8TH EAP LONG TERM PRIORITY OBJECTIVE
Living well, within planetary boundaries

8 Living well, within planetary boundaries

Our societies and economies depend on a healthy planet. The EU and the world have already transgressed several planetary boundaries ([1])([2])([3]). The EU's 8th Environment Action Programme (EAP) ([4]) requires that by 2050, EU citizens live well within the limits of the planet in a wellbeing economy.

To capture progress towards aspects of this long-term objective, the European Commission's 8th EAP monitoring framework ([5]) includes six indicators and corresponding 2030 targets:

- An indicator on land take to monitor whether the EU will meet its goal of no net land take by 2050.
- An indicator on water scarcity conditions (water exploitation index plus) to monitor whether the EU will reduce water scarcity.
- An indicator on the consumption footprint to monitor whether the EU will significantly reduce the environmental impact of its consumption to bring it within planetary boundaries as soon as possible.
- Two indicators on employment and gross value added of the environmental goods and services sector to monitor whether the share of the green economy and green employment in the whole economy will increase in the EU.
- An indicator on environmental inequalities to monitor whether the EU will reduce environmental inequalities and ensure a fair transition. In the absence of an available indicator that covers all environmental inequalities, an indicator on income-related environmental inequalities associated with exposure to air pollution (fine particulate matter) has been used as a proxy, albeit an imperfect one.

The indicator assessment results are summarised further below. It is very likely that the 2030 targets related to the green economy and green employment indicators will be met. This is because the need to fulfil the significant ambitions of the environmental and climate policy in the European Green Deal ([6]) in the context of the EU's ongoing green transition will very likely increase the EU's green economy and green jobs.

On the other hand, the prospects of meeting by 2030 the objectives associated with the remaining indicators are not good. It is very unlikely that the consumption footprint target will be met by 2030. Projections by the European Commission ([7]) show that based on current consumption patterns and expected economic growth, the EU will not reduce its footprint in the coming years. The total footprint is mainly driven by food consumption patterns, housing and mobility.

It is also unlikely but uncertain that the targets on land take, water scarcity and environmental inequalities will be met by 2030. Projections show that built-up areas will expand in the EU by 2030, hampering the prospects of achieving the 2050 'no net land take' goal. The pressure of climate change may reduce water availability further, making it challenging to reduce ongoing water scarcity problems in the coming years. Finally, although the income-related environmental inequalities associated with air pollution are an imperfect proxy of environmental inequalities, it is, nevertheless, important to note that it seems unlikely that this indicator will show improvements.

The methodology used to determine the prospects of meeting the 2030 targets is described in Annex 2. It is also explained in the following key:

Methodology key

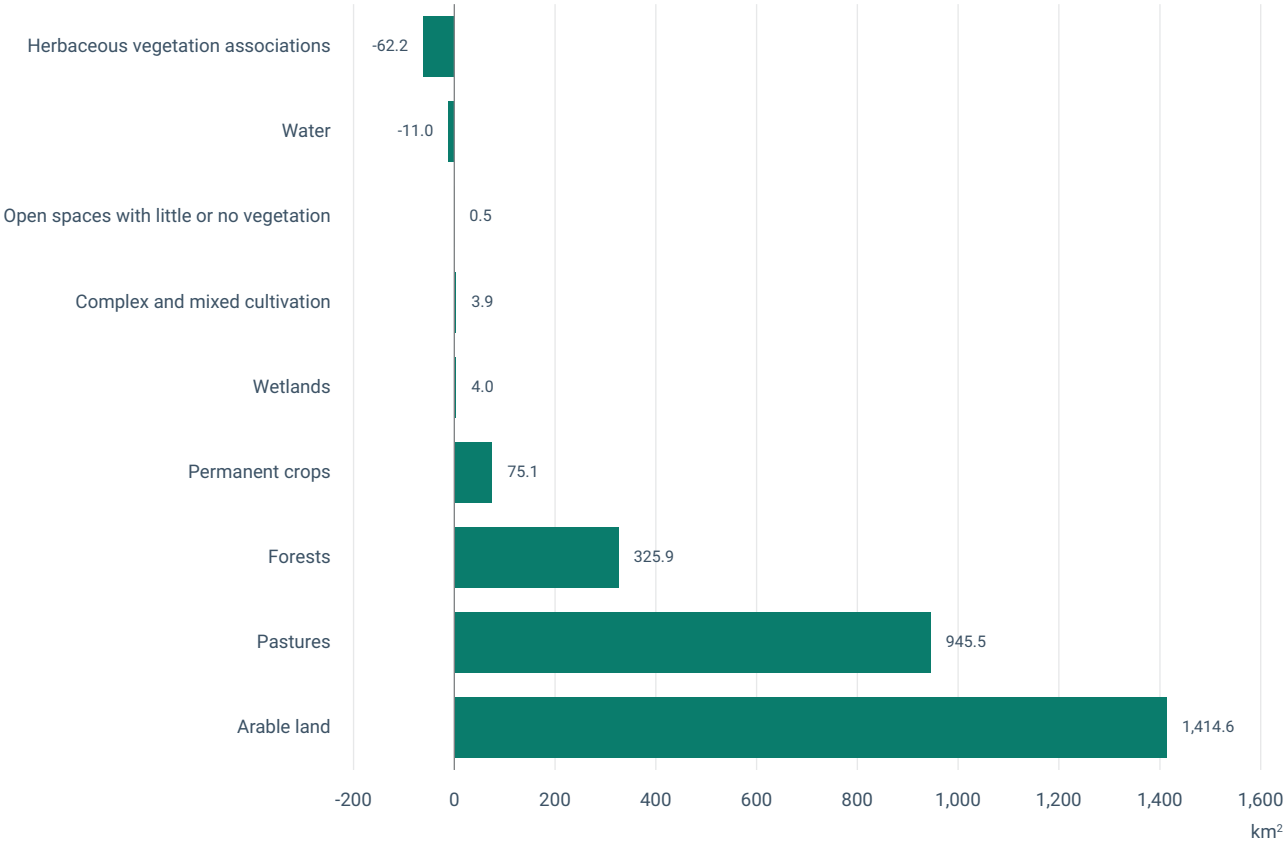
Will the objective be met by 2030?	
It is very likely	i.e. it answers 'yes' with a high degree of confidence to the question
It is likely but uncertain	i.e. it answers 'maybe yes' to the question
It is unlikely but uncertain	i.e. it answers 'maybe no'
It is very unlikely	i.e. it answers 'no' with a high degree confidence
It is unclear	i.e. the prospects cannot be determined (e.g., insufficient data/evidence, no correlation between indicator and selected objective)

Land take:

Will the EU achieve the goal of no net land take by 2050?

Unlikely but uncertain. Projections indicate a likely expansion of built-up areas in the coming years. In addition, it is currently unclear how the drivers of land take will evolve and whether reconverting artificial surfaces to land will increase sufficiently.

Figure 8.1 **Net land take in cities and commuting zones, EU**



Source: EEA/Copernicus Land Monitoring Service.

Relevance and policy target

- Land take entails the conversion of land to artificial surfaces. This impairs the valuable ecological functions of land such as carbon sequestration and makes ecosystems less resilient. It can also impact the quality of life through diminished land functions (e.g. lost protection from floods and increased urban temperature when the soil is sealed) and direct loss of natural areas for relaxation, regeneration and outdoor activities.

- The soil strategy for 2030 ([8]) sets the aim of 'no net land take by 2050'.

Indicator past trend (2012-2018): unclear
Latest value (2012-2018 which is one assessment period): 450 km^2 annual average

- In Europe, most land take occurs in cities and commuting zones, which are the areas this indicator focuses on. Between 2012 and 2018, net land take in the EU in these zones was on average 450 km^2 annually.

- The taken land was mostly cropland and pasture, followed by forest. Major drivers of land take include population growth, the need for transport infrastructure, cultural preferences and economic growth ([9]).

2030 outlook

- For the EU to reach its aim of 'no net land take by 2050', there need to be significant reductions in net land take over the years. At present, this is uncertain but unlikely.

- It is unclear how the main drivers of land take will change and whether reconverting artificial surfaces to land will increase sufficiently in the future. Current projections by the European Commission Joint Research Centre indicate a likely expansion of built-up areas in the coming years ([10]).

- Discouraging diffuse urban expansion while promoting compact, multi-storey city planning with better land-use efficiency and the re-naturalisation of land instead would be an important means to reduce land take rate and reach the 2050 goal ([11]).

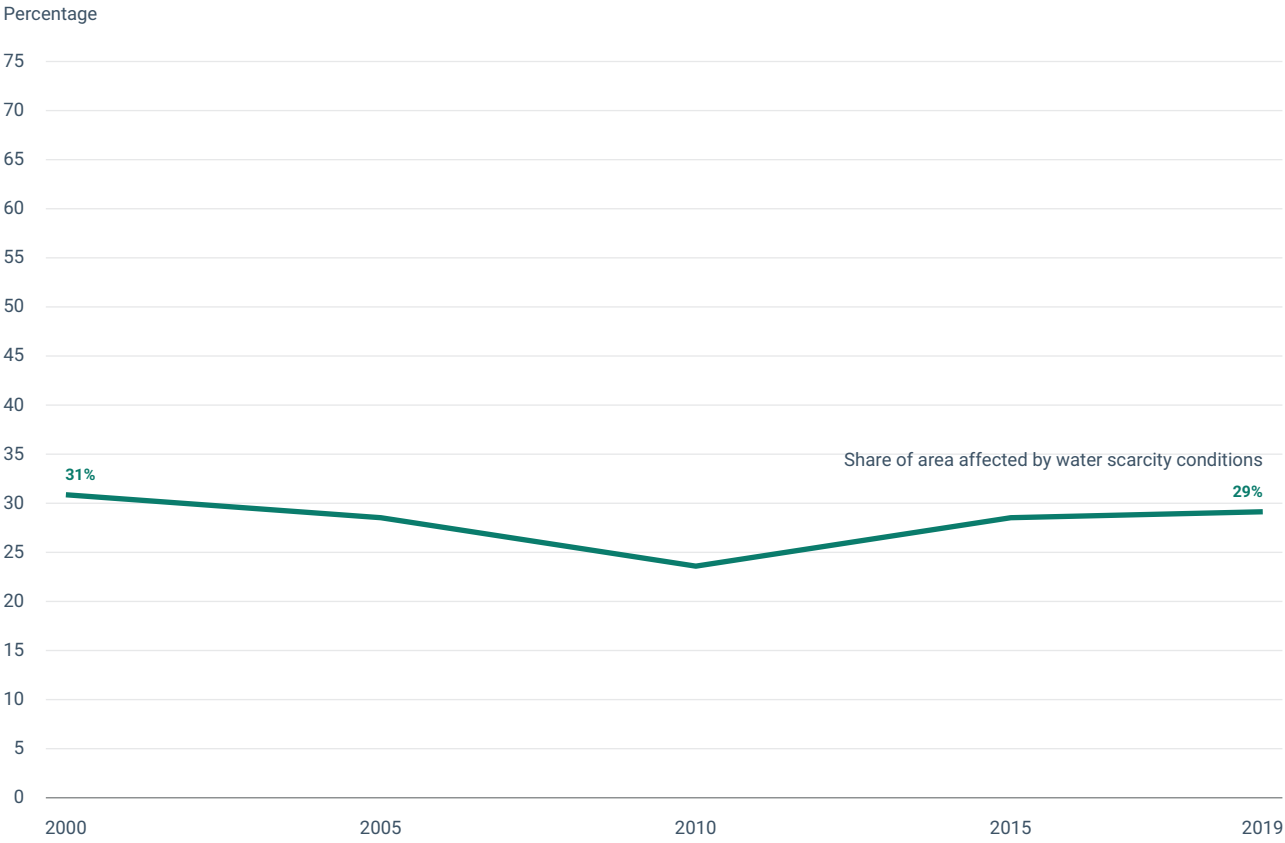
For more references and additional information, including at country level, see the full indicator version.

Water scarcity (water exploitation index plus):

Will the EU land area affected by water scarcity decrease in the coming years?

Unlikely but uncertain. There has been no progress so far while climate change may further reduce water availability.

Figure 8.2 **Share of area affected by water scarcity conditions, measured by the water exploitation index plus, EU**



Source: EEA/Eurostat/OECD/Joint Research Centre/Ecrins.

Relevance and policy target

- Freshwater resources are essential for human health, nature, and the functioning of economies and societies.
- The EU water framework directive ([12]) requires Member States to promote the sustainable use of water and protect available water resources.

Indicator past trend (2000-2019): stable →
Latest value (2019): 29%

- The EU land area affected by water scarcity conditions remained relatively stable over the 2000-2019 period. In 2019, it affected 29% of the EU territory in at least one season. Although total water abstraction reduced by 15% over the period, water availability also decreased because of climate change impact.
- While water scarcity is more prevalent in southern Europe, it extends to river basins across the EU, in particular in western Europe ([13]).

2030 outlook

- It is unlikely but uncertain that water scarcity will decrease by 2030. There has been no progress so far, and climate change may reduce availability because of rising temperatures and more frequent drought events ([14]).
- Additional effort is needed to ensure sustainable water use.

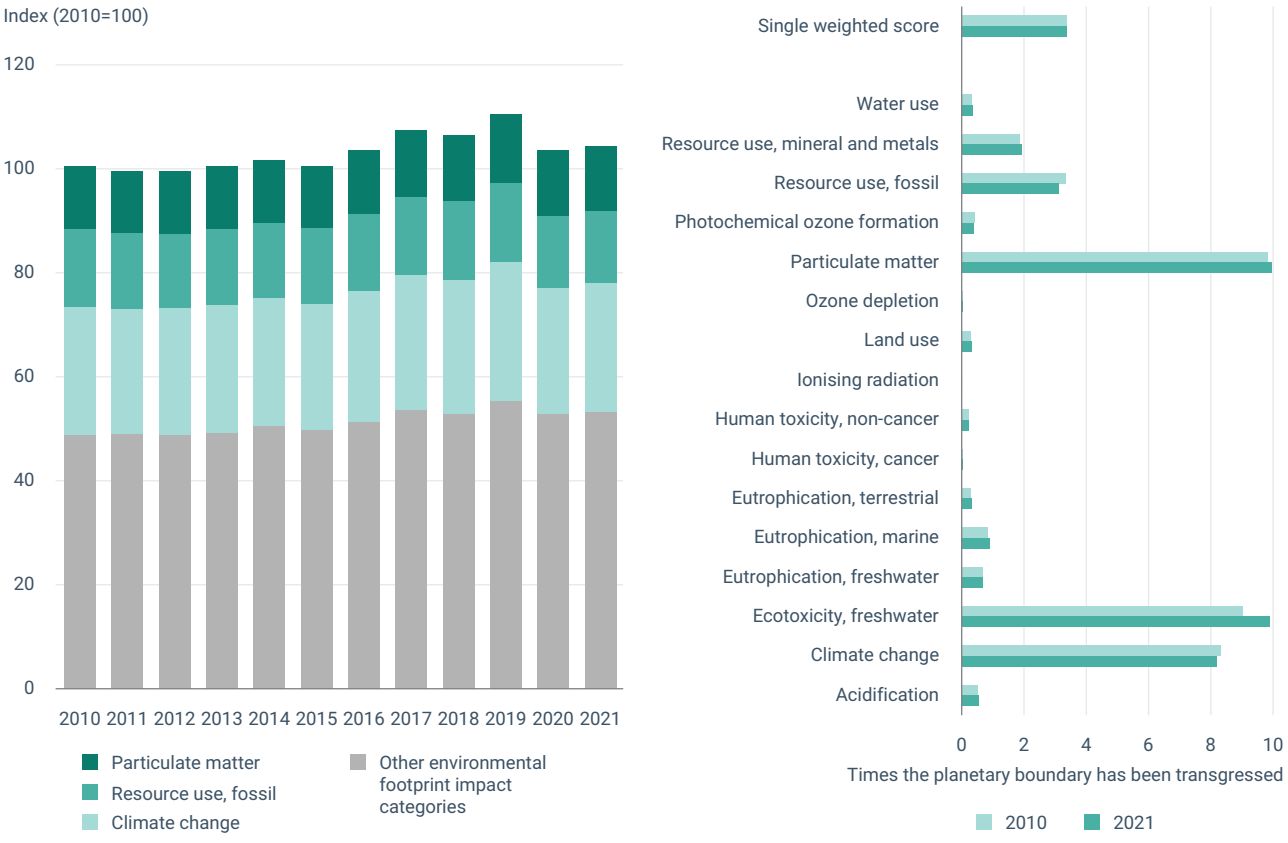
For more references and additional information, including at country level, see the full indicator version.

Consumption footprint:

Will the EU significantly reduce its consumption footprint in the coming years?

Very unlikely. The EU consumption footprint is projected to increase further by 2030 based on current consumption patterns and expected economic growth.

Figure 8.3 **Consumption footprint based on the life cycle method, EU**



Source: Joint Research Centre.

Relevance and policy target

- The EU consumption footprint represents the environmental and climate change-related impacts of the consumption of goods and services by EU residents, irrespective of whether they are produced within or outside the EU.
- The 8th EAP calls for a significant reduction of the EU's consumption footprint to bring it within planetary boundaries as soon as possible.

Indicator past trend (2010-2021): increase ↑
Latest value (2021): 104 (2010=100)

- From 2010 to 2021, the consumption footprint increased, albeit slightly, by around 4%. Climate change, the use of fossil resources and the release of particulate matter were, across the years, consistently the three largest contributors to the environmental and climate change-related impact of the consumption footprint. Together, they accounted for about 50% of the overall impact.
- Overall, the environmental impact of EU citizen's consumption is considered high. Scientific evidence increasingly suggests that, based on current consumption footprint levels, the EU exceeds its fair share of planetary boundaries for five environmental impact categories, including particulate matter, climate change and resource use ([15]).

2030 outlook

- It is very unlikely that the EU will meet its aim of significantly reducing this footprint by 2030.
- The European Commission Joint Research Centre predicts that the EU's consumption footprint will increase further by 2030 based on current consumption patterns, in terms of both quantity and type of products consumed, and expected economic growth ([16]).
- Switching to less environmentally harmful products and services, and curbing increasing consumption levels, is necessary to reduce the consumption footprint and bring the impacts within planetary boundaries.

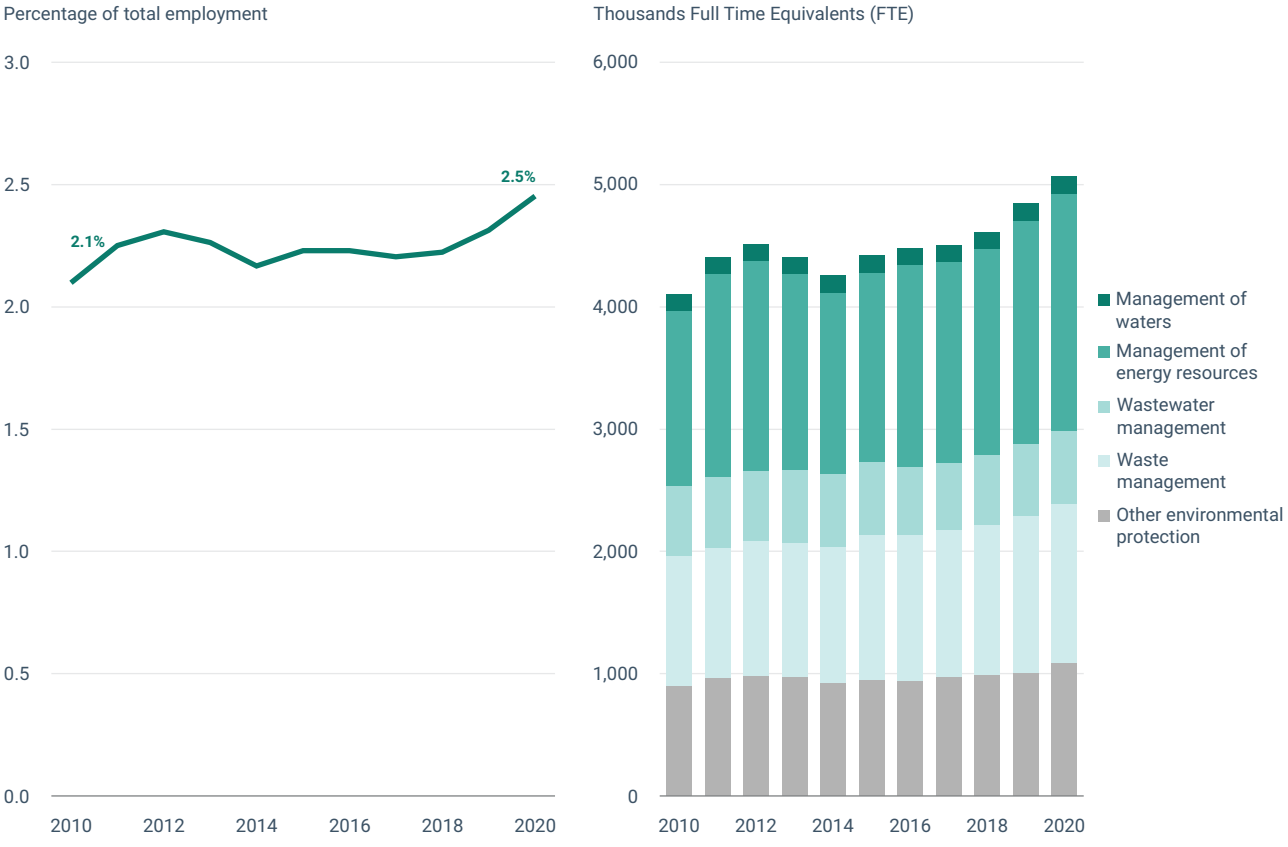
For more references and additional information, including at country level, see the full indicator version.

Green employment:

Will the share of green employment in the whole economy increase in the coming years?

Very likely. The ongoing green transition of the EU's economy driven by the environmental and climate objectives of the European Green Deal will further increase this trend towards 2030.

Figure 8.4 **Employment in the environmental goods and services sector: share in total employment and absolute value, EU**



Source: Eurostat.

Relevance and policy target

- Green employment is the employment created in the EU's environmental economy, also known as the green economy. This is the part of the economy that produces goods and services used in environmental protection and resource management activities.
- The European Green Deal aims for a green transition of the EU's economy and for the EU to become carbon neutral by 2050. The transition will require more green jobs and related skills.

Indicator past trend (2010-2020): increase ↑
Latest value (2020): 2.5%

- Employment in the green economy grew more quickly than employment in the whole economy in the EU in the last decade: it represented 2.1% of total EU employment in 2010 and 2.5% in 2020, reaching 5.1 million full-time equivalent employees in 2020. This was mainly because of job creation related to renewable energy, energy efficiency and waste management.

2030 outlook

- It is very likely that the share of green employment in the EU economy will rise in the coming years.
- The policies, measures and investments the EU is putting in place to support the green transition will create more green jobs by 2030, in particular in relation to applying circular economy principles and moving towards a low-carbon economy ([17])([18])([19]).

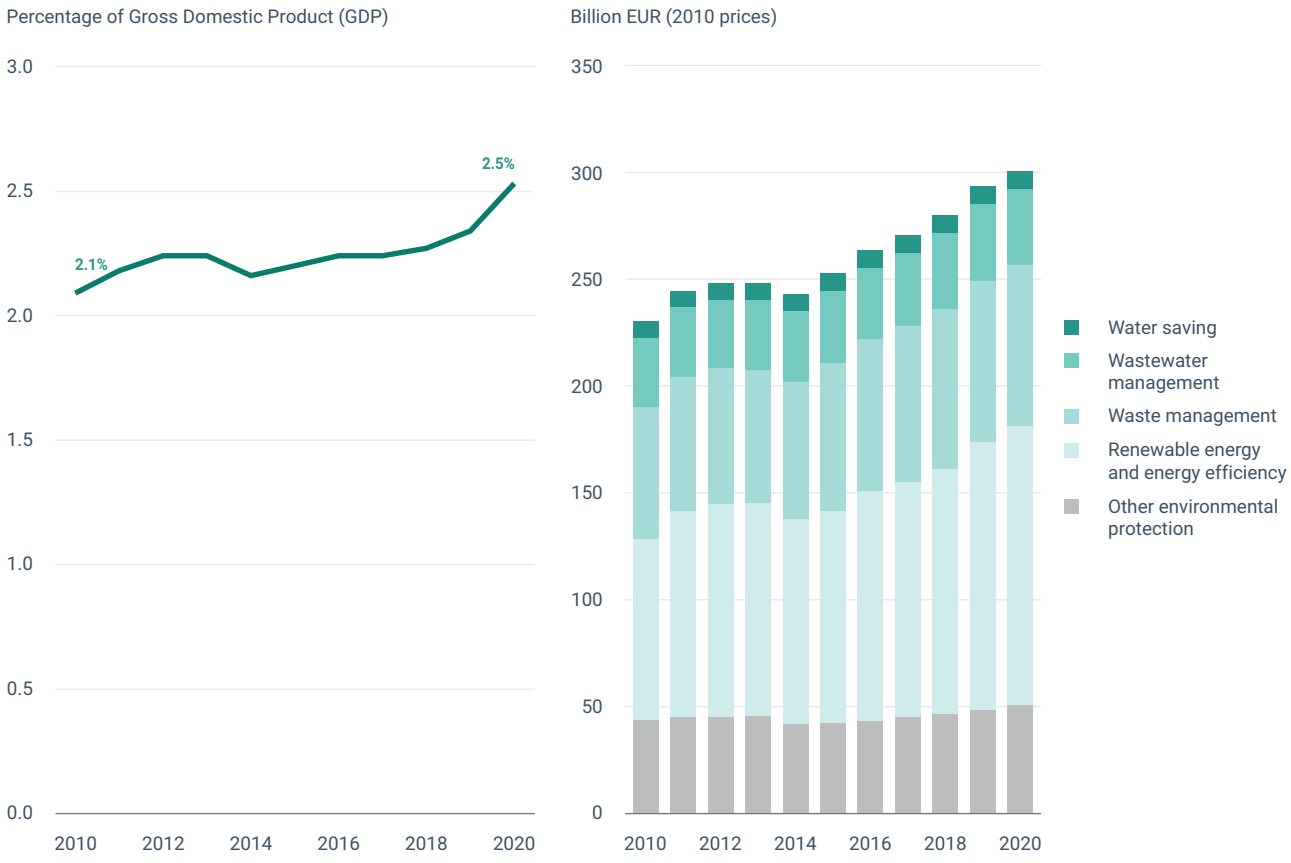
For more references and additional information, including at country level, see the full indicator version.

Green economy:

Will the share of the green economy in the whole economy increase in the coming years?

Very likely. The ongoing green transition of the EU's economy is driven by the environmental and climate objectives of the European Green Deal.

Figure 8.5 **Gross value added of the environmental goods and services sector: share of gross domestic product and absolute value, EU**



Source: Eurostat.

Relevance and policy target

- The green economy, also known as the environmental economy, is the part of the economy that produces goods and services used in environmental protection and resource management activities.
- The European Green Deal aims towards a green transition of the EU's economy and for the EU to become carbon neutral by 2050. This will need more economic activities related to environmental protection and resource management.

Indicator past trend (2010-2020): increase ↑
Latest value (2020): 2.5%

- The contribution of the added value of the EU green economy to the overall EU economy increased from 2.1% in 2010 to 2.5% in 2020 and reached just over EUR 300 billion (2010 prices) in 2020. This rise was mainly caused by significant increases in green economy activities related to resource management (renewable energy sources and energy efficiency) and waste management.

2030 outlook

- It is very likely that the contribution of the green economy to the EU GDP will increase in the coming years, to fulfil the high level of ambition of the environmental and climate policy of the European Green Deal.
- Increases are expected particularly in relation to applying circular economy principles and to moving towards a low-carbon economy (e.g. increased output from renewable energy resources and energy efficiency improvements) ([20])([21]). Furthermore, additional financial resources have been made available at EU level to support the expansion of the EU green economy ([22])([23]).

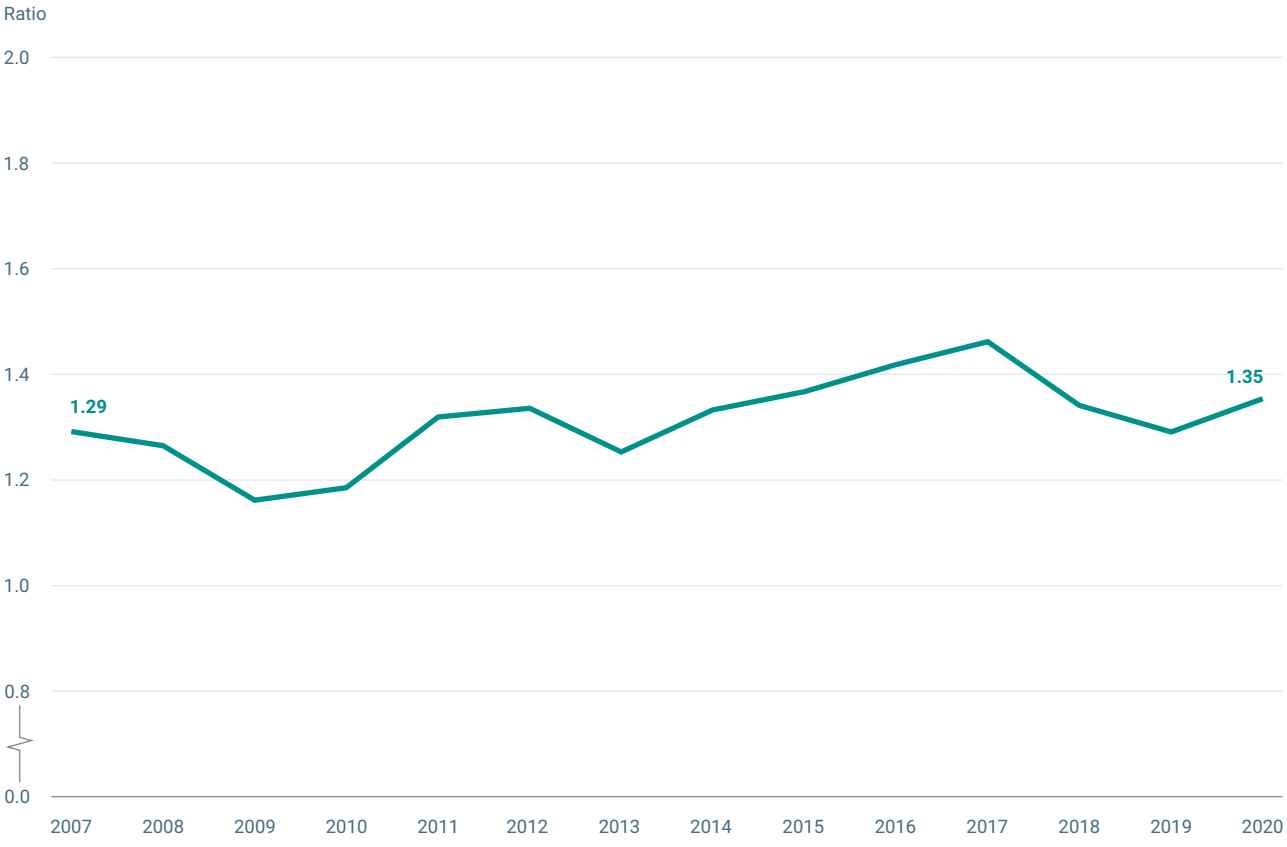
For more references and additional information, including at country level, see the full indicator version.

Environmental inequalities:

Will environmental inequalities decrease in the coming years?

Unlikely but uncertain, at least when it comes to air pollution, which is the scope of the currently available indicator. There has been no progress so far and there are no dedicated policies, at present, to address these environmental inequalities.

Figure 8.6 **Ratio of population-weighted concentrations of fine particulate matter in NUTS3 regions in the lowest per capita GDP quintile relative to those in the highest per capita GDP quintile, EU**



Source: EEA/Eurostat.

Relevance and policy target

- EU environmental policies have brought great benefits to EU citizens, for example, in terms of reduced pollution levels. However, questions remain as to whether the benefits or remaining impacts are distributed equitably within the EU.
- The 8th EAP requested that measures taken in the EU to protect the environment be carried out in a socially fair and inclusive way.
- Air pollution poses the greatest environmental risk to health in Europe ([24]) and fine particulate matter ($PM_{2.5}$) causes more attributed premature deaths in Europe than any other ambient air pollutant ([25]). Monitoring $PM_{2.5}$ levels is therefore considered a useful approach to exploring income-related inequalities in the distribution of the health impacts of air pollution and more broadly of environmental risks.

Indicator past trend (2007-2020): stable →
Latest value (2020): 1.35 ratio of population-weighted concentrations of $PM_{2.5}$ in the quintiles of the EU NUTS3 regions with the lowest per capita GDP (in purchasing power standard) relative to those in the most per capita GDP

- Despite improving trends in air pollution — measured as population-weighted concentrations of $PM_{2.5}$ in both the 20% highest per capita GDP and the 20% lowest per capita GDP regions (NUTS3) of the EU over the 2007-2020 period — inequalities remain. Levels of $PM_{2.5}$ are consistently higher by around one third in the poorest regions.
- Exposure at NUTS3 level is an imperfect proxy for actual inequalities in air pollution exposure, as it does not capture inequalities within each of the NUTS3 regions. No Europe-wide data on GDP exists at a level smaller than NUTS3.

2030 outlook

- With the past trend indicating no progress in reducing the environmental inequalities associated with air pollution, and in the absence of dedicated policies addressing such environmental inequalities, it is, at present, unlikely but uncertain that the EU will make progress in the coming years on reducing environmental inequalities, at least those related to air pollution ([26]).

For more references and additional information see the full indicator version.

References

1. EC, 2023, 'Consumption Footprint Platform — EPLCA', European Commission, (https://eplca.jrc.ec.europa.eu/ConsumptionFootprintPlatform.html) accessed 1 February 2023.

2. Sanyé Mengual, E. and Sala, S., 2023, *Consumption footprint and domestic footprint: assessing the environmental impacts of EU consumption and production*, JRC Science for Policy Report, European Commission, Joint Research Centre, Publications Office of the European Union, Luxembourg, (https://publications.jrc.ec.europa.eu/repository/handle/JRC128571) accessed 25 September 2023.

3. Richardson, K., et al., 2023, 'Earth beyond six of nine planetary boundaries', *Science Advances* 9, p. eadh245 (https://www.science.org/doi/10.1126/sciadv.adh2458) accessed 11 October 2023.

4. EU, 2022, Decision (EU) 2022/591 of the European Parliament and of the Council of 6 April 2022 on a General Union Environment Action Programme to 2030 (OJ L 114, 12.4.2022, pp. 22-36), Article 2(1) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022D0591) accessed 26 November 2023.

5. EC, 2022, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the monitoring framework for the 8th Environment Action Programme: Measuring progress towards the attainment of the Programme's 2030 and 2050 priority objectives (COM(2022) 357 final) (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022DC0357) accessed 27 November 2023.

6. EC, 2019, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, The European Green Deal (COM/2019/640 final) (https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN) accessed 27 November 2023.

7. EC, 2022, 'Zero pollution outlook 2022', EU Science Hub (https://joint-research-centre.ec.europa.eu/scientific-activities-z/zero-pollution-outlook-2022_en) accessed 5 July 2023.

8. EC, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, EU Soil Strategy for 2030, Reaping the benefits of healthy soils for people, food, nature and climate (COM/2021/699 final) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0699) accessed 13 November 2023.

9. EEA, 2021, 'Land take and land degradation in functional urban areas', European Environment Agency (https://www.eea.europa.eu/publications/land-take-and-land-degradation) accessed 14 November 2023.

10. EC, 2019, 'Main land-use patterns in the EU within 2015-2030' (https://joint-research-centre.ec.europa.eu/publications/main-land-use-patterns-eu-within-2015-2030_en) accessed 5 January 2023.

11. EEA, 2021, 'Land take and land degradation in functional urban areas', European Environment Agency (https://www.eea.europa.eu/publications/land-take-and-land-degradation) accessed 14 November 2023.

12. EU, 2014, Consolidated text: Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02000L0060-20141120) accessed 13 November 2023.

13. EEA, 2022, 'Water abstraction by source and economic sector in Europe', European Environment Agency (https://www.eea.europa.eu/ims/water-abstraction-by-source-and) accessed 9 December 2022.

14. Feyen, L., et al., 2020, *Climate change impacts and adaptation in Europe*, European Commission, Joint Research Centre, Publications Office of the European Union, Luxembourg (https://op.europa.eu/en/publication-detail/-/publication/c707e646-99b7-11ea-aac4-01aa75ed71a1/language-en) accessed 9 November 2023.

15. Sanyé Mengual E. and Sala S., 2023, *Consumption Footprint and Domestic Footprint: Assessing the environmental impacts of EU consumption and production. Life cycle assessment to support the European Green Deal*, Publications Office of the European Union, Luxembourg, (https://dx.doi.org/10.2760/218540) accessed 27 November 2023.

16. EC, 2022, *Zero Pollution Outlook 2022*, Publications Office of the European Union, Luxembourg (https://publications.jrc.ec.europa.eu/repository/handle/JRC129655) accessed 27 November 2023.

17. EC, 2020, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 'A new circular economy action plan for a cleaner and more competitive Europe' (COM(2020) 98 final of 11 March 2020) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A98%3AFIN) accessed 9 November 2023.

18. EC, 2020, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, 'A new industrial strategy for Europe' (COM(2020) 102 final of 10 March 2020) (https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1593086905382&uri=CELEX:52020DC0102) accessed 17 November 2020.

19. IRENA and ILO, 2022, *Renewable energy and jobs: annual review 2022*, International Renewable Energy Agency and International Labour Organization (https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2022/Sep/IRENA_Renewable_energy_and_jobs_2022.pdf?rev=7c0be3e04bfa4cddaedb4277861b1b61) accessed 28 March 2023.

20. EC, 2020, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 'A new circular economy action plan for a cleaner and more competitive Europe' (COM(2020) 98 final of 11 March 2020) (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2020%3A98%3AFIN) accessed 9 November 2023.

21. EC, 2021, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions '"Fit for 55": delivering the EU's 2030 climate target on the way to climate neutrality', COM(2021) 550 final of 14 July 2021(https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0550) accessed 27 November 2023.

22. EC, 2021, *The EU's 2021-2027 long-term budget and NextGenerationEU — facts and figures*, Publications Office of the European Union, Luxembourg (https://op.europa.eu/en/publication-detail/-/publication/d3e77637-a963-11eb-9585-01aa75ed71a1/language-en) accessed 24 February 2023.

23. EC, 2022, Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions 'REPowerEU plan', COM (2022) 230 final of 18 May 2022 (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A230%3AFIN&qid=1653033742483) accessed 9 November 2023.

24. EEA, 2022, 'Air quality in Europe 2022', European Environment Agency (https://www.eea.europa.eu/publications/air-quality-in-europe-2022) accessed 17 April 2023.

25. WHO, 2023, 'Air pollution: The invisible health threat', World Health Organization (https://www.who.int/news-room/feature-stories/detail/air-pollution--the-invisible-health-threat) accessed 15 November 2023.

26. EC, 2022, *The Third Clean Air Outlook*, European Commission (https://environment.ec.europa.eu/publications/third-clean-air-outlook_en), accessed 11 September 2023.