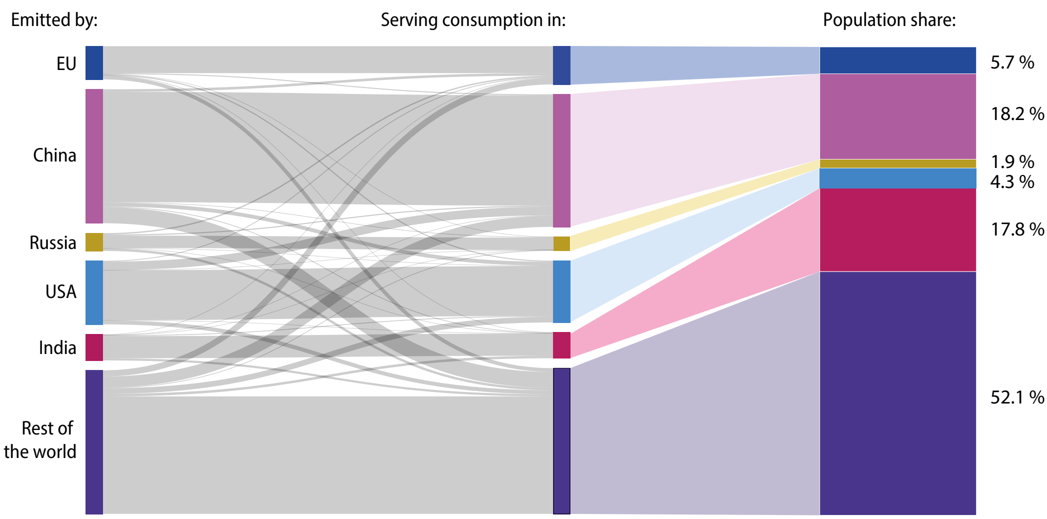
Comparing the EU with other economies of the world puts the effects of EU's consumption on other countries into perspective. In 2020, the EU's population was 447 million people, which equalled 5.7 % of the world population in that year ([7]). At the same time, as shown in Figure III.1, 9.3 % of the global CO_2 emissions could be traced back to the EU's consumption in 2020 ([8]). This indicates that the EU generates a disproportionally high share of the world's emissions when compared with its share of the global population.

However, a similar pattern can also be seen for the other main economies of the world. With a population of 1.42 billion, China's share of the world population was 18.2 % in 2020, however, its consumption accounted for a third (30.4 %) of the world's emissions in that year. An even larger discrepancy between the population share and the share in global CO_2 emissions could be observed for the United States. While the country was home to 4.3 % of the world's population, its share in global emissions was more than three times higher, at 15.0 %. India, on the other hand, hosted 17.8 % of the global population in 2020, but caused only 6.3 % of global CO_2 emissions. The rest of the world (excluding China, EU, the USA, India and Russia) accounted for more than half (52.1 %) of the world population, while only 35.5 % of global CO_2 emissions could be attributed to these countries in 2020.

Almost a third of the CO_2 emissions serving EU consumption are generated outside of the EU

As illustrated in Figure III.1, most of the CO_2 emissions serving consumption in the world's main

Figure III.1. Comparison of CO_2 emissions from a production and consumption perspective with world population, 2020



Source: Eurostat, JRC (estimates based on FIGARO data as well as demo_gind and https://population.un.org/wpp/)

economies are also generated in these countries, meaning that none of these countries is generating more emissions abroad than it does domestically.

In 2020, 2.3 gigatonnes (Gt) or 70 % of the total CO_2 emissions serving the EU's consumption were generated in the EU, while 0.9 Gt of global CO_2 emissions serving EU consumption originated from non-EU countries. From these non-EU countries serving EU's consumption, China had the largest share with 0.21 Gt or around 22 %. This reflects that China is the EU's main trading partner for imports: in 2020, the share of EU total imports (in value) originating from China amounted to 22.4 % ([9]).

In 2020, Russia accounted for 0.11 Gt CO_2 emissions serving the EU's consumption ([10]), followed by the United States (0.07 Gt) and India (0.04 Gt). Notably, while embodied emissions from Russia exceeded those from the US, the share in the value of US imports in total EU imports was higher (11.8 %) than from Russia (5.5 %) ([11]). This might be explained by the fact that a substantial part of imports from Russia were semi-manufactured low-value products such as steel ([12]), which generate relatively high CO_2 emissions during their production.

The EU's CO_2 footprint increased between 2015 and 2020

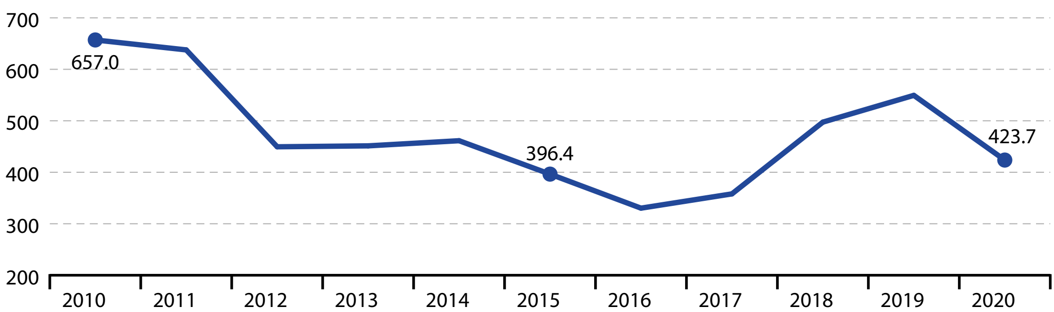
Between 2015 and 2020, the CO_2 emissions embodied in imported goods and services for the EU's consumption had been higher than the emissions embodied in the EU's exports, making the EU a net importer of CO_2 emissions. In 2020, the volume of CO_2 emitted in the rest of the world serving EU consumption stood at 0.9 Gt, while 0.5 Gt CO_2 were emitted by the EU economy for the production of goods that were exported to the rest of the world. This resulted in a net import of 0.4 Gt of CO_2 emissions in 2020.

Since 2010, the physical trade balance of the EU's CO_2 footprint has improved, decreasing by 35.5 % between 2010 and 2020 (see Figure III.2). This indicates that in 2020 the EU's consumption caused less spillover effects than ten years before. However, this progress was mostly achieved between 2010 and 2016. In the short-term period between 2015 and 2020, the EU's net imports increased by 6.9 %, despite a 22.9 % drop in net imports in 2020 due to the pandemic. This growth in net imports of CO_2 emissions between 2017 and 2019 was driven by an increase in imports and a simultaneous decrease in exports.

Material footprint

The material footprint, also referred to as raw material consumption (RMC), shows the amount of materials required along the supply chains of the goods and services finally consumed in a country. Eurostat estimates the material footprint by calculating the actual weight of materials extracted to produce the traded goods — the so-called raw material equivalents (RME) of imports and exports — instead of the weight of the goods

Figure III.2: Net imports of CO_2 emissions, EU, 2010–2020 (thousand tonnes)



Source: Eurostat, JRC (estimates based on FIGARO data) crossing country borders. In other words, the weight of processed goods traded internationally is converted into the corresponding raw material extractions that was required to make them. This is typically two to three times more than the actual weight of the exported goods.

Since the material footprint is able to capture resources used along international supply chains for the production of final goods, it is a useful tool for assessing spillovers in material consumption. It highlights the increasing spatial separation of production and consumption and the relocation of environmental impacts associated with material extraction. All raw materials extracted and used worldwide are allocated to domestic final consumption. Thus, outsourcing of material-intensive extraction and processing does not reduce a country's overall material footprint. Material footprint is measured with the help of a single region input–output modelling.

The EU consumed 6.4 % of the world's raw materials in 2020

In 2020, the EU population consumed 6.1 Gt of raw material, which corresponds to 6.4 % of the raw material consumed globally. The EU's share of global raw material consumption was thus only slightly above its population share. Of all the raw materials serving the EU's consumption, 3.9 Gt or around 64 % were extracted in the EU, while 2.3 Gt were extracted outside the EU's borders. This means that around one-third of the raw materials needed for EU consumption were imported.

Net import of raw materials has decreased since 2015 in the EU

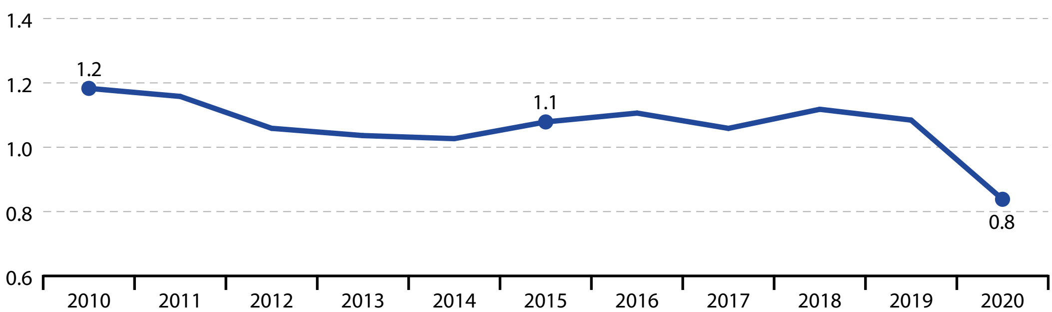
In 2020, the EU was a net importer of raw materials, meaning that more of the materials needed for its consumption were extracted outside the EU (2.3 Gt) than it exported to third countries for their consumption (1.4 Gt).

Figure III.3 shows that the trade of raw materials in the EU had become more balanced between 2010 and 2020. While in 2010 net imports of raw materials for EU consumption constituted 1.2 Gt, this value dropped to 0.8 Gt in 2020 — a decrease of about 30 %. Between 2015 and 2020, net imports decreased by around 22 %. Over this period, the strongest drop occurred in 2020, when net imports fell by almost 23 % compared with the previous year, most probably a result of the COVID-19 pandemic.

Land footprint

The land footprint — or virtual land — refers to the estimated amount of land needed to produce one unit of a given final product consumed in a country, regardless of where in the world the land was. Land footprints highlight the EU's dependency on foreign land embodied in goods and services consumed within the EU. While land

Figure III.3: Net imports of raw materials, EU, 2010–2020
(gigatonnes)



Source: OECD, Imprint ([14]), Eurostat (online data code: env_ac_rme) use itself does not show concrete and direct environmental impacts, it may serve as a proxy for the pressure on ecosystems and biodiversity stemming from production and consumption systems in a given country. There are three different land footprints included in this chapter, modelled based on land use coefficients of imported agricultural products: cropland used to cultivate crops, grassland used to produce meat and dairy products, and forestry land used to produce timber. Cropland and grassland together constitute the farmland footprint.

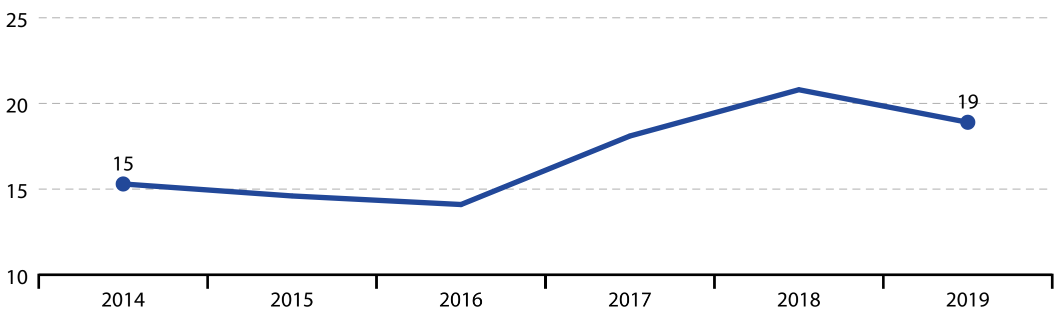
In 2019, crops cultivated for the EU's consumption utilised 8 % of the global cropland

In 2019, the EU consumed crops cultivated on an equivalent of about 130 million hectares (ha) of cropland located both inside and outside the EU, representing about 8 % of the world's cropland. Crops produced within the EU's borders required 70 million ha of land, while 60 million ha outside the EU were used for crops serving EU consumption. At the same time, crops exported by the EU required around 41 million ha of cropland. The discrepancy between the imported and exported cropland makes the EU a net importer of around 19 million ha cropland, which is about 17 % of EU cropland and about the size of Belgium, the Netherlands, Denmark and Austria together.

In the same year, the EU needed 52 million ha of grassland for its consumption, which was only 2 % of the worldwide grassland. Almost all of that grassland (48 million ha or 92 %) was located within the EU borders, and 4 million ha were exported. Grassland is mainly used to feed livestock. However, since EU livestock are also fed with significant amounts of fodder crops produced on cropland, this number does not reflect the total land use embodied in EU consumption of livestock products. As the EU is a net importer of cropland, a certain amount of this imported cropland may also be used to sustain livestock-rearing in the EU.

The global farmland footprint (cropland and grassland combined) of EU consumption was around 183 million ha in 2019, which represented around 4 % of farmland worldwide. Producing the agricultural products imported by the EU required around 64 million ha of farmland, while the rest of the world consumed products requiring 44 million ha of farmland in the EU. The EU was consequently a net importer of around 20 million ha farmland, corresponding to around 12 % of EU farmland. Hence, in absolute terms, each EU resident consumed agricultural products that required more than 1 400 square metres (m^2) of farmland located outside the EU, while people in the rest of the world required around 60 m^2 of EU farmland per person ([13]).

Figure III.4: Net imports of cropland, EU, 2014–2019
(million ha)



Source: JRC, Eurostat, FAOSTAT (Land use)

About 109 million ha of forest land equivalents in the EU were used for timber production in 2019, representing 6 % of worldwide productive forest area. Around 40 % of the timber produced was exported, serving consumption in the rest of the world. The forest land embodied in these exports, however, only made up some 2 % of non-EU consumption of timber-based products. The EU consumed timber-based products associated with an equivalent of about 125 million ha of forest area, which was about 7 % of the world's productive forest area. Almost half of the timber-based goods consumed in the EU were produced on forest land outside the EU. Producing the timber-based products imported by the EU required around 58 million ha of forest land, while the rest of the world consumed products requiring 42 million ha of forest land located in the EU. This makes the EU a net importer of around 16 million ha of forest land, corresponding to around 15 % of its productive forest area.

The EU's cropland footprint increased between 2014 and 2019

In 2019, the EU imported crops that required around 60 million ha to grow, while crops exported to outside the EU required around 41 million ha of cropland, making the EU a net importer of cropland. Since 2014, the EU's net imports of cropland required for cultivating crops for EU consumption have increased by around 25 %, reaching 19 million ha in 2019 (see Figure III.4). This increase can be largely attributed to an increase in imported cropland over this period.

Gross value added (GVA)

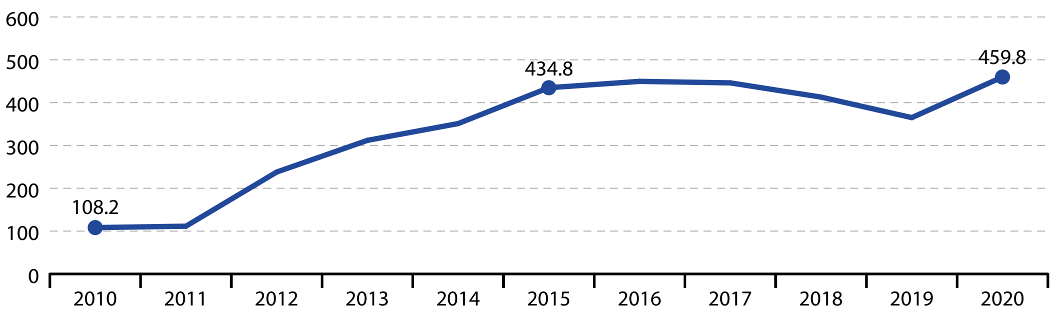
GVA is the difference between an economy's output and the intermediate consumption, and is one of the main elements of GDP. It is a good approximation of the size of the economy from a production perspective. FIGARO data allow GVA to be estimated for economies inside and outside the EU and therefore can be used to show the economic value generated outside the EU for consumption inside the EU.

Net exports of gross value added have increased in the EU since 2015

Total GVA induced by EU consumption in 2020 was nearly EUR 11 600 billion. From this amount, around EUR 1 448 billion or 12 % were induced in non-EU economies. GVA generated in the EU as a result of consumption outside the EU was around one-third higher, at EUR 1 908 billion. This makes the EU a net exporter of GVA and mirrors the export surplus of the EU economy.

Since 2010, GVA induced in the rest of the world by EU consumption has increased by around 22 %, while GVA as a result of exports to the rest of the world has increased by around 48 %. This means that the gap between GVA resulting from EU imports and exports has been widening, although the trend has slowed over the past five years.

Figure III.5: Net exports of gross value added, EU, 2010–2020
(EUR billion)



Source: Eurostat, JRC (estimates based on FIGARO data)

Notes

([1]) Calculations based on Eurostat (online data code: DEMO_GIND) and https://population.un.org/wpp/.
([2]) Sustainable Development Solutions Network (SDSN) (2019), *Policy Brief: International Spillovers and the Sustainable Development Goals (SDGs). Measuring how a country's progress towards the SDGs is affected by actions in other countries.*
([3]) Joint Research Centre-European Commission (2021), *Understanding the Spillovers and Transboundary Impacts of Public Policies Implementing the 2030 Agenda for More Resilient Societies: Implementing the 2030 Agenda for More Resilient Societies*, OECD Publishing.
([4]) Ibid.
([5]) 'Production-based' means, for example, direct observation of CO_2 emissions as they are generated, while 'consumption-based' refers to, for example, CO_2 emissions that are generated throughout the supply chain and are hence 'embodied' in the products and services consumed. These CO_2 emissions are generated before the products are consumed, in different locations, and scattered across supply chains that may involve many countries. To get the full picture of the net balance of a country or region in terms of inward and outward spillover effects, a combination of both approaches is needed.
([6]) FIGARO stands for 'Full International and Global Accounts for Research in input–Output analysis' and comprises the EU inter-country supply, use and input–output tables (EU IC-SUIOTs). FIGARO tables are a new statistical product for economic modelling. Since 2021, they are produced annually, linking national accounts with data on business, trade and jobs for EU Member States and 18 main EU trading partners; a 'rest of the world' region completes the FIGARO tables. For more information on FIGARO, see European Commission, *ESA Supply, use and Input–output tables: FIGARO*.
([7]) Calculations based on Eurostat (online data code: DEMO_GIND) and https://population.un.org/wpp/.
([8]) The estimates for CO_2 emissions in the rest of the world for EU consumption presented here are higher than in the previous edition of the FIGARO data used for the 2022 monitoring report, which hampers the data's comparability. This is due to an improved methodology to calculate CO_2 emissions emitted by non-EU countries, by adding emissions from some processes that were not fully covered before. Since these emissions are an input into the FIGARO model, the emissions emitted in the non-EU countries serving EU consumption increased as well.
([9]) Source: Eurostat (online data code: EXT_LT_MAINEU).
([10]) CO_2 contained in energy carriers such as crude oil or gas and imported into the EU is not included in the exporting country emission account, but will show up in the importing country's balance when combusted for power generation. The CO_2 emitted in Russia for serving EU consumption is therefore not a result of Russian gas imported into the EU.
([11]) Source: Eurostat (online data code: EXT_LT_MAINEU).
([12]) Source: Eurostat (online data code: DS-018995).
([13]) Calculated using https://population.un.org/wpp/.
([14]) WU Vienna (2022), *Material flows by material group, 1970–2019*. Visualisation based on the UN IRP Global Material Flows Database, Vienna University of Economics and Business.

Annexes

Annex I: Methodological notes

Data coverage and sources

Data in this report are mainly presented for the aggregated EU level, referring to the current EU composition (27 Member States). In addition to the EU Member States, data for 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. However, for a number of indicators, in particular those based on the EU Statistics on Income and Living Conditions (EU-SILC), data are only available from 2010 or 2015 onwards.

The data presented in this report were mainly extracted in early April 2023. Additionally, the release of EU Labour Force Survey (LFS) data for 2022 was taken into account as far as data were available by the end of April 2023. Most of the data used to compile the indicators stem from the standard Eurostat collection of statistics through the European Statistical System (ESS), but a number of other data sources have also been used, including other European Commission services, the European Environment Agency (EEA), the European Institute for Gender Equality (EIGE) and the OECD.

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 ([1]). The website also includes a section called 'Statistics Explained' ([2]), 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. Further explanatory notes are also available in a methodology section on the Eurostat website.

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 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 may not necessarily undermine the reliability of the time series.

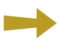
In the course of preparing this monitoring report, a case-by-case assessment of breaks in times series has been conducted to determine the extent to which a break would affect the assessment of an indicator. In cases where a break was considered significant enough to affect the assessment of an indicator 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.

Assessment of indicator trends

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' of the status ([3]).

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 below.

Table I.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
	[Category not applicable]	No 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 (e.g. time series too short)	

The assessment of indicator trends is visualised in the form of coloured arrows (see Table I.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 a green 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 I.1. For indicators with a quantitative target, the arrows show if, based on past progress, the EU is on track to reach 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 2006 to 2021 or 2007 to 2022). 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 2016 to 2021 or 2017 to 2022). 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.

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.

Method 1: Indicators without quantitative targets

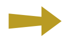
In the absence of a quantified target, it is only possible to compare the indicator trend with the desired direction. An indicator is making progress towards the SD objectives if it moves in the desired direction, and is moving away from the SD objectives if it develops in the wrong direction. The assessment is generally based on the 'compound annual growth rate' (CAGR) formula, which assesses the pace and direction of an indicator trend. The CAGR 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:

$$(1)\quad CAGR = \left(\frac{y_t}{y_{t_0}}\right)^{\frac{1}{t-t_0}} - 1$$

where: t_0 = base year, t = most recent year, y_{t0} = indicator value in base year, y_t = indicator value in most recent year.

To ensure a consistent approach throughout the report, the CAGR formula is applied to all indicators irrespective of their unit, meaning that it is also used for indicators already given as percentages (such as employment or poverty rates). The trend assessment is based on comparing the calculated growth rate of an indicator with a certain threshold, which is set at 1 % growth per year. 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 there is a significant movement in the desired direction. Furthermore, it allows a nuanced picture to be presented, with a sufficient number of indicators falling into all four categories ([4]). 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. Table I.2 shows the applied thresholds and the resulting symbols.

Table I.2: Thresholds for assessing trends of indicators without quantitative targets

Growth rate (CAGR) in relation to desired direction	Symbol
≥ 1 %	
< 1 % and > 0 %	
= 0 %	
< 0 % and > – 1 %	
≤ – 1 %	

Method 2: Indicators with quantitative targets

The assessment of trends for indicators with targets is based on the CAGR described above and takes into account concrete targets set in relevant EU policies and strategies (see Table I.4). In this case, the actual (observed) growth rate is compared with the (theoretical) growth rate that would have been required up to the most recent year for which data are available to meet the target in the target year. This comparison is done for both the long-term (past 15 years) and short-term (past 5 years) periods and does not take into account projections of possible future developments of an indicator. The calculation of actual and required indicator trends is based on the CAGR formula and includes the following three steps:

Actual (observed) growth rate:

(2a) $$CAGR_a = \left(\frac{y_t}{y_{t_0}}\right)^{\frac{1}{t-t_0}} - 1$$

where: t_0 = base year, t = most recent year, y_{t0} = indicator value in base year, y_t = indicator value in most recent year.

Required (theoretical) growth rate to meet the target:

$$(2b)\ CAGR_r = \left(\frac{x_{t_1}}{y_{t_0}}\right)^{\frac{1}{t_1 - t_0}} - 1$$

where: t_0 = base year, t_1 = target year, y_{t0} = indicator value in base year, x_{t1} = target value in target year.

Ratio of actual and required growth rate:

$$(2c)\ R_{a/r} = \frac{CAGR_a}{CAGR_r}$$

Table I.3 shows the thresholds applied for the Ra/r ratio and the resulting symbols. As the assessment is based on the comparison of the actual to the required growth rate, a neutral category (as included in Table I.2 above) is not applicable in this case.

Table I.3: Thresholds for assessing trends of indicators with quantitative targets

Ratio of actual and required growth rate	Symbol
≥ 95 %	↑
< 95 % and ≥ 60 %	↗
< 60 % and ≥ 0 %	↘
< 0 %	↓

The growth rates (CAGR) upon which the arrow symbols are based are provided in the overview tables in the beginning of a chapter. For indicators with quantitative targets, the note gives 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 given.

Table I.4 shows the EU policy targets that have been considered for assessing indicator trends over the long- and short-term periods, to give an indication of whether the developments observed mean indicators are on track to meet their respective target in the target year.

Table I.4: EU policy targets considered for assessing indicator trends

Indicator	Target	Policy reference
People at risk of poverty or social exclusion (SDG 1)	Reduce the number of people at risk of poverty or social exclusion by 15 million by 2030, including at least 5 million children	European Pillar of Social Rights Action Plan
Area under organic farming (SDG 2)	At least 25 % of the EU's agricultural land should be under organic farming by 2030	Farm to Fork strategy
Premature deaths due to exposure to fine particulate matter ($PM_{2.5}$) (SDG 3, SDG 11)	Reduce the health impacts of air pollution by at least 55 % by 2030	Zero Pollution Action Plan
People killed in road crashes (SDG 3, SDG 11)	Halving the overall number of road deaths in the EU by 2030 starting from 2019	EU road safety policy framework 2021–2030
Low achievers in reading, maths and science (SDG 4)	The share of low-achieving 15-year-olds in reading, mathematics and science should be less than 15 % by 2030	European Education Area
Participation in early childhood education (SDG 4)	At least 96 % of children between 3 years old and the starting age for compulsory primary education should participate in early childhood education and care by 2030	European Education Area
Early leavers from education and training (SDG 4)	The share of early leavers from education and training should be less than 9 % by 2030	European Education Area
Tertiary educational attainment (SDG 4, SDG 9)	The share of 25 to 34 year-olds with tertiary educational attainment should be at least 45 % by 2030	European Education Area
Gender employment gap (SDG 5)	Halve the gender employment gap by 2030 compared with 2019	European Pillar of Social Rights Action Plan
Primary and final energy consumption (SDG 7)	Reduction of final energy consumption of at least 11.7 % in 2030, compared with the energy consumption forecasts for 2030 made in 2020; for monitoring purposes this has been translated into absolute levels of primary and final energy consumption	Agreement between EU Council and Parliament on 29 March
Share of renewable energy in gross final energy consumption (SDG 7, SDG 13)	Raise the share of renewable energy in the EU's overall energy consumption to 42.5 % by 2030 (with an additional 2.5 % indicative top up that would allow to reach 45 %)	Agreement between EU Council and Parliament on 30 March
Young people neither in employment nor in education and training (NEET) (SDG 8)	Decrease the rate of young people neither in employment, nor in education or training (NEETs) aged 15 to 29 to 9 % by 2030	European Pillar of Social Rights Action Plan
Employment rate (SDG 8)	At least 78 % of the population aged 20 to 64 should be in employment by 2030	European Pillar of Social Rights Action Plan
Gross domestic expenditure on R&D (SDG 9)	Increasing combined public and private investment in R&D to 3 % of GDP	Council Recommendation on a Pact for Research and Innovation in EuropeEurope
Share of households with high-speed internet connection (SDG 9, SDG 17)	By 2030, all European households should be covered by a gigabit network	2030 Digital Compass
Recycling rate of municipal waste (SDG 11)	Increase the preparing for re-use and the recycling of municipal waste to a minimum of 60 % by weight by 2030	Directive (EU) 2018/851

Indicator	Target	Policy reference
Circular material use rate (SDG 12)	Double the EU's circular material use rate until 2030	Circular Economy Action Plan
Net greenhouse gas emissions (SDG 13)	Reduce net greenhouse gas emissions by 55 % until 2030 compared to 1990	European Climate Law
Net greenhouse gas emissions from land use, land use change and forestry (LULUCF) (SDG 13)	Net greenhouse gas removals in the LULUCF sector should reach 310 million tonnes of CO_2 equivalent by 2030	Fit for 55 package
Marine protected areas (SDG 14)	Protect a minimum of 30 % of the EU's sea area by 2030	EU Biodiversity Strategy for 2030
Terrestrial protected areas (SDG 15)	Protect a minimum of 30 % of the EU's land area by 2030	EU Biodiversity Strategy for 2030
Official development assistance (SDG 17)	Provide 0.7 % of gross national income (GNI) as ODA within the timeframe of the 2030 Agenda	The new European Consensus on Development

Method for calculating average scores at the goal level

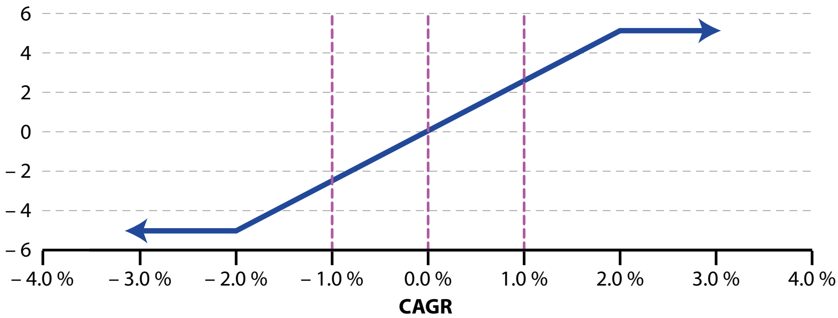
In the synopsis and the country profiles chapters of this report, average scores of the indicators are used to rank the 17 SDGs according to their level of progress over the short-term period (past 5 years). The calculation of average scores at the goal level is based on the calculations described above for the indicators that have been chosen to monitor the respective SDG. For indicators without quantitative targets, the CAGR (see formula (1) on page 347) is used. For indicators with quantitative targets, the ratio of actual to required growth (see formula (2c) on page 349) is used. These values are inserted into a scoring function (which is different for indicators with and without quantitative target) in order to calculate a score ranging from + 5 (best score) to – 5 (worst score) for each indicator. The average scores on the goal level are then calculated as the arithmetic mean of the individual scores of the indicators chosen for monitoring the respective goal (including both main and multipurpose indicators) ([5]). Consequently, these goal-level scores can also range from + 5 (best score) to – 5 (worst score).

Note that the scoring functions use broader cut-off points than the thresholds shown in Tables I.2 and I.3 in order to allow for larger variability in the scores (an indicator with a CAGR of, for example, 1.1 % per year receives a different score than an indicator with a CAGR of, for example, 5.0 % per year, although they both fall into the same assessment category of Table I.2). However, the scores at the threshold points in Tables I.2 and I.3 are harmonised (the threshold values shown in both Tables result in scores of + 2.5, 0 and – 2.5, respectively) to ensure that indicators with and without quantitative targets have the same 'weight' when calculating the average score at the goal level. 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.

Scoring function for indicators without quantitative targets

Figure I.1 below shows the scoring function for indicators without quantitative targets. In this case, the scoring function is a linear transformation, with cut-off points set at growth rates (CAGR) of 2.0 % and – 2.0 %. Indicators with a growth rate of exactly 0.0 % receive a score of 0. Indicators with growth rates of 2.0 % or above in the desired direction receive a score of + 5, indicators with growth rates of 2.0 % or above in the wrong direction receive a score of – 5.

Figure I.1: Scoring function for indicators without quantitative target

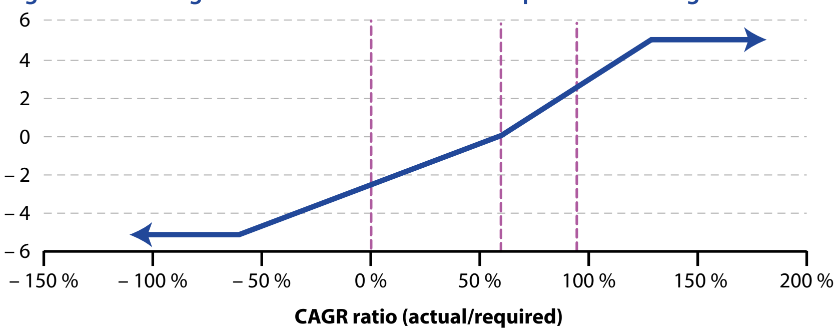


Note: The orange dotted lines represent the thresholds used for defining the assessment category of the indicator, as shown in Table I.2.

Scoring function for indicators with quantitative targets

Figure I.2 below shows the scoring function for indicators with quantitative targets. The scoring function is not linear in this case, with cut-off points set at CAGR ratios (actual to required growth) of 130 % and – 60 % (ratios below zero indicate a movement away from the target). Indicators with a CAGR ratio of 60 % receive a score of 0. Indicators with CAGR ratios of 130 % or above receive a score of + 5, indicators with CAGR ratios of – 60 % or below receive a score of – 5.

Figure I.2: Scoring function for indicators with quantitative target



Note: The orange dotted lines represent the thresholds used for defining the assessment category of the indicator, as shown in Table I.3.

Method for calculating countries' status scores

The country profiles chapter in this report applies an additional calculation of Member States' SDG status, referring to the relative position of countries towards each other based on the most recent year of data availability for each indicator. Using the formulas below, a country's status score of an indicator is calculated relative to the range of values from the worst to the best performing country, whereby outliers are excluded [6]. The calculation is based on normalisation of indicator values with a min-max-method:

(3a) $$X_{ic} = \frac{x_{ic}\text{-}min_i(x_{ic})}{max_i(x_{ic})\text{-}mini(x_{ic})}$$ (3b) $$X_{ic} = \frac{max_i(x_{ic})\text{-}x_{ic}}{max_i(x_{ic})\text{-}min_i(x_{ic})}$$

X_{ic} is the normalised value of indicator x_{ic}, with i being the indicator, c the country and max_i and min_i being the maximum and minimum values of the indicator across all Member States for the most recent year of available data. Equation (3a) is used when higher indicator values are better (for example, employment rate), while equation (3b) is used when lower values are better (for example, greenhouse gas emissions per capita). Status scores for the aggregate EU level are calculated in the same way, using the EU aggregates available in the Eurostat database. The aggregation of a country's indicator scores at the SDG level is explained in the country profiles chapter.

Annex II: Countries, measurement units and abbreviations

Geographical aggregates and countries

EU	The 27 Member States of the European Union since 1 February 2020 (BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, HR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE)
EEA	The member countries of the European Environment Agency (EEA) are the EU Member States plus IS, LI, NO, CH and TR
G20	Group of 20 (Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Türkiye, the United Kingdom, the United States and the European Union)

Note that EU aggregates are back-calculated and therefore do not necessarily represent the composition of the EU in a given year. Data relating to the current EU aggregate are presented for periods before the UK left the EU in 2020, as if it had never been a Member State. The abbreviation 'EU' used in texts is usually referring to the current composition. Deviations from this principle are pointed out in each individual case.

European Union Member States

BE	Belgium
BG	Bulgaria
CZ	Czechia
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
HR	Croatia
IT	Italy
CY	Cyprus
LV	Latvia

LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden

European Free Trade Association (EFTA)

IS	Iceland
LI	Liechtenstein
NO	Norway
CH	Switzerland

EU candidate countries

ME	Montenegro
MK	North Macedonia
AL	Albania
RS	Serbia
TR	Türkiye

Potential candidates

BA	Bosnia and Herzegovina
XK	Kosovo ([7])

Other European countries

UK	United Kingdom

Units of measurement

%	per cent
°C	degree Celsius
µg	microgram
µm	micrometre
dB	decibel
EUR	euro
g	gram
ha	hectare
kg	kilogram
kgoe	kilograms of oil equivalent
km	kilometre
km^2	square kilometre
L	litre
m^2	square metre
m^3	cubic metre
Mbps	megabits per second
mg	milligram
Mt	million tonnes
Mtoe	million tonnes of oil equivalent
pH	pH value (measurement of acidity/basicity)
pkm	passenger-kilometre
pp	percentage point
PPS	purchasing power standard
tkm	tonne-kilometre
USD	US dollar

Abbreviations

5G	5th-Generation Wireless Systems
AAAA	Addis Ababa Action Agenda
AIDS	acquired immune deficiency syndrome
ABLE	Assessing Butterflies in Europe
AEA	air emissions accounts

AROPE	at risk of poverty or social exclusion
ASGS	Annual Sustainable Growth Strategy
AWU	annual work unit
BMI	body mass index
bn	billion
BOD	biochemical oxygen demand
BOD5	5-day Biochemical Oxygen Demand
BWD	Bathing Water Directive
CAGR	compound annual growth rate
CAP	Common Agricultural Policy
CARE	Community database on Accidents on the Roads in Europe
CBAM	carbon border adjustment mechanism
CFP	Common Fisheries Policy
CH_4	methane
CIL	computer and information literacy
CMU	circular material use
CO_2	carbon dioxide
COD	chemical oxygen demand
CoM	Covenant of Mayors
COP	Conference of the Parties
COVID-19	Coronavirus disease 2019
CPI	Corruption Perceptions Index
DAC	Development Assistance Committee
DG	Directorate-General
DG AGRI	Directorate-General for Agriculture and Rural Development
DG MOVE	Directorate-General for Mobility and Transport
DMC	domestic material consumption
EAA	Economic Accounts for Agriculture
EAFRD	European Agricultural Fund for Rural Development
EAP	Environmental Action Programme
EBCC	European Bird Census Council
EC	European Commission
ECDC	European Centre for Disease Prevention and Control

ECHA	European Chemicals Agency
EEA	European Environment Agency or European Education Area (depending on the context)
EEZ	Exclusive Economic Zone
EFSD	European Fund for Sustainable Development
EFTA	European Free Trade Association
EGSS	Environmental Goods and Services Sector
EHIS	European Health Interview Survey
EIB	European Investment Bank
EIONET	European Environment Information and Observation Network
EIGE	European Institute for Gender Equality
EIP-AGRI	European Innovation Partnership for Agricultural productivity and Sustainability
ELET	early leavers from education and training
EMODnet	European Marine Observation and Data Network
EPIC	European Platform for Investing in Children
EPO	European Patent Office
ERA	European Research Area
ERCAS	European Research Centre for Anti-Corruption and State-Building
ESA	European System of Accounts
ESAW	European Statistics on Accidents at Work
ESDAC	European Soil Data Centre
ESF	European Social Fund
ESF+	European Social Fund Plus
ESS	European Statistical System
ETC/ACM	European Topic Centre on Air pollution and Climate change Mitigation
ETC/ATNI	European Topic Centre on Air Pollution, Transport, Noise and Industrial Pollution
ETC/BD	European Topic Centre on Biological Diversity
ETC/ICM	The European Topic Centre on Inland, Coastal and Marine waters
EU	European Union
EU-LFS	EU Labour Force Survey

EU-SILC	EU Statistics on Income and Living Conditions
ERDF	European Regional Development Fund
F	fishing mortality
F_{MSY}	fishing mortality at maximum sustainable yield
FAO	Food and Agriculture Organisation of the United Nations
FDI	foreign direct investment
FEAD	Fund for European Aid to the most Deprived
FEC	final energy consumption
FIGARO	full international and global accounts for research in input-output analysis
FISE	Forest Information System for Europe
FRA	Fundamental Rights Agency
GAE	gross available energy
GBARD	Government budget allocations for research and development
GDP	gross domestic product
GERD	gross domestic expenditure on R&D
GFCF	gross fixed capital formation
GHG	greenhouse gas
GIC	gross inland consumption
GNI	gross national income
GVA	gross value added
GWP	global warming potential
HIV	human immunodeficiency virus
HLPF	High-level Political Forum
IAEG-SDGs	Inter-Agency and Expert Group on Sustainable Development Goal Indicators
ICD	International Classification of Diseases
ICES	International Council for the Exploration of the Sea
ICILS	International Computer and Information Literacy Study
ICPD	International Conference on Population and Development
ICT	information and communication technology
IOG	international ocean governance
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

ISCED	International Standard Classification for Education
JAHEE	Joint action on health inequalities
JRC	Joint Research Centre
LDCs	least-developed countries
LRTAP	long-range transboundary air pollution
LTAA	long-term annual average
LUCAS	Land Use/Cover Area frame Survey
LULUCF	land use, land-use change and forestry
MFF	Multiannual Financial Framework
MMR	Monitoring Mechanism Regulation
MPA	marine protected area
MRIO	multi-region input-output (table)
MSFD	Marine Strategy Framework Directive
MSY	maximum sustainable yield
N	nitrogen
N_{2O}	nitrous oxide
NACE	Statistical classification of economic activities in the European Community
NCD	non-communicable disease
NEC	national emission reduction commitments
NECPs	national energy and climate plans
NEDC	New European Driving Cycle
NEET	not in education, employment or training
NF_3	nitrogen triflouride
NGOs	non-governmental organisations
NH_3	ammonia
NO_3	nitrate
NO_x	nitrogen oxide
O_2	oxygen
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
OOFs	other official flows
P	phosphorous

PEC	primary energy consumption
PISA	Programme for International Student Assessment
PM	particulate matter
PO_4	phosphate
POP	persistent organic pollutant
R&D	research and development
REACH	Registration, Evaluation, Authorisation and restriction of Chemicals
RMC	raw material consumption
RME	raw material equivalent
RRF	Recovery and Resilience Facility
SCI	Sites of Community Importance
SD	sustainable development
SDGs	Sustainable Development Goals
SEEA	System of Economic-Environmental Accounts
SEIP	Sustainable Europe Investment Plan
SES	Structure of Earnings Survey
SF_6	sulphur hexafluoride
SO_2	sulfur dioxide
SPA	Special Protection Areas
SSB	spawning stock biomass
STECF	Scientific, Technical and Economic Committee for Fisheries
SWD	staff working document
TEN-T	Trans-European Transport Network
TOSSD	Total Official Support for Sustainable Development
TV	television
UAA	utilised agricultural area
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly

UNHCR	United Nations High Commissioner for Refugees
UNODC	United Nations Office on Drugs and Crime
UOE	UIS, OECD and Eurostat
VEP	vocational education and training
VHCN	very high capacity network
VLN	Voluntary Local Reviews
VNR	Voluntary National Review
WCED	World Commission on Environment and Development
WEI+	water exploitation index plus
WHO	World Health Organization
WISE	Water Information System for Europe
WLTP	Worldwide harmonized Light vehicles Test Procedure
WTO	World Trade Organisation
ZEV	zero-emission vehicle

Notes

([1]) In this report, online data codes are given as part of the source below each table and figure. When clicking on the online data code, the reader is directly led to the indicator table showing the most recent data. Alternatively, the data can be accessed by entering the data code in the search field on the Eurostat website. The indicator table also contains a link to the source dataset, which generally presents more dimensions and longer time series than the indicator table.

([2]) Eurostat, Statistics explained.

([3]) The following study discusses and analyses the differences in assessment methods of status (in a given year) and progress (change over time) for the EU Member States: Hametner, M., Kostetckaia, M. (2020), *Frontrunners and laggards: How fast are the EU member states progressing towards the sustainable development goals?*, Ecological Economics 177.

([4]) Higher thresholds (for example, 2 %) have been tested and finally rejected, since they make the overall picture less interesting, as a vast majority of indicators would fall in the two 'moderate' categories.

([5]) In this 2023 edition of the monitoring report, the following exceptions apply: for SDG 15, the aggregation at the goal-level takes into account the trends in the soil sealing index (sdg_15_41) for the period 2015 to 2018.

([6]) Outliers are identified by means of the interquartile range (IQR) method (see Hoaglin, D. C., Iglewicz, B., & Tukey, J. W. (1986), Performance of Some Resistant Rules for Outlier Labeling. *Journal of the American Statistical Association*, 81(396), 991-999 and Hoaglin, D. C., & Iglewicz, B. (1987), Fine-Tuning Some Resistant Rules for Outlier Labeling. *Journal of the American Statistical Association*, 82(400), 1147–1149). This method involves calculating the first and third quartiles of the country distribution, with the IQR representing the difference between these two values. The boundaries for identifying outliers are then determined by multiplying the IQR by the factor two and by subtracting/adding these values from/to the first/third quartile, respectively. Values below/above these thresholds are considered outliers and are excluded during indexing, meaning that countries identified as outliers with this method are assigned the value of the next best/worst country for the indexing.

([7]) This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

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Sustainable development in the European Union

Monitoring report on progress towards the SDGs in an EU context

2023 edition

Sustainable development is firmly anchored in the European Treaties and has been at the heart of European policy for a long time. The 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs), adopted by the UN General Assembly in September 2015, have given a new impetus to global efforts for achieving sustainable development. The EU is fully committed to playing an active role in helping to maximise progress towards the Sustainable Development Goals. This publication is the seventh of Eurostat's regular reports monitoring progress towards the SDGs in an EU context. The analysis in this publication builds on the EU SDG indicator set, developed in cooperation with a large number of stakeholders. The indicator set comprises 100 indicators and is structured along the 17 SDGs. For each SDG, it focuses on aspects that are relevant from an EU perspective. The monitoring report provides a statistical presentation of trends relating to the SDGs in the EU over the past five years ('short-term') and, when sufficient data are available, over the past 15 years ('long-term'). The indicator trends are described on the basis of a set of specific quantitative rules. This edition also analyses the shorter-term trends related to Russia's military aggression against Ukraine that are visible in Eurostat's official statistics throughout 2022 and the beginning of 2023.

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