THE EUROPEAN ENVIRONMENT

STATE AND OUTLOOK 2015

European Environment Agency

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The European environment — state and outlook 2015 report (SOER 2015) provides a comprehensive assessment of the European environment's state, trends and prospects, and places it in a global context. It will inform European environmental policy implementation between 2015 and 2020, and analyses the opportunities to modify existing policies in order to achieve the European Union's 2050 vision of living well within the limits of the planet.

For more information and full references, visit: eea.europa.eu/soer

European Environment Agency

The European Environment Agency

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS

The European Environment Agency (EEA) is an agency of the European Union. The EEA aims to support sustainable development and to help achieve significant and measurable improvement in Europe's environment, through the provision of timely, targeted, relevant and reliable information to policymaking agents and the public.

For more information, visit: eea.europa.eu

SOER 2015

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS

The EEA is mandated in its governing regulation to publish a State of the Environment Report (SOER) every five years, to assess the European environment's state, trends and prospects.

- The suite of SOER 2015 products – 2 reports and 87 briefings – provide a baseline to assess where Europe is making progress against the 7th EAP objectives.
- The SOER 2015 synthesis report signals opportunities to recalibrate policies and knowledge in line with the 2050 vision.

SOER 2015 Synthesis report

SOER 2015 Assessment of global megatrends

Global megatrends	European briefings	Cross-country comparisons	Countries and regions
11 briefings	25 briefings	9 briefings	39+3 briefings

What is SOER based on?

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS

- Based on objective, reliable and comparable environmental information, and draws upon the evidence and knowledge base available to the EEA and the European environment information and observation network (Eionet), a network of 39 European countries.
- Provides a comprehensive, integrated assessment of the European environment's state, trends and prospects in a global context.
- Informs European environmental policy implementation between 2015 and 2020.
- Analyses the opportunities to modify existing policies (and the knowledge used to inform those policies) in order to achieve the European Union's 2050 vision of living well within the limits of the planet.

How is SOER created?

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS

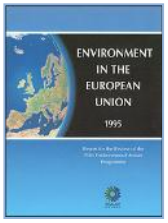
Input from a broad range of stakeholders, including:

- 33 member countries and six cooperating countries in the EEA's European environment information and observation network (Eionet)
- Commission Services
- International organisations involved in peer review
- A cross-sectoral stakeholder group for the SOER 2015 Synthesis report

SOER has a long history at the EEA

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS

1995
1996
1997
1998



- report (151 pp) + summary

SOER 1995

- addresses 5 EAP targets
- focus on sectoral integration

1999
2000
2001
2002

- big report (446 pp) + summary

SOER 1999

- addresses environmental trends
- focus on DPSIR, link between issues

2003
2004
2005
2006
2007

- bigger report (569 pp, Parts A, B & C)

SOER 2005

- addresses air, water, land
- focus on DPSIR, core set of indicators

2008
2009
2010
2011

- several reports (Parts A, B, C + Synthesis)

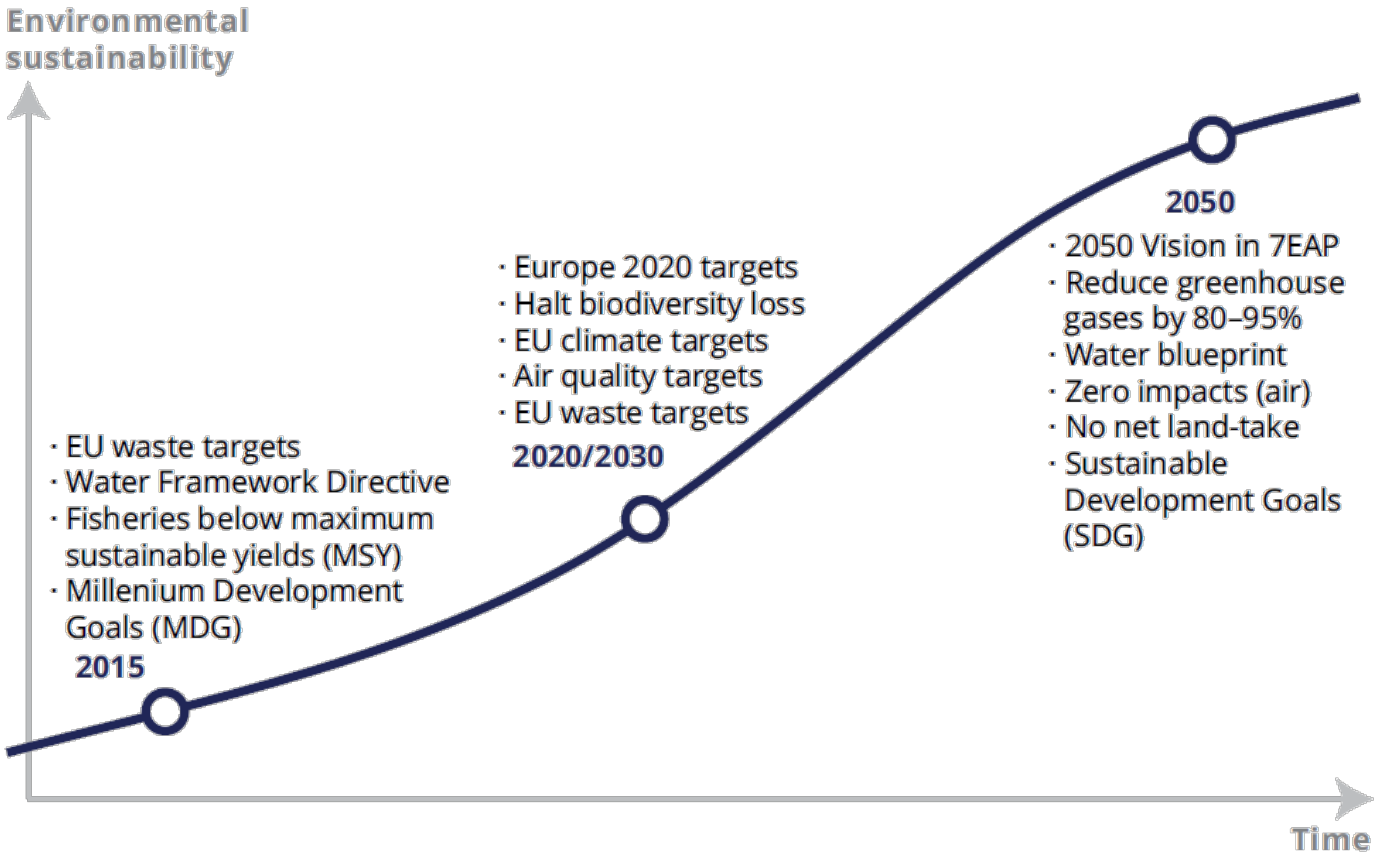
SOER 2010

- addresses 6EAP priority areas
- focus on systemic challenges

European Environment Agency

The policy context has evolved over that time

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS



2015	Thematic policies, timelines and deadlines
2020/2030	Comprehensive policies (Europe 2020, 7th Environment Action Programme), or specific target
2050	Long-term visions and targets with a societal transition perspective

Source: EEA Multiannual Work Programme 2014–2018

Goals of the 7th Environment Action Programme

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

Source: 7th EU Environment Action Programme

Composition of SOER 2015

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS

Synthesis report

- **Focus:** A synthesis across different SOER 2015 parts to provide a strategic and integrated assessment. It is multidisciplinary, spans thematic issues and geographic scales and aims to support decision-making.
- **Based on:** relevant EEA data, indicators and assessments complemented with other sources; and dedicated stakeholder workshops.
- **Format:** Published as a printed report and online with links to underlying data, indicators and references.

Composition of SOER 2015

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS

Assessment of global megatrends

- **Focus:** An updated assessment of global megatrends (GMT), focusing on the same issues presented in SOER 2010.
- **Based on:** Non-environmental GMTs primarily based on non-EEA sources and environmental GMTs [primarily] based both on thematic EEA information and non-EEA sources (non-European).
- **Format:** Published as a printed SOER 2015 assessment of global megatrends report and 11 online briefings with links to underlying data, indicators and references.

Composition of SOER 2015

SYNTHESIS REPORT | GLOBAL MEGATRENDS | EUROPEAN BRIEFINGS | COUNTRY COMPARISONS | COUNTRIES & REGIONS

European briefings

- **Focus:** A series of 25 briefings that summarise state and trends in key environmental themes, and guide through the EEA knowledge base.
- **Based on:** EEA data, indicators and assessments complemented by other relevant European sources.
- **Format:** Published as online briefings with links to underlying data, indicators and references.

Composition of SOER 2015

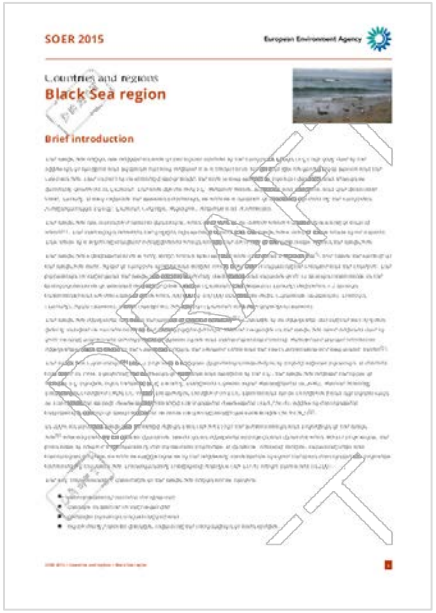
Cross-country comparisons

- **Focus:** Indicator-based cross-country comparisons for 9 themes, with links to national level indicators and interpretation.
- **Based on:** EEA and Eurostat indicators.
- **Format:** Published as online briefings with links to underlying data, indicators and references.

Composition of SOER 2015

Countries and regions

- **Focus:** Summaries of national state of environment reports for each of the 39 countries involved in Eionet; plus 3 regional briefings drafted by EEA.
- **Based on:** National state of environment reports and national datasets and indicators.
- **Format:** Published as online briefings with links to underlying data, indicators and references; and SERIS (State of Environment Reporting Information System).



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Synthesis report

01

Integrated assessment of environmental trends

Part 1 – Setting the scene: The context for European environmental policy, and the global megatrends that directly and indirectly affect Europe's environment.

Part 2 – Assessing European trends: The trends and outlook for 20 environmental issues grouped under the 3 priority objectives of the 7th Environment Action Programme.

Part 3 – Looking ahead: The overall picture of the European environment's state and outlook, and opportunities to support the transition to a more sustainable society.

Protecting, conserving and enhancing natural capital

- Terrestrial and freshwater biodiversity
- Land use and soil functions
- Ecological status of freshwater bodies
- Water quality and nutrient loading
- Air pollution and its ecosystem impacts
- Marine and coastal biodiversity
- Climate change impacts on ecosystems

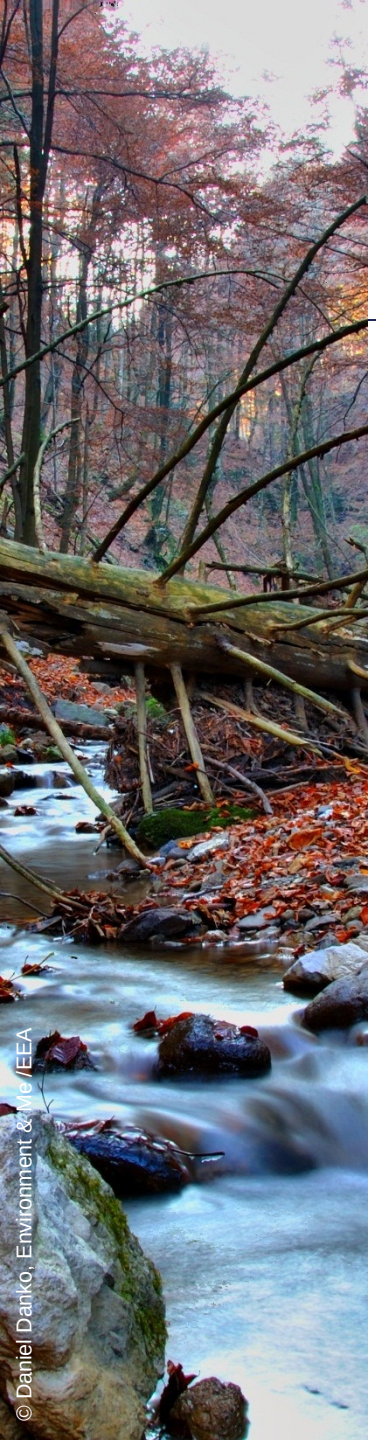
Resource efficiency and the low-carbon economy

- Material resource efficiency and material use
- Waste management
- Greenhouse gas emissions and climate change mitigation
- Energy consumption and fossil fuel use
- Transport demand and related environmental impacts
- Industrial pollution to air, soil and water
- Water use and water quantity stress

Safeguarding from environmental risks to health

- Water pollution and related environmental health risks
- Air pollution and related environmental health risks
- Noise pollution (especially in urban areas)
- Urban systems and grey infrastructure
- Climate change and related environmental health risks
- Chemicals and related environmental health risks

European Environment Agency



Key messages

- Implementation of environment and climate policies has delivered substantial benefits for the functioning of Europe's ecosystems and for the health and living standards of its citizens.
- Environmental policies are also creating economic opportunities and thereby contributing to the Europe 2020 Strategy, aimed at making the EU into a smart, sustainable and inclusive economy by 2020.
- However, there is a disparity between the many positive short terms trends and the less encouraging, long term outlooks for Europe's environment.

Related content

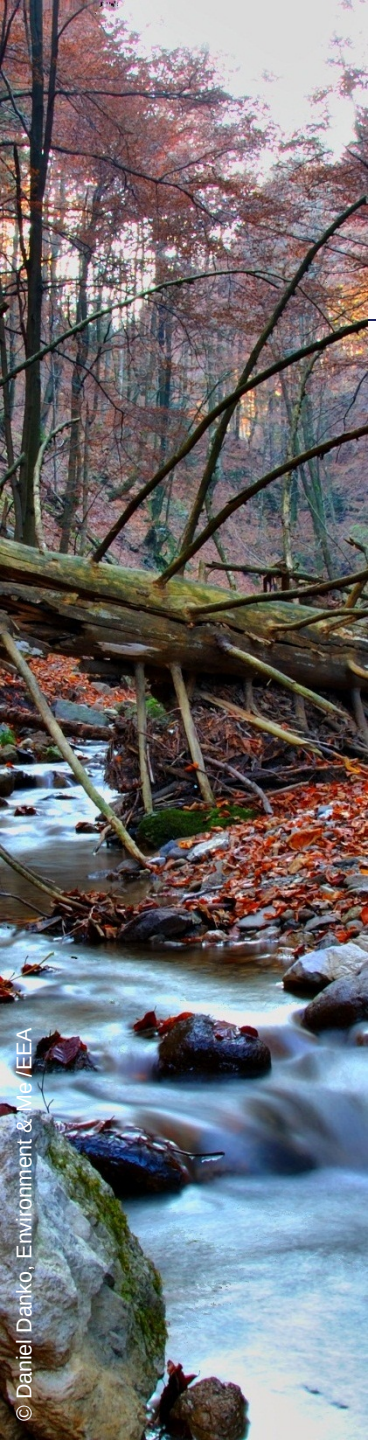
Overall summary table

Key messages

- Environmental drivers, trends and impacts are increasingly globalised: a variety of long-term megatrends today affect Europe's environment, consumption patterns and living standards.
- Policies are working. However, the level of ambition of existing environmental policy may be inadequate to achieve Europe's long-term environmental goals.
- Recalibrating existing policy approaches can make an essential contribution to such transitions along four key approaches: mitigating; adapting; avoiding and restoring.
- Neither environmental policies alone nor economic and technology-driven efficiency gains will be sufficient to achieve the 2050 vision.

Related content

Overall summary table

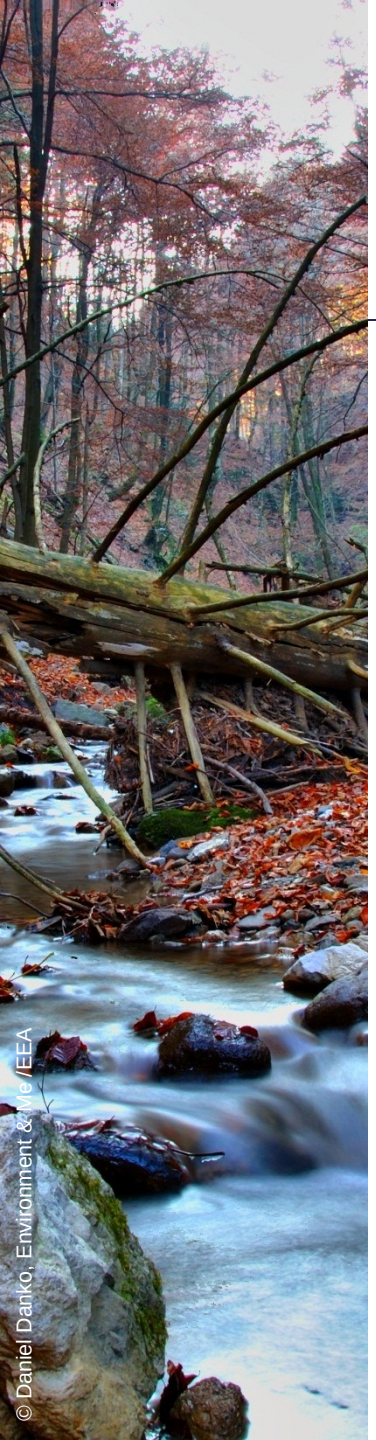


Key messages

- Living well within ecological limits requires fundamental transitions in the systems of production and consumption that are the root cause of environmental and climate pressures.
- Achieving this commitment can put Europe at the frontier of science and technology but calls for a greater sense of urgency and more courageous actions.
- Such transitions require profound changes in dominant institutions, practices, technologies, policies, lifestyles and thinking.

Related content

Overall summary table

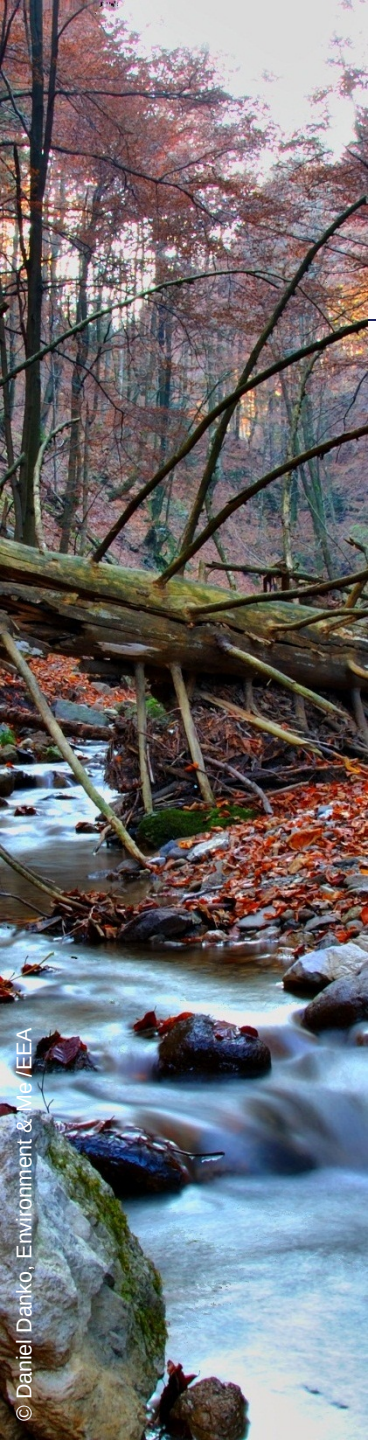


Setting the scene

- In 2015, Europe stands roughly halfway between the initiation of EU environmental policy in the early 1970s and the EU's 7th Environment Action Programme 2050 vision of living well within the limits of the planet.
- Looking back on the last 40 years, the implementation of environment and climate policies has delivered substantial benefits in terms of improvements in environmental, health and living standards of citizens; jobs and growth; and creation of innovation opportunities. Further implementation efforts by countries can increase these positive trends.
- In line with the 2050 vision, young children today would live half their lives in a low-carbon society, based on a circular economy and resilient ecosystems. Achieving this vision can be realised through more ambitious, integrated approaches to environmental and other policies.

Related content

Overall summary table



Setting the scene – evolution of environmental challenges

Characterisation	Specific	Diffuse	Systemic
Key features	Linear cause-effect; large (point) sources; often local	Cumulative causes; multiple sources; often regional	Systemic causes; interlinked sources; often global
In the spotlight in	1970s/1980s (and continuing today)	1980s/1990s (and continuing today)	1990s/2000s (and continuing today)
Includes issues such as	Forest damage due to acid rain; urban wastewater	Transport emissions; eutrophication	Climate change; biodiversity loss
Dominant policy response	Targeted policies and single-issue instruments	Policy integration and raising public awareness	Coherent policy packages and other systemic approaches

Related content

Overall summary table

Assessing European trends

- The Synthesis report presents summary assessments of the past trends and outlook for 20 environmental issues relevant to the 3 thematic priority objectives of the 7th EAP.
- When these summary assessments are viewed collectively, two key patterns emerge:
  - Policies have had a clearer impact in terms of improving resource efficiency than in ensuring resilience of natural and social systems; and
  - In several instances the long-term outlook is less positive than recent trends might imply.

Related content

Overall summary table

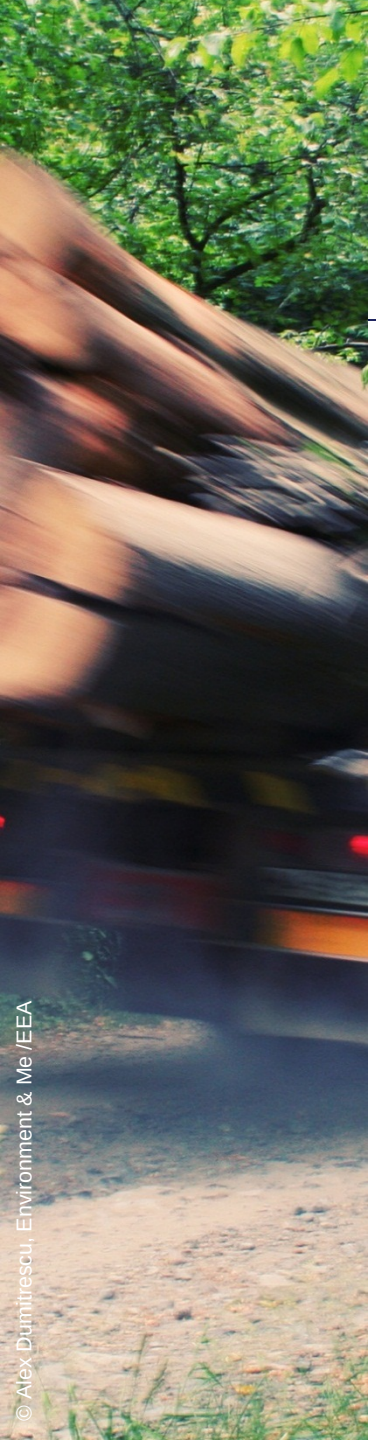
Protecting, conserving and enhancing natural capital - introduction

- The state and prospects of natural capital provide an indication of the environmental sustainability of our economy and society.
- Most of the pressures on Europe's natural capital are fundamentally based in the socio-economic systems of production and consumption that provide for our material well-being.
- Economic and demographic projections suggest these pressures are likely to grow.

Related content

Overall summary table

Summary table 1/3



Protecting, conserving and enhancing natural capital – key trends

- A reduction in pollution achieved through EU policies has significantly improved the quality of Europe's air and water.
- At the same time, biodiversity loss and ecosystem degradation threatens the flows of ecological goods and services that underpin Europe's economic output and well-being.
  - 60% of protected species assessments and 77% of habitat assessments recorded an unfavourable conservation status.
  - Europe is not on track to meet its overall target of halting biodiversity loss by 2020, even though some more specific targets are being met.
- Looking ahead, there is a more mixed picture regarding air and water pollution, climate change impacts are projected to intensify and the underlying drivers of biodiversity loss are expected to persist.

Related content

Overall summary table

Summary table 1/3

Protecting, conserving and enhancing natural capital

	5–10 year trends	20+ years outlook	Progress to policy targets
Terrestrial and freshwater biodiversity			☐
Land use and soil functions			No target
Ecological status of freshwater bodies			☒
Water quality and nutrient loading			☐
Air pollution and its ecosystem impacts			☐
Marine and coastal biodiversity			☒
Climate change impacts on ecosystems			No target

Improving trends dominate
Trends show mixed picture
Deteriorating trends dominate

Largely on track
Partially on track
Largely not on track

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 2/3 | Summary table 3/3

Biodiversity decline and ecosystem degradation reduce resilience

Terrestrial and freshwater biodiversity

5-10 year trends:

High proportion of protected species and habitats in unfavourable conditions.

20+ year outlook:

Underlying drivers of biodiversity loss are not changing favourably.

Full implementation of policy is needed to deliver improvements.

Progress to policy targets:

Not on track to halting overall biodiversity loss (Biodiversity Strategy), but some more specific targets are being met.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 1/3 | Biodiversity | Agriculture | Forests | Agriculture | Biodiversity

Land-use change and intensification threaten soil ecosystem services and drive biodiversity loss

Land use and soil functions

5-10 year trends:

Loss of soil functions due to (urban) land take and land degradation (e.g. as a consequence of soil erosion or land intensification) is continuing; nearly a third of Europe's landscape is highly fragmented.

20+ year outlook:

Land use and management, and their associated environmental and socio-economic drivers, are not expected to change favourably.

Progress to policy targets:

No target

The only non-binding explicit objective is to arrive at 'no net land take by 2050', and to restore at least 15 % of degraded ecosystems by 2020.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 1/3 | Land systems | Agriculture | Soil | Agriculture

Europe is far from meeting water policy objectives and having healthy aquatic ecosystems

Ecological status of freshwater bodies

5-10 year trends:

Mixed progress; more than half of rivers and lakes are in less than good ecological status.

20+ year outlook:

Continuous progress is expected as implementation of the Water Framework Directive continues.

Progress to policy targets:

Only half of surface water bodies meet the 2015 target to achieve good status.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 1/3 | Freshwater quality | Hydrological systems | Freshwater quality

Water quality has improved but the nutrient load of water bodies remains a problem

Water quality and nutrient loading

5-10 year trends:

Water quality has improved, although concentrations of nutrients in many places are still high and affect the status of waters.

20+ year outlook:

In regions with intensive agriculture production, diffuse nitrogen pollution will still be high, resulting in continued eutrophication problems.

Progress to policy targets:

Although the Urban Waste Water Treatment Directive and the Nitrates Directive continue to deliver pollution control, diffuse nitrogen pollution remains problematic.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 1/3 | Freshwater quality | Hydrological systems | Freshwater quality

Despite cuts in air emissions, ecosystems still suffer from eutrophication, acidification and ozone

Air pollution and its ecosystem impacts

5-10 year trends:

Lower emissions of air pollutants have contributed to fewer exceedances of acidification and eutrophication limits.

20+ year outlook:

Long-term problems from eutrophication are forecast to persist in some areas, although adverse impacts caused by acidification will be greatly improved.

Progress to policy targets:

There has been mixed progress in meeting the EU's 2010 interim environmental objectives for eutrophication and acidification.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 1/3 | Air pollution | Air pollution

Marine and coastal biodiversity is declining, jeopardising increasingly needed ecosystem services

Marine and coastal biodiversity

5-10 year trends:

A low number of species are in favourable conservation status or good environmental status.

20+ year outlook:

Pressures and effects of climate change on marine ecosystems are set to continue. Full implementation of policies is needed to deliver improvements.

Progress to policy targets:

Target to reach good environmental status by 2020 (rf. Marine Strategy Framework Directive) remains a significant challenge.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 1/3 | Marine environment | Maritime activities

The impacts of climate change on ecosystems and society call for adaptation measures

No target

Climate change impacts on ecosystems

5-10 year trends:

Seasonal cycles and distribution of many species have changed due to temperature increase, warming oceans, and the shrinking of the cryosphere.

20+ year outlook:

Increasingly severe climate change and impacts on species and ecosystems are projected.

Progress to policy targets:

The EU 2013 Strategy and national strategies on climate change adaptation are being implemented, and mainstreaming of climate change adaptation in policies addressing biodiversity and ecosystems takes place to some extent.

Related content

Overall summary table

Summary table 1/3

Climate change impacts

Biodiversity

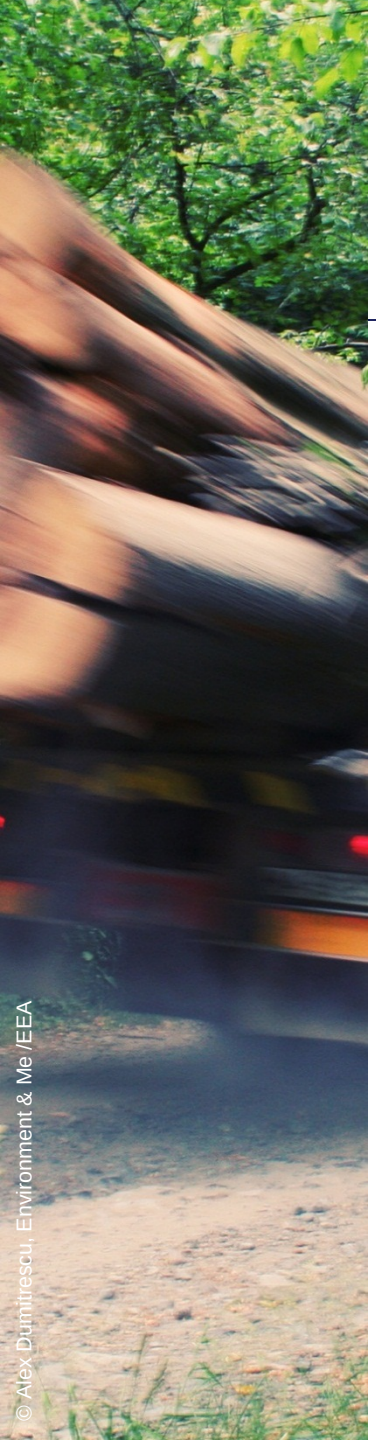
Biodiversity

Freshwater quality

Freshwater quality

Marine environment

Source: EEA. SOER 2015 Synthesis report.



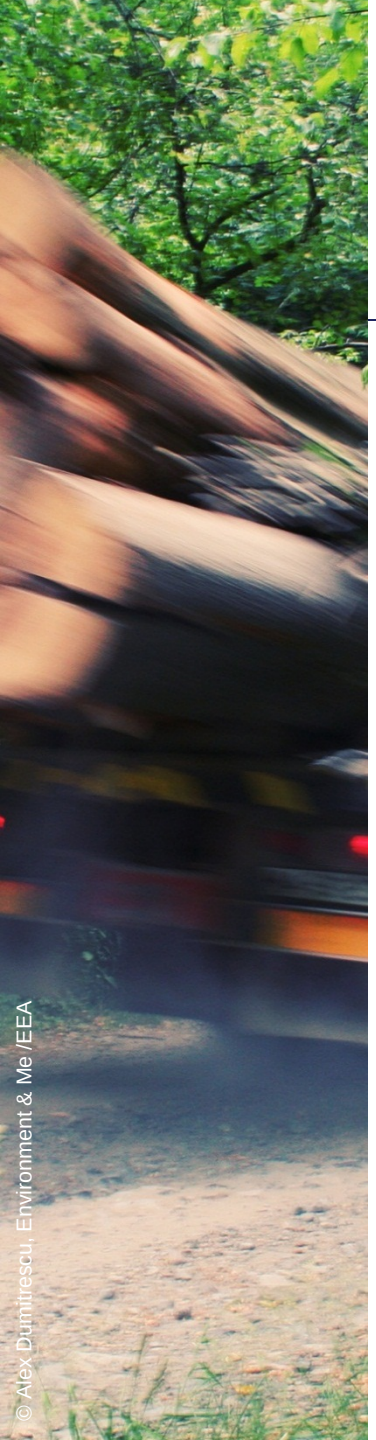
Protecting, conserving and enhancing natural capital – understanding systemic challenges

- A variety of factors explain the uneven progress towards ensuring long-term ecosystem resilience:
  - The complexity of environmental systems can cause a considerable time lag between reduced pressures and changes in environmental impacts and status.
  - Pressures on ecosystems, notably resource use and land degradation, remain substantial despite recent reductions.
  - External pressures (including global megatrends) can counteract the effects of specific policy measures and local management efforts. Exported environmental impacts can return to Europe in the form of global and regional environmental problems such as air pollution, biodiversity loss and climate change.

Related content

Overall summary table

Summary table 1/3



Protecting, conserving and enhancing natural capital – responses

- Management of natural capital requires integrated and adaptive approaches.
- Ecosystem based management is a critical part of this integrated approach and is being implemented in the aquatic environment and within green infrastructure development to manage human activities.
- Integrated management approaches provide an opportunity to correct the prioritisation of manufactured capital over human, social and natural capital.
- Improving resource efficiency can ease the pressure on natural capital and enhancing ecosystem resilience will deliver benefits for human health and well-being.

Related content

Overall summary table

Summary table 1/3

Resource efficiency and the low-carbon economy – introduction

- The prevailing model of economic development – based on steadily growing resource use and harmful emissions – cannot be sustained in the long term.
- Increasing resource efficiency is essential to sustain socio-economic progress in a world of finite resources and ecosystem capacity.
- However, it is not sufficient on its own as it does not guarantee a reduction in environmental pressures in absolute terms.

Related content

Overall summary table

Summary table 2/3

Resource efficiency and the low-carbon economy – key trends

- Short-term trends are encouraging and European greenhouse gas emissions have decreased by 19% since 1990 despite a 45% increase in economic output.
- Other environmental pressures have also decoupled in absolute terms from economic growth.
  - Fossil fuel use has declined, as have emissions of some pollutants from transport and industry.
  - More recently the EU's total resource use has declined, less waste is being generated and recycling rates have improved in nearly every country.

Related content

Overall summary table

Summary table 2/3

Resource efficiency and the low-carbon economy – key trends

- Looking ahead there is a less positive picture.
- Environmental policies are working but as the 2008 financial crisis and subsequent economic recessions also contributed to the reduction of some pressures, it remains to be seen whether all improvements will be sustained.
- The level of ambition of environmental policies currently in place to reduce environmental pressures may not enable Europe to achieve long-term environmental goals, such as the 2050 target of reducing greenhouse gas emissions by 80–95%.

Related content

Overall summary table

Summary table 2/3

Resource efficiency and the low-carbon economy

	5–10 year trends	20+ years outlook	Progress to policy targets
Material resource efficiency and material use			No target
Waste management			☐
Greenhouse gas emissions and climate change mitigation			☑ / ☒
Energy consumption and fossil fuel use			☑
Transport demand and related environmental impacts			☐
Industrial pollution to air, soil and water			☐
Water use and water quantity stress			☒

Improving trends dominate
Trends show mixed picture
Deteriorating trends dominate

Largely on track
Partially on track
Largely not on track

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table
Summary table 1/3
Summary table 3/3

Despite more efficient material use, European consumption remains very resource intensive

Material resource efficiency and material use

5-10 year trends:

There has been some absolute decoupling of resource use from economic output since 2000, although the economic recession contributed to this trend.

20+ year outlook:

European economic systems remain resource intensive, and a return to economic growth could reverse recent improvements.

No target

Progress to policy targets:

The targets in this area are currently qualitative in character.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 2/3 | Resource efficiency | Consumption | Resource efficiency

Waste management is improving but European remains far from a circular economy

Waste management

5-10 year trends:

Less waste is being landfilled due to reduced generation of some wastes, increased recycling and greater use of waste for energy recovery.

20+ year outlook:

Total waste generation is still high, although implementation of waste prevention programmes could alleviate this.

Progress to policy targets:

Past successes with some waste streams, but only mixed progress across countries towards meeting recycling and landfill targets.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 2/3 | Waste | Green economy | Resource efficiency | Waste

The transition to a low-carbon economy requires greater greenhouse gas emission cuts

Greenhouse gas emissions and climate change mitigation

5-10 year trends:

The EU has cut greenhouse gas emissions to 19.2 % below 1990 levels while increasing GDP by 45 %, halving 'emission intensity'.

20+ year outlook:

The projected reductions of EU greenhouse gas emissions as result of implemented policies are insufficient to bring the EU on a pathway towards the 2050 decarbonisation target.

Progress to policy targets:

The EU is on track to 'over-deliver' on its international and domestic 2020 targets, but is not on track towards its 2030 and 2050 targets.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 2/3 | Mitigating climate change | Mitigating climate change

Reducing fossil fuel dependence would cut harmful emissions and boost energy security

Energy consumption and fossil fuel use

5-10 year trends:

Renewable energy has increased substantially in the EU and energy efficiency has also improved.

20+ year outlook:

Fossil fuels continue to dominate EU energy production. Transforming the energy system into an environmentally compatible one requires substantial investments.

Progress to policy targets:

The EU is on track to meet its 20 % renewable energy target in 2020 and its 20 % energy efficiency target in 2020.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 2/3 | Energy | Mitigating climate change | Energy | Mitigating climate change

Increasing transport demand affects the environment and human health

Transport demand and related environmental impacts

5-10 year trends:

The economic crisis lowered transport demand and reduced pollutant and greenhouse gas emissions, but transport continued to cause harmful impacts.

20+ year outlook:

Certain transport-related impacts are decreasing, but creating a sustainable mobility system will require faster introduction of measures to control impacts.

Progress to policy targets:

Good progress to efficiency and short-term greenhouse gas targets but a significant distance remains toward longer-term policy objectives.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 2/3 | Transport | Transport

Industrial pollutant emissions have declined but still cause considerable damage each year

Industrial pollution to air, soil and water

5-10 year trends:

Industrial emissions are decoupling from industrial output in absolute terms.

20+ year outlook:

Industrial emissions are expected to decrease further, but harm to the environment and human health remains considerable.

Progress to policy targets:

Good progress in implementation of Best Available Techniques. Policy has been strengthened through the Industrial Emissions Directive, which remains to be fully implemented.

Related content

Industry | Air pollution | Freshwater quality | Soil

Overall summary table | Summary table 2/3 | Air pollution | Freshwater quality

Source: EEA. SOER 2015 Synthesis report.

Reducing water stress requires enhanced efficiency and water demand management

Water use and water quantity stress

5-10 year trends:

Water use is decreasing for most sectors and in most regions but agricultural water use, in particular in southern Europe, remains a problem.

20+ year outlook:

Water stress remains a concern in some regions, and efficiency improvements may not offset all impacts of climate change.

Progress to policy targets:

Water scarcity and droughts continue to affect some European regions, impacting both economic sectors and freshwater ecosystems.

Related content

Overall summary table

Summary table 2/3

Hydrological systems

Agriculture

Freshwater quality

Climate change impacts

Agriculture

Freshwater quality

Source: EEA. SOER 2015 Synthesis report.

Resource efficiency and the low-carbon economy – understanding systemic challenges

- Feedbacks, interdependencies and lock-ins in environmental and socio-economic systems undermine efforts to mitigate environmental pressures and related impacts:
  - Improved efficiency in production processes can lower the costs of goods and services, incentivising increased consumption (the 'rebound effect');
  - Many impacts of Europe's production and consumption occur in other parts of the world, where European policies have limited direct influence; and
  - The production-consumption systems responsible for many environmental pressures also provide benefits (such as jobs and incomes), creating strong incentives for sectors or communities to resist change.

Related content

Overall summary table

Summary table 2/3

Resource efficiency and the low-carbon economy – responses

- An integrated perspective on production-consumption systems that meet our needs (e.g. food, housing and mobility) improves our understanding of the incentives which structure them, the functions they perform, the ways system elements interact, the impacts they generate and opportunities to reconfigure them.
- Integrated approaches such as life-cycle thinking can help ensure that improvements in one area (e.g. production efficiency) are not offset by changes in another (e.g. increased consumption).
- The globalised nature of production-consumption systems points to the need for new governance approaches that transcend national boundaries and engage businesses and society more fully.

Related content

Overall summary table

Summary table 2/3

Safeguarding from environmental risks to health – introduction

- Human health and well-being are intimately linked to the state of the environment.
- A range of detrimental health effects have been linked to environmental pollution and degradation and the health benefits of a high quality natural environment are increasingly recognised.
- In addition to established problems – such as air pollution, water pollution and noise – new health issues are emerging linked to lifestyle and consumption trends and the rapid uptake of new chemicals and technologies.

Related content

Overall summary table

Summary table 3/3

Safeguarding from environmental risks to health – key trends

- Environmental policies have brought improvements in drinking water and bathing water quality and exposure to key hazardous pollutants have been reduced although serious health impacts remain in urban areas relating to air and noise pollution.
  - In 2011, about 430 000 premature deaths in the EU were attributed to fine particulate matter (PM2.5).
  - Exposure to environmental noise is estimated to contribute to at least 10 000 premature deaths due to coronary heart disease and strokes each year.
  - Growing use of chemicals, particularly in consumer products, has been associated with an observed increase of endocrine diseases and disorders in humans.

Related content

Overall summary table

Summary table 3/3

Safeguarding from environmental risks to health

	5–10 year trends	20+ years outlook	Progress to policy targets
Water pollution and related environmental health risks			☑ / ☐
Air pollution and related environmental health risks			☐
Noise pollution (especially in urban areas)		n.a.	☐
Urban systems and grey infrastructure			No target
Climate change and related environmental health risks			No target
Chemicals and related environmental health risks			☐ / ☒

Improving trends dominate
Trends show mixed picture
Deteriorating trends dominate

Largely on track ☑
Partially on track ☐
Largely not on track ☒

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 1/3 | Summary table 2/3

Water availability has generally improved but pollution and scarcity still cause heath problems

Water pollution and related environmental health risks

5-10 year trends:

Drinking and bathing water continuously improving, and some hazardous pollutants have been reduced.

20+ year outlook:

More extreme events (flooding and drought) due to climate change may result in more water and health-related issues. Emerging pollutants, such as from pharmaceuticals and personal care products, may be a future concern, as may be algal blooms and pathogenic microorganisms.

Progress to policy targets:

High compliance with the Bathing Water Directive and the Drinking Water Directive across Europe. Concern remains on the impact of chemicals (including new emerging pollutants).

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 3/3 | Freshwater quality | Health & environment | Freshwater quality

Ambient air quality has improved but many citizens are still exposed to dangerous pollutants

Air pollution and related environmental health risks

5-10 year trends:

Europe's air quality is slowly improving, but fine particulate matter (PM2.5) and ground-level ozone in particular continue to cause serious impacts on health.

20+ year outlook:

Air quality is expected to further improve in the years to 2030, but harmful levels of air pollution will persist.

Progress to policy targets:

The number of countries meeting existing EU air quality standards is slowly increasing, but a large number are still not in compliance.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 3/3 | Air pollution | Air pollution | Health & environment

Exposure to noise is a major health concern in urban areas

Noise pollution (especially in urban areas)

5-10 year trends:

Exposure to noise in selected urban agglomerations has remained broadly constant between 2006 and 2011 according to two key noise indicators.

n.a.

20+ year outlook:

No data are yet available that would allow an assessment of long-term trends to be made.

Progress to policy targets:

No clear targets, but the 7th Environment Action Programme aims to significantly reduce noise exposure by 2020, moving closer to WHO recommended levels.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 3/3 | Transport | Noise | Urban systems | Transport

Urban systems are relatively resource efficiency but also create multiple exposure patterns

Urban systems and grey infrastructure

5-10 year trends:

Some improvements, especially housing and end-of-pipe emission solutions.

Good air quality and accessibility to green areas remain issues in large cities.

Extension of urban areas and urban sprawl continue.

20+ year outlook:

Increases in urban population throughout Europe might enhance land uptake and fragmentation for infrastructure, at the same time contributing to pressures on resources and environmental quality.

Progress to policy targets:

No target

No overall urban policy target; specific targets relevant to thematic policies (air, noise, etc.).

Waste | Soil | Land systems | Resource efficiency | Air pollution | Transport | Energy | Freshwater quality | Consumption | Climate change impacts | Health & environment

Related content

Overall summary table | Summary table 3/3 | Resource efficiency | Air pollution | Transport | Energy | Freshwater quality

Health impacts of climate change require adaptation at different scales

Climate change and related environmental health risks

5-10 year trends:

Premature deaths due to heatwaves and changes in communicable diseases, linked to shifts in the distribution of disease-carrying insects (vectors) have been observed.

20+ year outlook:

Increasingly severe climate change and human-health impacts are projected.

Progress to policy targets:

No target

The EU 2013 strategy and national strategies on climate change adaptation are being implemented and mainstreaming of climate change adaptation in policies addressing human health takes place to some extent (e.g. early warning and action plans for heatwaves).

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 3/3 | Climate change impacts | Health and environment

Risk management needs to be adapted to emerging environment and health issues

Chemicals and related environmental health risks

5-10 year trends:

The impacts of some hazardous chemicals are increasingly being addressed. Endocrine disrupters and newly emerging chemicals are of growing concern. Knowledge gaps and uncertainty remain.

20+ year outlook:

Chemicals may have long lasting impacts, especially persistent and bio-accumulative chemicals. Implementation of EU and international policies is likely to reduce the chemical burden.

Progress to policy targets:

Implementation of REACH continues. No policy targets have been set for chemical mixtures. Concern on the impact of newly emerging chemicals remains.

Source: EEA. SOER 2015 Synthesis report.

Related content

Overall summary table | Summary table 3/3 | Freshwater quality | Health and environment | Freshwater quality

Safeguarding from environmental risks to health – understanding systemic challenges

- Looking ahead, projected improvements in air quality, are not expected to be sufficient to prevent continuing harm to health and the environment, while health impacts resulting from climate change are expected to worsen. The outlook is less positive because:
  - Inside and outside Europe, climate change, depletion of natural resources, and biodiversity loss can have potentially wide-ranging and long-term effects on Europeans' human health and well-being;
  - The strong interdependence between systems that meet basic human needs (e.g. for food, water, energy and materials) create many trade-offs in management options; and
  - Changing exposure patterns as a result of urbanisation and human vulnerabilities such as the aging population can offset the benefits of reductions in overall pressures.

Related content

Overall summary table

Summary table 3/3

Safeguarding from environmental risks to health – responses

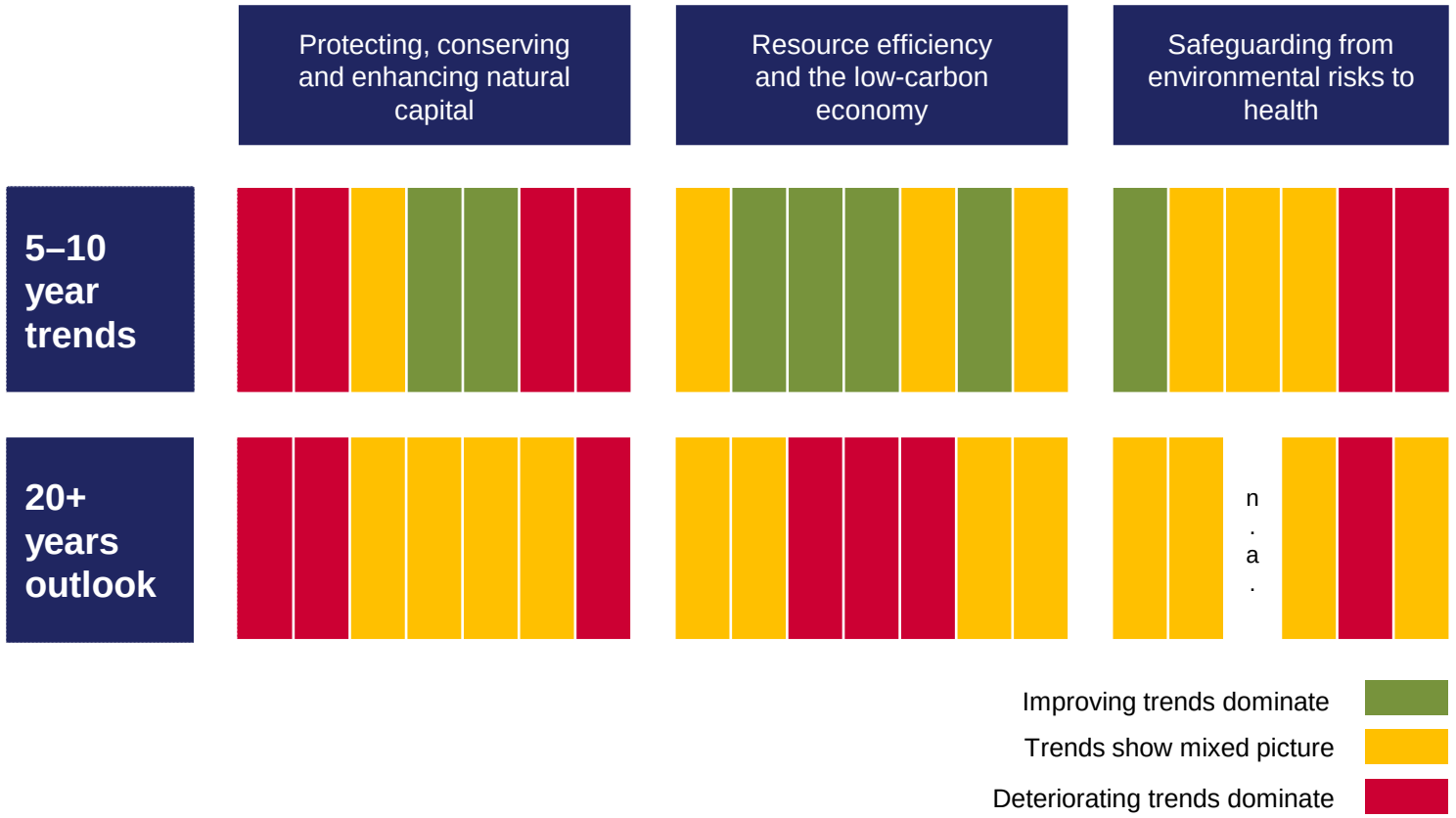
- Ecosystem-based approaches that link human health and well-being with the preservation of natural capital and ecosystem services are very promising but hampered by knowledge gaps on the interactions between multiple environmental pressures, social and demographic factors.
- Multifunctional green infrastructure can play an important role in urban areas and benefit physical health, mental and social well-being. Integration of green infrastructure into urban planning as part of adaptation to climate change can offer long-term, cost-effective solutions.
- Adapting risk management approaches to incorporate cumulative risk assessment and address emerging issues can anticipate and manage problems and opportunities.

Related content

Overall summary table

Summary table 3/3

Summary assessment of environmental trends



Source: EEA. SOER 2015 Synthesis report.

Related content

Summary table 1/3

Summary table 2/3

Summary table 3/3

Looking ahead – systemic transitions

- Although Europe is faced with complex challenges and large uncertainties, the longer-term outlook also offers broader opportunities for system-level solutions that can allow Europe to address environmental, economic and social aspects in a more efficient and integrated manner.

- Full implementation of agreed policies would go some way to resolving many issues but environmental policies currently in place, alongside economic and technology-driven efficiency gains are highly likely to be insufficient to achieve the 2050 vision. The persistent and emerging challenges facing Europe in the next 35 years require different approaches to policy, knowledge, investment and innovation.

- A transition to a green economy can provide a framework for an integrated response. Transitions are fundamental shifts in the socio-technical systems that fulfil societal needs, through profound changes in dominant structures, practices, technologies, policies, lifestyles and thinking.

Related content

Overall summary table

Looking ahead – policy opportunities

- Environmental policies have contributed to reducing pressures on the environment, particularly for problems with a relatively specific cause-effect relationship.
- Environmental policies have been less successful in halting biodiversity loss due to habitat destruction and overexploitation; in eliminating risks to human health resulting from the combination of chemicals introduced into our environment; or in halting climate change.
- This means substantial challenges remain in terms of meeting the ambitions of the 7th EAP as environmental problems with multiple causes and linkages between them make policy responses more difficult to formulate.

Related content

Overall summary table

Looking ahead – policy opportunities

Four established and complementary approaches could enhance progress to long-term transitions if considered together and implemented coherently:

- **Mitigating** known ecosystem and human health impacts while creating socio-economic opportunities through resource-efficient innovation;
- **Adapting** to expected climate and other environmental changes by increasing economic, environmental and social resilience;
- **Avoiding** potentially serious environmental harm to people's health and well-being and ecosystems by taking precautionary and preventive action, based on early warnings from science; and
- **Restoring** resilience in ecosystems and society by enhancing natural resources, contributing to sustainable economic development and addressing social inequities.

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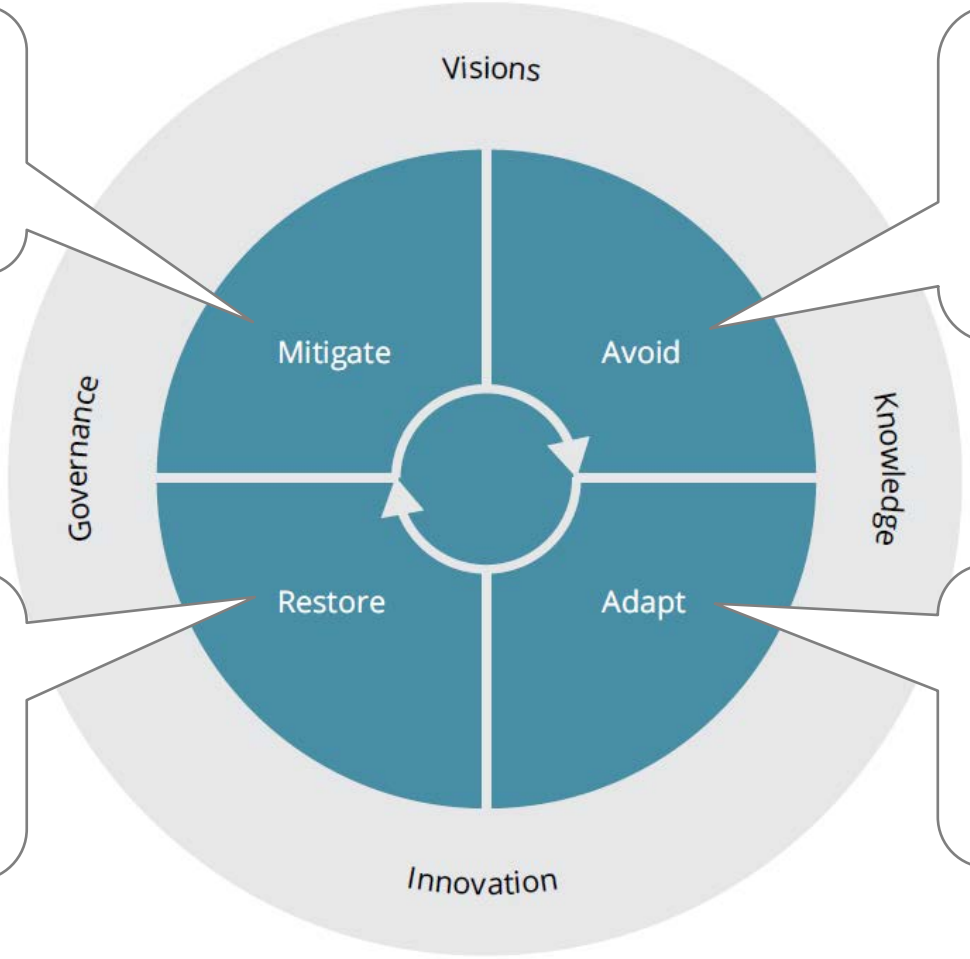
Summary assessment of environmental trends

Reducing environmental pressures or offsetting harmful effects

Precautionary principle: avoid potential harm (or counter-productive actions) in highly complex and uncertain situations



Remediating environmental degradation (where possible) or other costs imposed on society

Some environmental change inevitable: anticipate adverse effects of specific environmental changes

Source: EEA.

Related content

Overall summary table

Looking ahead – policy opportunities

- Policy packages that include objectives and targets explicitly recognising the relationships between resource efficiency, ecosystem resilience and human well-being would accelerate the reconfiguration of Europe's systems of production and consumption.
- Other opportunities to steer transitions include **improved implementation, integration and coherence of environment and climate policy**.
- The foundation for short- and long-term improvements in Europe's environment, people's health and economic prosperity rests on full implementation of policies, as well as better integration of the environment into the sectoral policies that contribute most to environmental pressures and impacts.

Related content

Overall summary table

Looking ahead – investing for the future

- Investment choices – and availability of financial resources more broadly – are key enabling conditions for long-term transitions.
- The EU has committed to spend at least 20% of the 2014-2020 budget on transforming Europe into a clean and competitive low-carbon economy.
- Transitions depend in part on avoiding investments that lock society into existing patterns of production and consumption, limit options or the development of substitutes.
- Phasing out environmentally harmful subsidies that distort price signals can influence investment choices and release public revenue for investment.

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Looking ahead – supporting and upscaling innovations

- Economic, technological and social innovations can support long-term transitions to a green economy.
- **Collaborative consumption** focuses on the ways that consumers can obtain products or services more effectively and resource-efficiently.
- **Prosumerism** reduces the distinction between the producer and consumer and is occurring through distributed energy production systems.
- **Social innovation** is a problem solving approach that entails developing new concepts, strategies and organisational forms to better meet societal needs.
- **Eco-innovation and eco-design** go further than technological innovation and incorporate environmental considerations into product design, production and life cycle.

Related content

Overall summary table

Looking ahead – expanding the knowledge base

- Expanding the environmental knowledge base can support better policy implementation and integration, investment choices and long-term transitions.
- Key knowledge gaps relate to systems science; complex environmental change and systemic risks; how Europe's environment is affected by global megatrends; feasible transitions in production consumption systems; and the inter-relationships between economic development, environmental change and human well-being.
- Developing integrated environmental-economic accounting and indicators will support both policy making and investment decisions.
- Foresight methods should be more widely used to enhance strategic planning.
- Strengthening science-policy-society interfaces and citizen engagement are important parts of transition to a green economy.

Related content

Overall summary table

Looking ahead – towards transition

Moving from visions and ambitions to credible and feasible transition pathways involves:

- **Investing for the future** and avoiding investments that lock society into existing patterns of production and consumption.
- **Supporting and upscaling niche innovations,** such as ‘prosumerism'.
- Filling gaps and **improving the knowledge base** to better understand systems science, forward-looking information, systemic risks and the relationships between environmental change and human well-being.
- **Harness synergies** across policy, investment and research activities in support of the transition to a green economy (EU's 7th EAP, Multiannual Financial Framework 2014–2020, the Europe 2020 Strategy and Horizon 2020).

Related content

Overall summary table

Looking ahead – the take home messages

- Living well while accepting the limits of the planet remains a realistic option if we act now and would put Europe at the frontier of science and technology, create new industries and a healthier society.
- Although full implementation of existing policies will be essential, neither the environmental policies currently in place, nor economic and technology-driven efficiency gains will be sufficient to achieve Europe's 2050 vision.
- This will require a greater sense of urgency and more coherent and ambitious more ambitious policies, alongside better knowledge and smarter investments, aimed at fundamentally transforming key systems such as food, energy, housing, transport, finance, health and education.
- In setting out the nature of the challenge and identifying potential responses, SOER 2015 expands the available knowledge base for effective decision-making.

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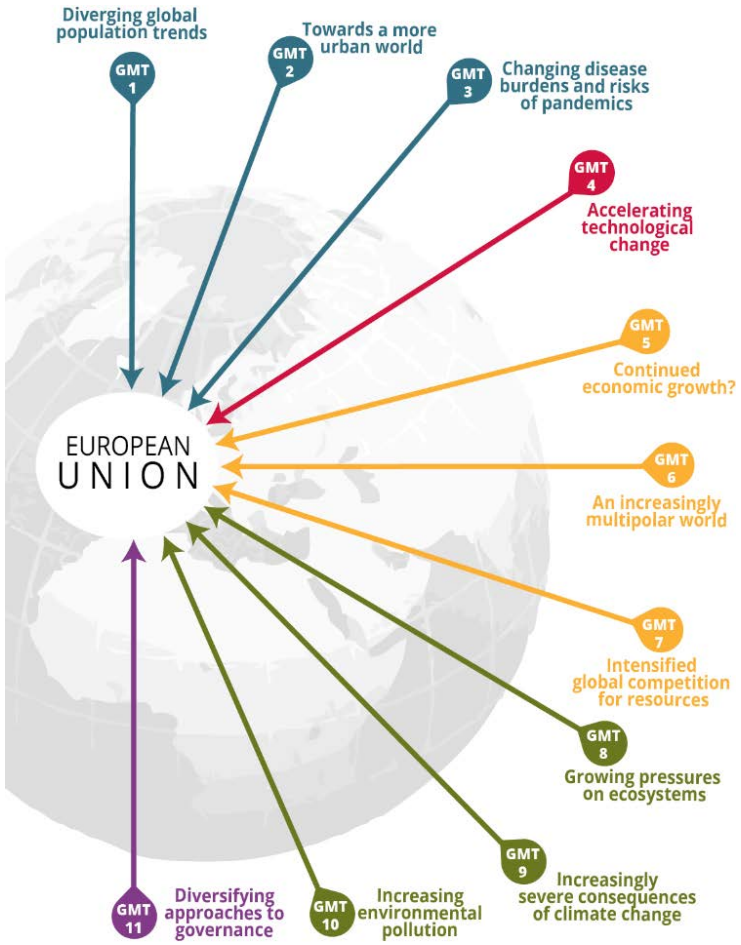
Global megatrends

02

Setting the scene



- Global megatrends are large-scale, high impact and often interdependent social, economic, political, environmental or technological changes.
- Europe is bound to the rest of the world through multiple systems. This means that global megatrends will significantly affect Europe's ecological and societal resilience and its response options.
- As the global middle class expands, the total environmental burden could move beyond globally sustainable limits. 'Business as usual' will not be a viable development path for Europe.

Setting the scene

- Europe has two main clusters of response options to global megatrends: **shaping global change** in ways that mitigate and manage risks, and **adapting to global trends**.
- Several recent EU policy processes have started to embrace the need for long-term, global, and strategic risk assessment (e.g. 7th EAP, Roadmap to a resource-efficient Europe, Raw Materials Initiative, Horizon 2020 programme)
- Challenges such as responding to growing pressures on the global environmental commons or managing international economic integration cannot be fully addressed by individual states. Better global governance will require stronger international institutions and rules, as well as improved engagement of businesses, NGOs and cities.
- Better governance also depends on an improved environmental knowledge base, drawing on both foresight methods and model-based analysis.

Diverging global population trends

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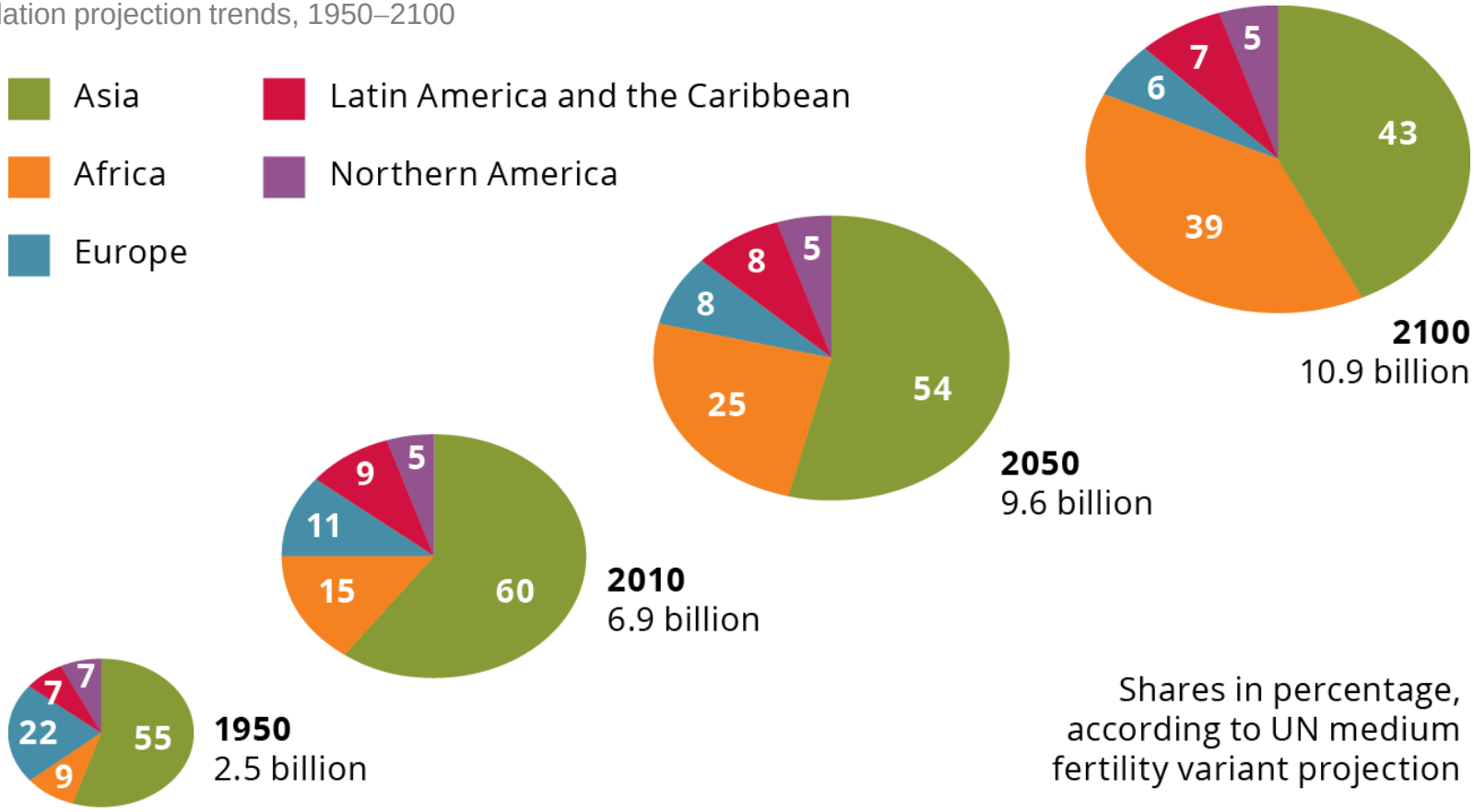
- The world population may rise beyond 9.6 billion by 2050, despite a slowing rate of growth. Most of the increase is likely to occur in urban areas in developing regions.
- Growing and younger populations in the developing world, the global growth of an affluent middle class, and ageing populations in developed countries will influence migration flows, creating a mixture of benefits and risks in developed and developing regions.
- Demographic trends are also likely to increase global resource demand and related environmental pressures. This points to the need for Europe to persist with efforts to decouple resource use from economic development.

Related content

Consumption | Green economy | Urban systems

The global population is expected to grow 43% by 2050, with Africa's population increasing especially fast

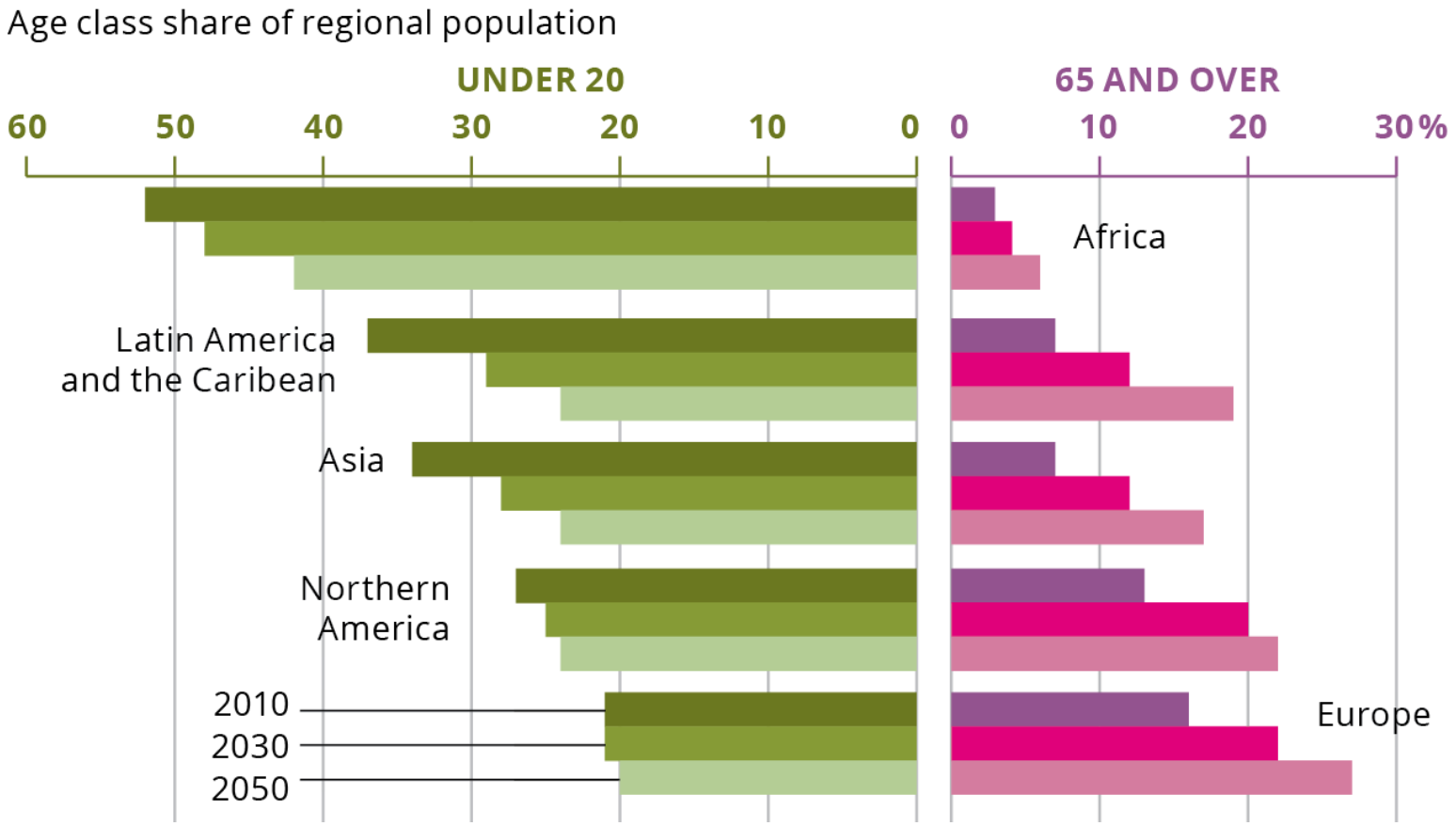
World Population projection trends, 1950–2100



Source: UN World population prospects: The 2012 revision.

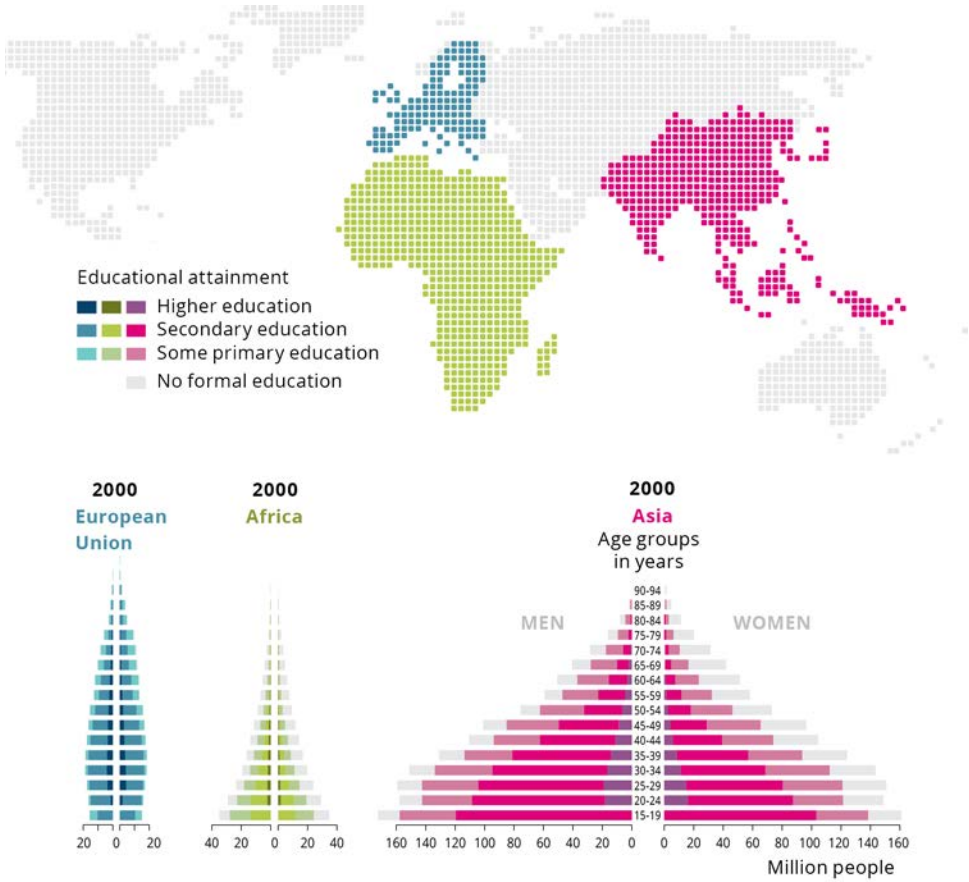
Age structures are expected to change, with ageing populations particularly in Europe

Share of population under age 20 and over age 65 by regions in 2010, 2030 and 2050



Source: UN World population prospects: The 2012 revision.

Huge working age populations and rising education levels may boost economic growth in Asia and Africa



Population pyramids for Europe, Africa and Asia for 2000 and 2050 by age, sex and education attainment

Source: Samir et al., 2010.

Consumption | Green economy | Urban systems

Towards a more urban world

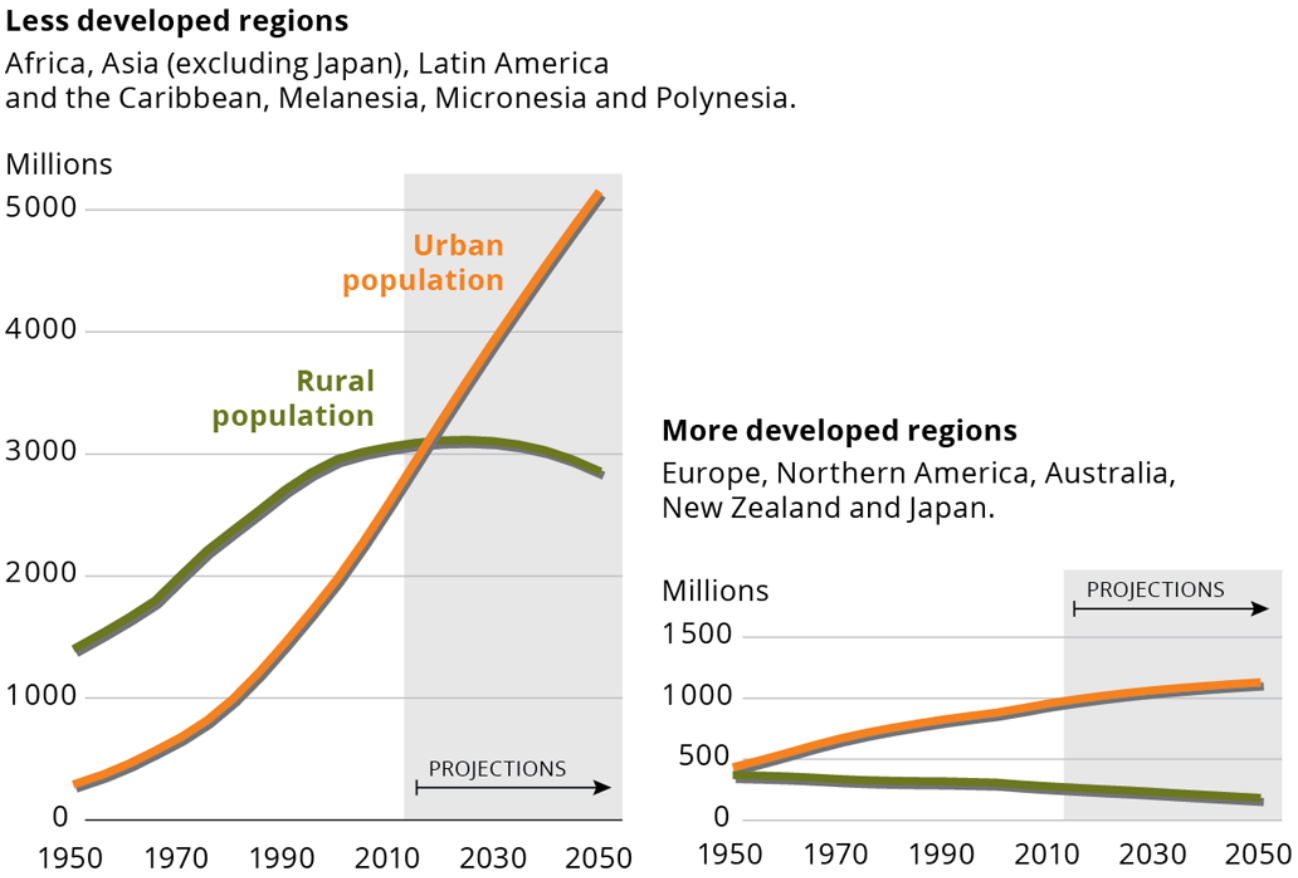
- Urban areas in developing countries will absorb most of the global population increase, with 67 % of people living in cities by 2050. Most of the growth is expected to be in megacities, particularly slums.
- Compact cities are the most efficient and environmentally sustainable way to secure the welfare of a growing population. Smart planning provides for efficient use of urban space.
- Urban growth is driving land-use change in Europe, with peri-urban areas developing at four times the rate of towns and cities.
- Integrated urban management could increase the environmental resilience of Europe's cities, particularly in the east and south.

Related content

Land systems | Green economy | Urban systems

By 2050, 67% of the world population is expected to live in cities

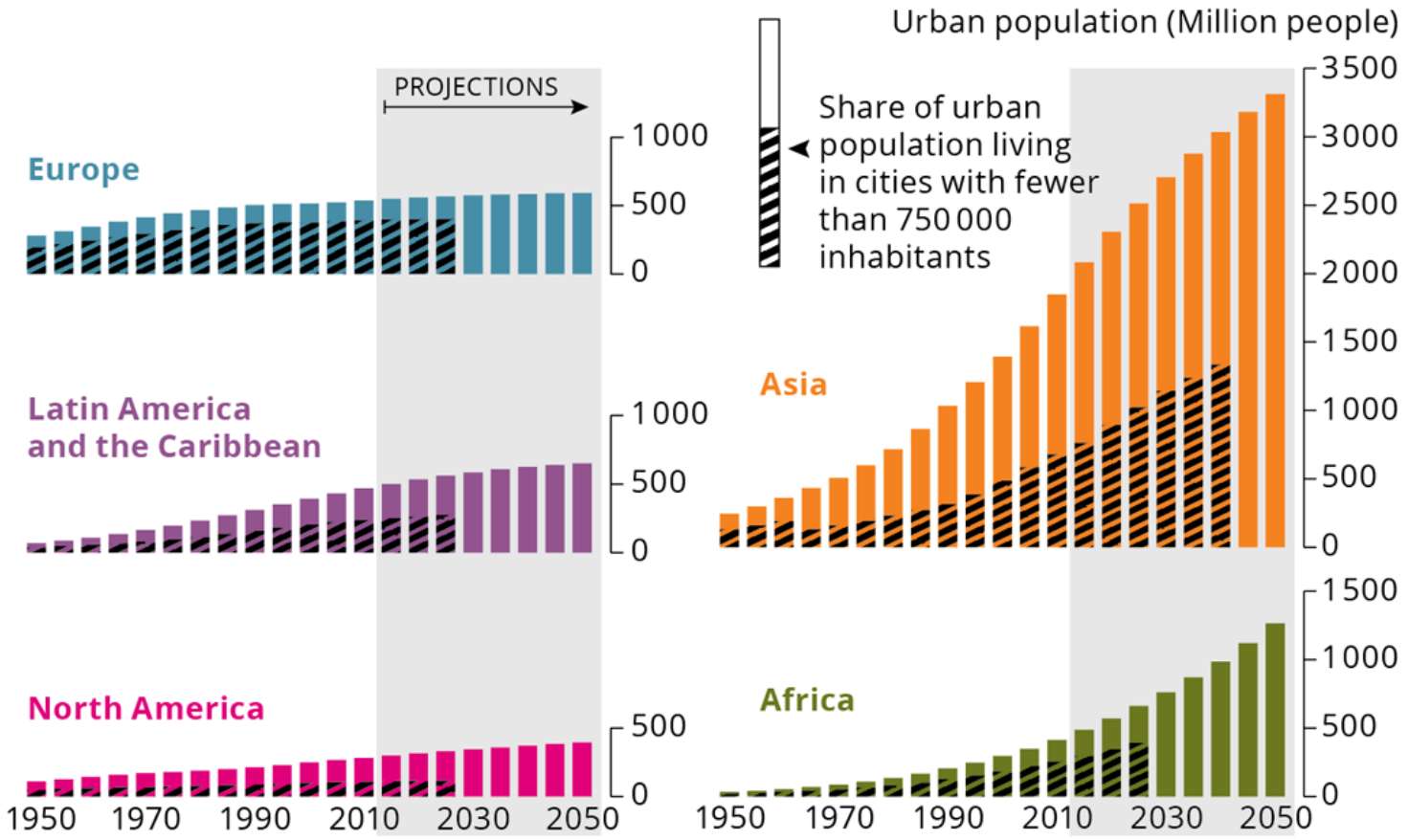
Urban and rural population in developed and less developed world regions, 1950–2050



Source: UN World urbanization prospects: The 2012 revision.

Urban areas in developing countries, particularly slums, will absorb most of the global population increase

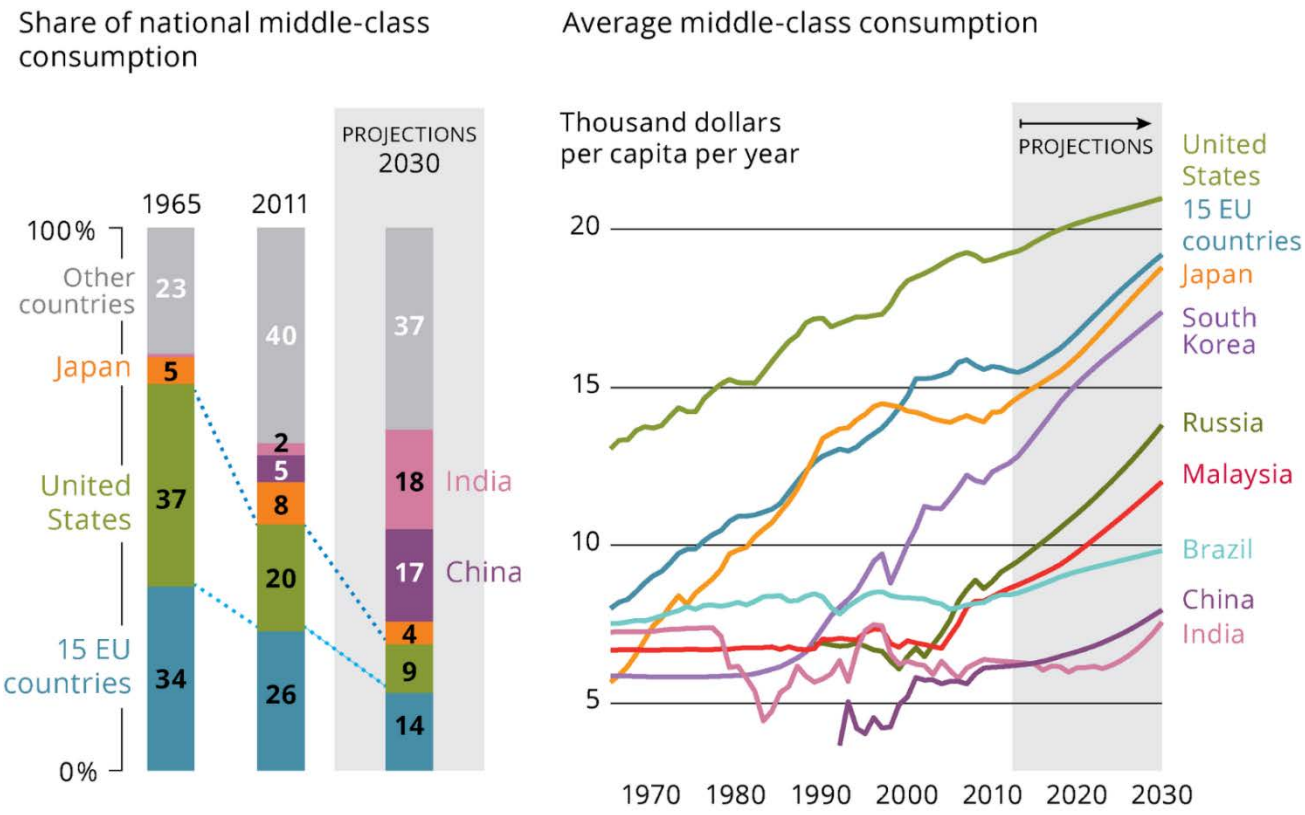
Urban trends by world regions, 1950-2050



Source: UN World urbanization prospects: The 2012 revision.

The global number of (resource intensive) middle class consumers is expected to grow by 170 % by 2030

Middle-class consumption, 1965-2030



Source: Development, Aid and Governance Indicators (DAGI), 2012.

Changing disease burdens and risks of pandemics

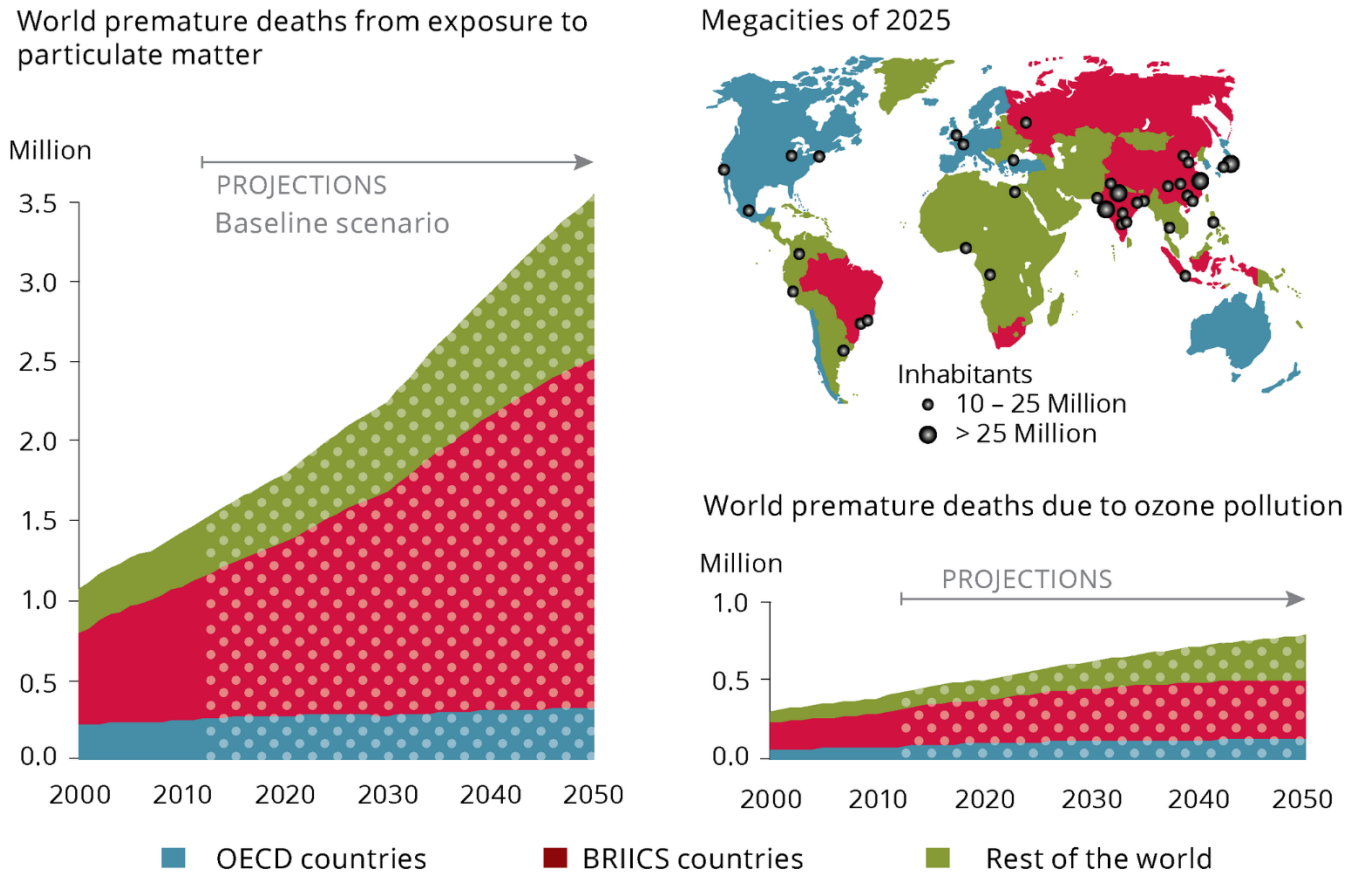
- The global burden from non-communicable disease now outweighs that from communicable disease. However, the threat of global pandemics continues, partly driven by increasing mobility.
- Around 25 % of the burden of disease and deaths is attributable to environmental causes. Urban air pollution is set to become the main environmental cause of premature mortality worldwide in 2050.
- Europe has achieved major improvements in public health. However, an ageing population and the impacts of climate change, including new vector-borne diseases, may necessitate additional public health interventions and adjusted environmental policies.

Related content

Water pollution & related envi. health risks | Air pollution & related envi. health risks | Climate change & related envi. health risks | Chemicals & related envi. health risks | Health and environment

Urban air pollution is expected to be the main environmental cause of premature mortality worldwide in 2050

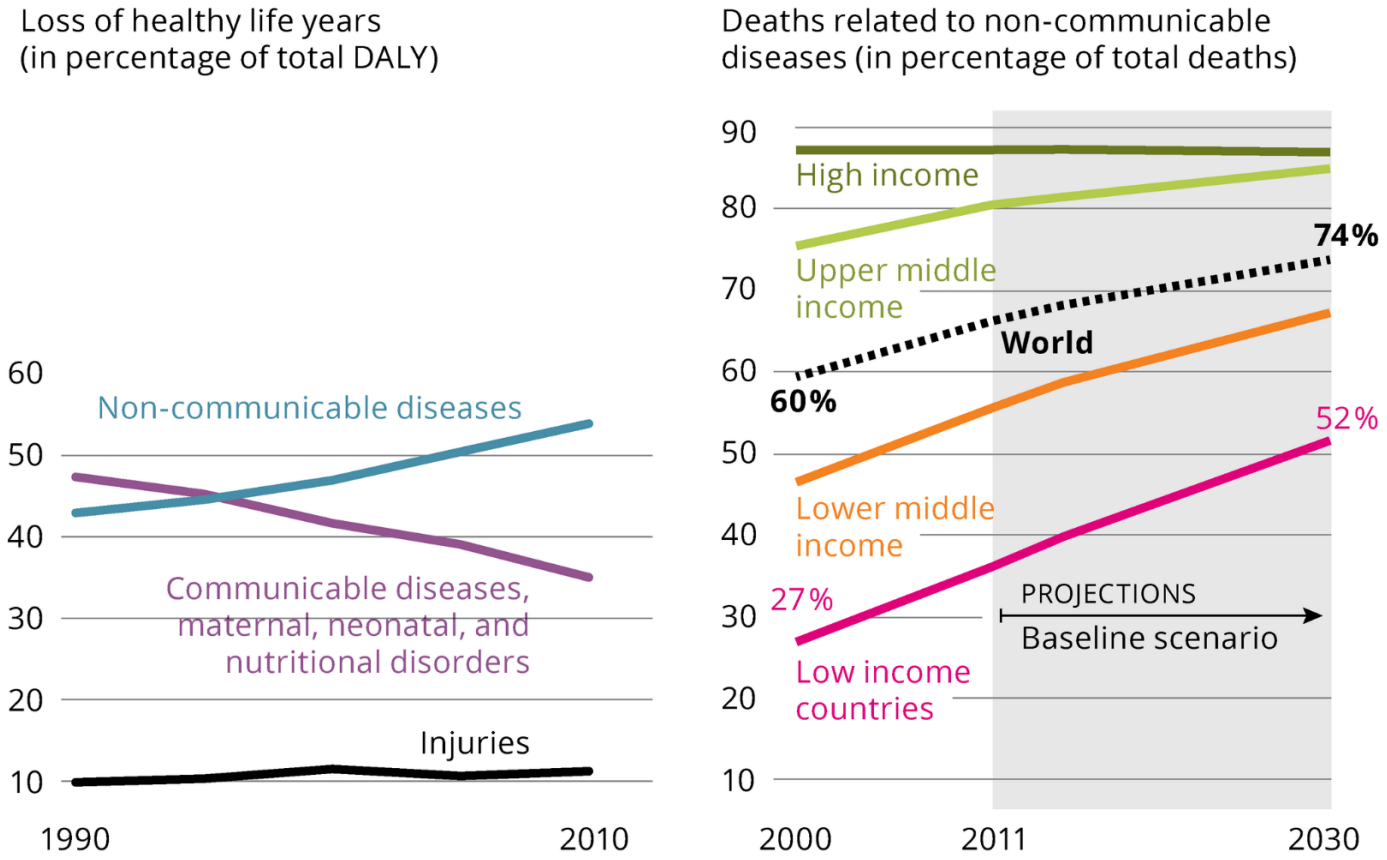
Premature deaths due to particulate matter and ground-level ozone, 2000–2050



Source: OECD 2012.

Non-communicable diseases (e.g. obesity) now outweigh communicable diseases (e.g. malaria)

The global burden of disease, 1990–2030



Source: IHME Global health data exchange database, 2014; WHO Global health estimates, 2014.

Accelerating technological change

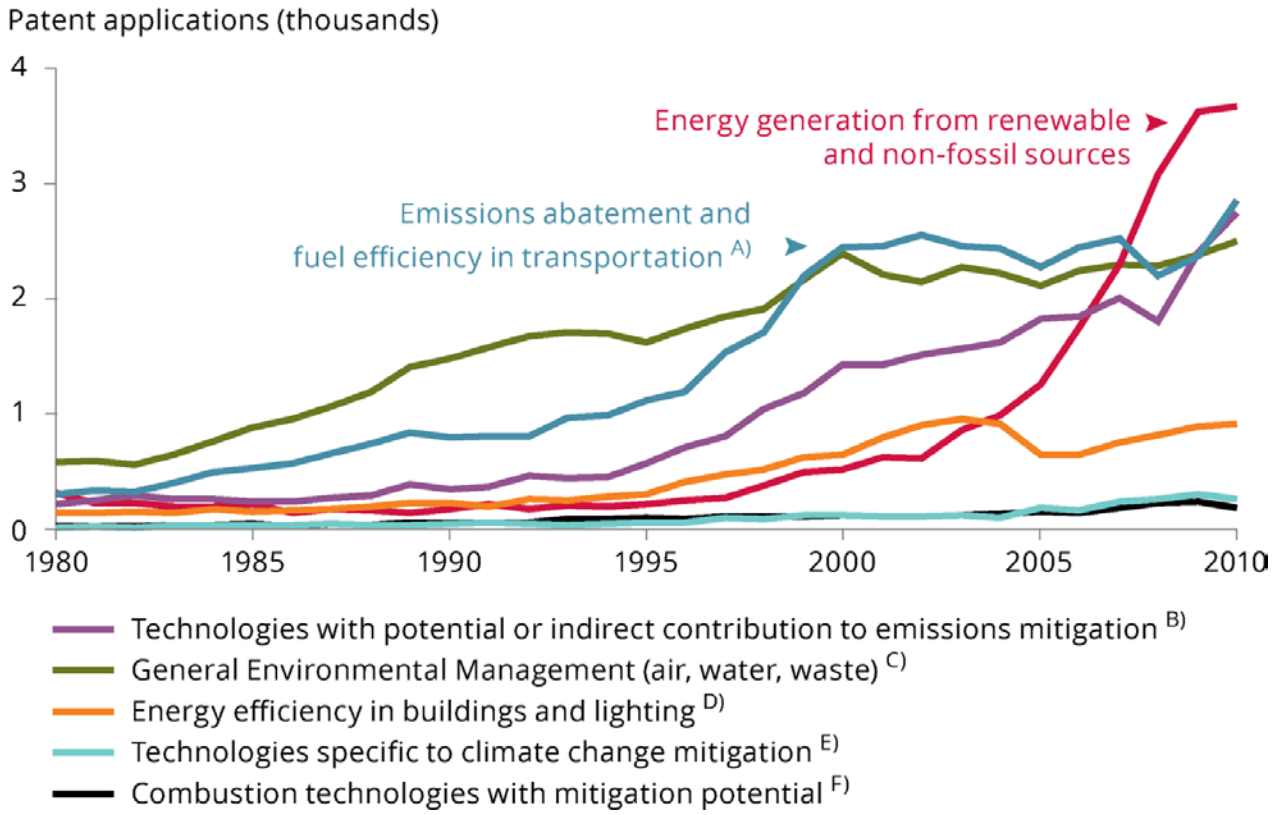
- The pace of technological change, particularly in the fields of information, communication, nano- and bio-technologies, is unprecedented.
- This provides opportunities to reduce humanity's impact on the environment and reliance on non-renewable natural resources, while improving lifestyles, stimulating innovation and green growth.
- The risks and uncertainties associated with technological innovation can be managed using regulatory frameworks and the precautionary principle.
- By recalibrating its institutions, policies and environmental knowledge base, Europe can support better risk management, while enhancing innovation and the diffusion of new technologies.

Related content

Green economy

Technological innovation is rapid and accelerating, including in the field of green technology

Environment-related patent applications to the European Patent Office, 1980–2010



Source: OECD, 2014.

Continued economic growth?

- Economic output is projected to treble between 2010 and 2050, although growth is expected to decelerate in many countries as they become more prosperous.
- Rapid economic growth has brought reductions in global poverty and increases in well-being but it is also linked to growing inequality and escalating environmental pressures.
- In Europe, slowing growth is straining public finances for environmental protection and increasing social inequality.
- The limitations of gross domestic product (GDP) as a measure of human well-being and the sustainability of growth have prompted international efforts to identify better indicators of societal progress.

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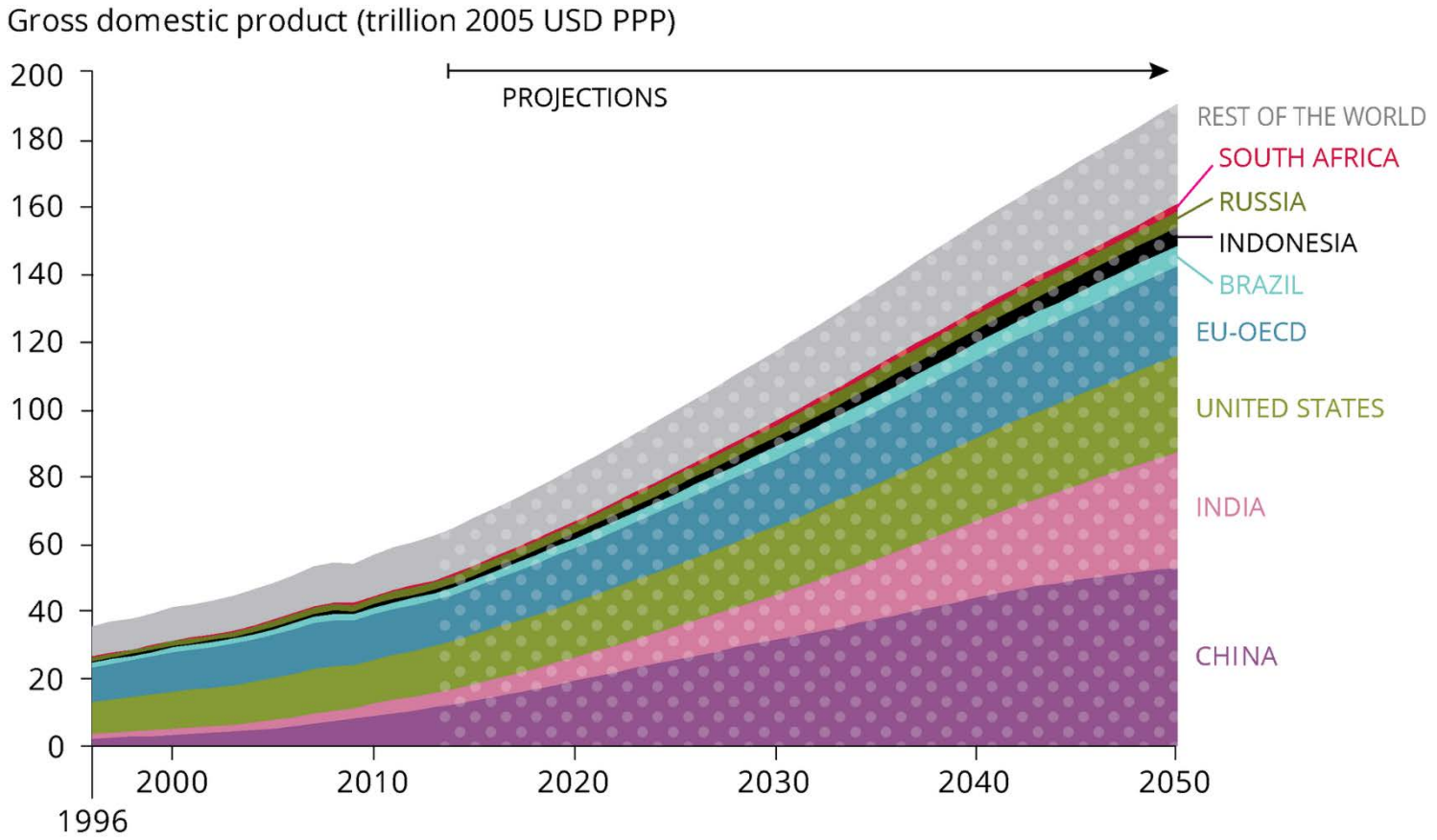
Green economy

World economic output increased 25-fold since 1900, and is expected to triple again by 2050

Past and projected global economic output, 1996–2050



Source: OECD Long-term Baseline Projections 2014.

Green economy

An increasingly multipolar world

- Driven by structural change, fast-growing workforces and trade liberalisation, developing regions are rapidly increasing their share of global economic output, trade and investment.
- For Europe, this rebalancing presents competitive threats but also economic opportunities in meeting the demand of a fast growing global middle class.
- The emergence of a larger and more diverse mixture of major economic powers may, however, complicate global efforts to coordinate governance.
- And growing economic interdependence will make it harder to manage the social and environmental impacts associated with production and consumption systems.

Related content

Green economy | Consumption

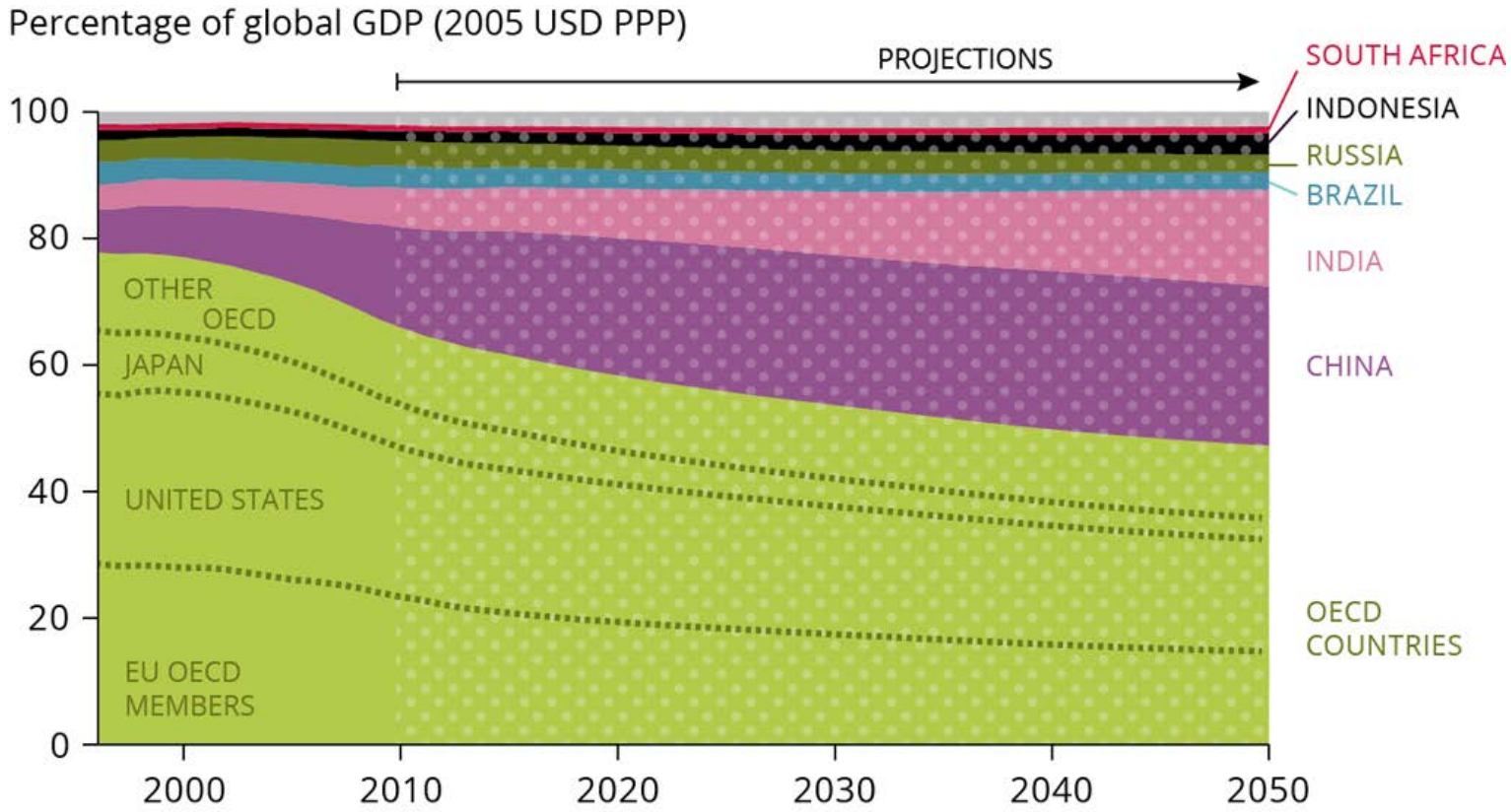
Developing regions are moving towards post-industrial economic structures

Structural breakdown of economic output in selected regions, 1970 and 2012

Source: World Bank World Development Indicators, 2014.

The EU's share in global economic output is projected to halve between 2000 and 2050

Regional composition of global GDP, 2000–2050



Source: OECD Long-term Baseline Projections 2014

Intensified global competition for resources

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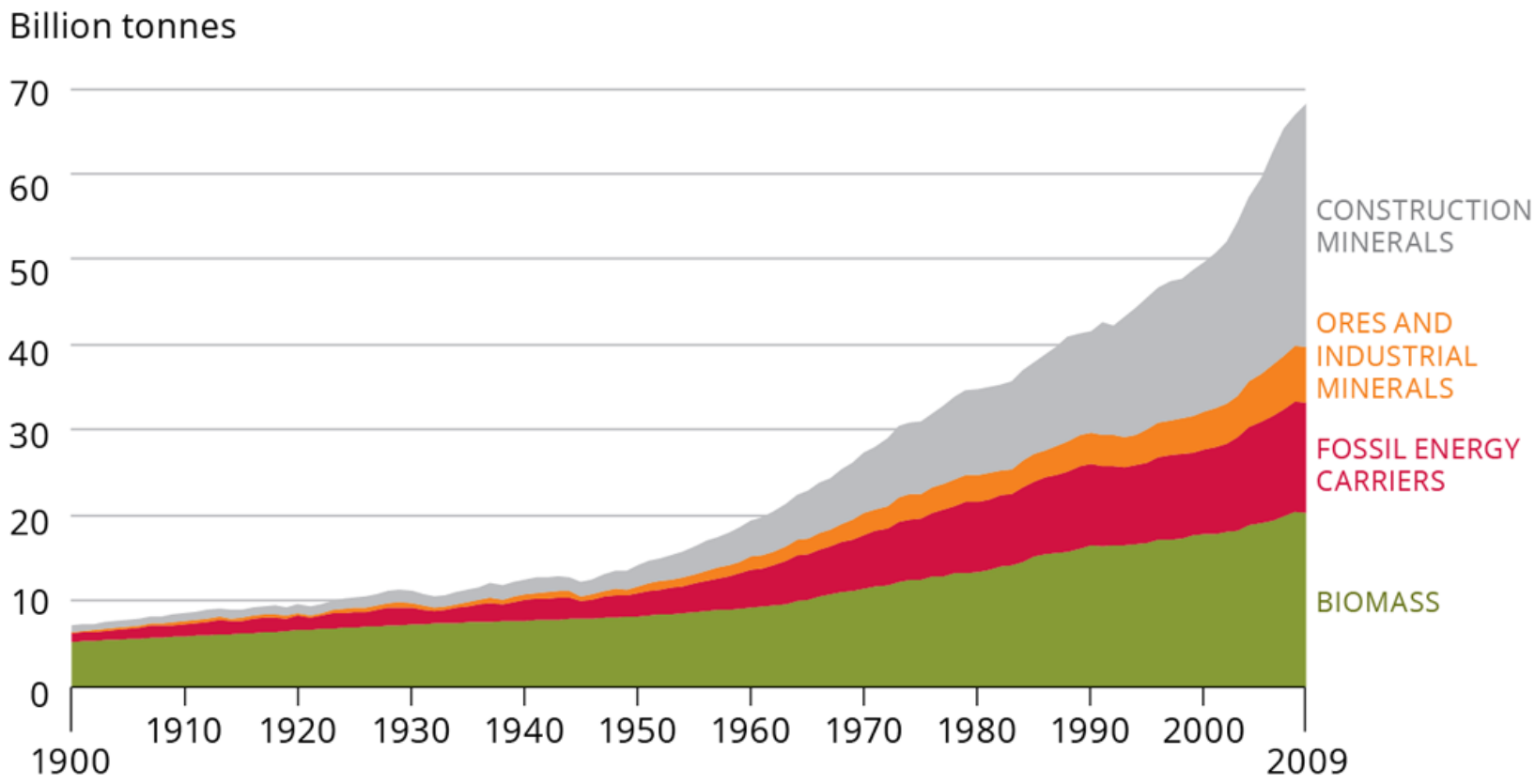
- Global use of material resources has increased ten-fold since 1900 and is set to double again by 2030. Escalating demand may jeopardise access to some essential resources and cause environmental harm.
- Uneven geographical distribution of some resources could further increase price volatility, undermining living standards and even contributing to geopolitical conflict.
- For Europe this is a major concern as its economy is structurally dependent on imports.
- Although growing scarcity and rising prices should incentivise investments in technologies to alleviate supply risks, such innovations will not necessarily reduce environmental pressures.

Related content

Consumption | Resource efficiency | Green economy | Resource efficiency

World materials use has grown 10-fold since 1900 and may double again by 2030

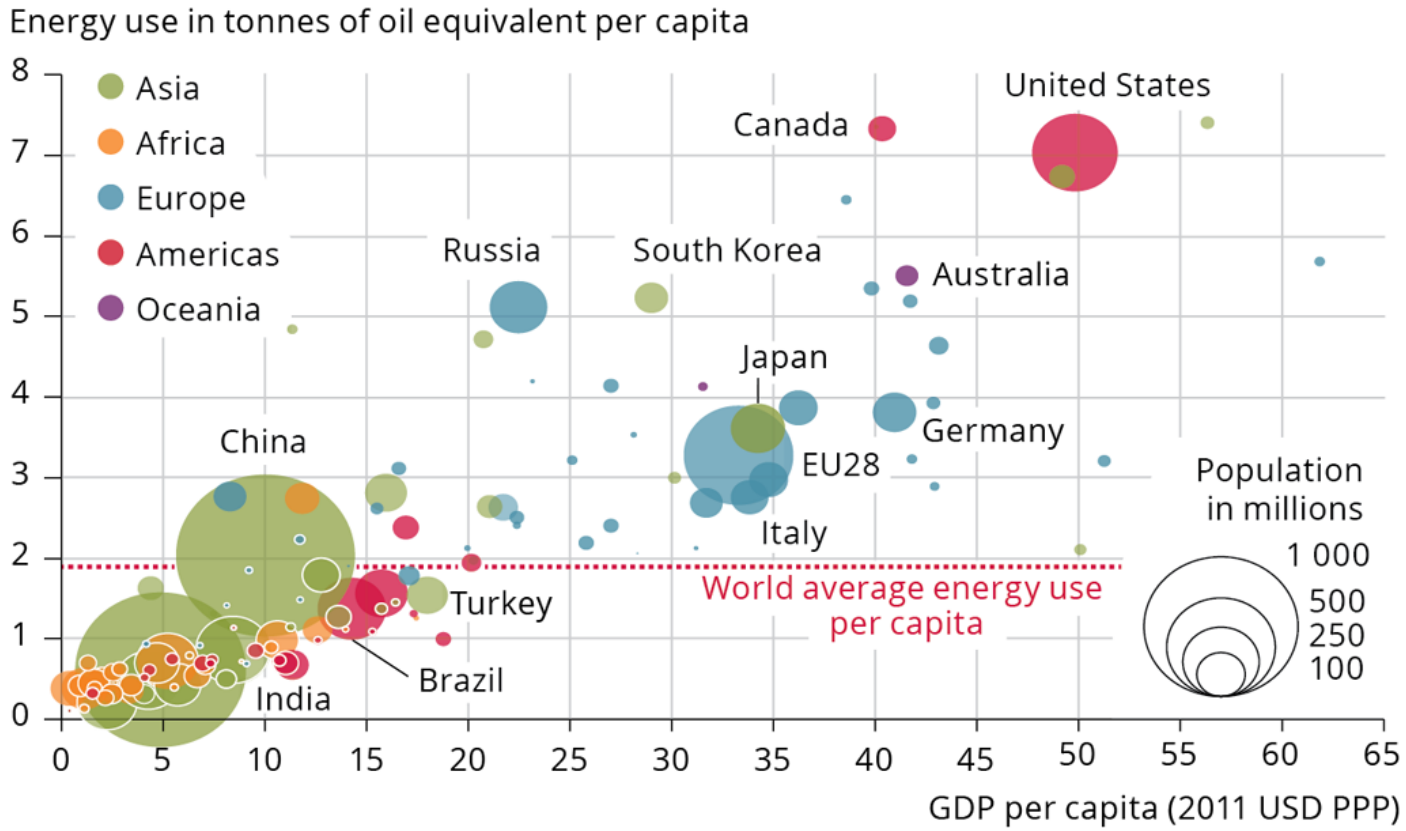
Global total material use by resource type, 1900-2009



Data source: Krausmann et al., 2009 (data updated in 2011)

Global energy consumption would increase by 270 % if all countries consumed at US levels

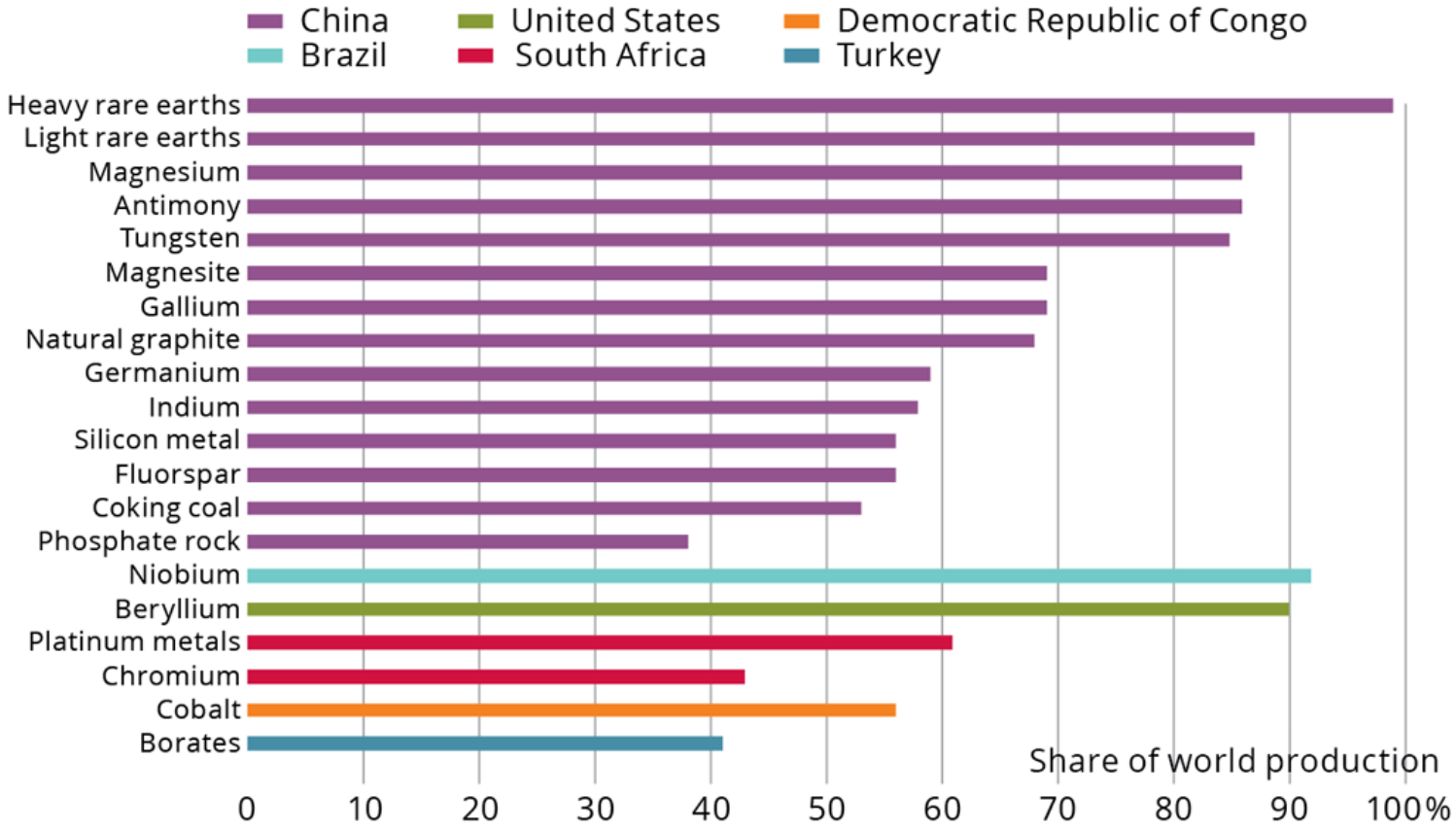
Correlation of energy consumption and GDP per person, 2011



Data source: World Bank World development indicators, 2014

The geographic concentration of some raw material reserves creates supply risks for Europe

Proportion of global production of EU critical raw materials within a single country, 2010–2012



Source: European Commission 2014.

Growing pressures on ecosystems

- The demands of a growing global population with rapidly changing consumption patterns for food, mobility and energy are exerting ever-increasing pressure on the Earth's ecosystems and their life-supporting services.
- In combination with climate change, these changes raise concerns about current meat-heavy diets, water use and strategies for bioenergy production.
- Exacerbated by climate change and continued pollution, rates of global habitat destruction and biodiversity loss are predicted to increase, including in Europe.
- Continued degradation of global ecosystems and their services will influence poverty and inequality, potentially driving increased migration.

Related content

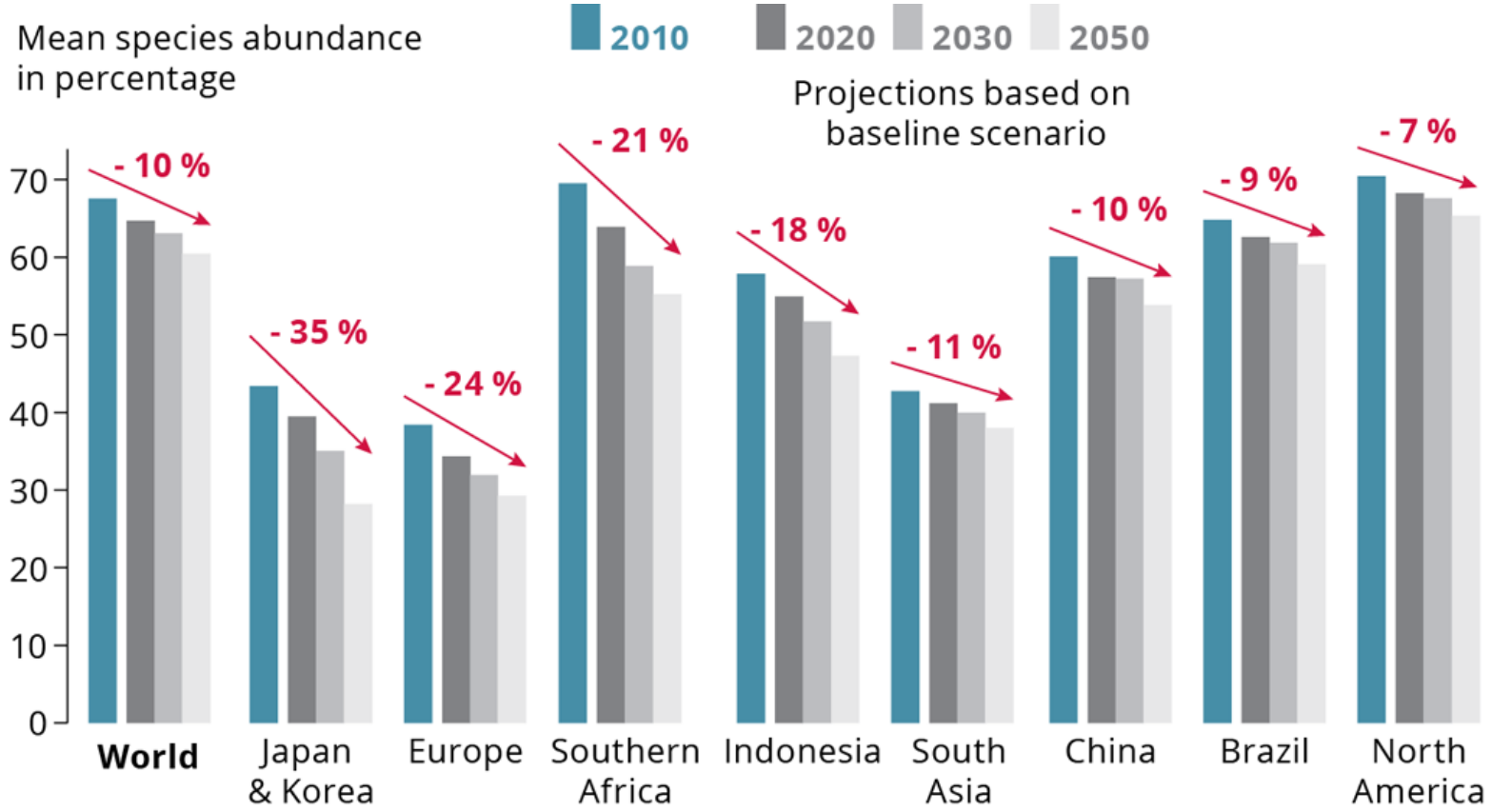
Terrestrial and freshwater biodiversity

Climate change impacts on ecosystems

Natural capital and ecosystems

Global biodiversity loss will continue, with the strongest impacts on poor people in developing countries

Terrestrial mean species abundance, 2010–2050

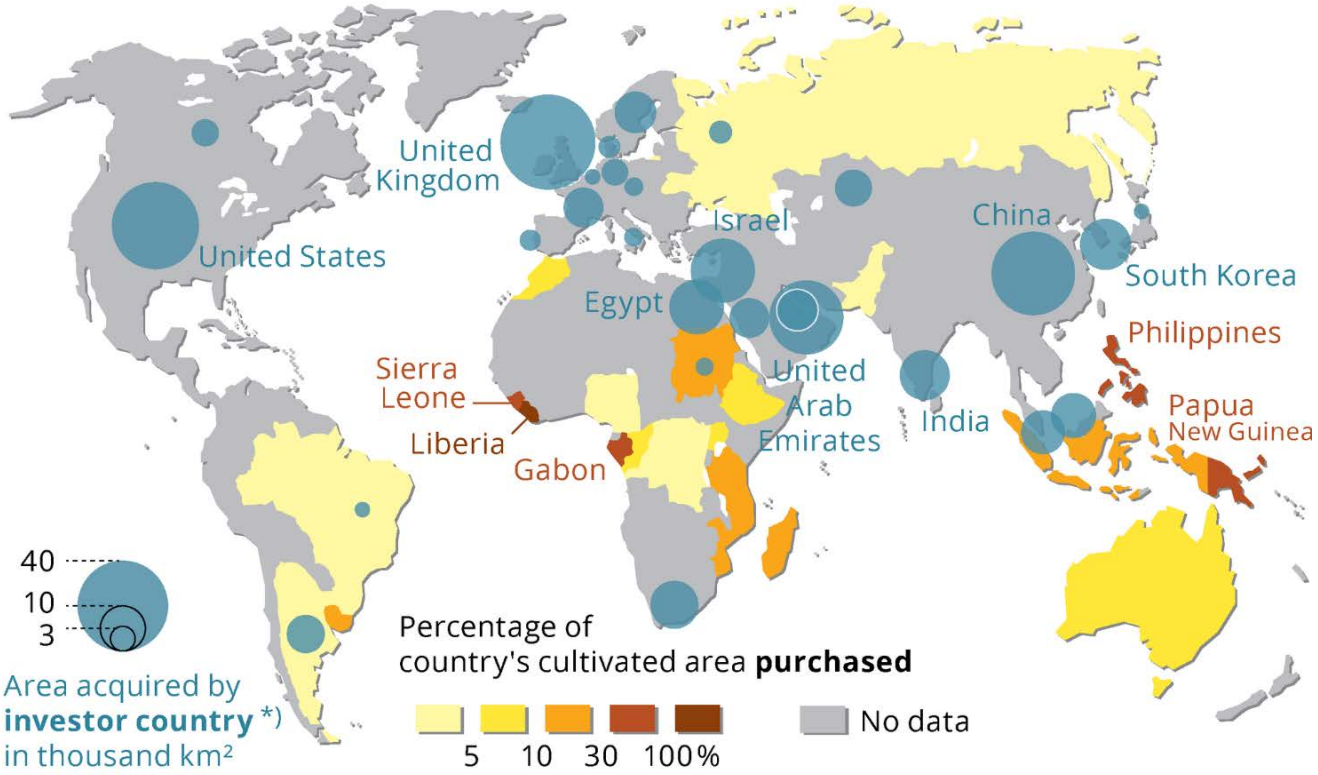


Source: OECD Environmental Outlook to 2050.

Terrestrial and freshwater biodiversity | Climate change impacts on ecosystems | Biodiversity | Natural capital and ecosystems

The ever rising pressure on the Earth's ecosystems is fuelled by meat consumption and bioenergy demand

Transnational land acquisition, 2005–2009



*) Acquired areas over one thousand km² only

Source: Rulli et al., 2013.

Increasingly severe consequences of climate change

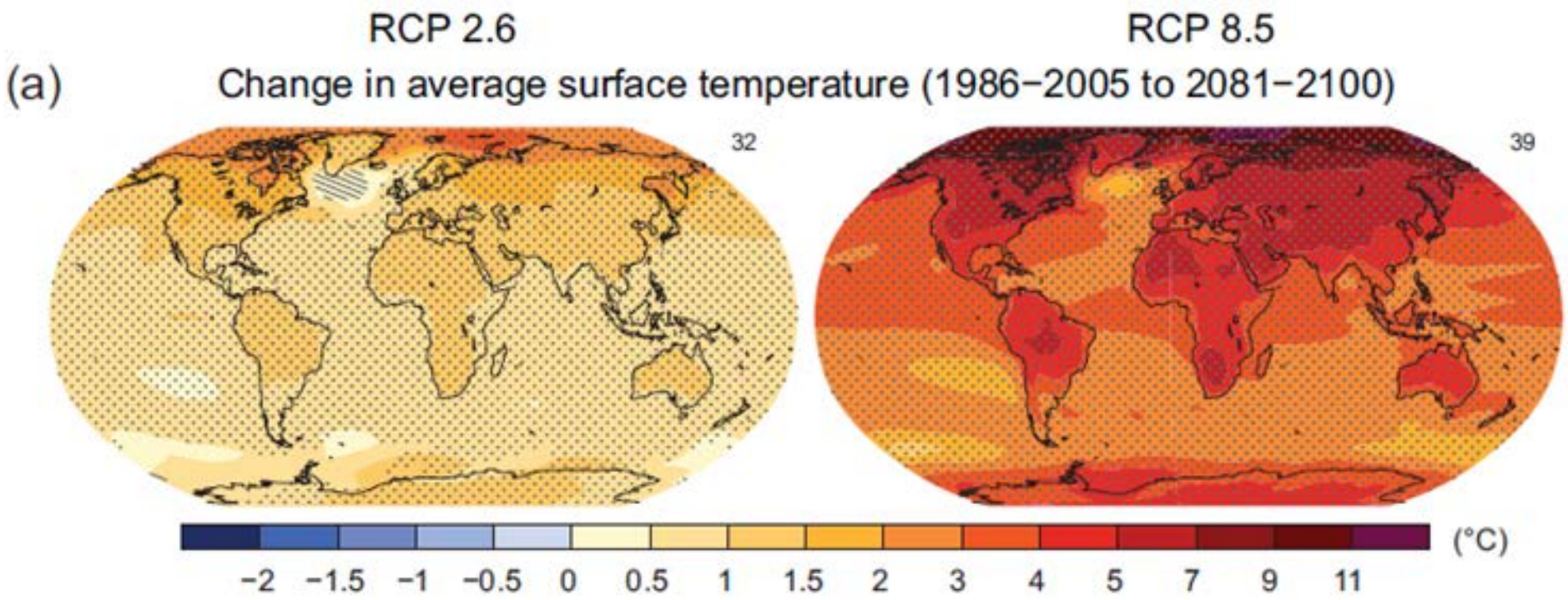
- Recent changes in the global climate are unprecedented over millennia and will continue.
- Climate change is expected increasingly to threaten natural ecosystems and biodiversity, slow economic growth, erode global food security, harm human health and increase inequality.
- The risks of pervasive and irreversible impacts are expected to increase. They could, however, be reduced by further emissions abatement and adaptation measures, building on past actions in Europe and internationally.
- Key risks for Europe include flood events, droughts and other weather extremes that damage ecosystems and biodiversity, as well as infrastructure and human well-being.

Related content

Climate change impacts on ecosystems | Water use and water stress | Urban systems and grey infrastructure | Climate change & related envi. health risks | Climate change impacts and adaptation

Rising temperatures increasingly threaten the Earth's most vulnerable natural ecosystems

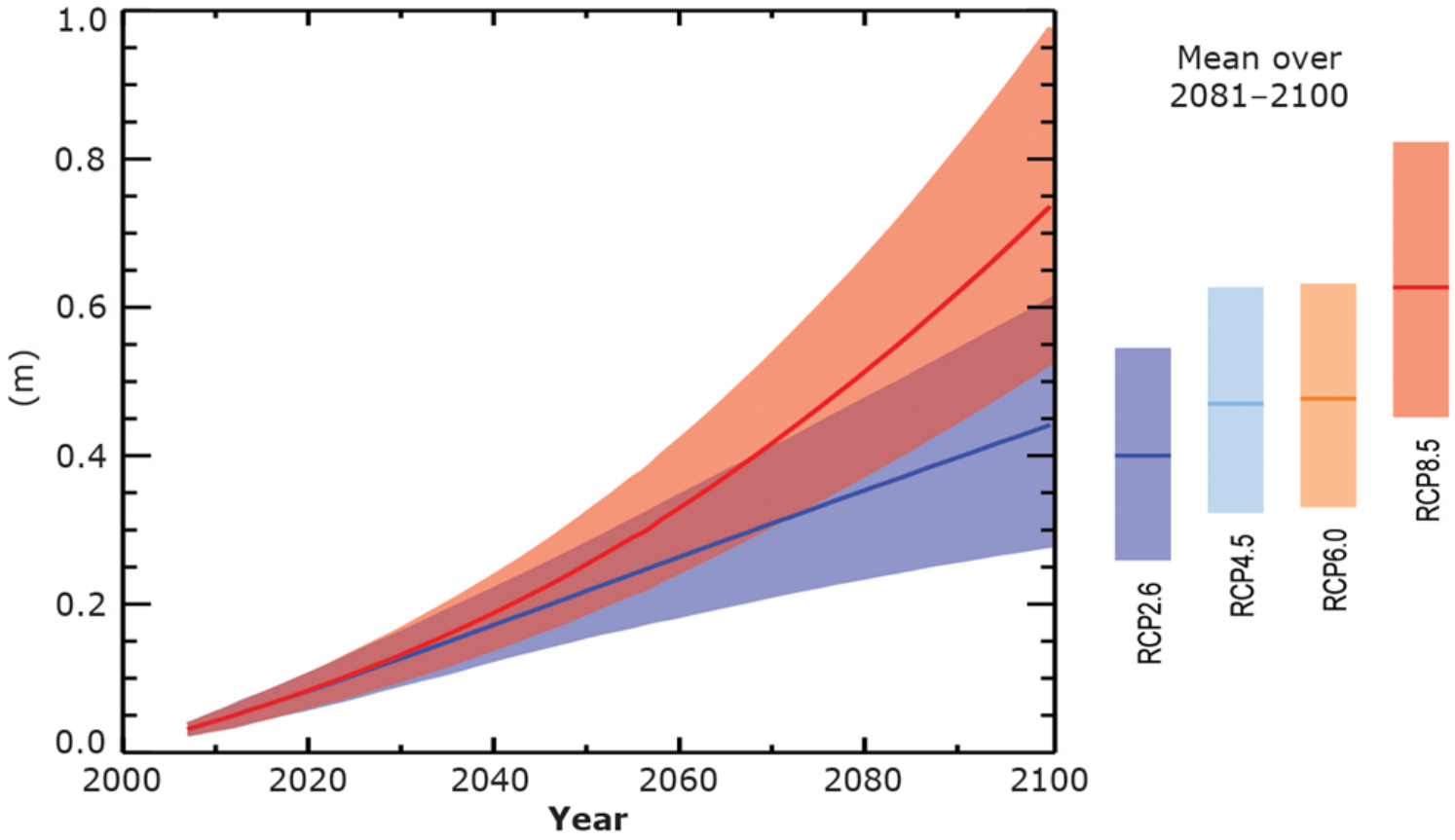
Change in average temperature, 2081–2100 relative to 1986–2005



Data source: IPCC (2013)

The most severe socio-economic impacts are expected in low-income countries and low-lying coastal areas

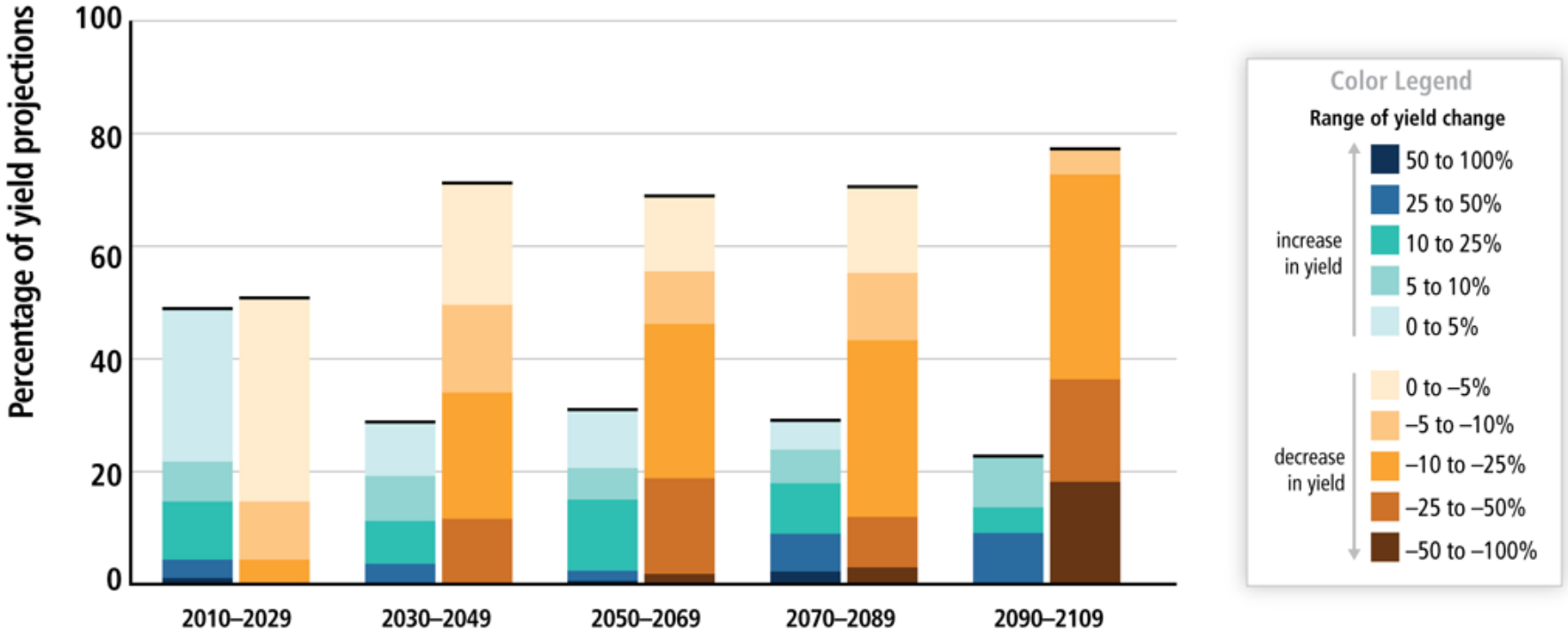
Projected change of global mean sea level (21st century)



Source: IPPC, 2013.

Global temperature increases of 4°C or more by 2100 would create significant risks to global food security

Projected change in global aggregate crop yields due to climate change, 2010–2109



Source: IPPC, 2014.

Increasing environmental pollution

- Globally, levels of air pollution and releases of nutrients from agriculture and wastewater remain high, causing acidification and eutrophication in ecosystems, and losses in agricultural yield.
- In the coming decades, overall pollution levels are projected to increase strongly, particularly in Asia.
- Although Europe's pollutant releases are expected to continue declining, European ecosystems and citizens are likely to be affected by developments in other regions.
- For example, despite a fall in air pollutant emissions there has not been an equivalent improvement in air quality across Europe, partly as a result of the transboundary transport of air pollutants.

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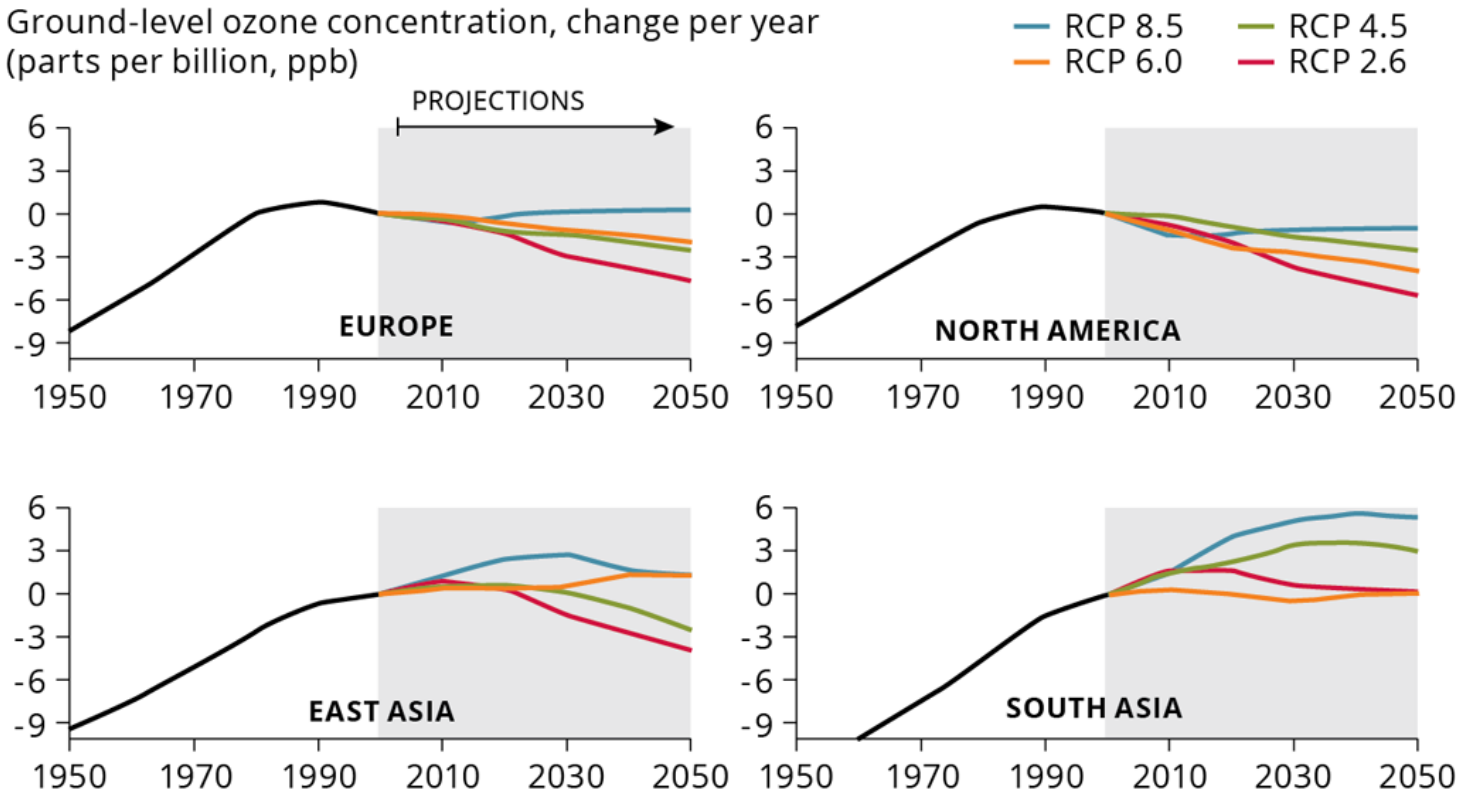
Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | Air pollution & related envi. health risks | Air pollution | Air pollution

Increasing pollution in Asia may offset air quality improvements in other world regions

Ozone concentrations for Europe, North America, East and South Asia, 1950–2050

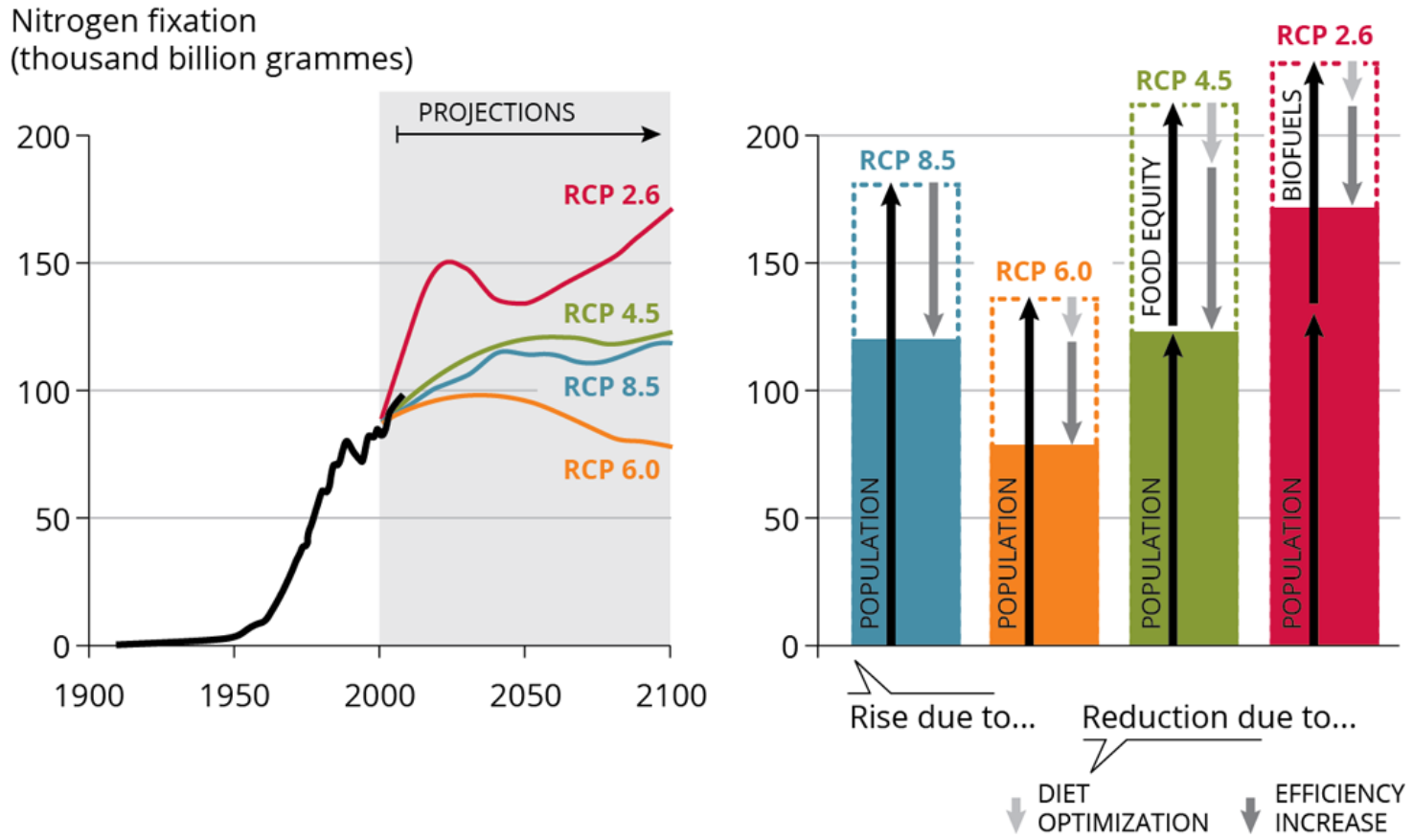


Source: Wild et al. (2012).

Note: The graphs shows the results from a study that estimates regionally averaged changes in surface ozone due to past or future changes in anthropogenic precursor emissions based on 14 global chemistry transport models. Changes refer to ground-level ozone concentrations in 2000, expressed as parts per billion by volume (ppbv).

Growing demand for food and biofuels is expected to further increase global nitrogen pollution

Global agricultural demand for industrial nitrogen fertiliser, 1910–2100, and drivers of the projected changes



Source: Wild et al., 2012.

Diversifying approaches to governance

© Alan Kotok

- In the context of rapid globalisation, governments are facing a mismatch between the increasingly long-term, global, systemic challenges facing society and their more national and short-term focus and powers.
- The need for more coordinated governance at the global scale has been reflected in the proliferation of international environmental agreements, particularly during the 1990s.
- More recently, businesses and civil society have also taken an increasing role in governance.
- This broadening of approaches is welcome but it raises concerns about coordination and effectiveness, as well as accountability and transparency.

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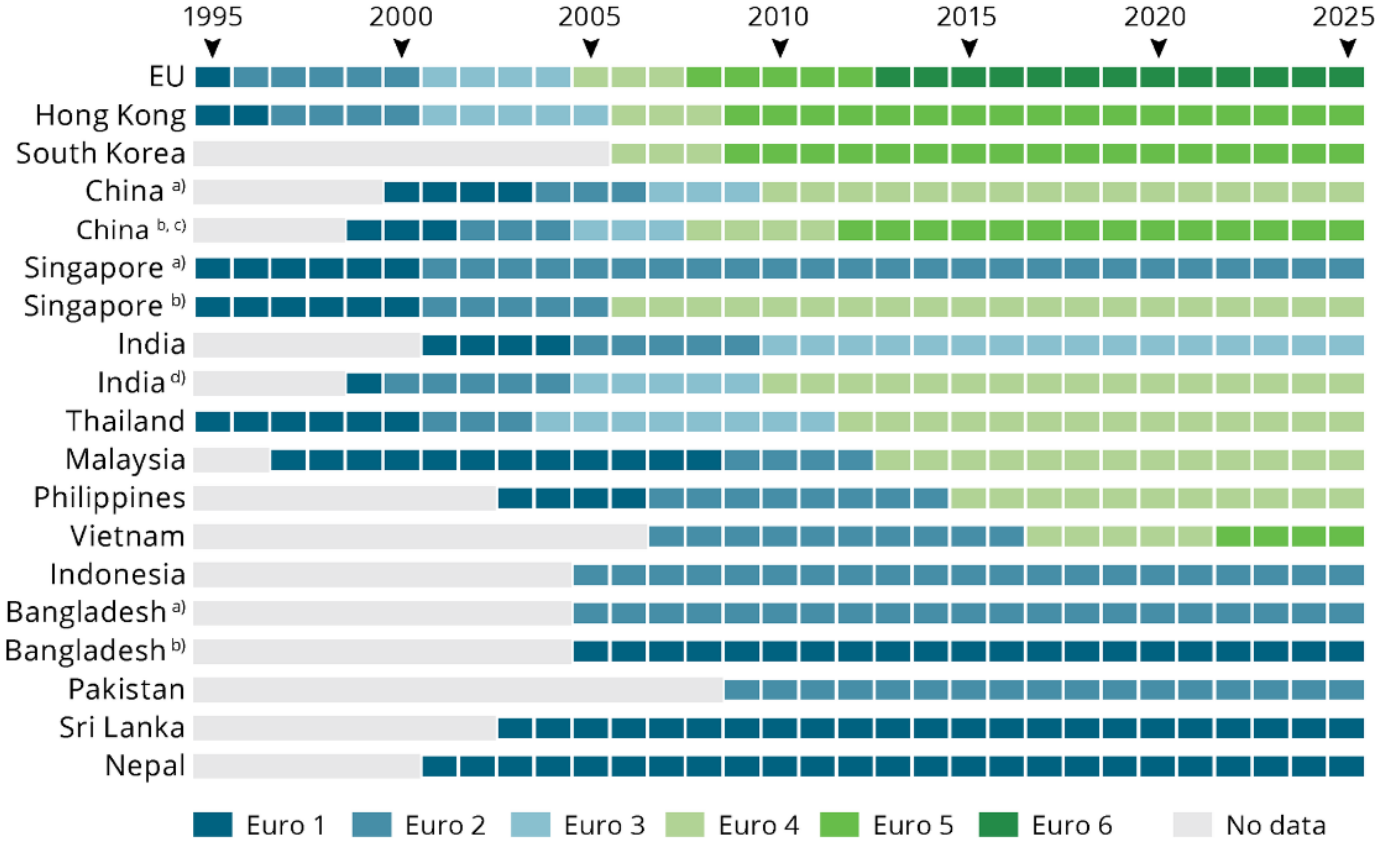
Commercial incentives are supporting the harmonisation of production standards across the globe

Adoption of the EU's Euro emissions standards for cars and vans in Asian countries, 1995–2025



Source: Clean Air Initiative for Asian Cities, 2011.

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Air pollution

- Despite considerable improvements in past decades, air pollution is still responsible for more than 400 000 premature deaths in Europe each year. It also continues to damage vegetation and ecosystems.
- Continued improvements in air pollution levels are expected under current legislation, but beyond 2030 only slow progress is expected.
- Additional measures are needed if Europe is to achieve the long-term objective of air pollution levels that do not lead to unacceptable harm to human health and the environment.

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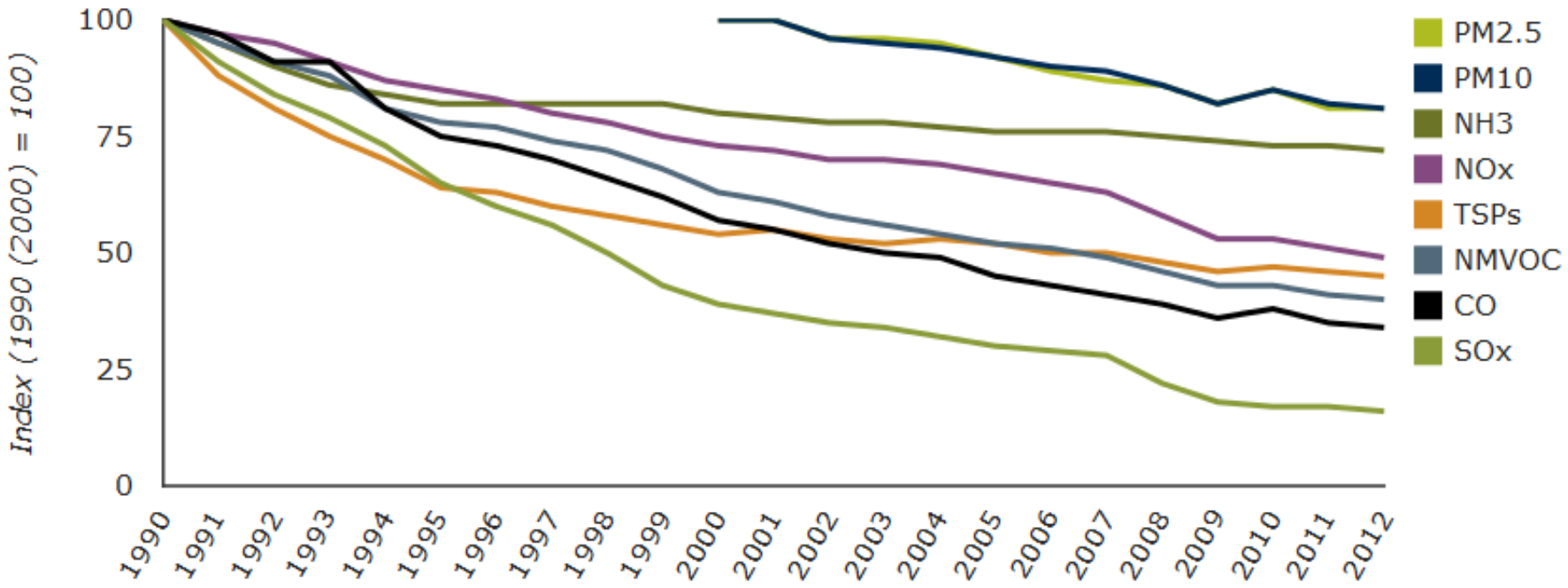
EU-28 emission trends for the main air pollutants



Data sources: EEA. National emissions reported to the Convention on Long-range Transboundary Air Pollution (LRTAP Convention)
Note: Parties to the Convention on Long-range Transboundary Air Pollution (LRTAP) are formally requested to report emissions of PM only for the year 2000 and onwards. Hence emission trends for these years only are shown. PM10: particulate matter with a diameter of 10 µm or less; PM2.5: particulate matter with a diameter of 2.5 µm or less; TSP: Total suspended particulate; NMVOC: Non-methane volatile organic compounds; NH3: ammonia; NOX: nitrogen oxides; CO: carbon monoxide; SOX: sulphur oxides.

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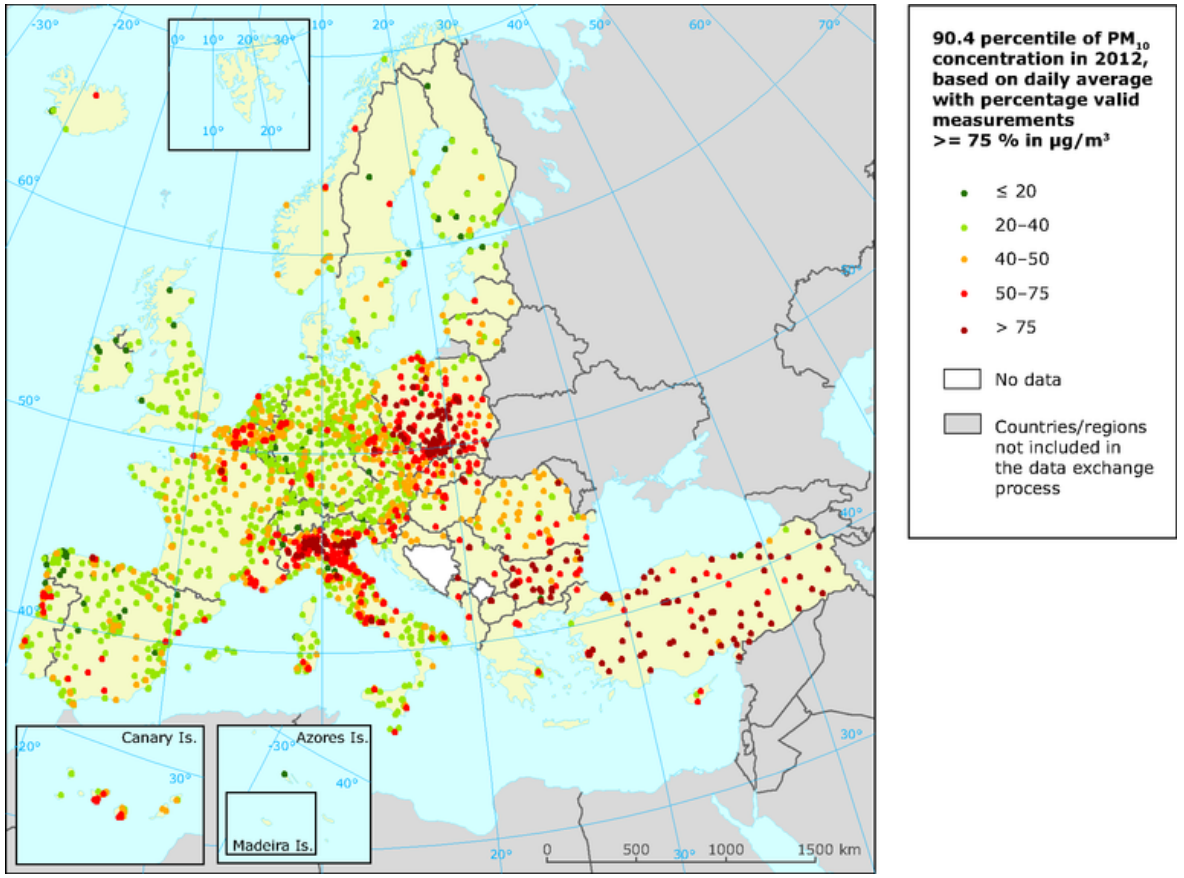
Concentrations of PM10 in 2012 at traffic, urban, industrial and rural sites



Source: AirBase — The European air quality database v. 8.

Note: The red and dark red dots indicate stations reporting exceedances of the 2005 daily limit value (50 µg/m3), as set out in the Air Quality Directive (EU, 2008).

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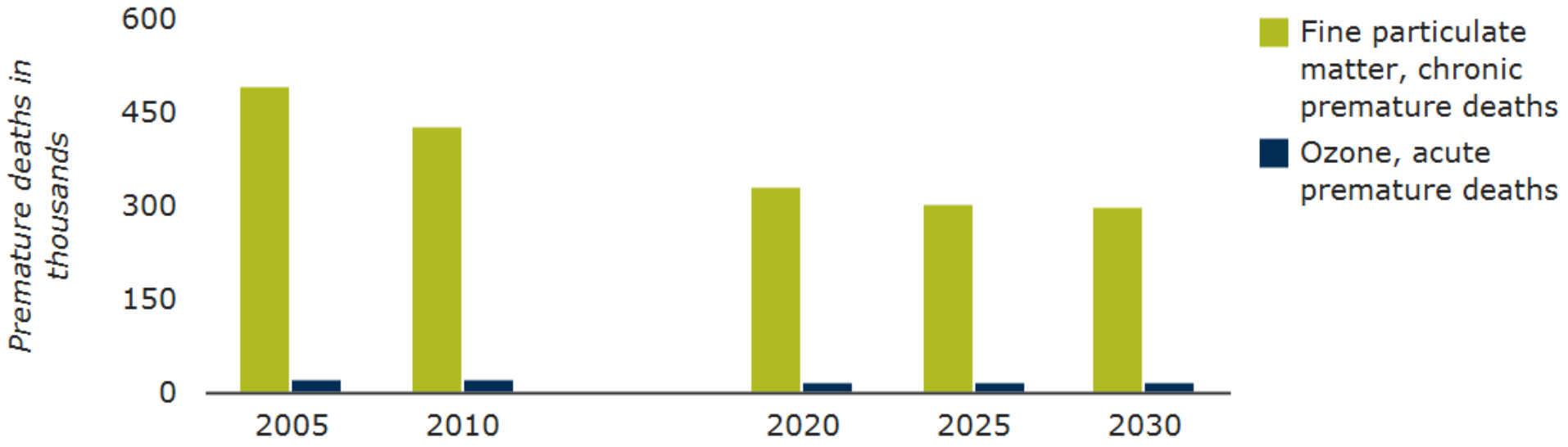
Estimated future air pollution health impacts of fine particulate matter and ozone under a current legislation scenario



Data source: European Commission.

Note: The current legislation or 'baseline' scenario assumes full implementation of current air-related policies. It is based on recent energy projections used as a reference for climate, energy and transport policy analysis as well as on agricultural projections.

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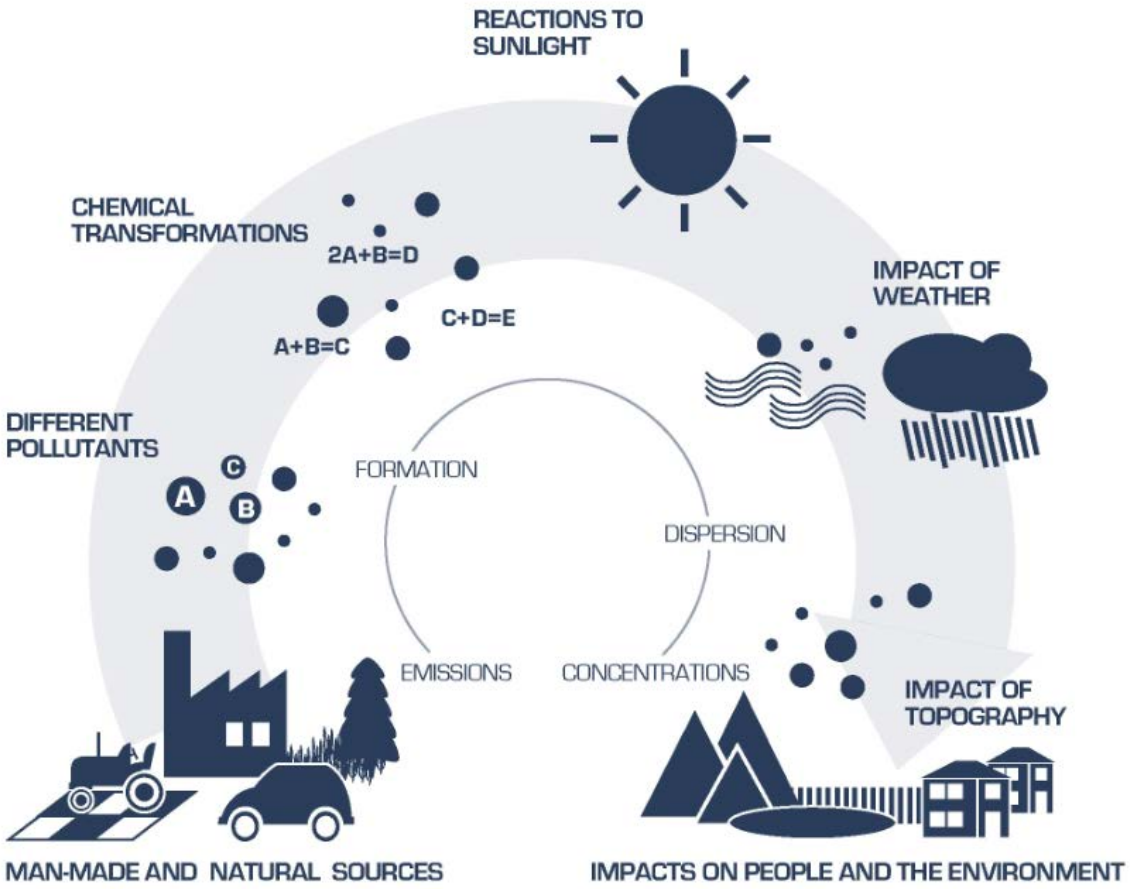
Many factors contribute to air pollution concentration levels



More information: EEA Air quality in Europe – 2014 report

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Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Air pollution

Biodiversity

- Europe’s biodiversity continues to be eroded resulting in ecosystem degradation.
- 60% of protected species assessments and 77% of habitat assessments recorded an unfavourable conservation status.
- Constant habitat loss, diffuse pollution, over-exploitation of resources, and growing impacts of invasive alien species and climate change contribute cumulatively.
- The main EU target of ‘halting the loss of biodiversity and the degradation of ecosystem services’ by 2020 remains a serious challenge.

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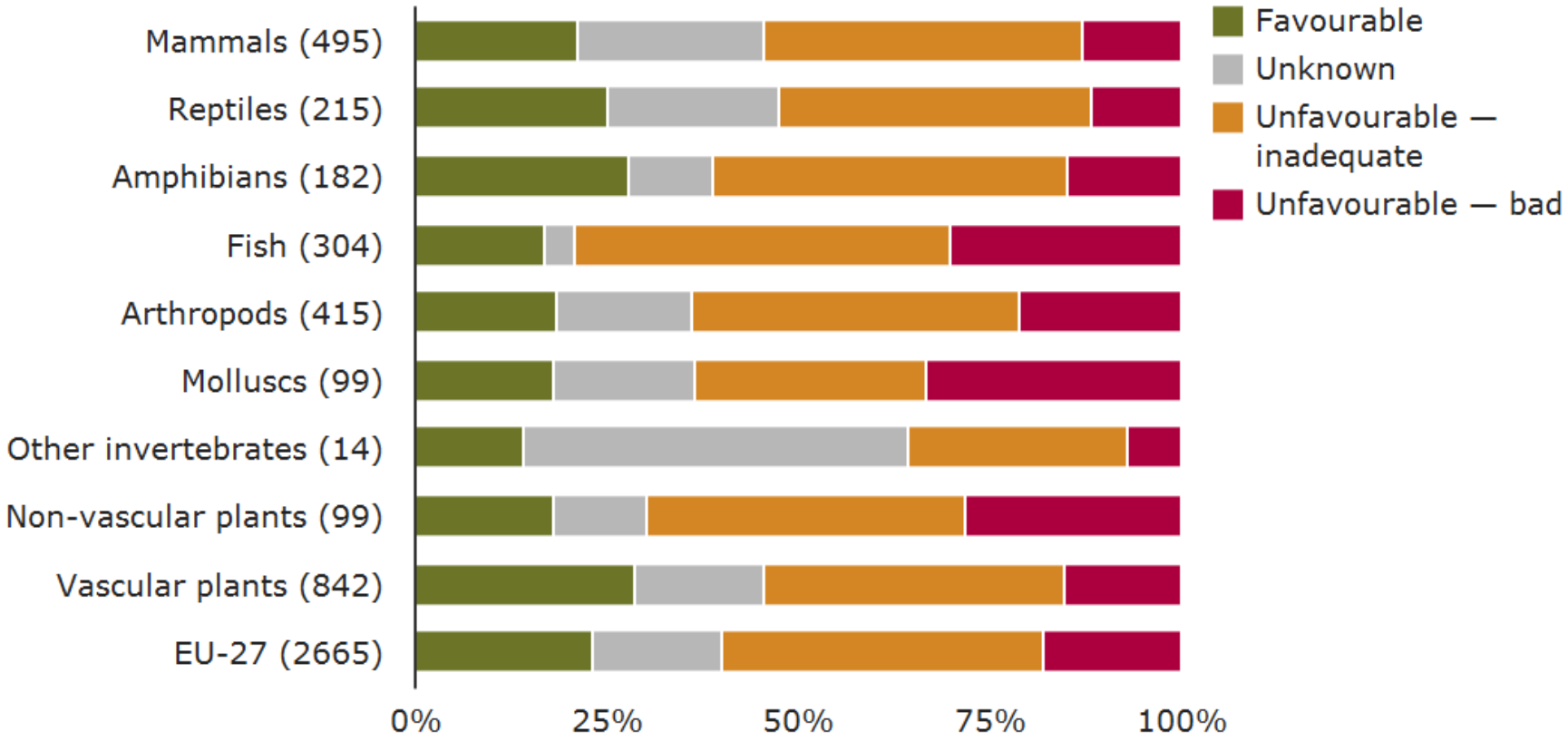
Terrestrial and freshwater biodiversity | Climate change impacts on ecosystems | Biodiversity

Conservation status of species of European interest



Data sources: EEA. Conservation status of habitat types and species (Article 17, Habitats Directive 92/43/EEC)

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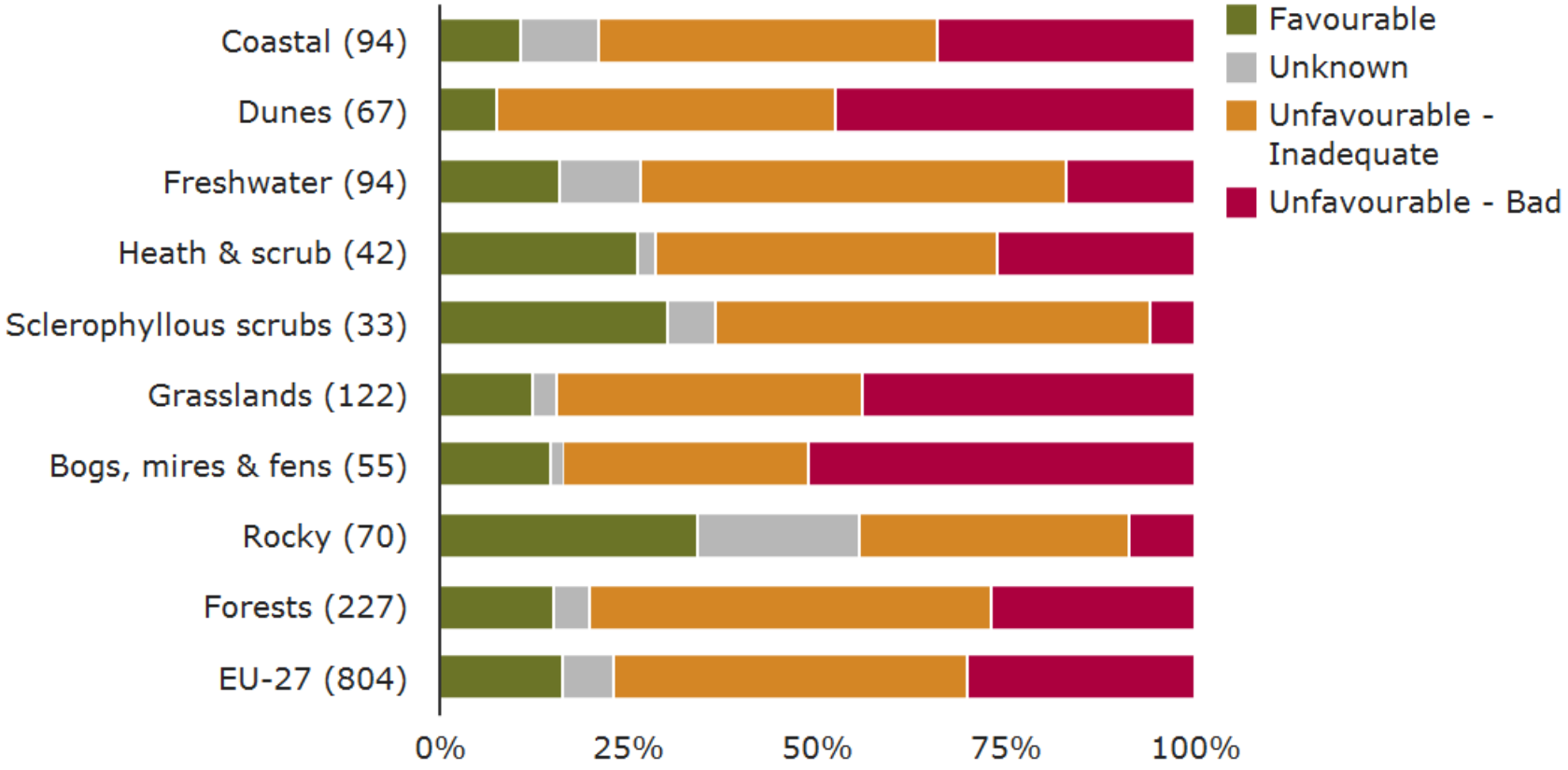
Conservation status of habitats of European interest



Data sources: EEA. Conservation status of habitat types and species (Article 17, Habitats Directive 92/43/EEC)

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Climate change impacts and adaptation

- Global climate change impacts Europe in many ways, including: changes in average and extreme temperature and precipitation, warmer oceans, rising sea level and shrinking snow and ice cover on land and at sea.
- These have led to a range of impacts on ecosystems, socio-economic sectors and human health.
- Adaptation to the observed and projected impacts in coming decades is needed, complementary to global climate mitigation actions.
- The EU strategy on adaptation to climate change supports national adaptation strategies and other actions in countries aimed at mainstreaming EU policies, providing funding and enhancing research and information sharing.

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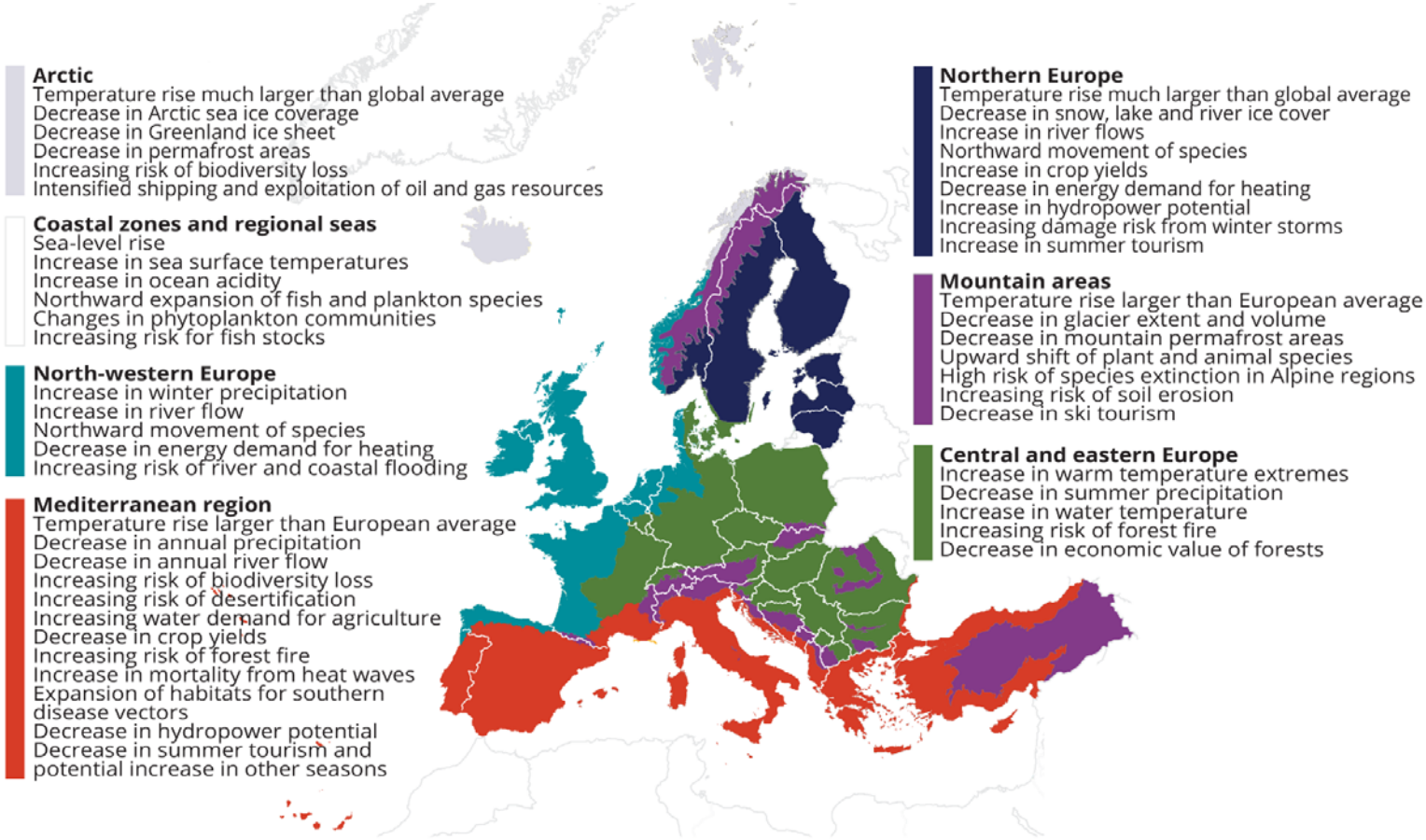
Climate change impacts on ecosystems | Water use and water stress | Urban systems and grey infrastructure | Climate change & related envi. health risks

Key observed and projected impacts from climate change for the main regions in Europe



Source: EEA (2012), Climate change, impacts and vulnerability in Europe 2012. An indicator-based report, EEA Report No 12/2012, European Environment Agency, Copenhagen, Denmark.

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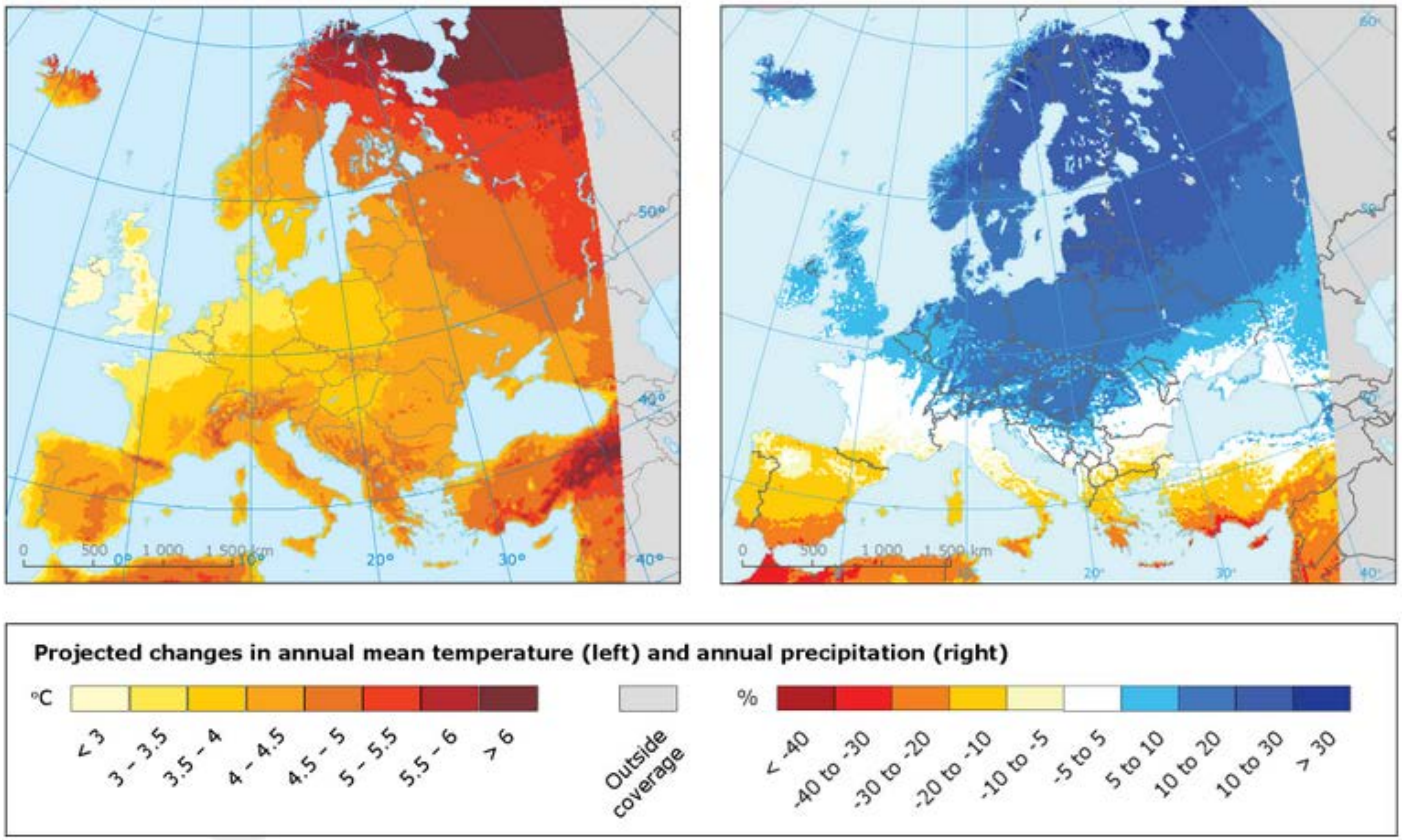
Projected changes in annual mean temperature (left) and annual precipitation (right)



Source: Climate change projections for Europe based on an ensemble of regional climate model simulations provided by the EURO-CORDEX initiative. Note: Projected changes are for 2071-2100, compared to 1971-2000, based on the average of a multi-model ensemble forced with the Representative Concentration Pathways (RCP) 8.5 high emissions scenario. All changes marked with a colour (i.e. not white) are statistically significant. Individual models from the EURO-CORDEX ensemble or high-resolution models for smaller regions may show different results.
Indicators: Global and European temperature (CSI 012), Mean precipitation (CLIM 002).

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Forests

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- Forests provide a range of ecosystem services from capturing and storing carbon to providing bio-fuel, timber as well as social benefits.
- However, our forests, which increased in area by 17 M ha since 1990, face growing pressure from fragmentation, expanding urban areas, climate change and loss of biodiversity.
- The claims on forests services are increasing. Understanding the role of more than 14 million forest owners/managers is imperative to developing balanced, sustainable policy on forest resources.

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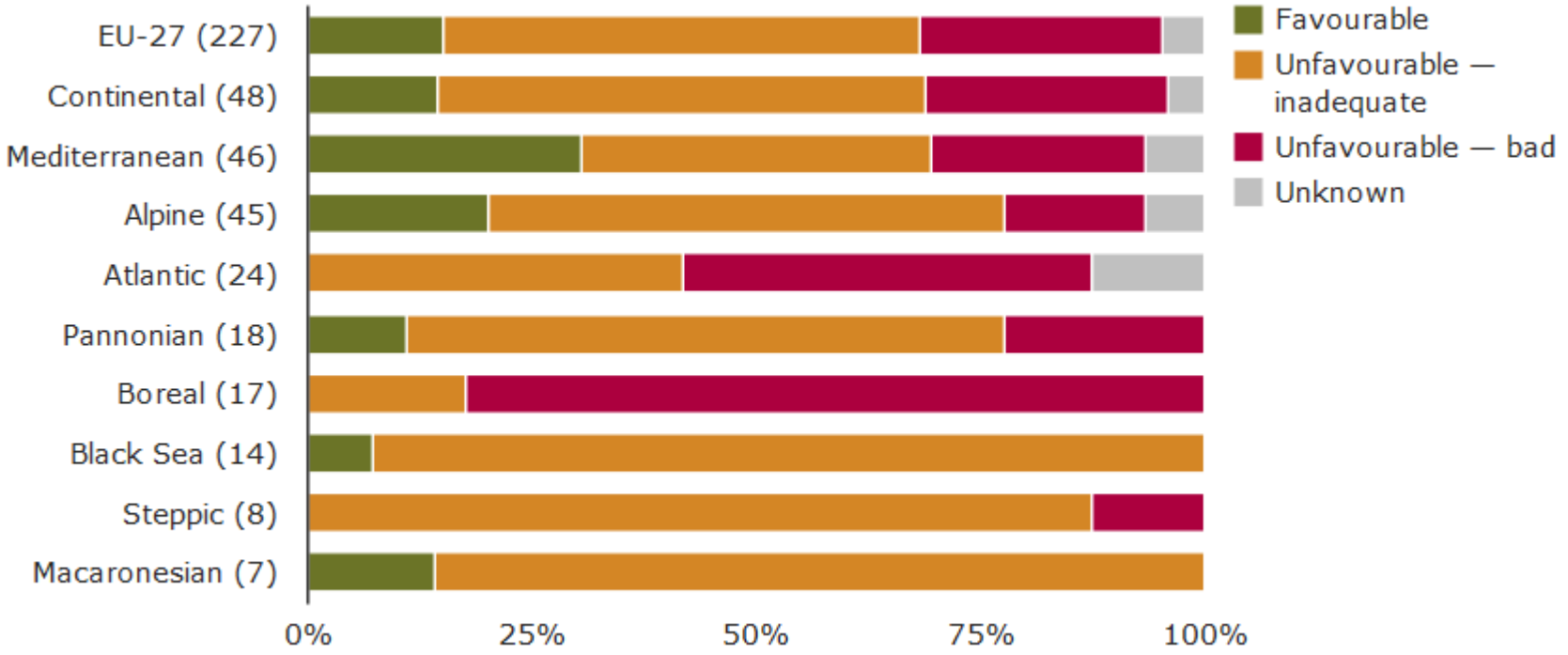
Terrestrial and freshwater biodiversity

Conservation status of forest habitat types by region



Data sources: EEA. Conservation status of habitat types and species (Article 17, Habitats Directive 92/43/EEC)
Note: The habitats referred to are those covered by Annex I of the Habitats Directive 92/43/EEC

Related content
Terrestrial and freshwater biodiversity

Freshwater quality

- Much cleaner than 25 years ago, many water bodies are still affected by pollutants and/or altered habitats.
- In 2009, only 43 % showed a good/high ecological status; the expected 10 percentage point increase for 2015 (to 53%) constitutes only a modest improvement in aquatic ecosystem health.
- Water management should improve with the second round of river basin management plans in 2015-16 resulting in the realisation of more policy objectives through stringent, well-integrated implementation and public participation.

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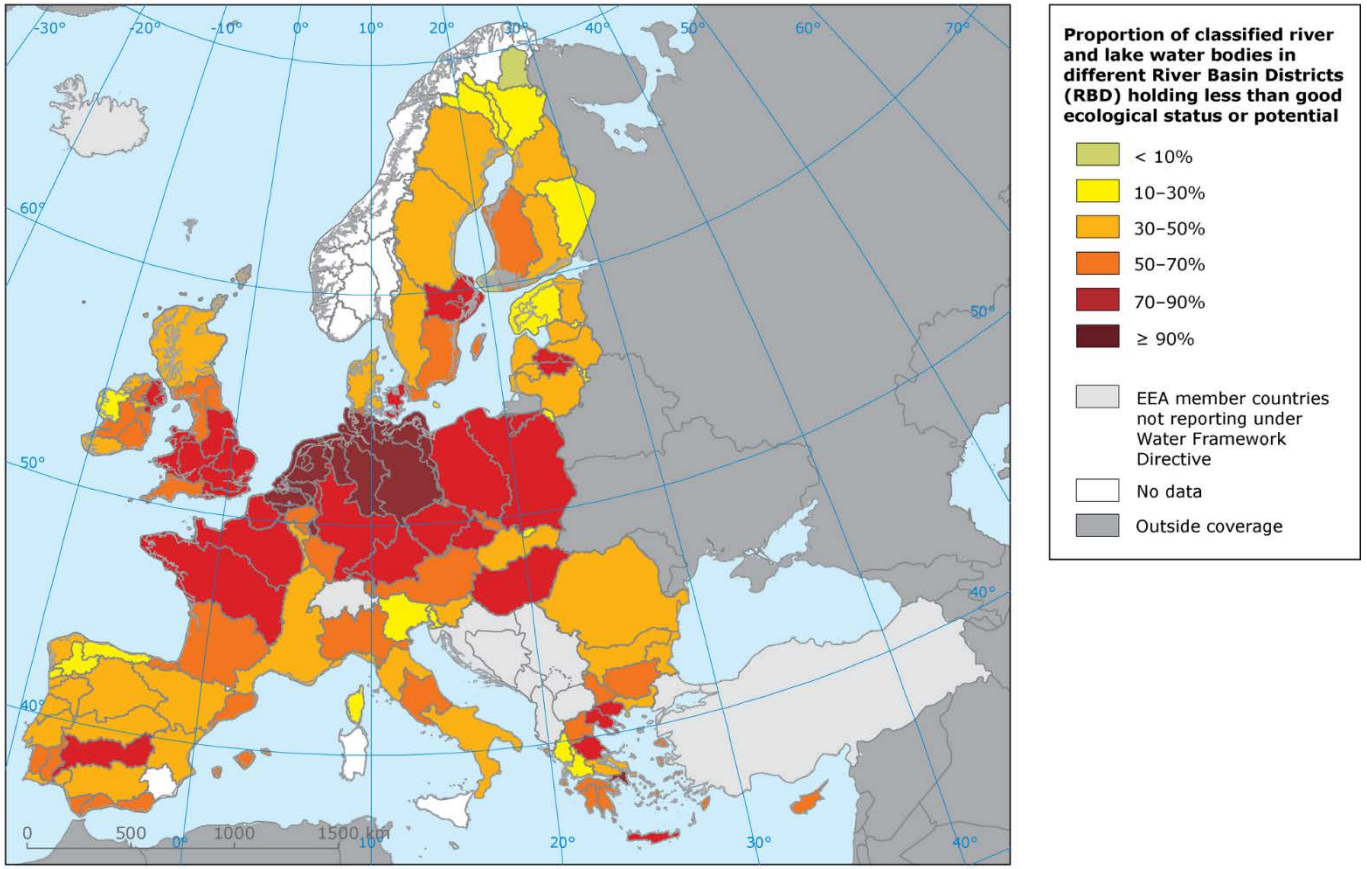
Urban systems and grey infrastructure
Chemicals & related envi. health risks
Water use and water stress
Freshwater quality

Proportion of classified river and lake water bodies in different River Basin Districts (RBD) holding less than good ecological status or potential



Source: WISE WFD Database.

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Chemicals & related envi. health risks
Climate change impacts on ecosystems
Water use and water stress
Freshwater quality
Ecol. status of freshwater bodies

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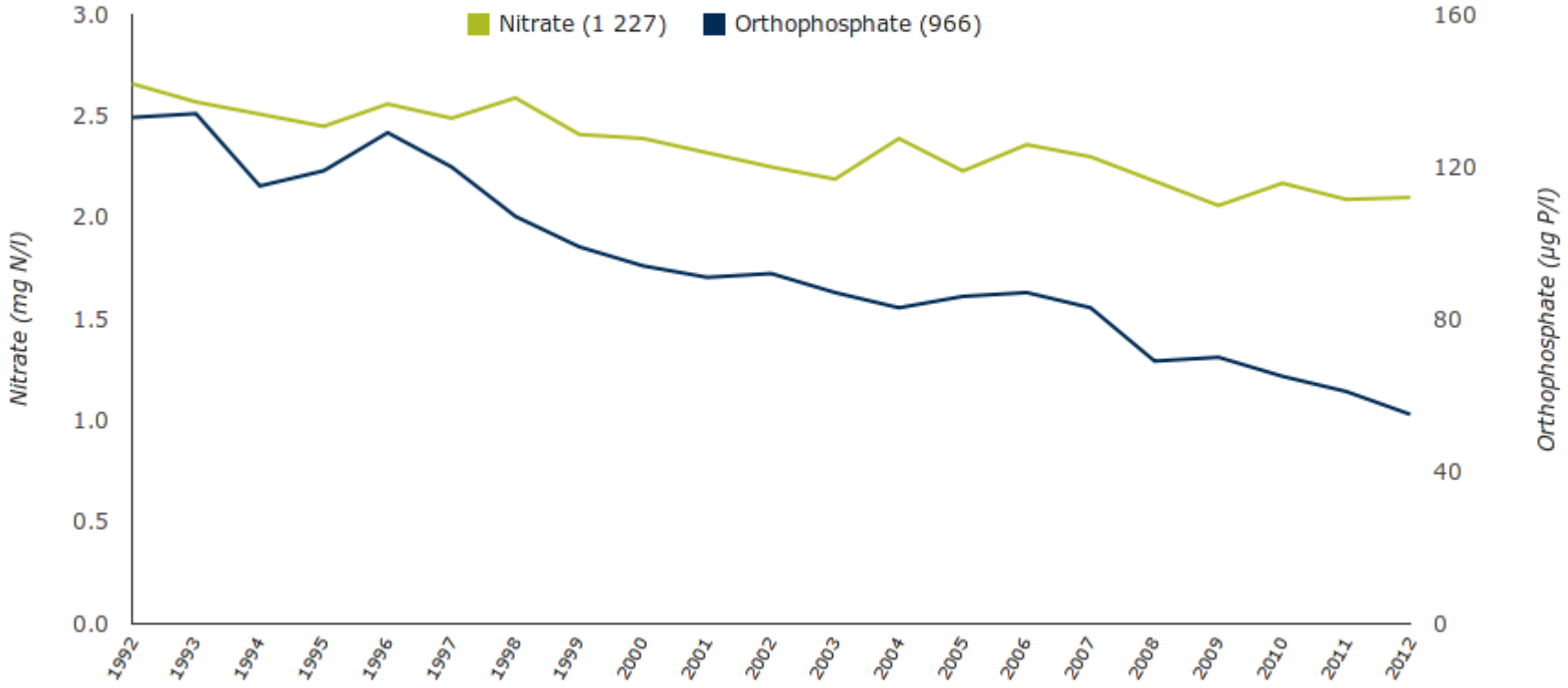
Changes in water quality variables during the last two decades



Source: Waterbase - Rivers provided by European Environment Agency (EEA)

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Freshwater quality

Land systems

- ‘Land take’ dominates in Europe, with artificial areas and agricultural intensification, resulting in land degradation, worsened by high fragmentation on 30 % of land area.
- Conflicting demands on land impact significantly on the land’s potential to supply key services.
- Limiting ‘land take’ is already an important policy target at national or sub-national level.
- Balancing land-recycling, compact urban development, place-based management and green infrastructure will provide positive effects.

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Land use and soil functions

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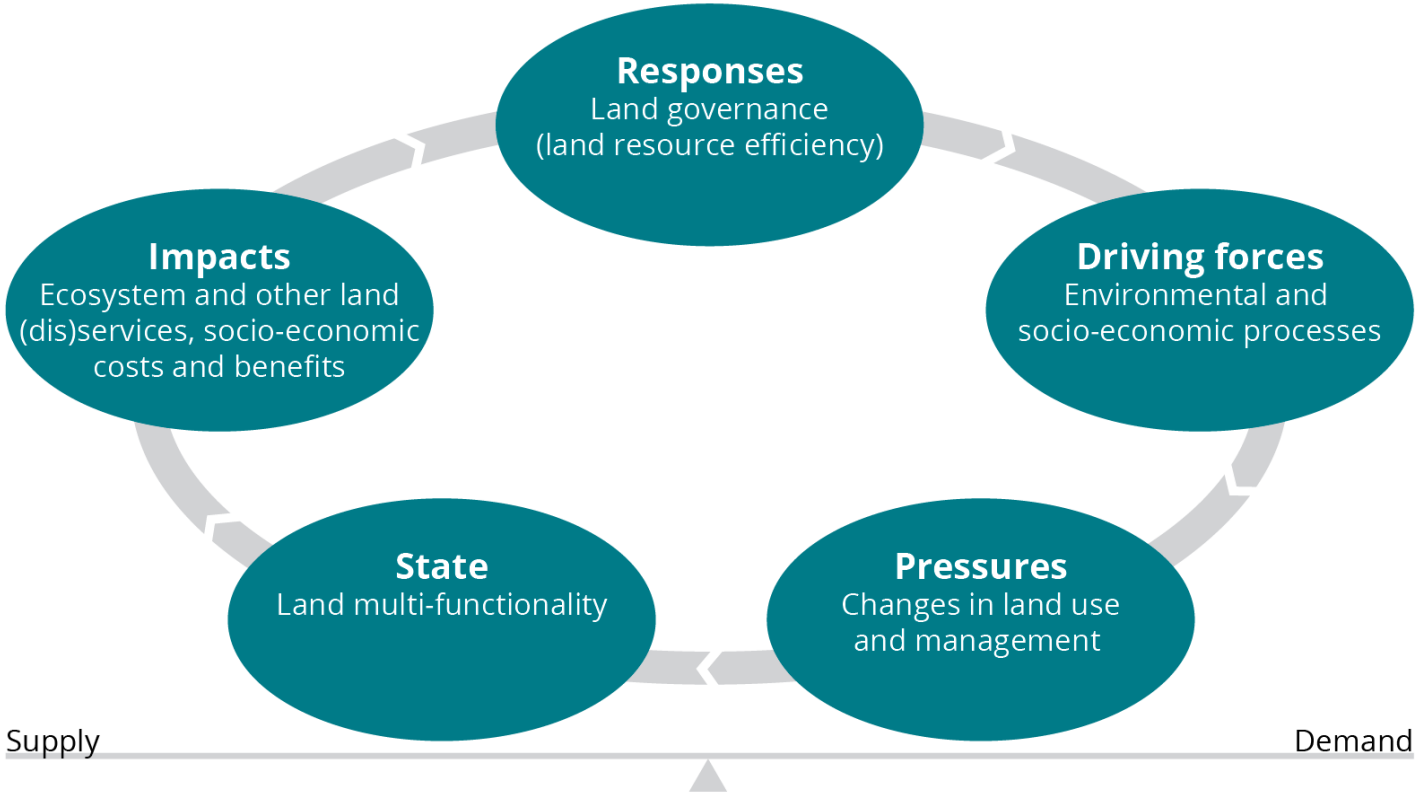
The land system



Source: EEA

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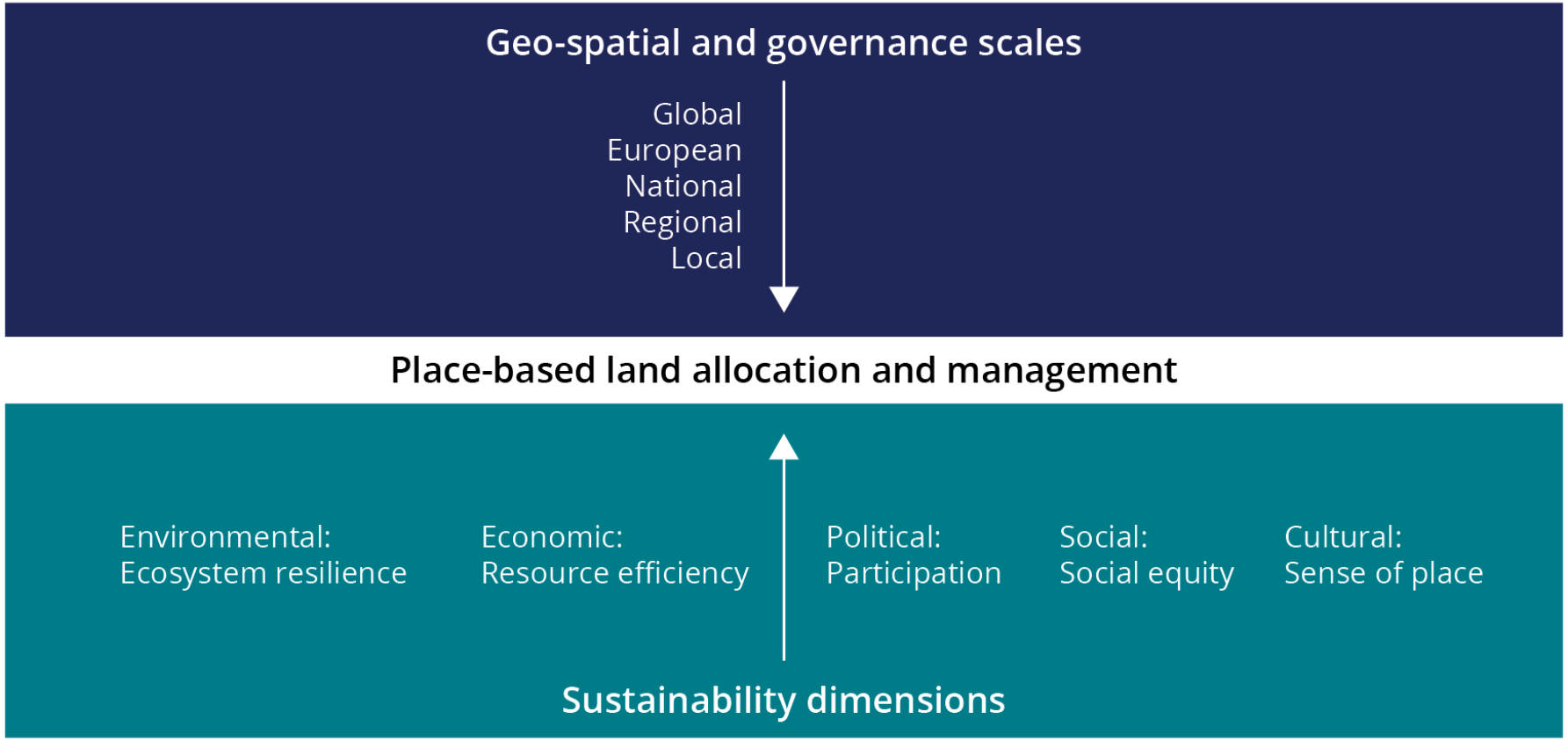
Dynamics in the land system guiding land allocation and management



Source: EEA

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Marine environment

- Seas and oceans act as a coherent ecosystem.
- Across all of Europe's regional seas, marine biodiversity is in poor condition: only 7 % of marine species assessments indicate 'favourable conservation status'. Effects of climate change (e.g. acidification) add to the cumulative impacts.
- Effective policy implementation can reduce impacts. For example, for several stocks the number of fish caught at 'maximum sustainable yield' levels continues to increase, suggesting healthier stocks.

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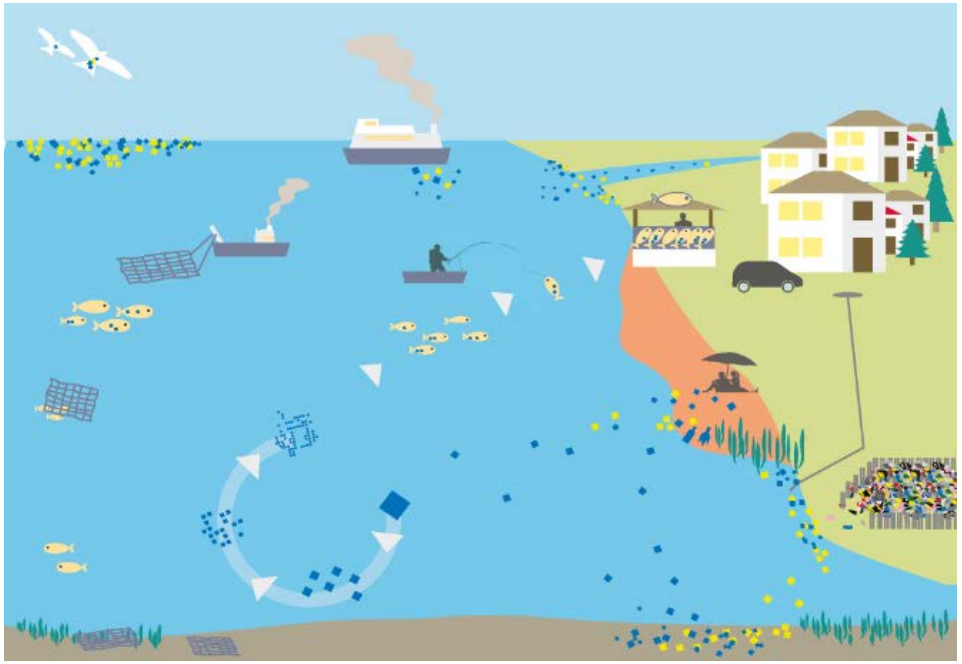
Marine and coastal biodiversity

Climate change impacts on ecosystems

What are the sources and impacts of marine litter?



Litter ends up in the sea via rivers and sewage pipes or with wind. Litter from ships and boats often also accumulates in the ocean.

About 10 % of marine litter is discarded fishing gear, which often kills or injures marine animals and seabirds.

Many plastics break into ever smaller pieces, which can then enter the food chain.

Around 36 % of the world's seabird species and many species of fish have been reported to ingest marine litter.

Vast patches of litter and small plastic particles are funnelled together by ocean currents. Litter also accumulates on the sea bed and on beaches.

Source: EEA Signals 2014

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Marine and coastal biodiversity

Climate change impacts on ecosystems

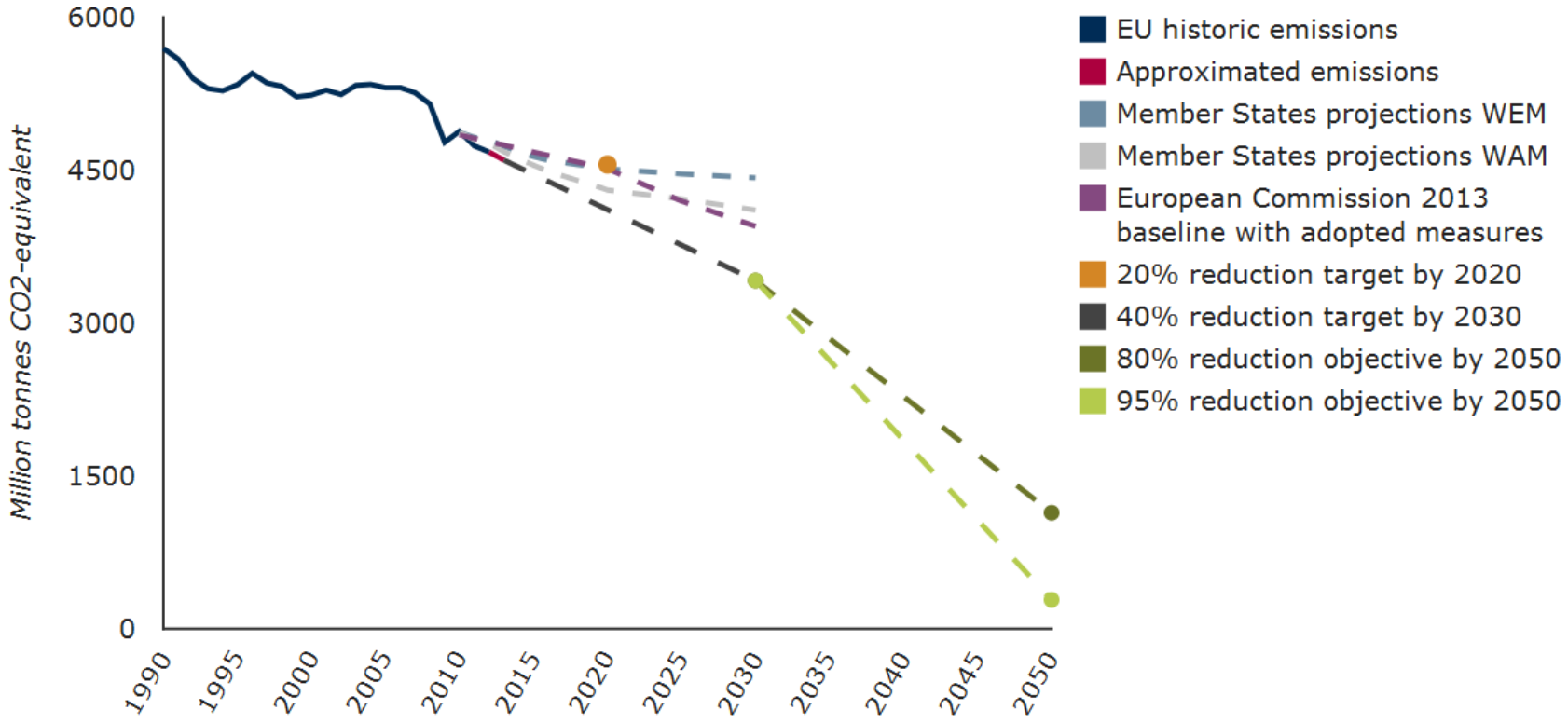
Mitigating climate change

- EU greenhouse gas emissions have been decreasing and are now 19 % below 1990 levels.
- Latest data confirm that the EU is on track to overachieve its 2020 target of a 20 % reduction compared to 1990 levels.
- The EU aims to decarbonise its energy system and cut its greenhouse gas emissions by 80 to 95 % by 2050. To achieve this goal, it has set a binding target of reducing emissions by at least 40 % compared to 1990 levels by 2030.
- Further efforts beyond currently implemented climate and energy policies are required to keep the EU on track towards these objectives.

Related content

GHG emissions & CC mitigation | Energy consumption & fossil fuel use | Mitigating climate change

Greenhouse gas emission trends, projections and targets



Data sources: EEA. National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism; 2020 targets; 2050 objectives; European Commission Baseline scenario
Note: Total EU greenhouse gas (GHG) emissions include those from international aviation and exclude those from land-use, land-use change and forestry. The 2013 GHG emissions data are preliminary estimates (from approximated GHG inventories). Final data will be determined in 2015. WEM: with existing measures; WAM: with additional measures.

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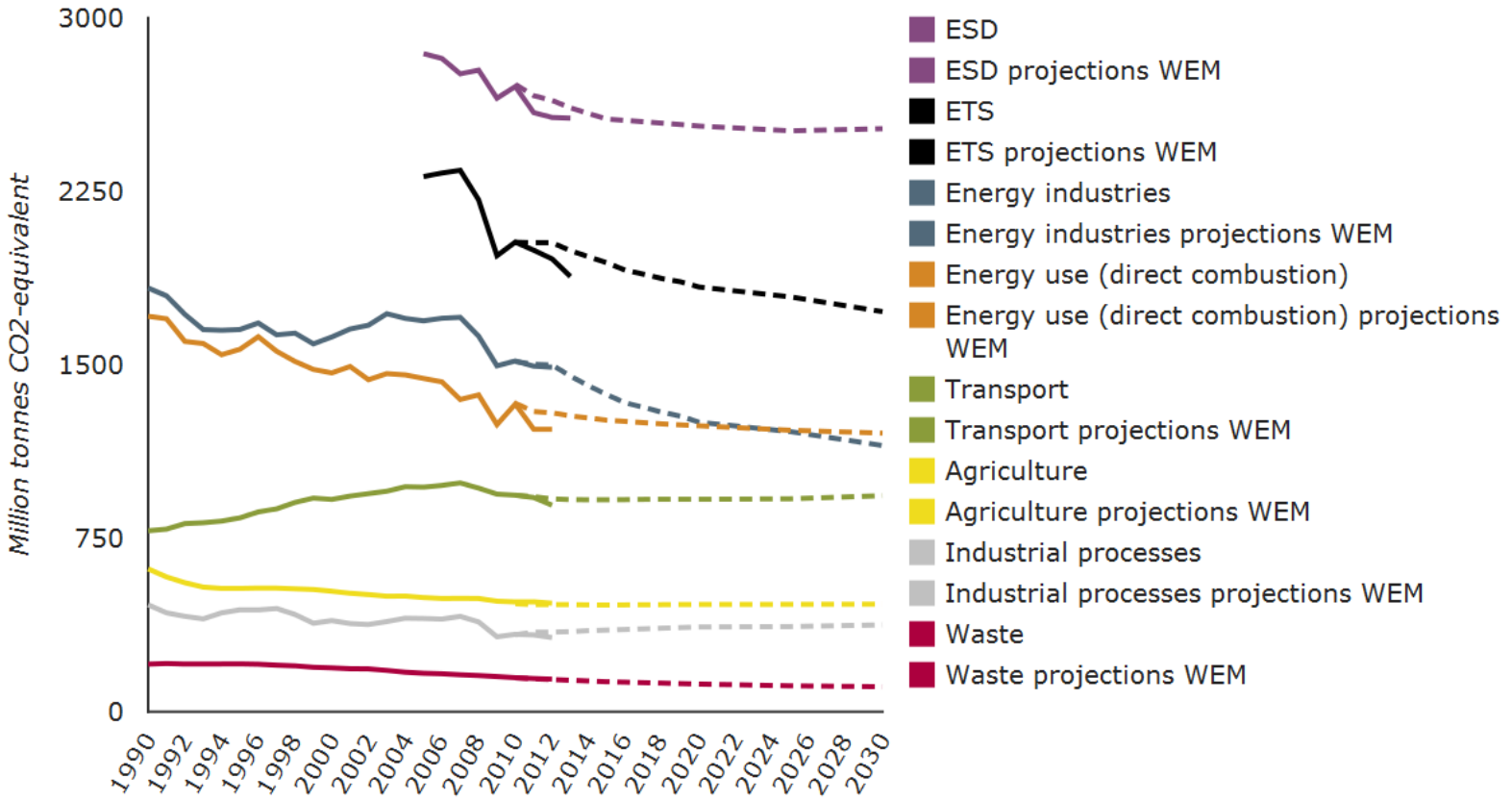
Greenhouse gases sectoral trends and projections ‘with existing measures’



Data sources: EEA. National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism; EEA. Projections reported by Member States in March 2013 under the Monitoring Mechanism Decision (Decision 280/2004/EC); EUTL.
Note: Broken lines represent projections. ESD — Effort sharing decision; ETS — Emissions Trading System; WEM — with existing measures.

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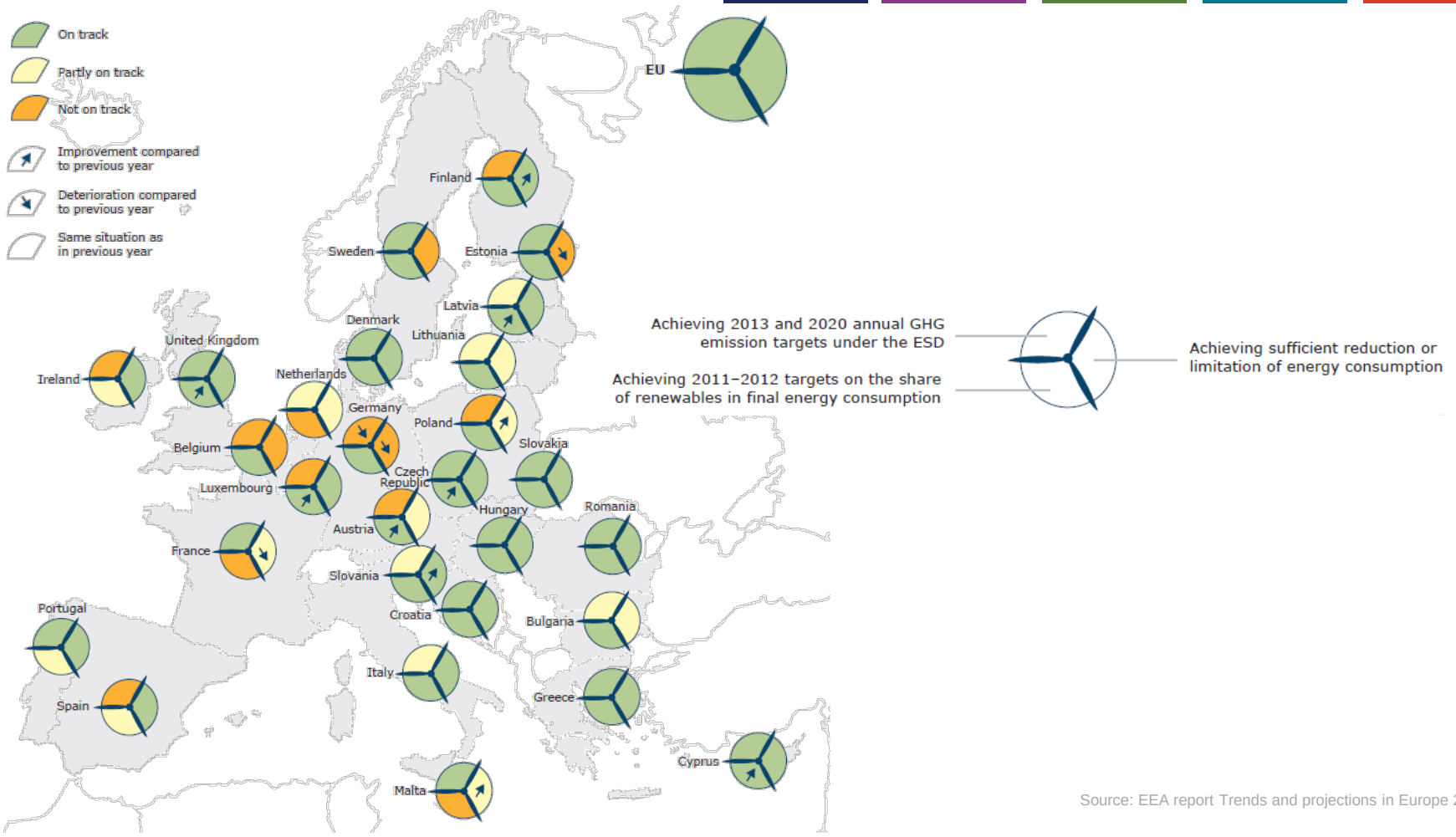
Progress of Member States towards 2020 climate and energy targets



Source: EEA report Trends and projections in Europe 2014.

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GHG emissions & CC mitigation | Energy consumption & fossil fuel use | Mitigating climate change

Noise

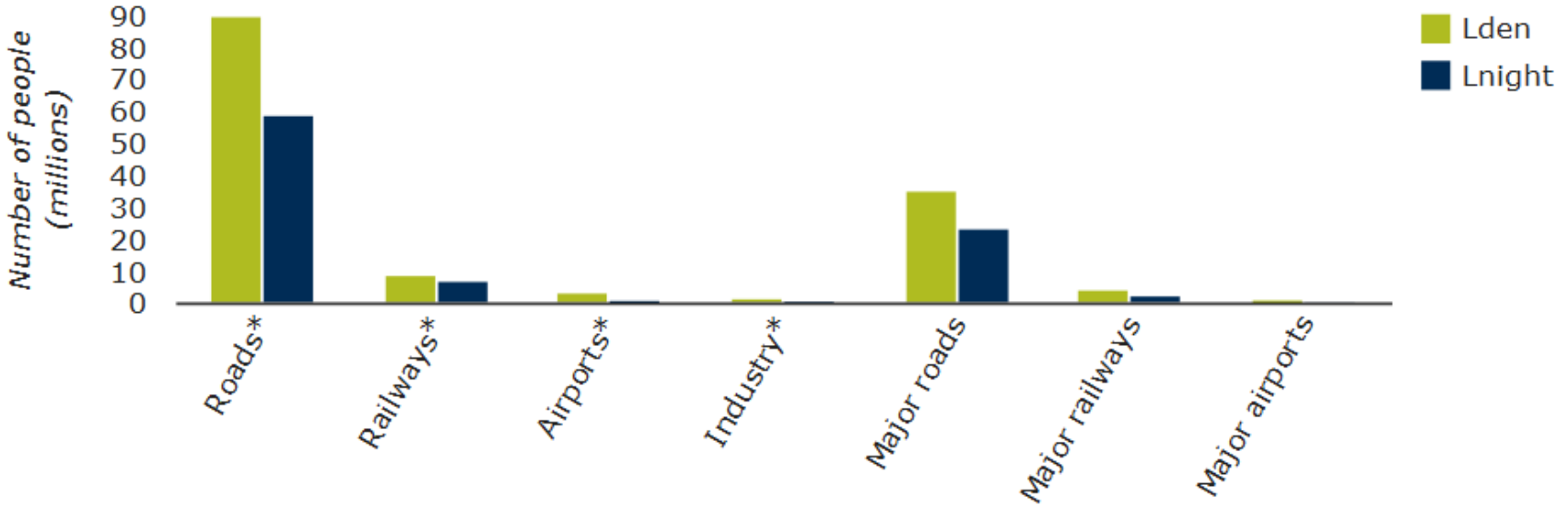
- Noise pollution poses a high environmental risk to human health, with road traffic being the greatest contributor.
- At least 10 000 cases of premature deaths from noise exposure occur each year, although incomplete data means this number is significantly underestimated.
- Further efforts are needed to decrease noise pollution in Europe.
- There is also a clear need to improve implementation of the Environmental Noise Directive in Member States, in particular with respect to the completeness, comparability and timeliness of reporting.

Related content

Noise pollution

Urban systems and grey infrastructure

Exposure to environmental noise in Europe within and outside urban agglomerations, 2011



Data sources: EEA. Noise Observation and Information Service for Europe

Note: * Noise sources within urban agglomerations. Lden: Environmental Noise Directive indicator for day, evening and night level, Lnight: Environmental Noise Directive indicator for night level. Based on data reported by countries by 28 August 2013. Noise mapping and assessment methods may differ by country. Gaps in reported information have been filled with expert estimates where necessary.

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Noise pollution

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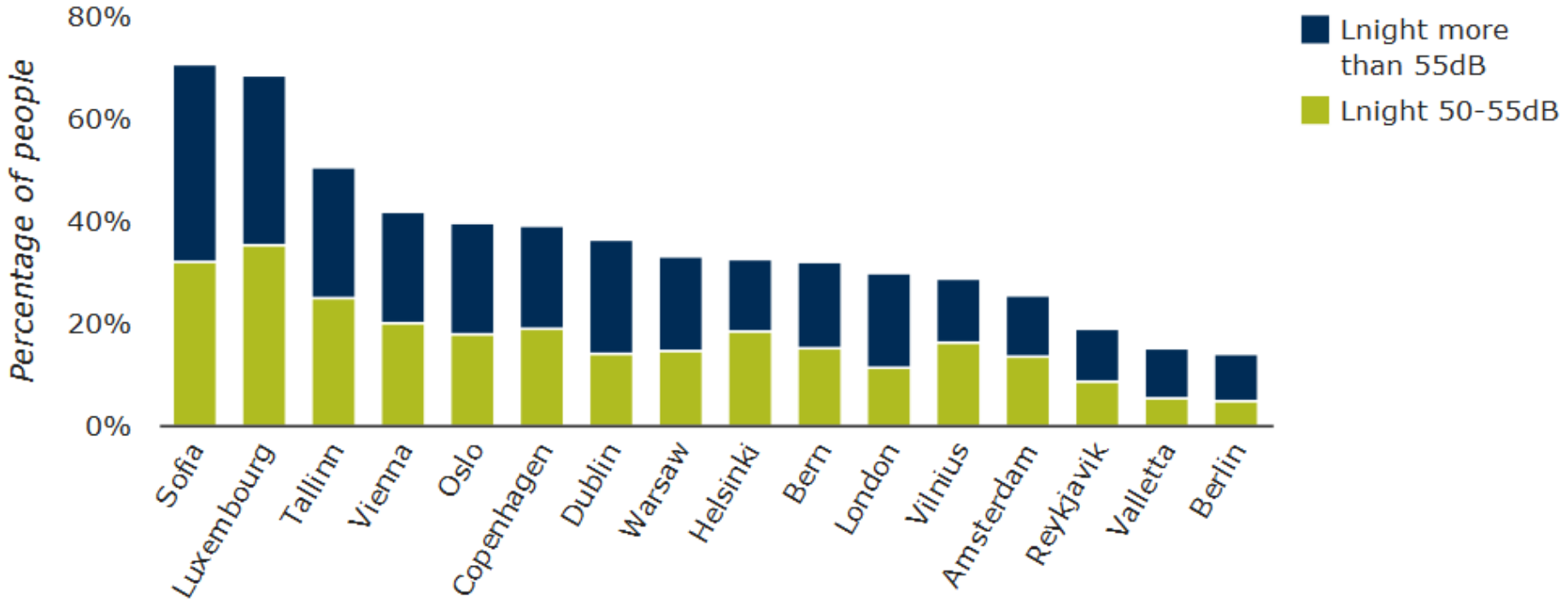
Population exposed to night time noise from road traffic above 50dB in selected capital cities, 2011



Data sources: EEA. Data delivered by MS under the END requirements until 28/08/2013

Note: Based on data reported by countries by 28 August 2013. Noise mapping and assessment methods differ by country, which means information reported for cities is not always comparable. 55dB Lnight is the World Health Organization (WHO) Interim Target.

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Noise pollution

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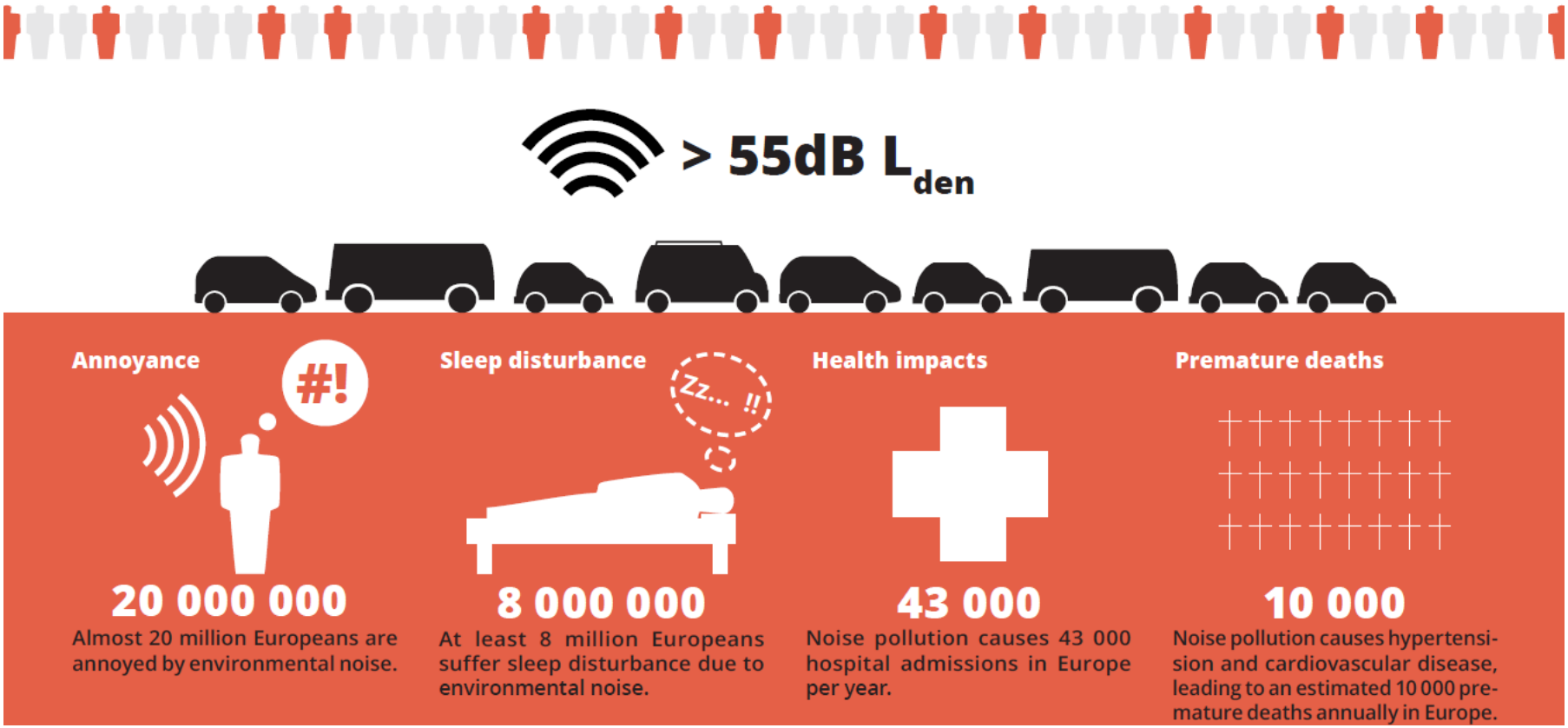
Noise pollution in Europe

Noise levels from road traffic that are greater than 55 dB L_{den} affect an estimated **125 million people – one in four Europeans.**



Source: EEA report. Noise in Europe 2014.

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Soil

- The ability of soil to deliver ecosystem services — in terms of food production, as biodiversity pools and as a regulator of gasses, water and nutrients — is under increasing pressure.
- Observed rates of soil sealing, erosion, contamination and decline in organic matter all reduce soil capability.
- Organic carbon stocks in agricultural soil may have been overestimated by 25 %.
- A coherent soil policy at EU level would provide the framework to coordinate efforts to survey soil status adequately.

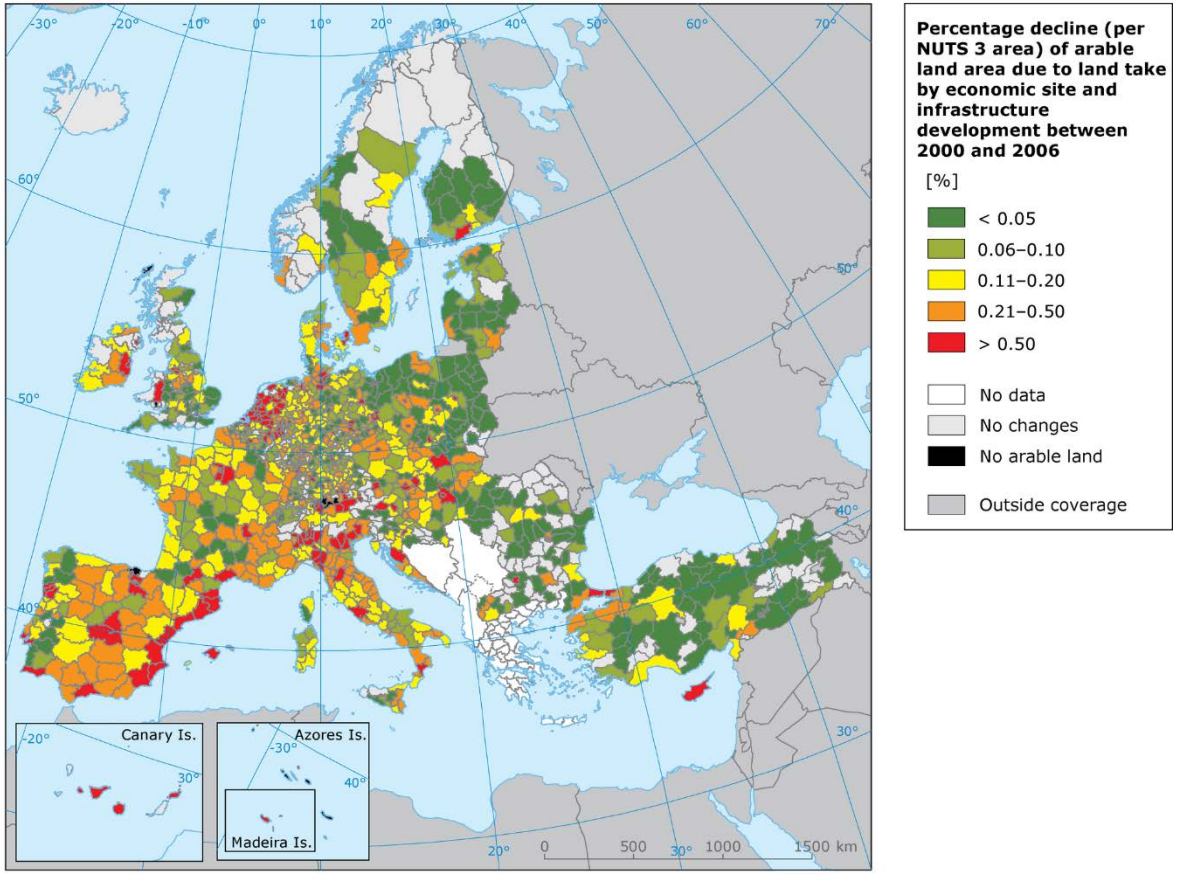
Related content

Land use and soil functions

Industrial pollution to air, soil and water

Urban systems and grey infrastructure

Percentage decline (per NUTS 3 area) of arable land area due to land take by economic site and infrastructure development between 2000 and 2006



Sources: ETC SIA based on Corine Land Cover 2000 and 2006.
Note: Orange and red areas are interpreted as hotspots.

Related content

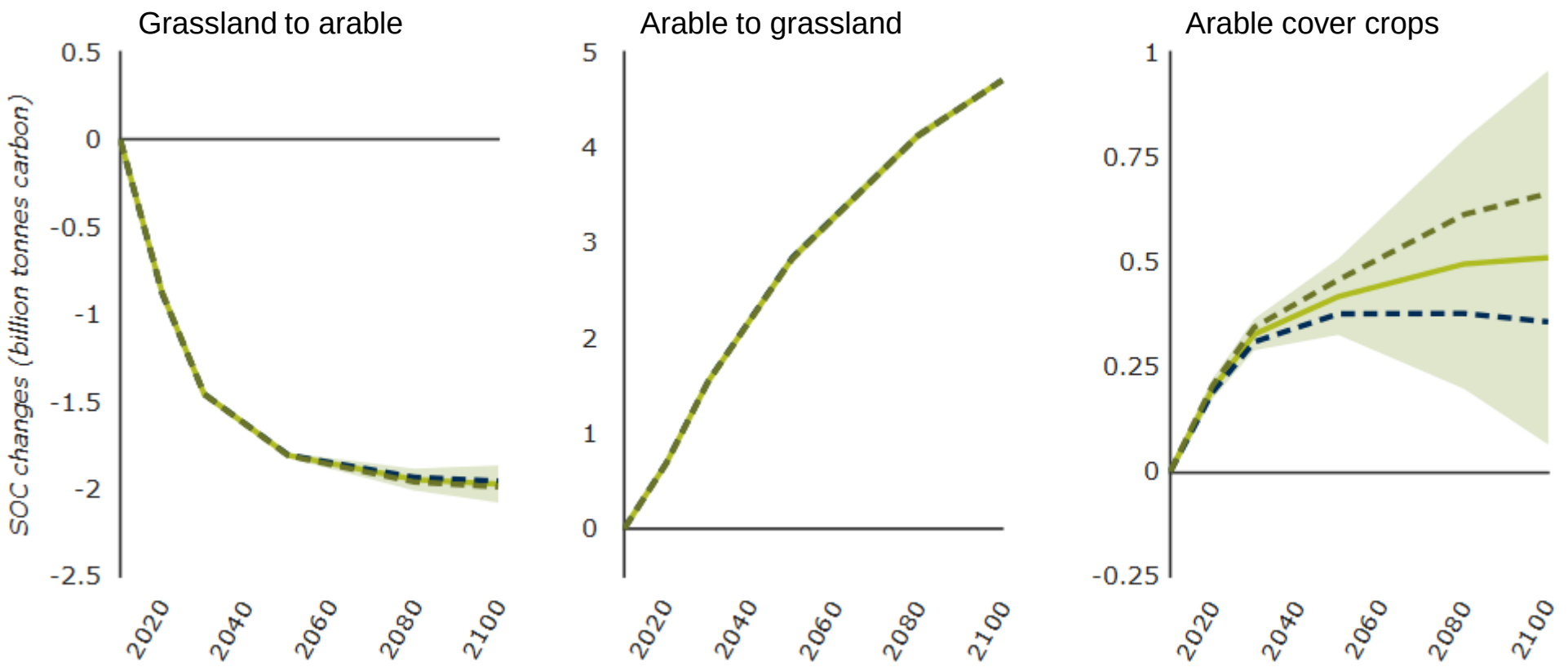
Land use and soil functions

Industrial pollution to air, soil and water

Urban systems and grey infrastructure

European Environment Agency

Soil organic carbon change at pan-European level under different land use change and soil management scenarios



Note: Values are projected to 2100 using two climatic scenarios. The blue and dark green interrupted lines correspond to the HADCM3_A1FI (HAD) ('world markets-fossil fuel intensive') and PCM_B1 (PCM) ('global sustainability') scenarios respectively; the former is more extreme, the latter more conservative. The bright green line is the average, while the light green region delimits the 2 σ confidence interval/variability. Scenarios were calculated using the CENTURY agroecosystem model. **Source**: CAPRESE project: Lugato E., Panagos, P., Bampa, F., Jones A. and Montanarella, L. (2014); Lugato, E., Bampa, F., Panagos, P., Montanarella, L. and Jones, A. (2014)

Related content

Land use and soil functions | Industrial pollution to air, soil and water | Urban systems and grey infrastructure

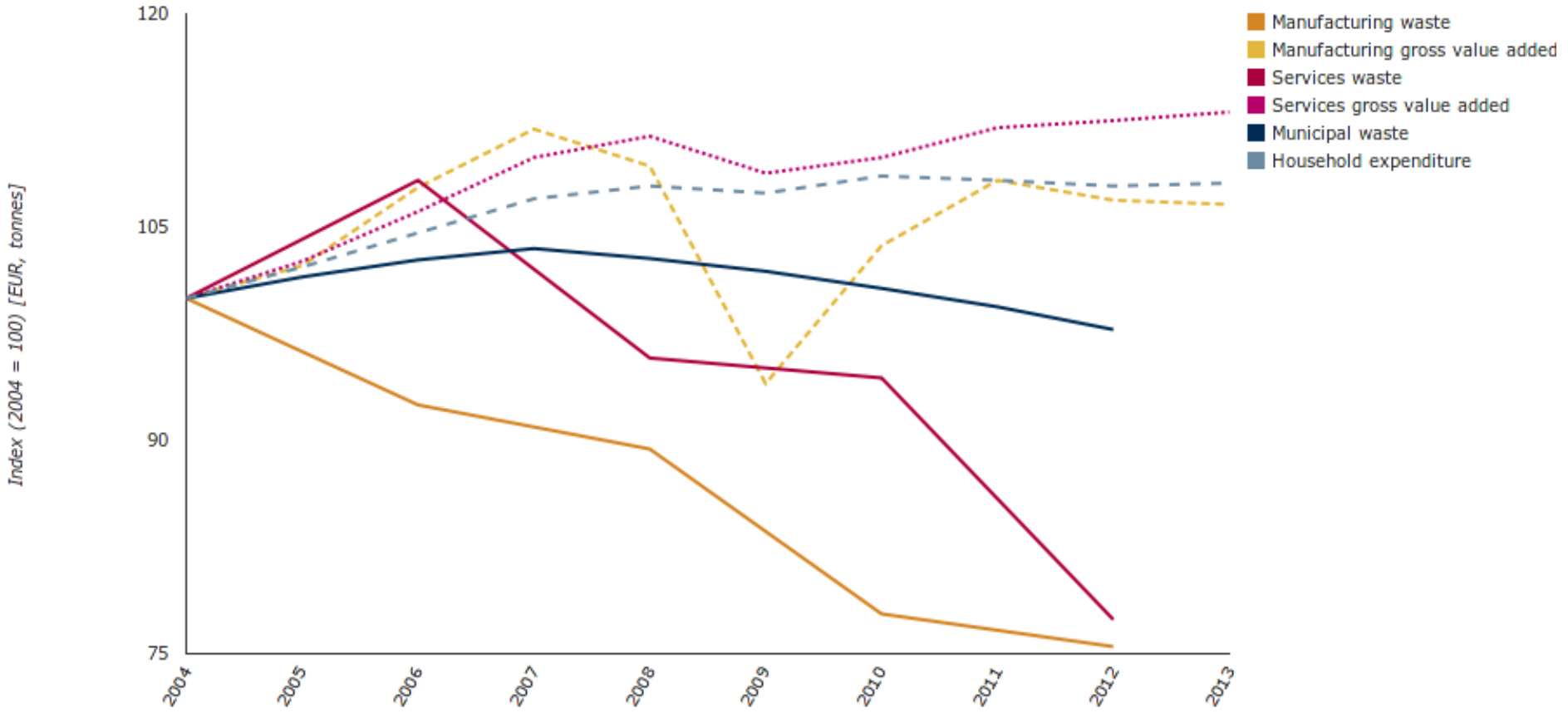
Waste

- Guided by diverse policies, European countries have improved waste management.
- Manufacturing and service sector waste declined by about a quarter in 2004–2012, while municipal waste generation fell 2 %. Along with increased recycling, these trends helped reduce landfilling.
- Nevertheless, progress to EU waste targets is mixed.
- Achieving the EU's long-term objective of establishing a circular economy will require far-reaching technological, behavioural and organisational change.

Related content

Waste management | Urban systems and grey infrastructure | Waste

Waste generation by production and consumption activities in European countries



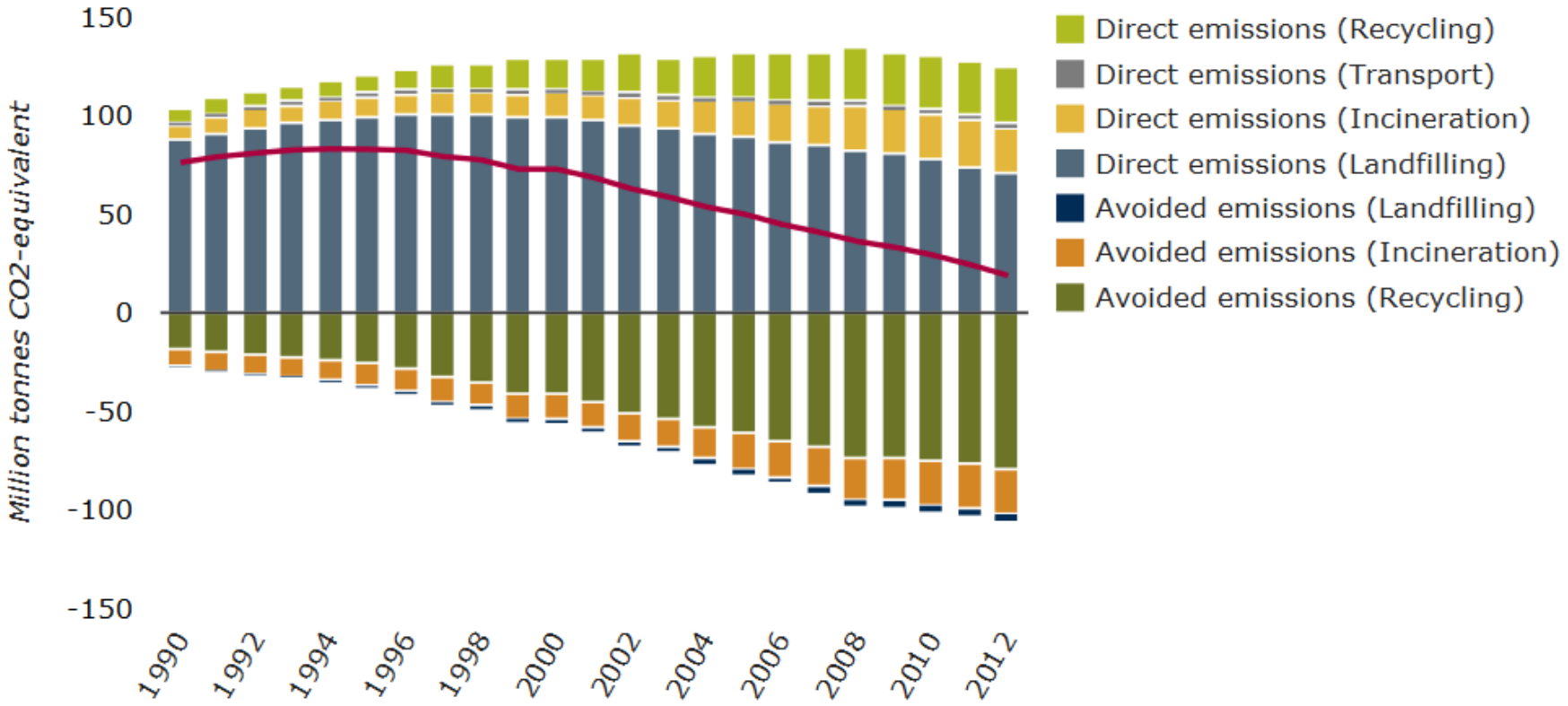
Data sources: Eurostat. National Accounts by 10 branches – volumes; Eurostat. Municipal waste; Eurostat. GDP and main components – volumes; Eurostat. Generation of waste

Note: Geo coverage for manufacturing and services waste, manufacturing and services gross value added: EU-28 plus Norway; for municipal waste generation and household expenditure: EEA-33. Values for Croatia are missing in manufacturing and services waste generation for 2006.

Related content

Waste management | Urban systems and grey infrastructure | Waste

Greenhouse gas emissions from municipal waste management in the EU-27, Switzerland and Norway



Data sources: Eurostat. Municipal waste statistics; CRI. Projections of Municipal Waste Management and Greenhouse Gases' by Ioannis Bakas et al. ETC/SCP working paper 4/2011; ETC/SCP. Eionet review of ETC/SCP and EEA MSW model. Consultation paper of 29 April 2012.

Note: This figure shows the greenhouse gas (GHG) emissions associated with municipal waste management for the EU-27 (without Cyprus) plus Norway and Switzerland, differentiated according to the contribution of specific waste treatment paths. The GHG emissions are calculated using a life-cycle approach. In order to see the overall effect of waste management, the avoided emissions (counted as negative values) are plotted with the direct emissions, giving the total annual net GHG emissions from municipal waste management in European countries (the red line).

Related content

Waste management | Urban systems and grey infrastructure | Waste

How can we reduce and make better use of waste?

Source: EEA Signals 2014

Related content

Waste management

Urban systems and grey infrastructure

Waste

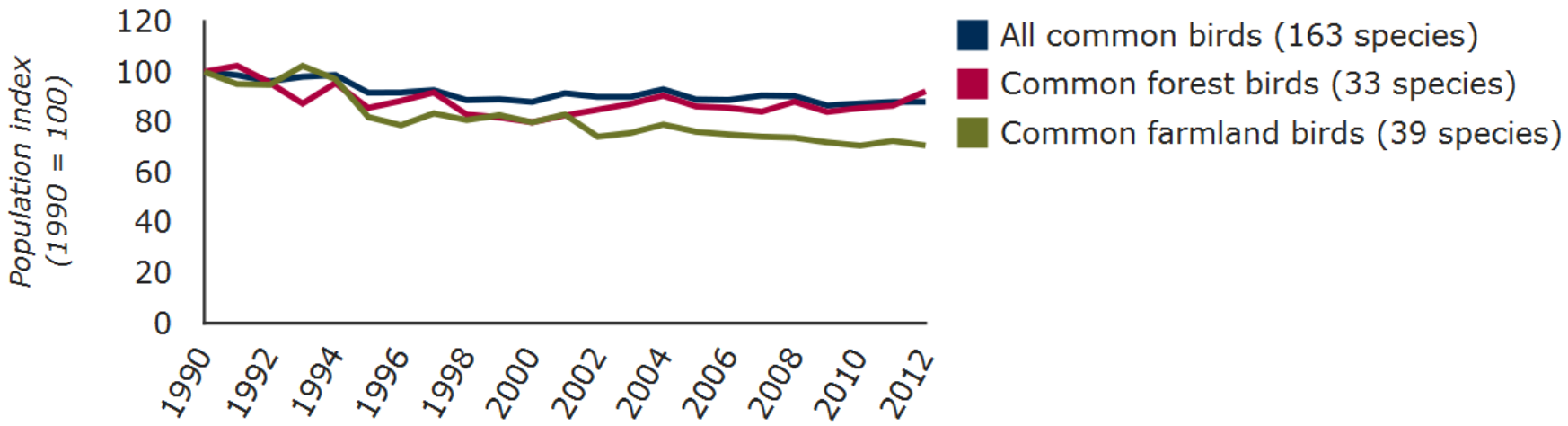
Agriculture

- European agriculture — 40 % of the land — serves societal demands for food production, pollination and energy.
- Long-observed environmental impacts are mixed: decreasing GHG emissions, less pesticide use but exceedance of nutrients, diffuse pollution to water and dramatic loss of grassland biodiversity.
- There are fewer farmers and less arable land but demand for food is growing. Europe faces a continuous challenge to reconcile low environmental impact, food security and the viability of rural societies.

Related content

Terrestrial and freshwater biodiversity | Land use and soil functions | Water use and water stress | Agriculture

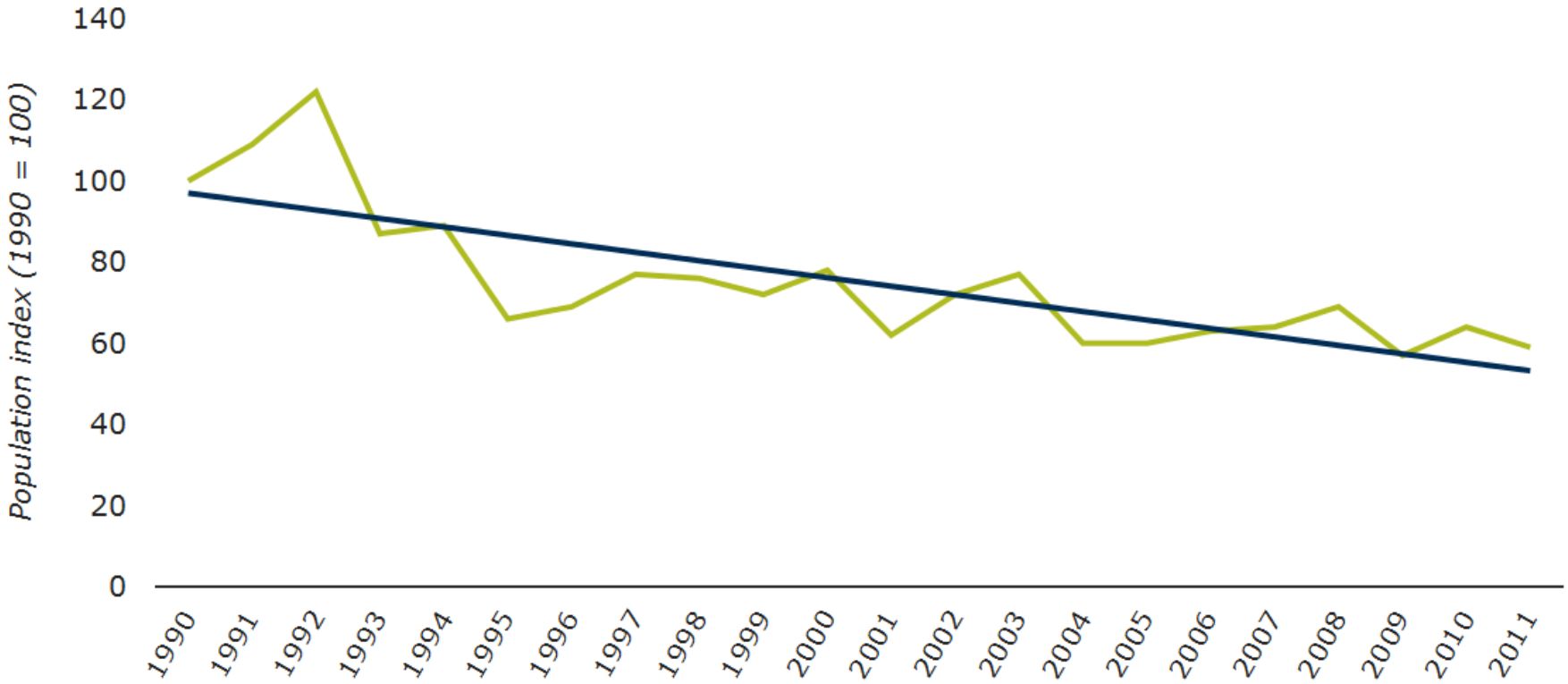
Common birds in Europe – population index



Data sources: EBCC. Common Birds in Europe, population index; Birdlife International; Royal Society for the Protection of Birds; Statistics Netherlands; EEA – Indicator SEBI001

Related content
Terrestrial and freshwater biodiversity | Land use and soil functions | Water use and water stress | Agriculture

Grassland butterfly indicator for Europe

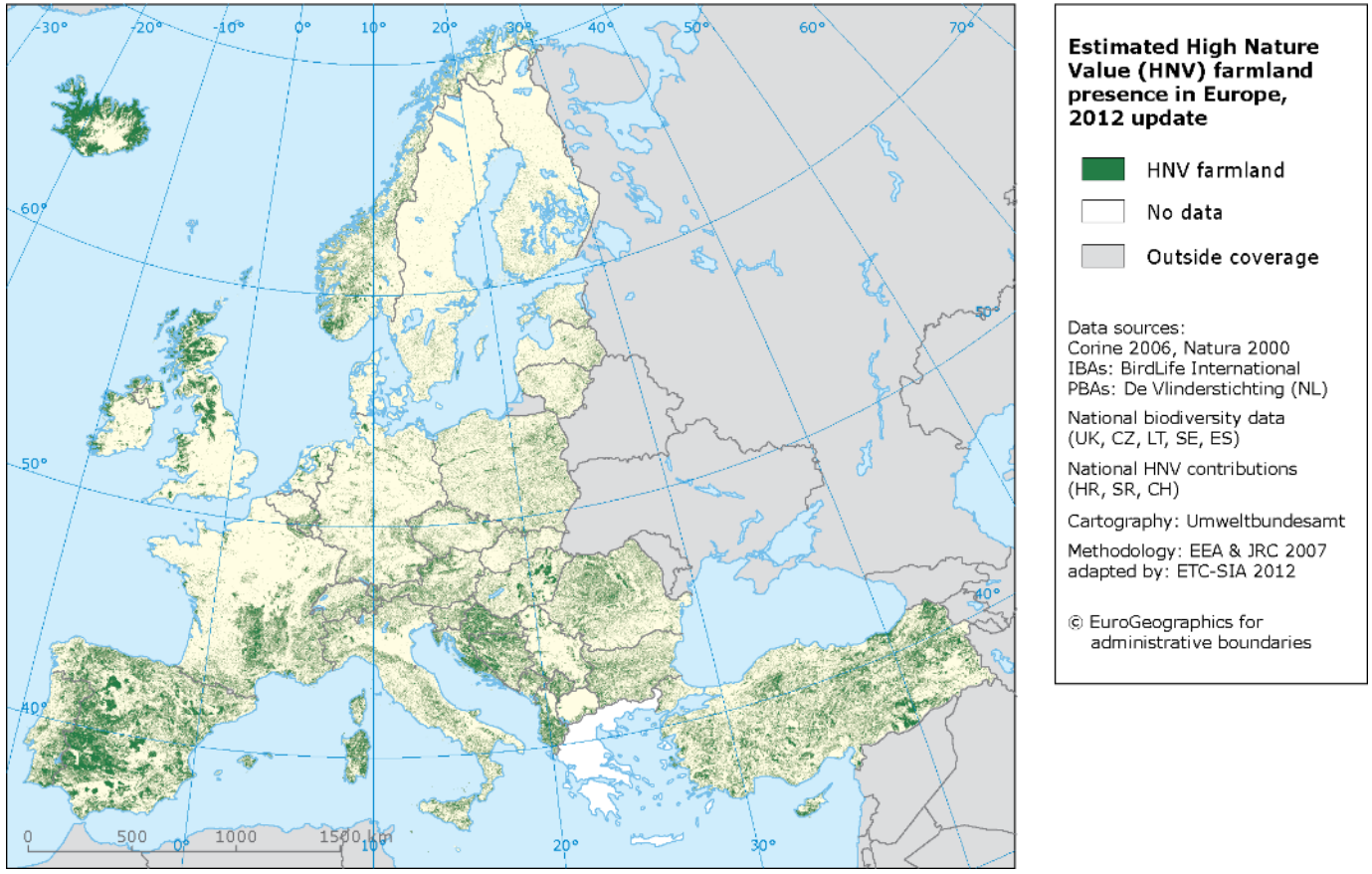


Data sources: BCE. European Grassland Butterfly Indicator; Statistics Netherlands; EEA – Indicator SEBI001

Related content

Terrestrial and freshwater biodiversity | Land use and soil functions | Water use and water stress | Agriculture

Estimated High Nature Value farmland presence in Europe



Estimated High Nature Value (HNV) farmland presence in Europe, 2012 update

- HNV farmland
- No data
- Outside coverage

Data sources:
Corine 2006, Natura 2000
IBAs: BirdLife International
PBAs: De Vlinderstichting (NL)

National biodiversity data (UK, CZ, LT, SE, ES)

National HNV contributions (HR, SR, CH)

Cartography: Umweltbundesamt

Methodology: EEA & JRC 2007 adapted by: ETC-SIA 2012

Data sources: Corine Land Cover 2006 seamless vector data provided by European Environment Agency (EEA); Natura 2000 sites provided by European Environment Agency (EEA).

Related content

Terrestrial and freshwater biodiversity | Land use and soil functions | Water use and water stress | Agriculture

Consumption

- European systems of production and consumption generate diverse environmental, social and economic impacts — supporting livelihoods globally but also creating significant environmental pressures.
- Household consumption expenditure in Europe increased by 23 % in 1996–2012, contributing to increases in some environmental pressures.
- Reducing the impacts of European consumption requires fundamental changes in lifestyle, including in the size and location of dwellings, transport systems and diets.

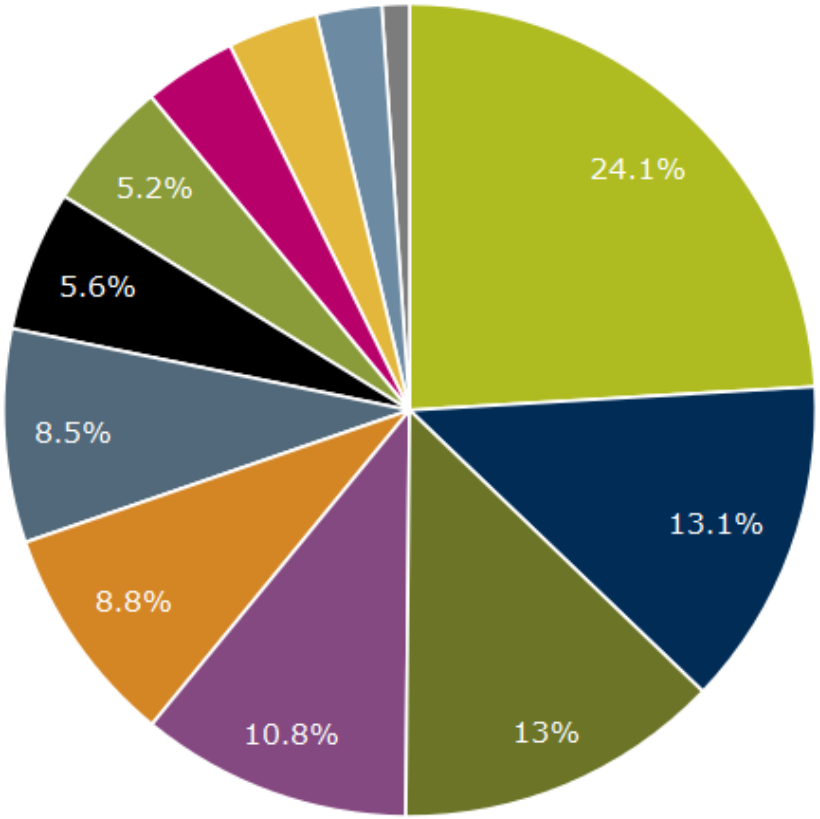
Related content

Material resource efficiency & use

Waste management

Urban systems and grey infrastructure

Share of expenditure on household consumption categories



Data sources: Eurostat. Household consumption - aggregates at current prices; EEA – Indicator SCP013
Note: Expenditure in nominal values. Covers the EU-28, Iceland and Norway.

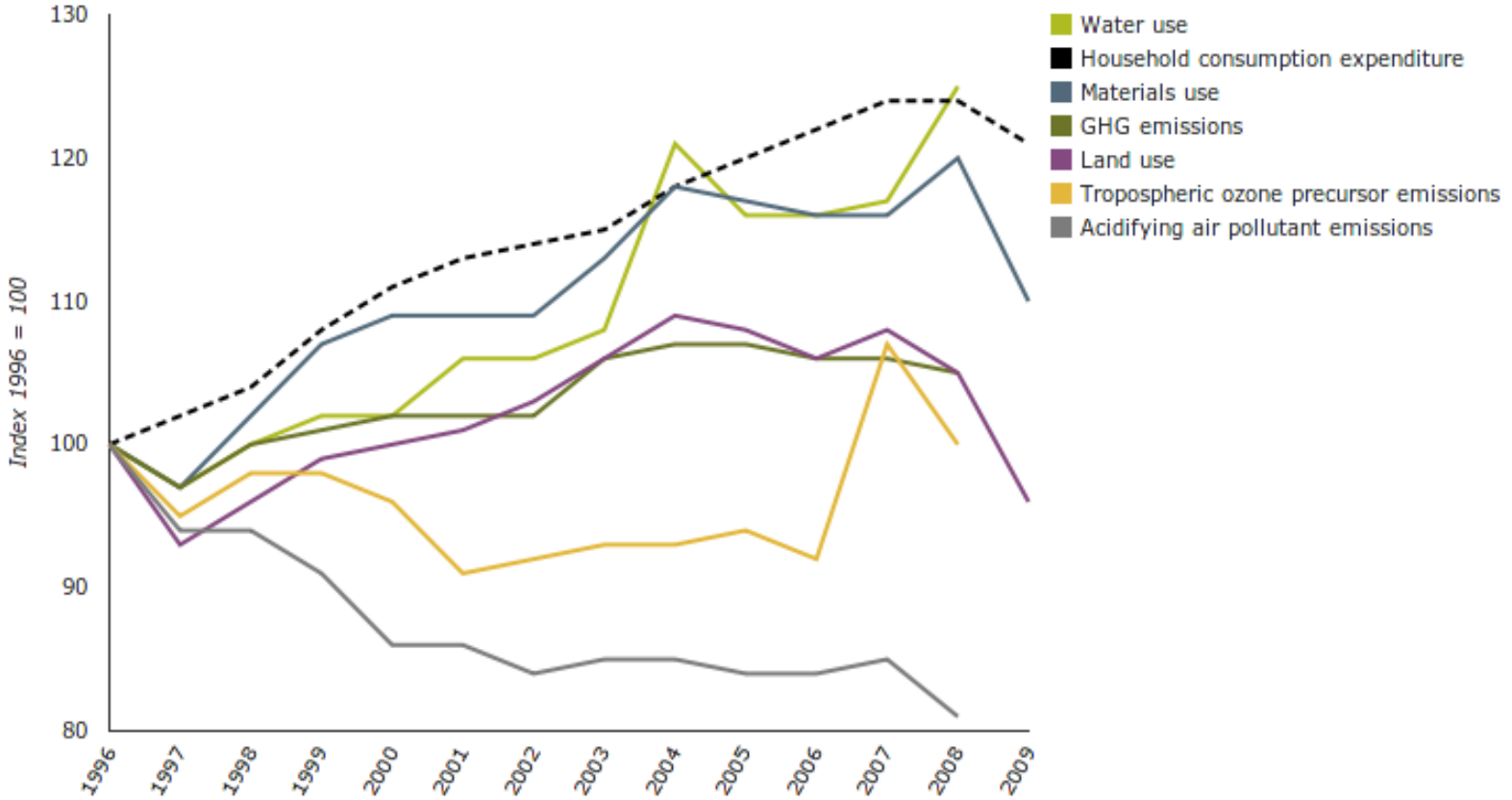
Related content

Material resource efficiency & use

Waste management

Urban systems and grey infrastructure

Environmental footprint of household purchases of goods and services



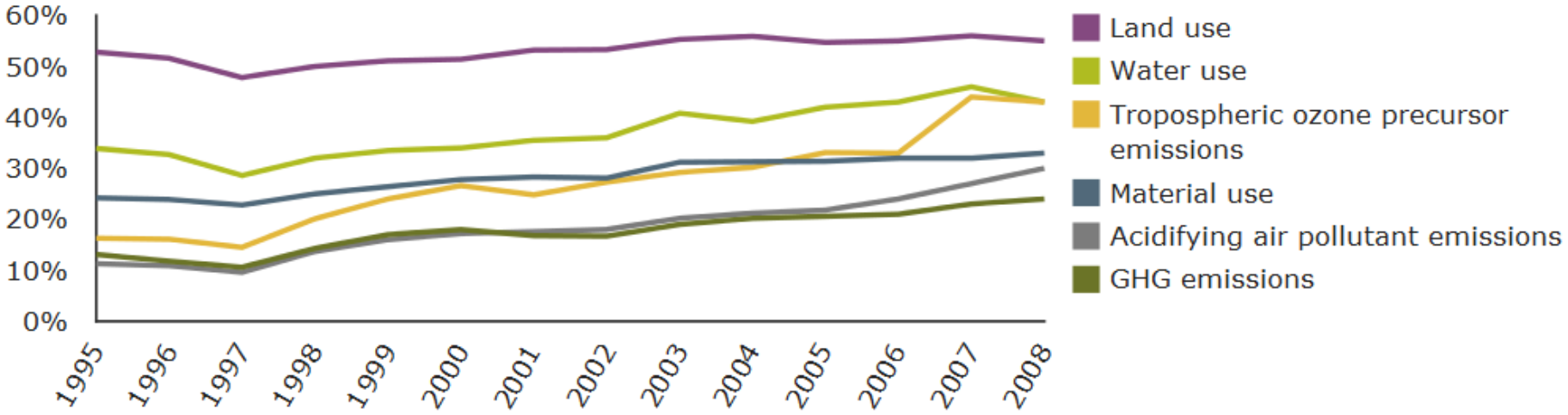
Data sources: EC. Pressures caused by domestic final use broken down by COICOP category - calculations made for report Global Resources Use and Pollution Volume 1; Eurostat. Final consumption expenditure of households by consumption purpose - COICOP 3 digit – volumes

Note: The environmental footprint includes pressures within and outside Europe associated with household purchases of goods and services, but excludes direct pressures emitted by households, for example by burning fuels for space heating or driving a car.

Related content

Material resource efficiency & use | Waste management | Urban systems and grey infrastructure

Percentage of the EU footprint exerted outside EU borders



Data sources: JRC. Global Resources Use and Pollution, Volume 1/Production, Consumption and Trade (1995-2008)
Note: The footprint relates to total final demand, comprising household and government consumption and capital investments.

Related content

Material resource efficiency & use

Waste management

Urban systems and grey infrastructure

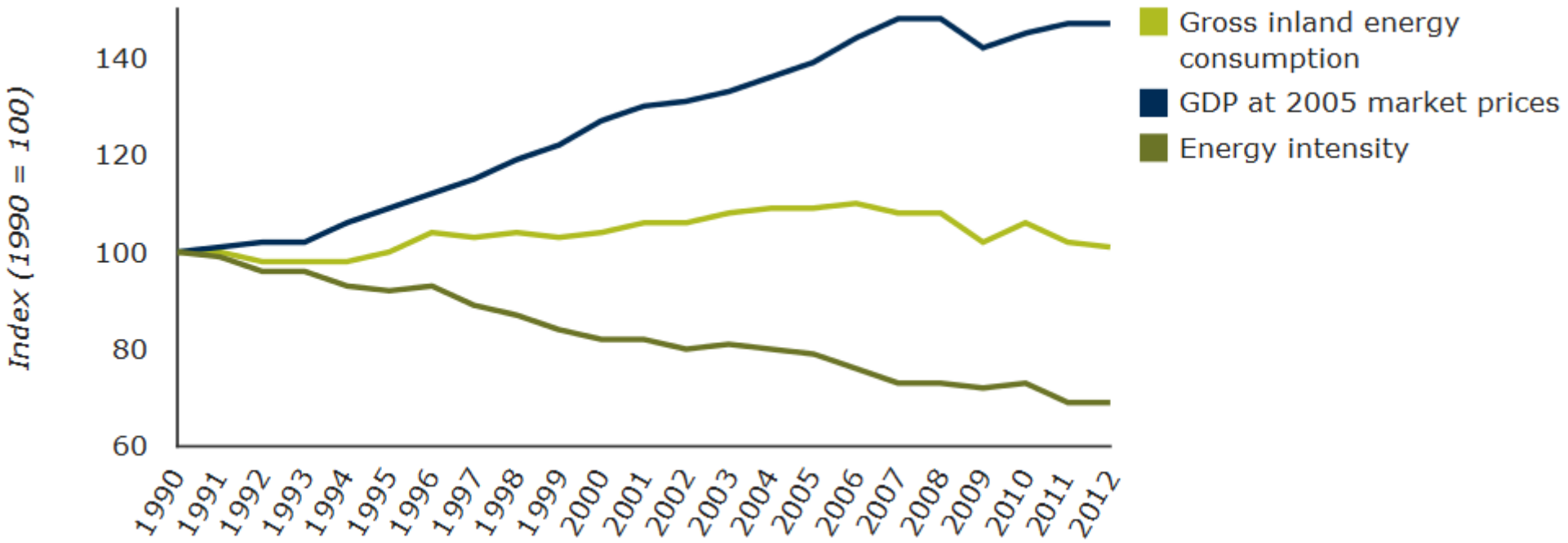
Energy

- The EU's energy intensity decreased between 1990 and 2012 while renewables increased strongly.
- Latest data confirm that the EU is on track towards its 2020 energy targets: increasing renewables to 20 % of energy use and reducing primary energy consumption by 20 % at EU-level.
- The EU has adopted two new energy targets: increasing renewables to minimum 27 % of EU energy use and improving energy efficiency by a minimum of 27 % by 2030.
- Further efforts beyond currently implemented policies are needed to keep the EU on track towards the objective of decarbonising the European energy system by 2050.

Related content

Energy consumption & fossil fuel use | Urban systems and grey infrastructure | Energy

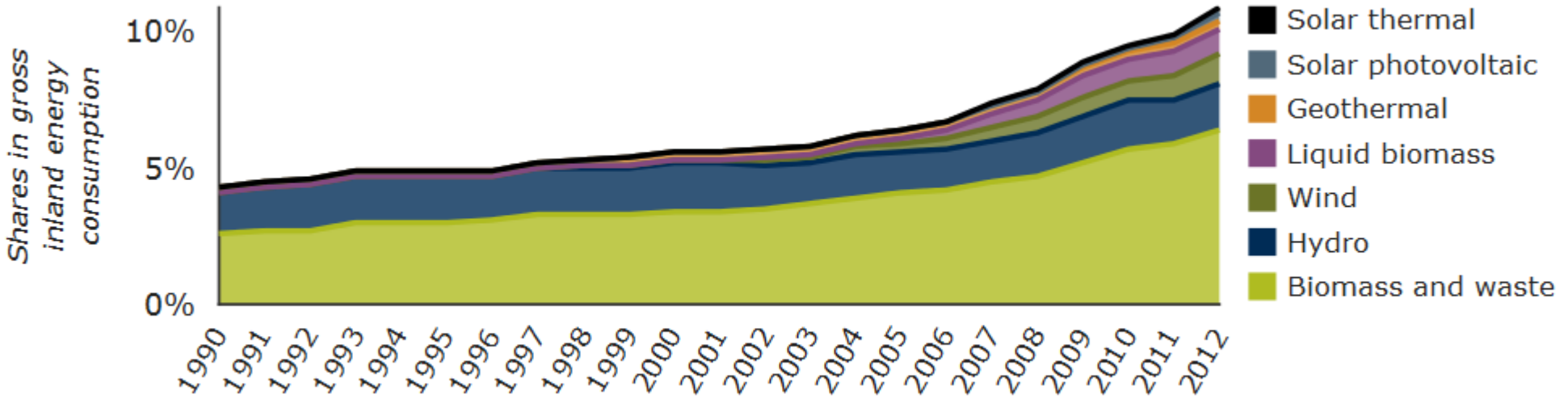
Trends in energy intensity, gross domestic product and gross inland energy consumption



Note: Some estimates have been necessary for computing the EU-28 GDP index in 1990.
Data sources: The World Bank. World Development Indicators database; Eurostat. Gross inland energy consumption; EEA – Indicator ENER017

Related content
Energy consumption & fossil fuel use
Urban systems and grey infrastructure
Energy

Contribution of renewable energy sources to gross inland energy consumption

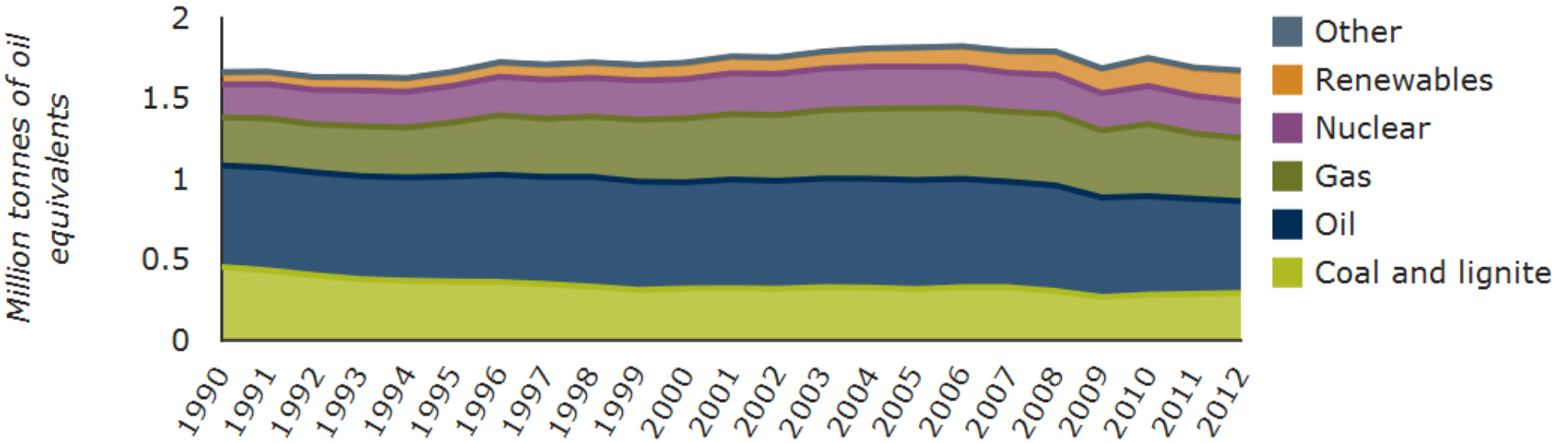


Geographical scope: EU-28. Data sources: Eurostat. Supply, transformation, consumption - all products - annual data (nrg_100a); Eurostat. Supply, transformation, consumption - renewable energies - annual data (nrg_107a); EEA – Indicator ENER029

Related content

Energy consumption & fossil fuel use | Urban systems and grey infrastructure | Energy

Gross inland energy consumption by fuel



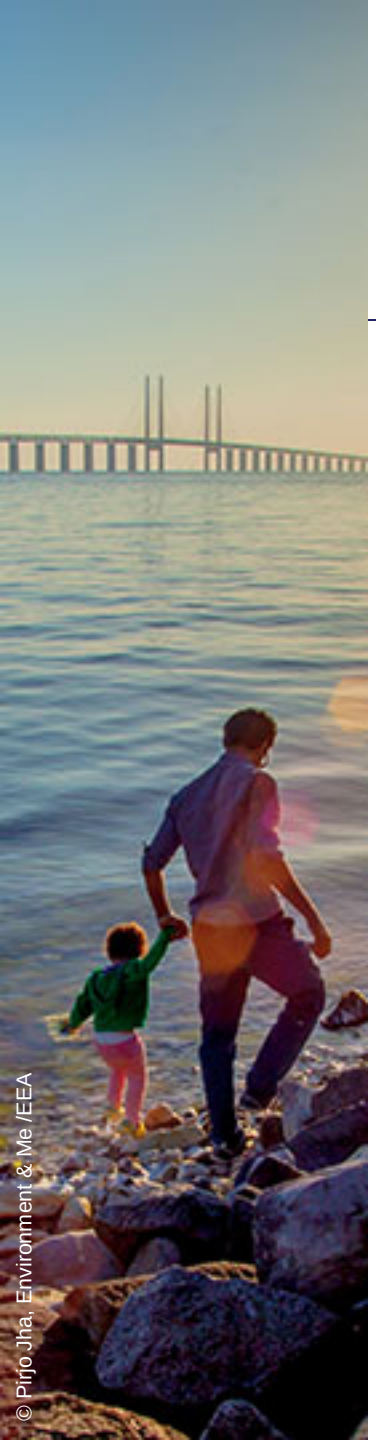
Note: "Other" category includes industrial waste and net electricity imports.

Data sources: Eurostat. Supply, transformation, consumption - all products - annual data; Eurostat. Supply, transformation, consumption - wastes (non-renewable) - annual data

Related content

Energy consumption & fossil fuel use | Urban systems and grey infrastructure | Energy

Health and environment

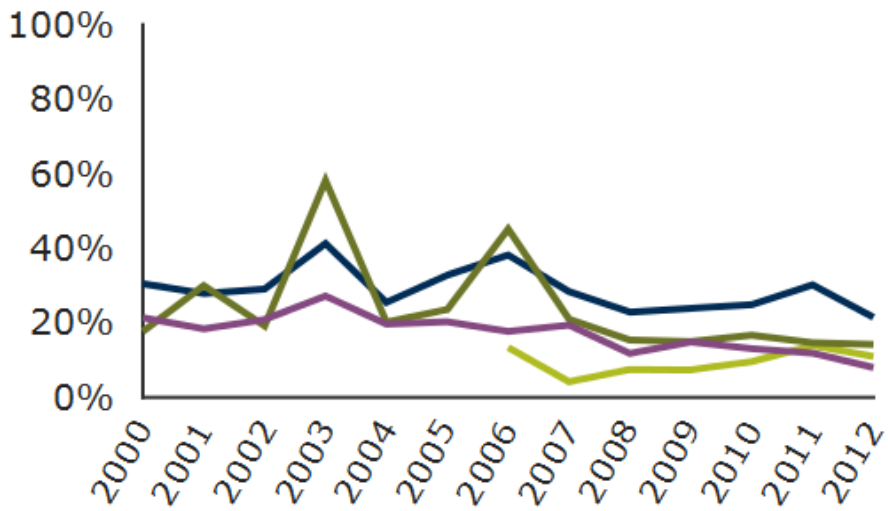


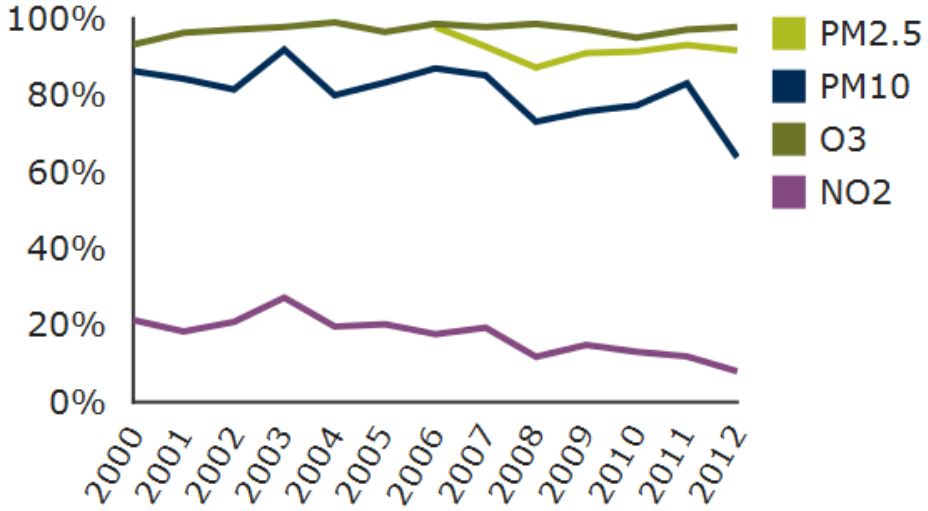
- The quality of Europe's drinking and bathing water have improved but air and noise pollution continue to cause serious health impacts.
- About 430 000 premature deaths were attributed to fine particulate matter in the EU in 2011.
- Further reductions in pressures may be offset by changing exposure patterns and vulnerabilities, linked to trends such as climate change, urbanisation and population ageing.
- This points to the need for more integrated approaches to addressing social, economic and environmental determinants of health.

Related content

Water pollution & related envi. health risks | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Climate change & related envi. health risks | Chemicals & related envi. health risks

Urban population in the EU-28 exposed to air pollutant concentrations above selected EU limit and target values (left) and WHO air quality guidelines (right)



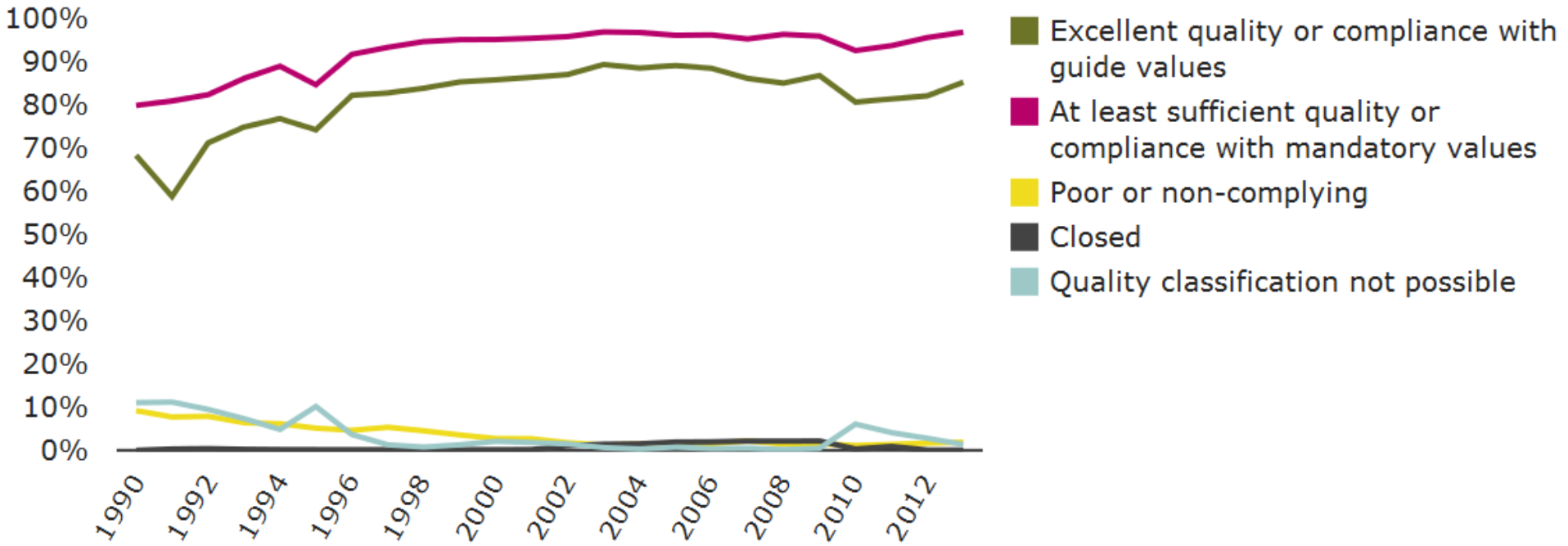


Data sources: Eurostat. Gisco - Urban Audit 2012; EEA. AirBase - The European air quality database; EEA – Indicator CSI004.

Related content

Water pollution & related envi. health risks | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Climate change & related envi. health risks | Chemicals & related envi. health risks

Quality of coastal bathing water in Europe

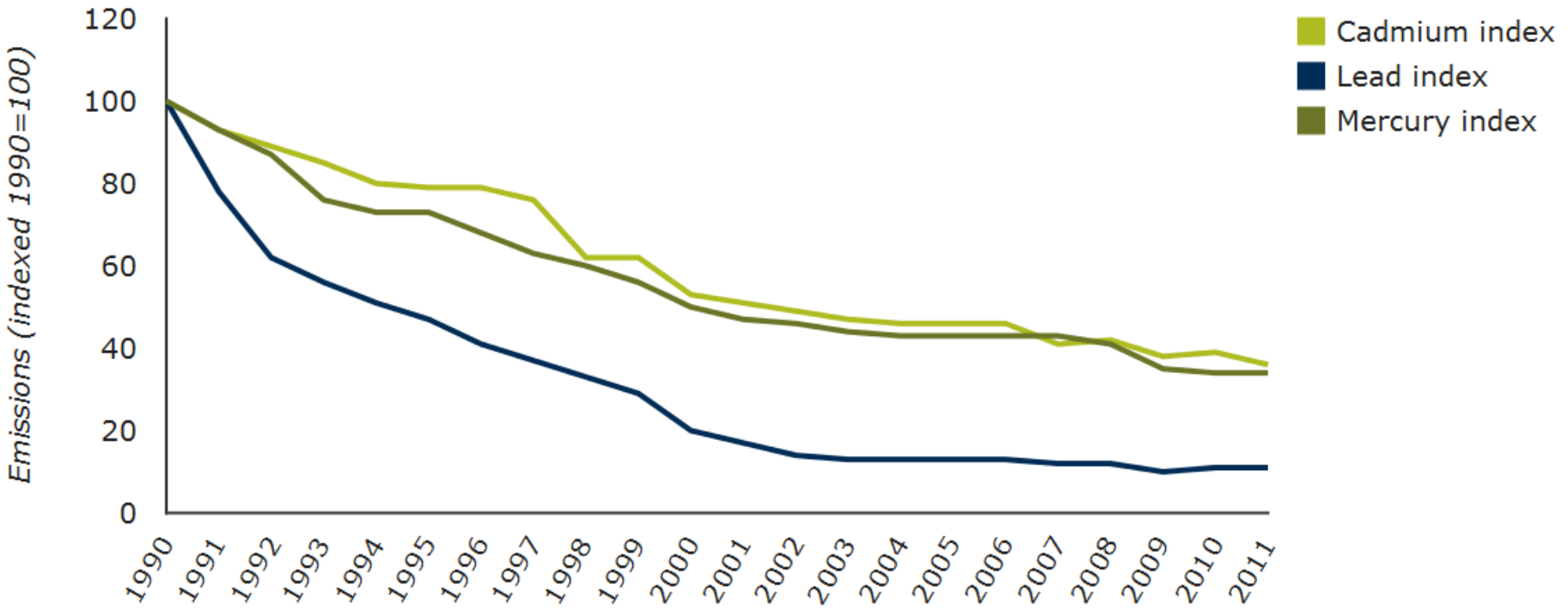


Data sources: EEA. Bathing Water Directive - Status of bathing water; EEA – Indicator WAT004

Related content

Water pollution & related envi. health risks
Air pollution & related envi. health risks
Urban systems and grey infrastructure
Climate change & related envi. health risks
Chemicals & related envi. health risks

Emission trends of heavy metals



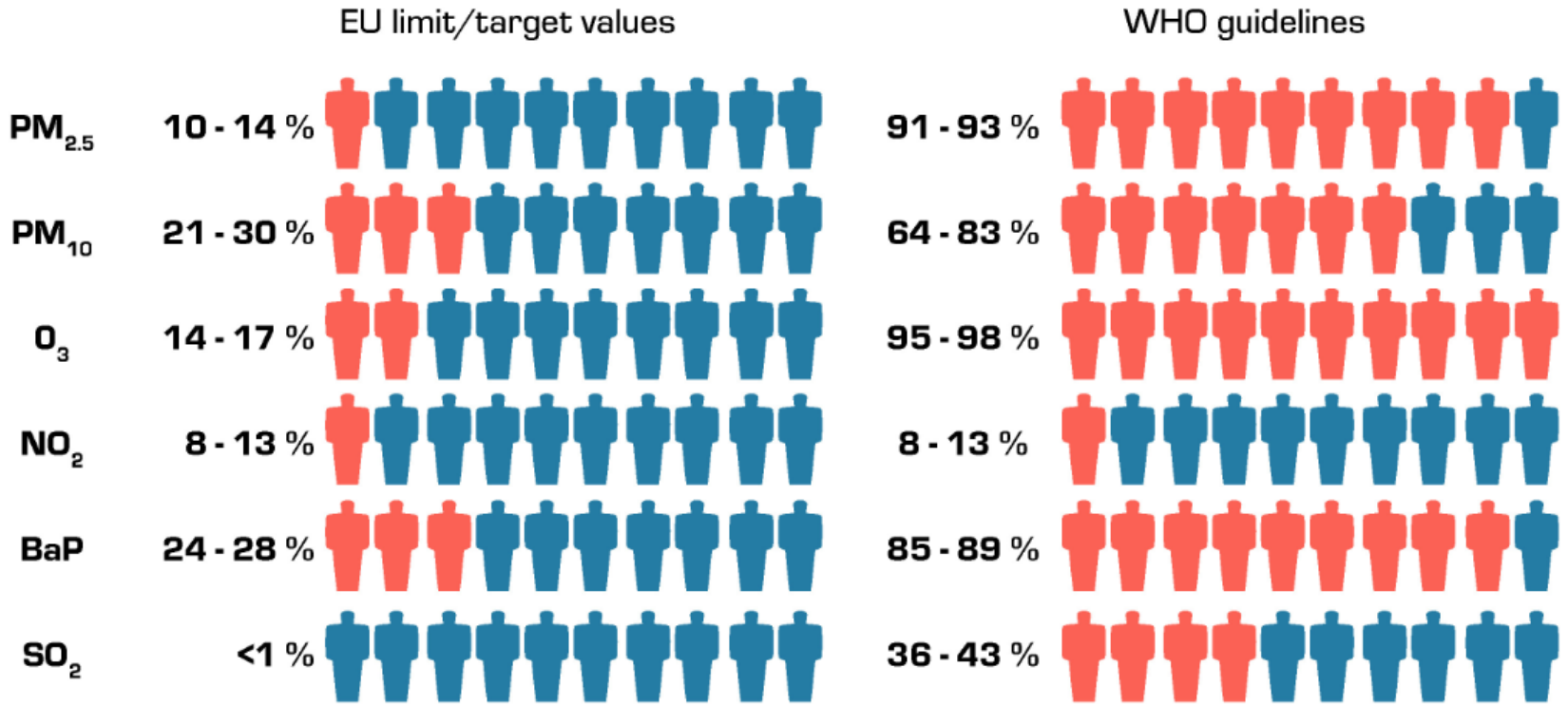
Data sources: EEA. National emissions reported to the Convention on Long-range Transboundary Air Pollution (LRTAP Convention); EEA – Indicator APE005
Note: Data for Iceland, Luxembourg and Turkey was not reported.

Related content

Water pollution & related envi. health risks | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Climate change & related envi. health risks | Chemicals & related envi. health risks

Many Europeans are still exposed to harmful levels of air pollution

EU urban population exposed to harmful levels of air pollution in 2010 - 2012, according to:

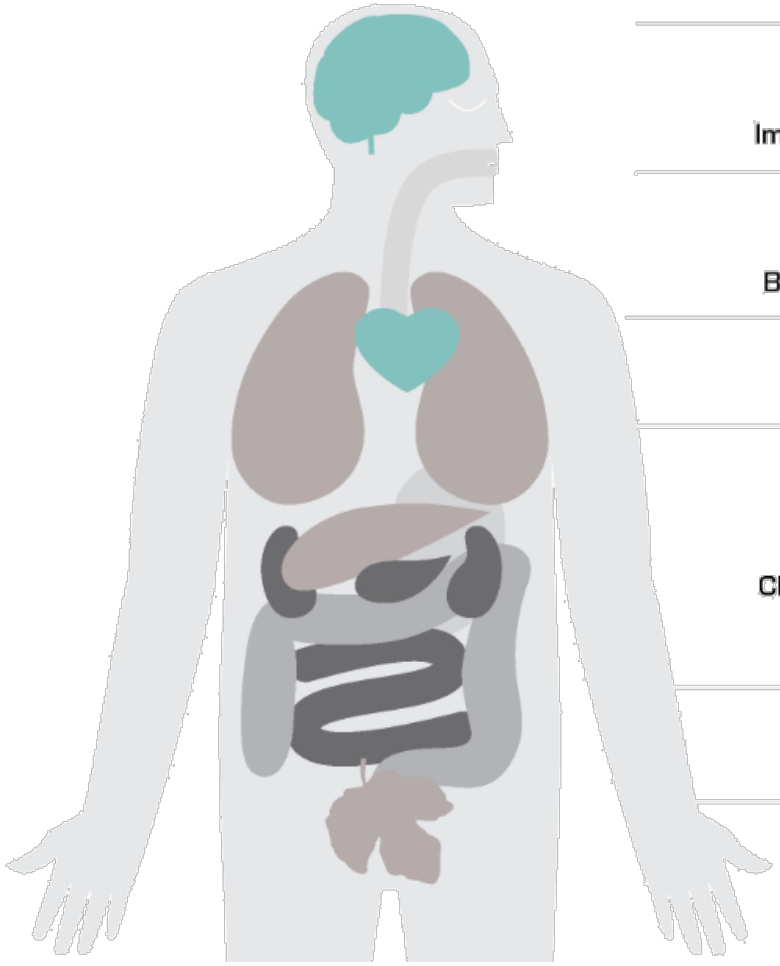


Data sources: Eurostat. Gisco - Urban Audit 2012; EEA. AirBase - The European air quality database; EEA – Indicator CSI004.
More: Air quality in Europe - 2014 report

Related content

Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Air pollution

How does air pollution impact human health?



Headache and anxiety (SO_2)
Impacts on the central nervous system (PM)

Irritation of eyes, nose and throat
Breathing problems (O_3, PM, NO_2, SO_2, BaP)

Cardiovascular diseases (PM, O_3, SO_2)

Impacts on the respiratory system:
Irritation, inflammation and infections
Asthma and reduced lung function
Chronic obstructive pulmonary disease (PM)
Lung cancer (PM, BaP)

Impacts on liver, spleen and blood (NO_2)

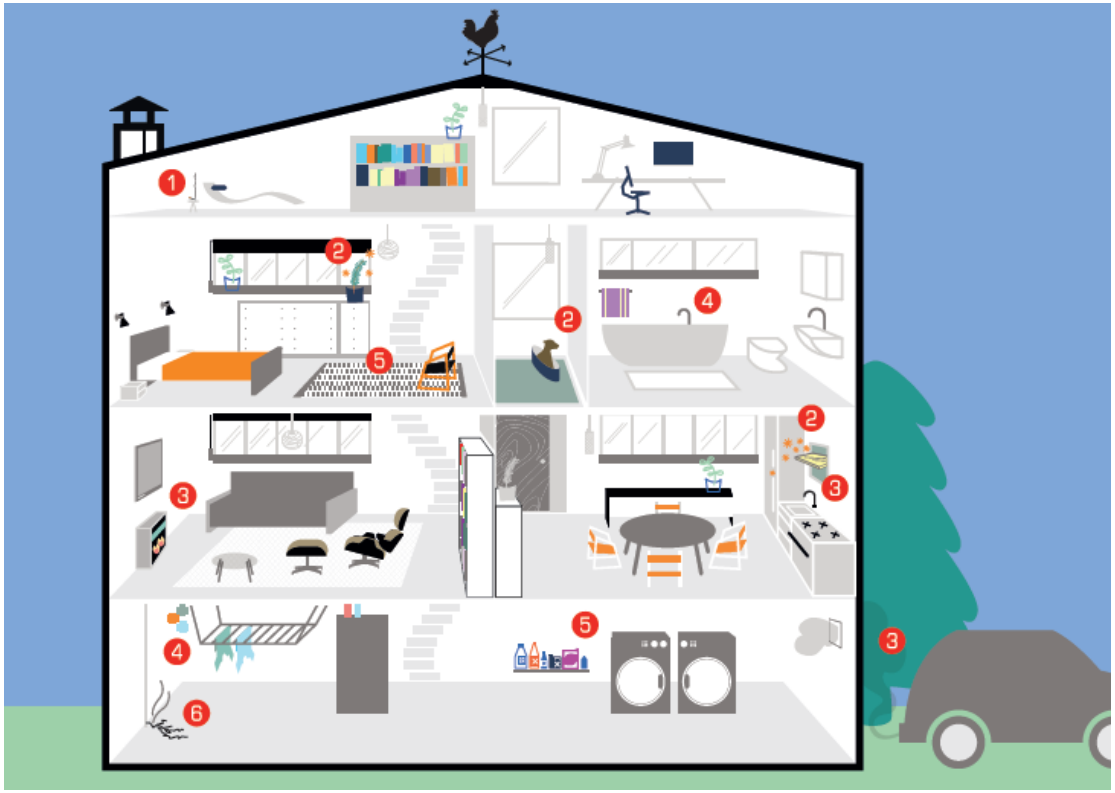
Impacts on the reproductive system (PM)

Sources: WHO. EEA Air quality in Europe – 2014 report.

Related content

Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Air pollution

Indoor air pollution



1 / Tobacco smoke
Exposure can exacerbate respiratory problems (e.g. asthma), irritate eyes and cause lung cancer, headaches, coughs and sore throats.

2 / Allergens (including pollens)
Can exacerbate respiratory problems and cause coughing, chest tightness, breathing problems, eye irritation and skin rashes.

3 / Carbon monoxide (CO) and nitrogen dioxide (NO2)
CO can be fatal in high doses and cause headaches, dizziness and nausea. NO2 can cause eye and throat irritation, shortness of breath and respiratory infection.

4 / Moisture
Hundreds of species of bacteria, fungi and moulds can grow indoors when sufficient moisture is available. Exposure can cause respiratory problems, allergies and asthma, and affect the immune system.

5 / Chemicals
Some harmful and synthetic chemicals used in cleaning products, carpets and furnishings, can damage the liver, kidneys and nervous system, cause cancer, headaches and nausea, and irritate the eyes, nose and throat.

6 / Radon
Inhalation of this radioactive gas can damage the lungs and cause lung cancer.

Sources: The European Commission, Joint Research Centre. EEA Signals 2013

Related content

Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Air pollution

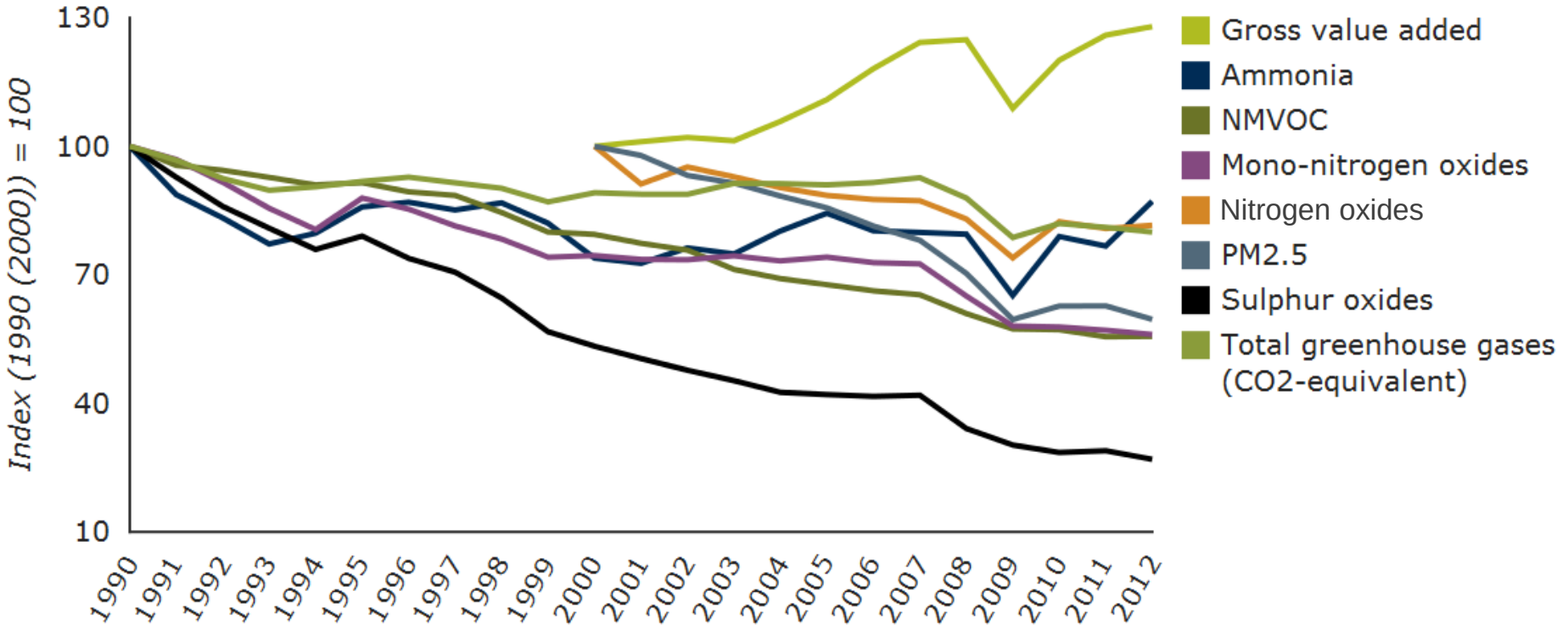
Industry

- The environmental performance of European industry has improved in recent decades.
- However, the sector is still responsible for significant amounts of pollution to air, water and soil, as well as generation of waste.
- While legislation has delivered concrete achievements in reducing pollution, a transition to a greener European industrial sector will require integrated approaches, with stronger control of pollution at source, incentives to change operating practices and use of innovative technologies.

Related content

Industrial pollution to air, soil and water

Emissions of air pollutants and greenhouse gases and gross value added (GVA) from European industry (EEA-33)



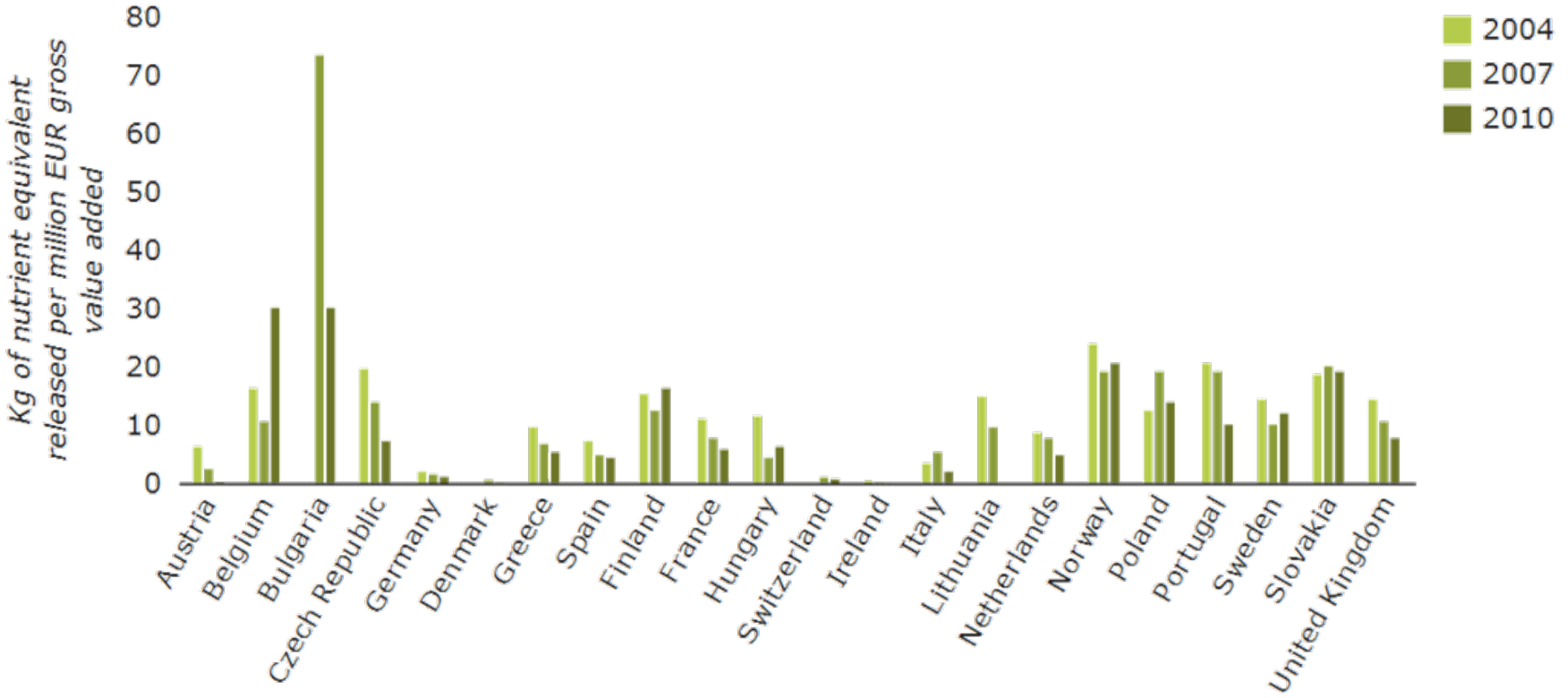
Data sources: Eurostat. National Accounts by 10 branches - aggregates at current prices; EEA. National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism
Note: Emissions included are from the energy production and distribution, energy use by industry, and industrial processes sectors. NMVOC: Non-methane volatile organic compounds; PM10: particulate matter with a diameter of 10 µm or less; PM2.5: particulate matter with a diameter of 2.5 µm or less.

Related content

Industrial pollution to air, soil and water

European Environment Agency

Nutrient releases to water – emissions intensity of manufacturing industries



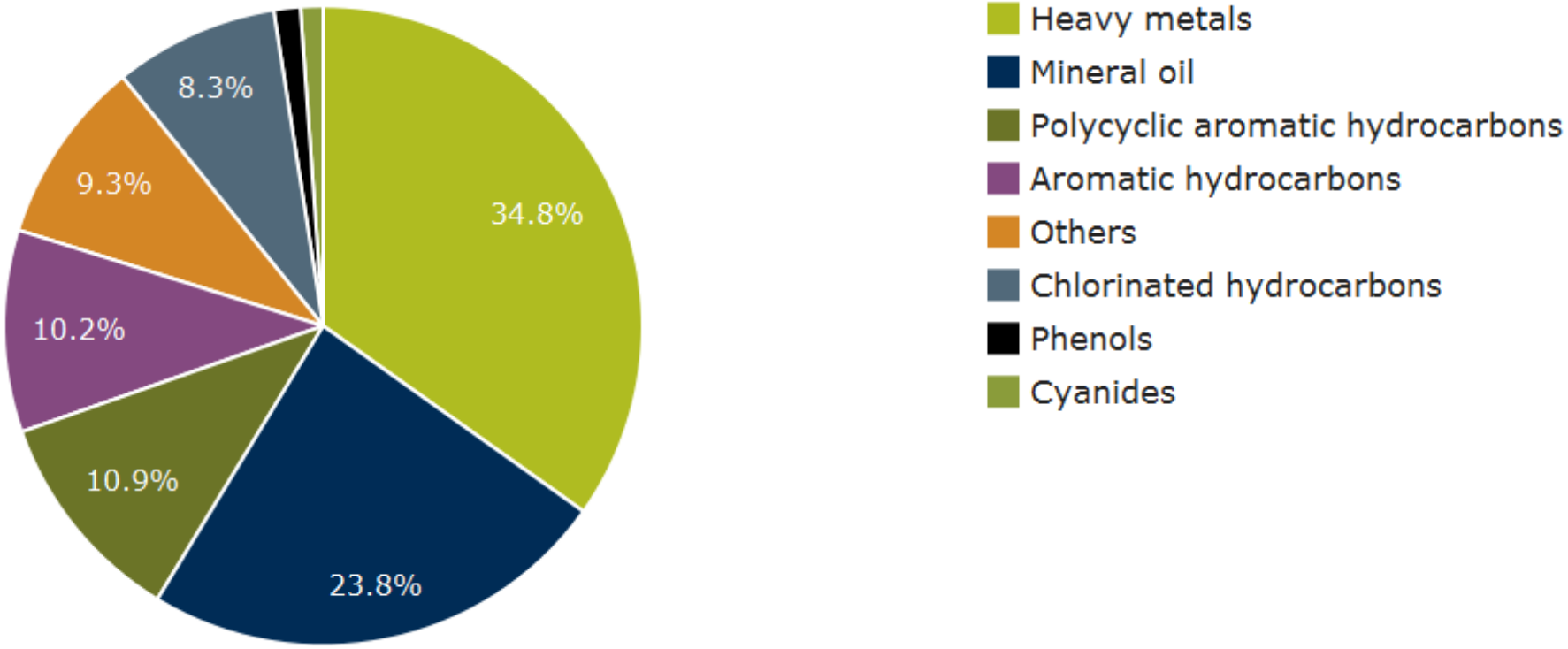
Data sources: DG ENV. The European Pollutant Release and Transfer Register (E-PRTR), Member States reporting under Article 7 of Regulation (EC) No 166/2006; Eurostat. National Accounts by 31 branches - aggregates at current prices; EEA – Indicator WREI003

Note: Emissions intensity of nitrogen and phosphorus nutrients (NACE, division 10-33). Data from food industry is not included for Norway due to discrepancy between coverage for economic data (GVA) and emissions data for facilities where main activity is intensive aquaculture.

Related content

Industrial pollution to air, soil and water

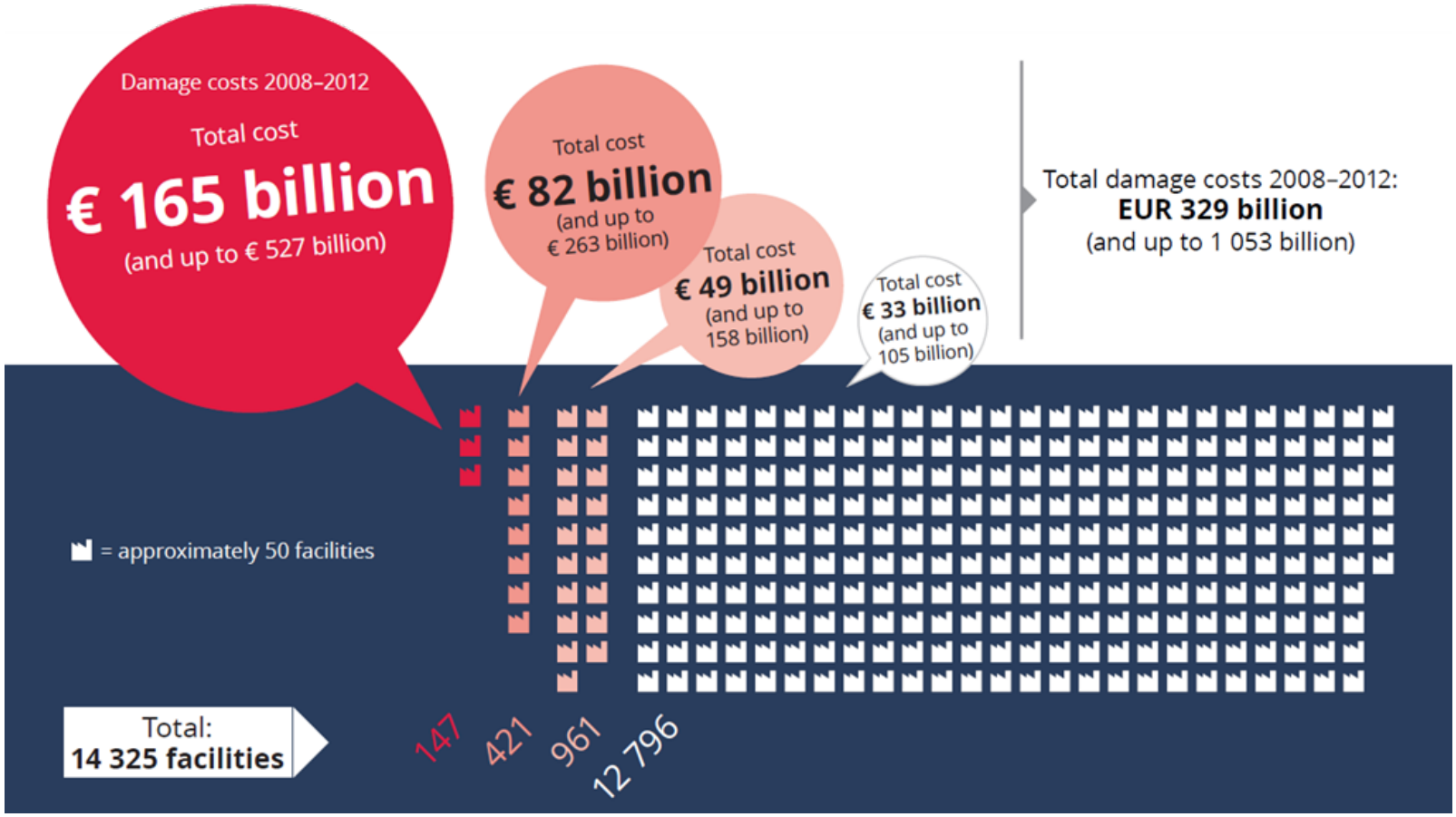
Contaminants affecting the solid matrix (soil, sludge, sediment) (2011)



Data sources: JRC. Eionet NRC Soil data collection on contaminated sites; EEA – Indicator LSI003

Related content
Industrial pollution to air, soil and water

Health and environmental costs of air pollution from industrial facilities in Europe



Note: The report does not assess whether a facility's emissions are consistent with its legal requirements to operate. The low-high range of damage cost values reflects a) the different approaches used to value health impacts from air pollution and b) the range of values used to estimate CO2 related damage costs.

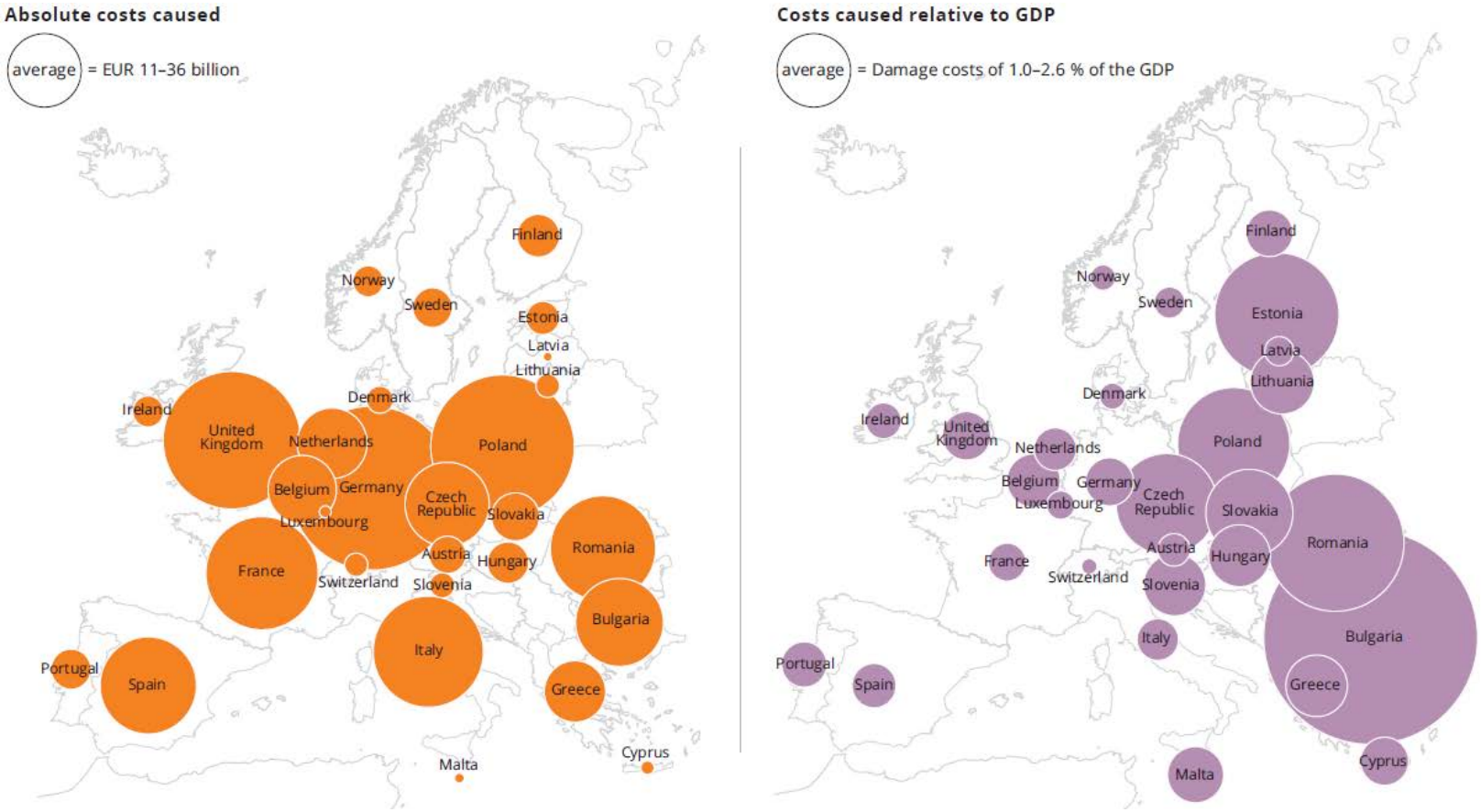
Source: EEA. Costs of air pollution from European industrial facilities 2008-2012.

Related content

Industrial pollution to air, soil and water

European Environment Agency

Air pollution damage costs caused by industrial facilities in countries (2008–2012)



Note: The report does not assess whether a facility's emissions are consistent with its legal requirements to operate. The low-high range of damage cost values reflects a) the different approaches used to value health impacts from air pollution and b) the range of values used to estimate CO2 related damage costs.

Source: EEA. Costs of air pollution from European industrial facilities 2008-2012.

Related content

Industrial pollution to air, soil and water

European Environment Agency

Maritime activities

- Exploitation of European seas and coasts is increasing as new industries emerge and traditional ones move further off-shore.
- The main pressures include: extraction of species and genetic resources, seafloor exploitation, pollution and the spread of non-indigenous species.
- In calling for an ecosystem-based approach, the EU's Blue Growth Strategy recognises the balance that must be achieved between 'use' of the sea and achieving the objective of 'good environmental status' by 2020.

Related content

Marine and coastal biodiversity

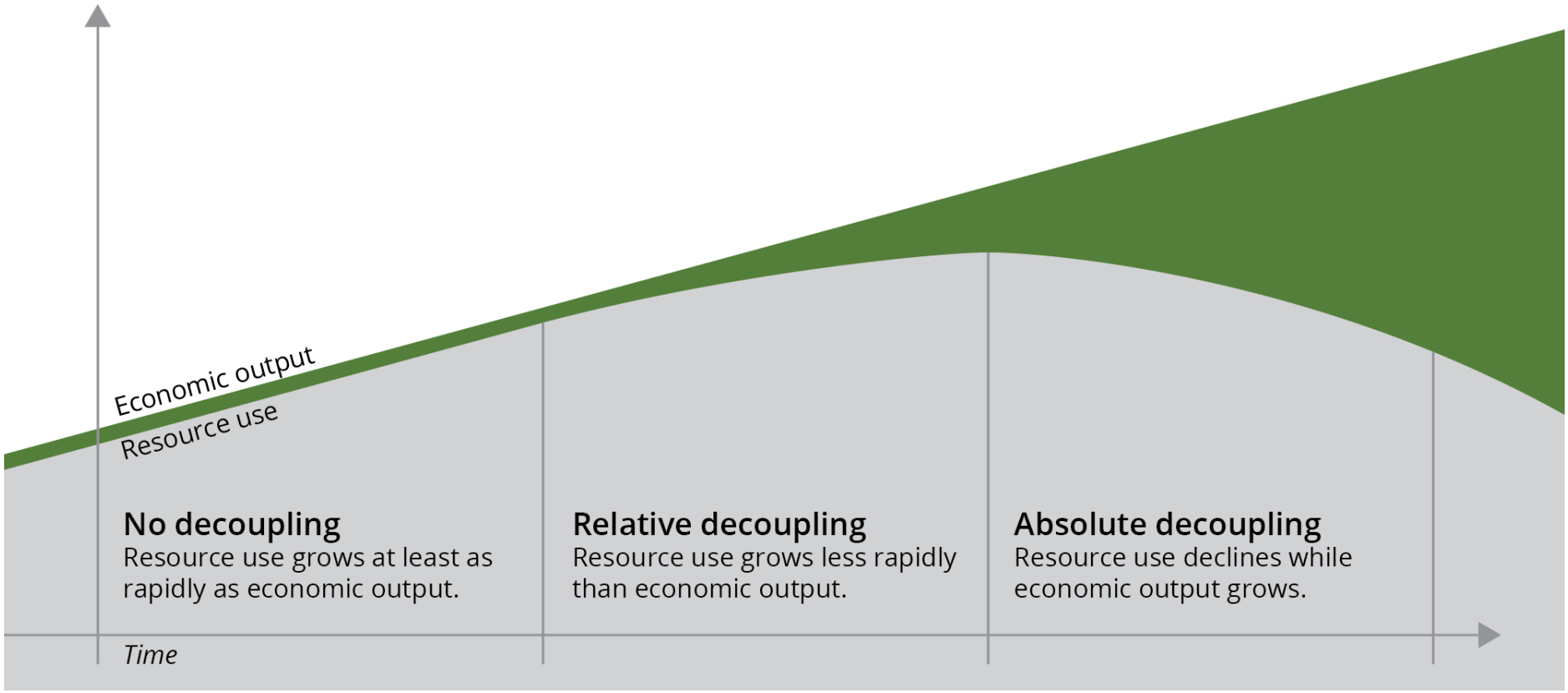
Resource efficiency

- EU-28 domestic material consumption declined by 10 % between 2000 and 2012, despite a 16 % increase in economic output.
- Environmental pressures such as waste generation and harmful emissions were also reduced. Policies have contributed to this decoupling but Europe's economic downturn since 2008 also played a role.
- Achieving sustained reductions in environmental pressures will require coherent policy approaches aimed at fundamentally transforming Europe's systems of production and consumption.

Related content

Material resource efficiency & use | Waste management | Urban systems and grey infrastructure | Resource efficiency

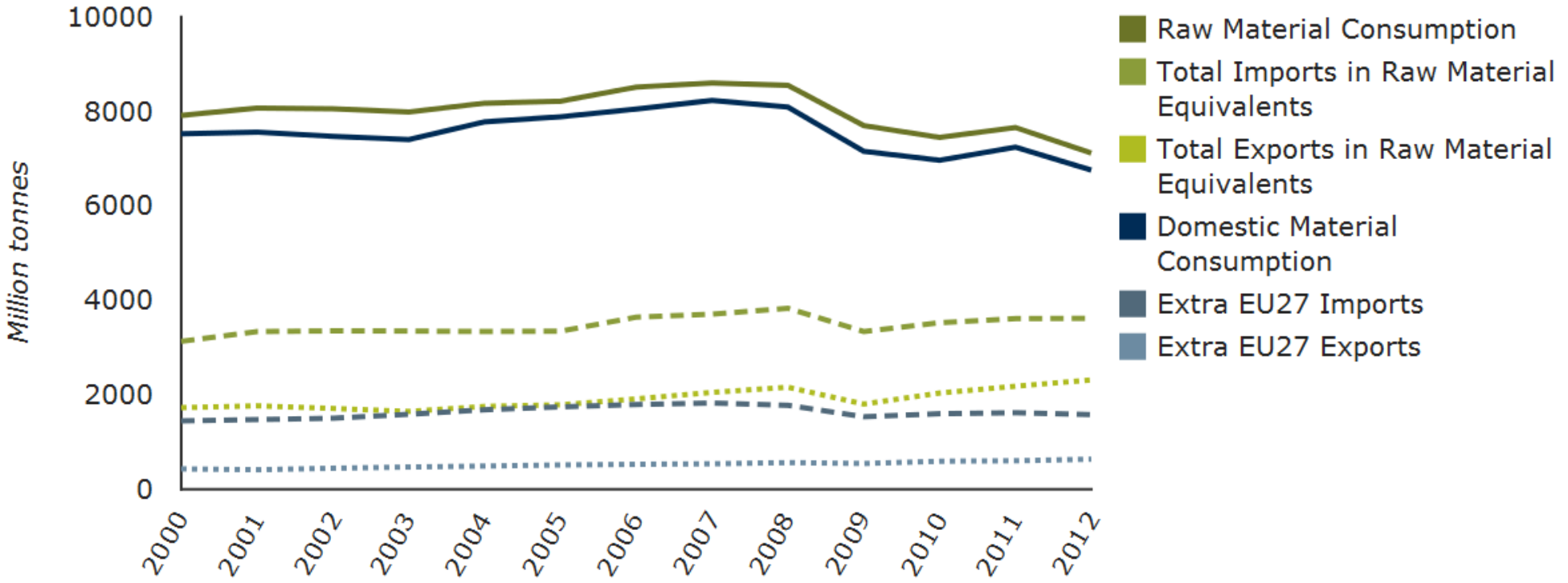
Decoupling demystified



Source: EEA.

Related content
Material resource efficiency & use
Waste management
Urban systems and grey infrastructure
Resource efficiency

EU-27 domestic and raw material consumption



Data sources: Eurostat. Material flow accounts; Eurostat. Material flow accounts in raw material equivalents - modelling estimate
Note: RMC data are only available for the EU-27. For comparability, the DMC data in this figure covers the same countries.

Related content

Material resource efficiency & use | Waste management | Urban systems and grey infrastructure | Resource efficiency

How can we make our economy circular and resource efficient?

Source: EEA Signals 2014

Related content

Material resource efficiency & use

Waste management

Urban systems and grey infrastructure

Resource efficiency

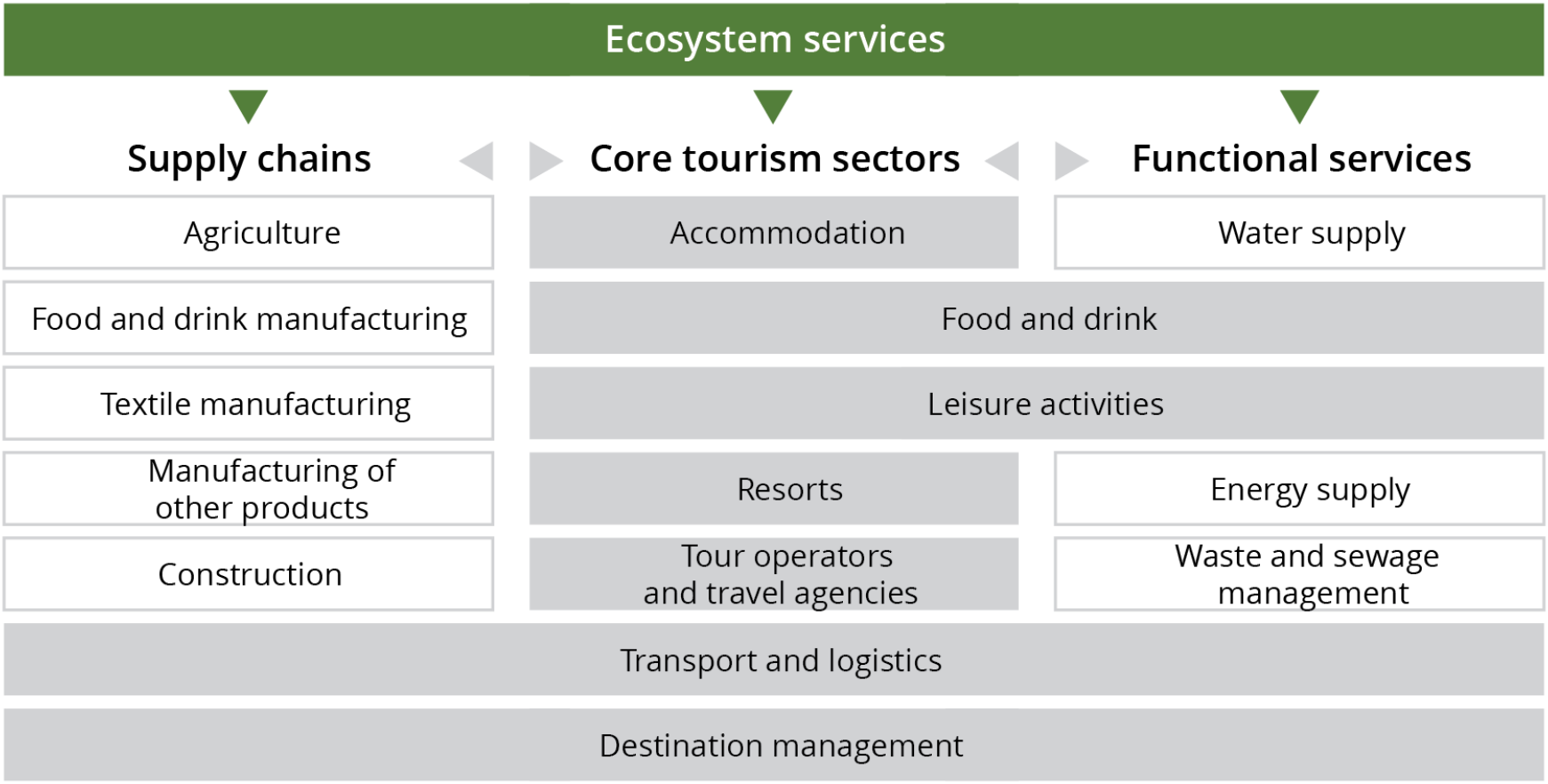
Tourism

- Largely due to its natural attractiveness Europe is the world's primary tourism destination and tourism generates 10 % of EU GDP.
- New types of tourism and increased frequency of holidays have serious environmental impacts at regional and local level.
- A damaged environment could undermine tourism in the future.
- Responses to sustainability challenges are dispersed across EU legislation and policies, while the evidence base to track progress is still fragmented.

Related content

Climate change impacts on ecosystems | Biodiversity | Agriculture | Transport | Energy

Components of the tourism system



Source: EEA

Related content

Climate change impacts on ecosystems | Biodiversity | Agriculture | Transport | Energy

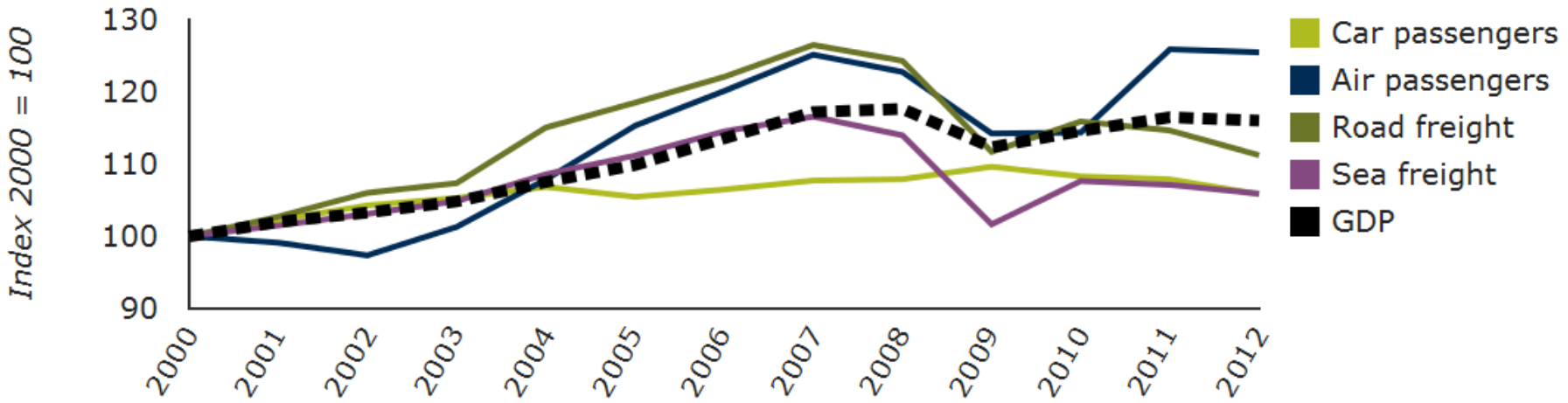
Transport

- The economic recession led to reduced pollutant emissions by lowering transport demand.
- Transport is still responsible for 25 % of EU greenhouse gas emissions, and contributes significantly to air pollution, noise and habitat fragmentation.
- While progress has been made in meeting certain policy objectives, including efficiency and short-term greenhouse gas reduction targets, major challenges remain toward meeting longer term objectives.
- The European Commission's target of a 60 % reduction in greenhouse gas emissions by 2050 will require significant additional measures.

Related content

Transport demand & envi. impacts | Noise pollution | Urban systems and grey infrastructure | Transport

EU transport demand by mode compared with GDP

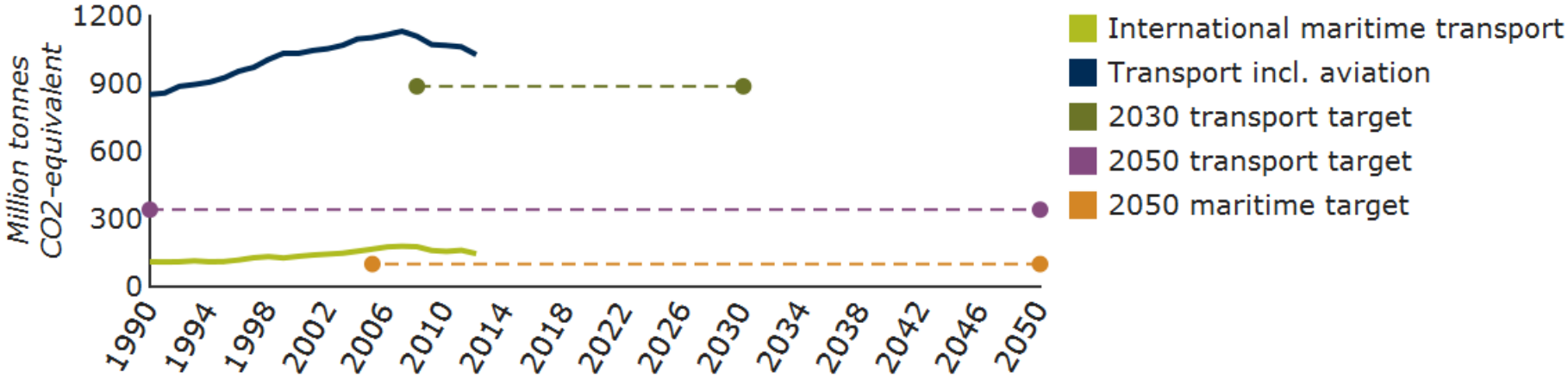


Data sources: Eurostat. GDP and main components – volumes; DG Mobility and Transport. Performance of passenger and freight transport

Related content

Transport demand & envi. impacts | Noise pollution | Urban systems and grey infrastructure | Transport

EU transport emissions of greenhouse gases



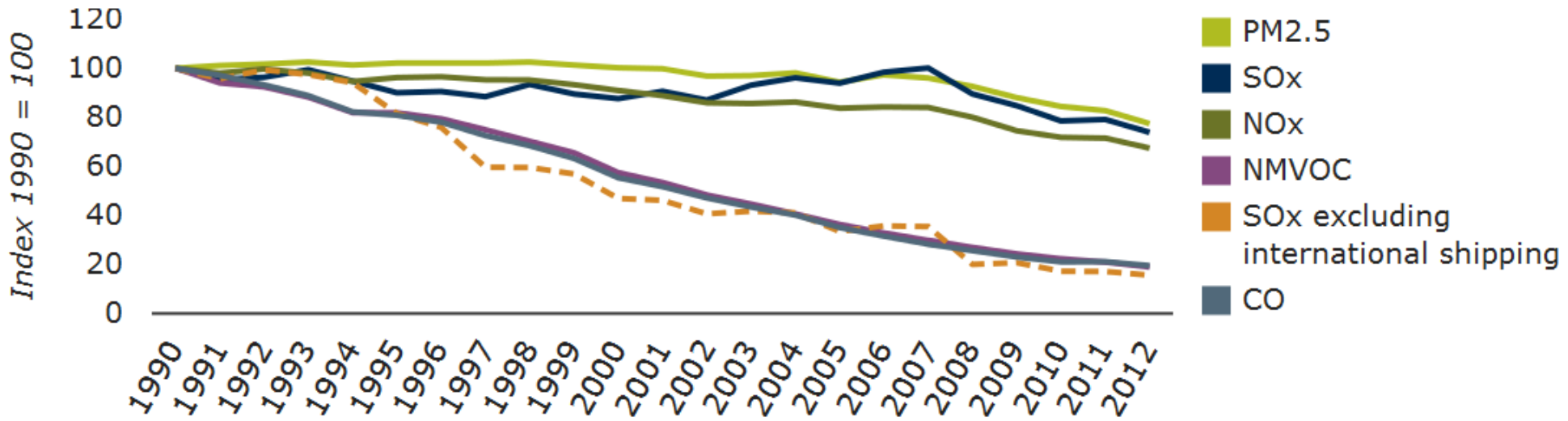
Data sources: EEA. National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism; EEA – Indicator TERM002

Notes: 2030 transport target: 20% transport GHG reduction on 2008, 2050 transport target: 60% transport GHG reduction on 1990, 2050 maritime target: 40% maritime GHG reduction on 2005. Overall transport GHG emissions, including aviation but excluding international maritime, are represented by a blue line. International maritime transport GHG emissions are shown in green.

Related content

Transport demand & envi. impacts | Noise pollution | Urban systems and grey infrastructure | Transport

Trend in emissions of air pollutants from transport (EEA-33)

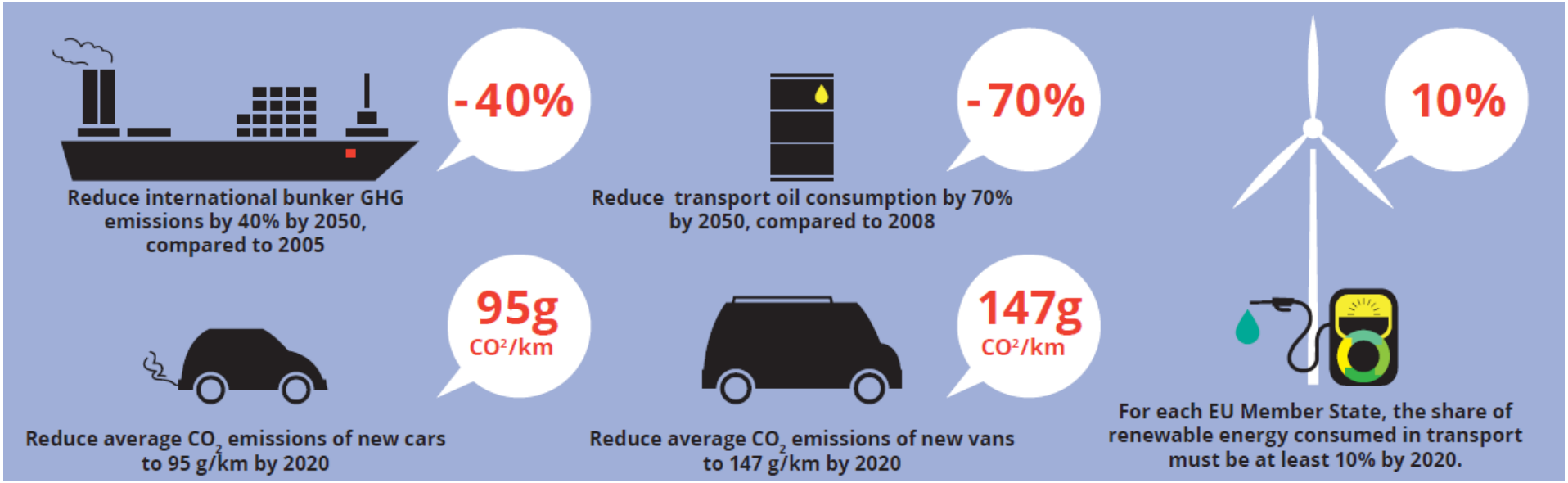


Data sources: EEA. National emissions reported to the Convention on Long-range Transboundary Air Pollution (LRTAP Convention); EEA – Indicator TERM003 Note: PM2.5: particulate matter with aerodynamic diameter of 2.5 µm or less. NMVOC: non-methane volatile organic compounds; SOX: sulphur oxides. NOX: nitrogen oxides. CO: carbon monoxide.

Related content

Transport demand & envi. impacts | Noise pollution | Urban systems and grey infrastructure | Transport

Reducing environmental impacts of transport



Source: TERM 2014 report

Related content
Transport demand & envi. impacts | Noise pollution | Urban systems and grey infrastructure | Transport

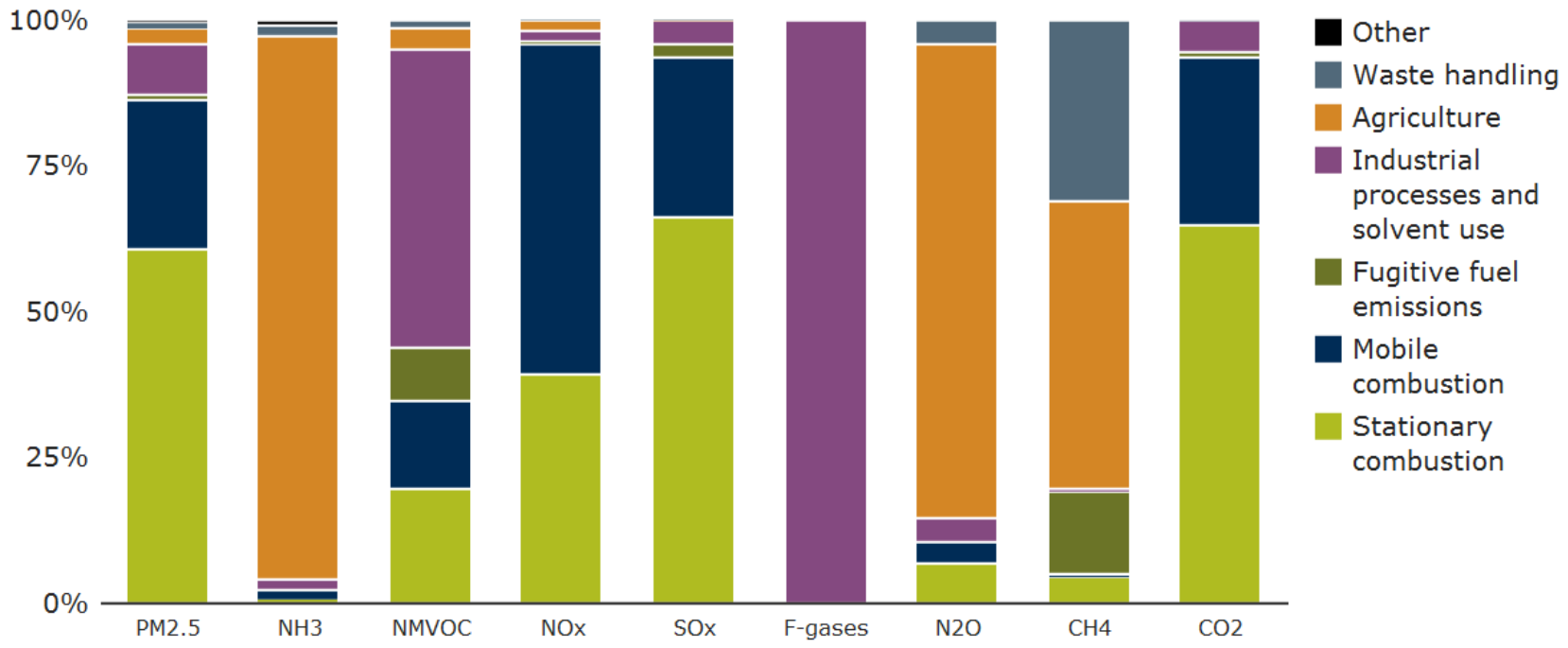
The air and climate system

- Scientific understanding of the interaction between air pollution and climate change has improved over the last two decades.
- In particular, there has been a greater realisation that some air pollutants also act as short-term drivers of global warming.
- Although air pollutants and greenhouse gases often come from the same sources, international agreements generally treat them separately.
- One way that European policy seeks to connect climate and air quality policies is through the inclusion of methane and black carbon (short-lived climate pollutants) in the proposed EU Clean Air Policy Package.

Related content

Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | GHG emissions & CC mitigation | Air pollution & related envi. health risks | Air pollution

Contribution of anthropogenic sources to total emissions of selected air pollutants and greenhouse gases in the EU-28, 2012

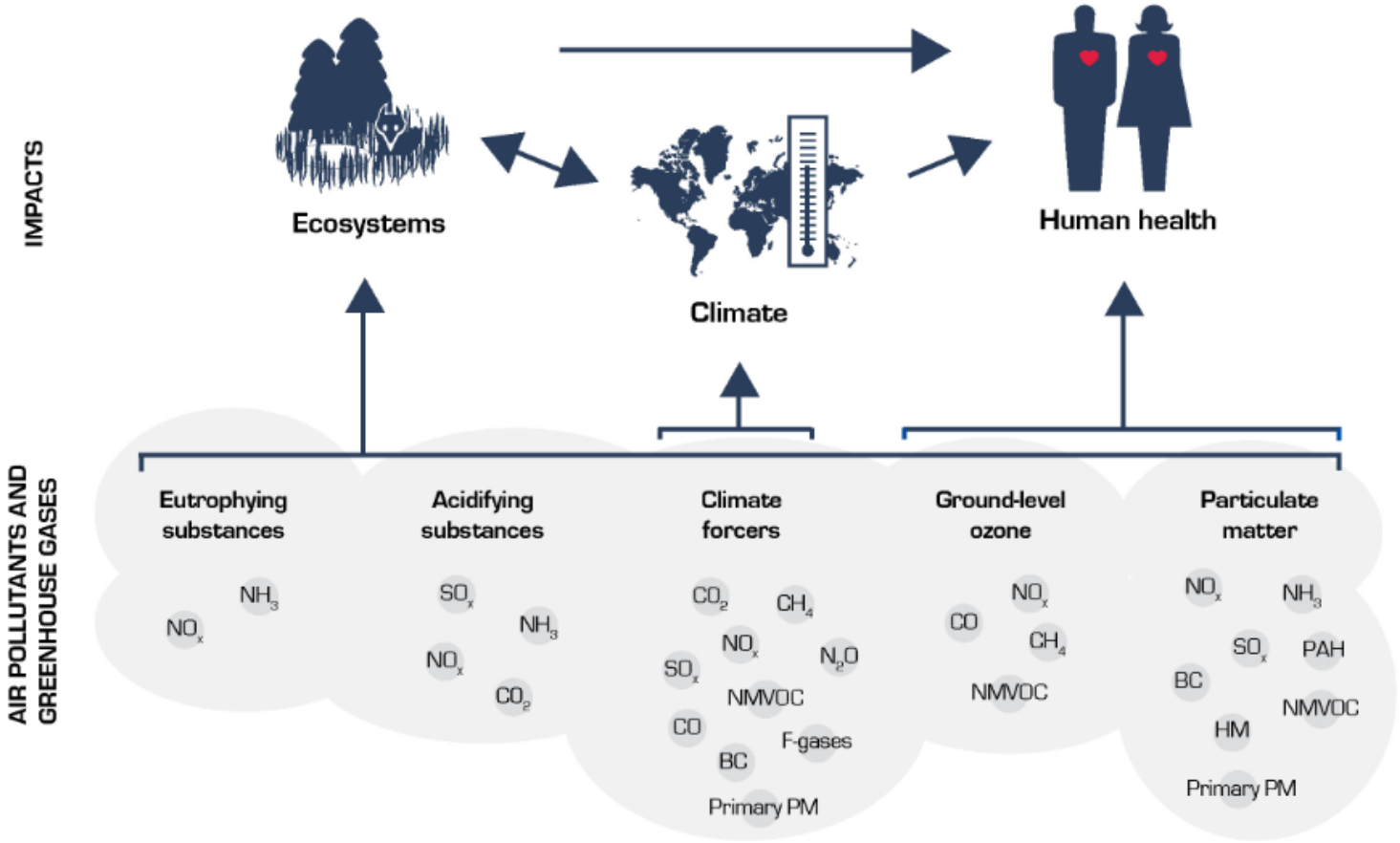


Data sources: EEA. National emissions reported to the Convention on Long-range Transboundary Air Pollution (LRTAP Convention); EEA. National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism Note: PM2.5: particulate matter with a diameter of 2.5 µm or less; NMVOC: non-methane volatile organic compounds; F-gases: fluorinated gases.

Related content

Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | GHG emissions & CC mitigation | Air pollution & related envi. health risks | Air pollution

Impacts of air pollutants and greenhouse gases



Source: Air quality in Europe – 2014 report

Related content

Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | GHG emissions & CC mitigation | Air pollution & related envi. health risks | Air pollution

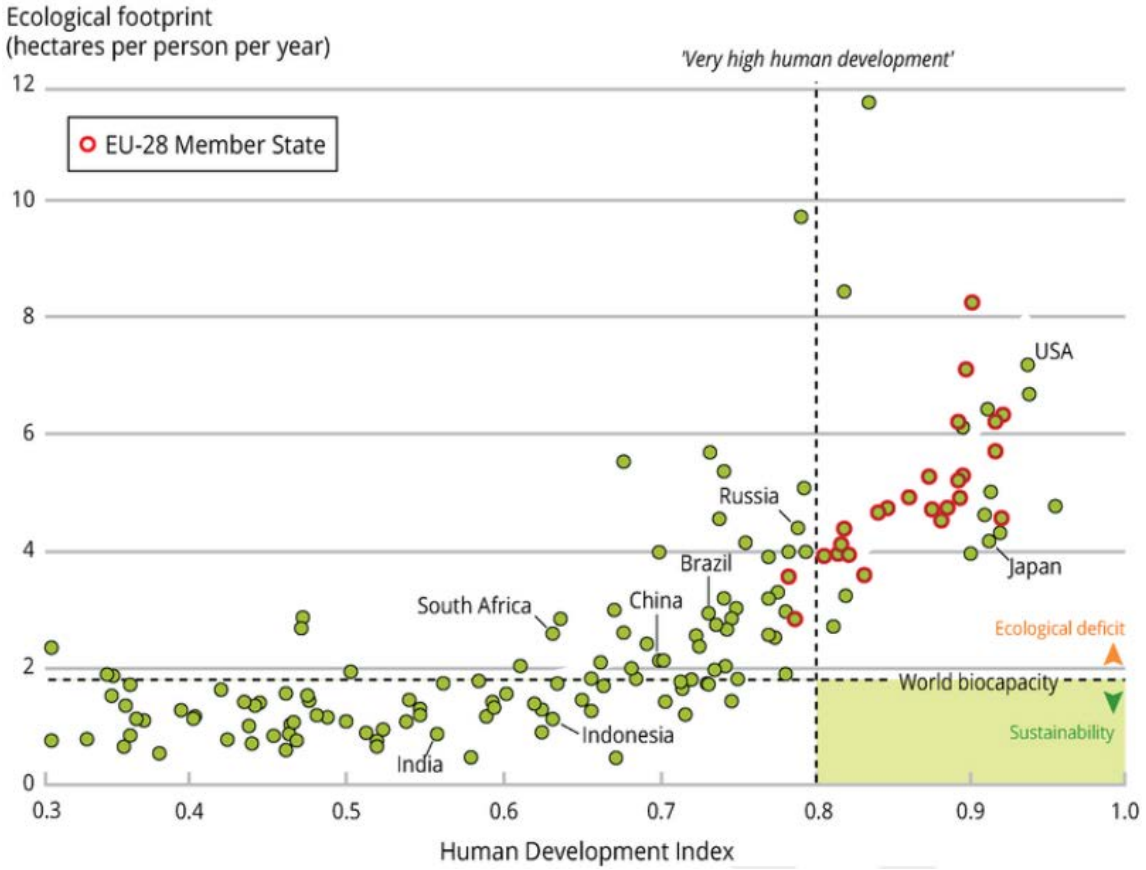
Green economy

- Europe's resource efficiency has improved in recent years but this has not always translated into improved ecosystem resilience or reduced risks to health and well-being.
- Creating a green economy will require fundamental changes in the production-consumption systems that meet basic demands, such as for food, mobility, energy and housing.
- This will depend on better implementation and integration of environmental and economic policies, a broader knowledge base for long-term transitions, and use of finance and fiscal policies to support major investments in innovation and infrastructure.

Related content

Material resource efficiency & use | Waste management | Waste | Resource efficiency

Correlation of ecological footprint (2008) and the human development index (2012)

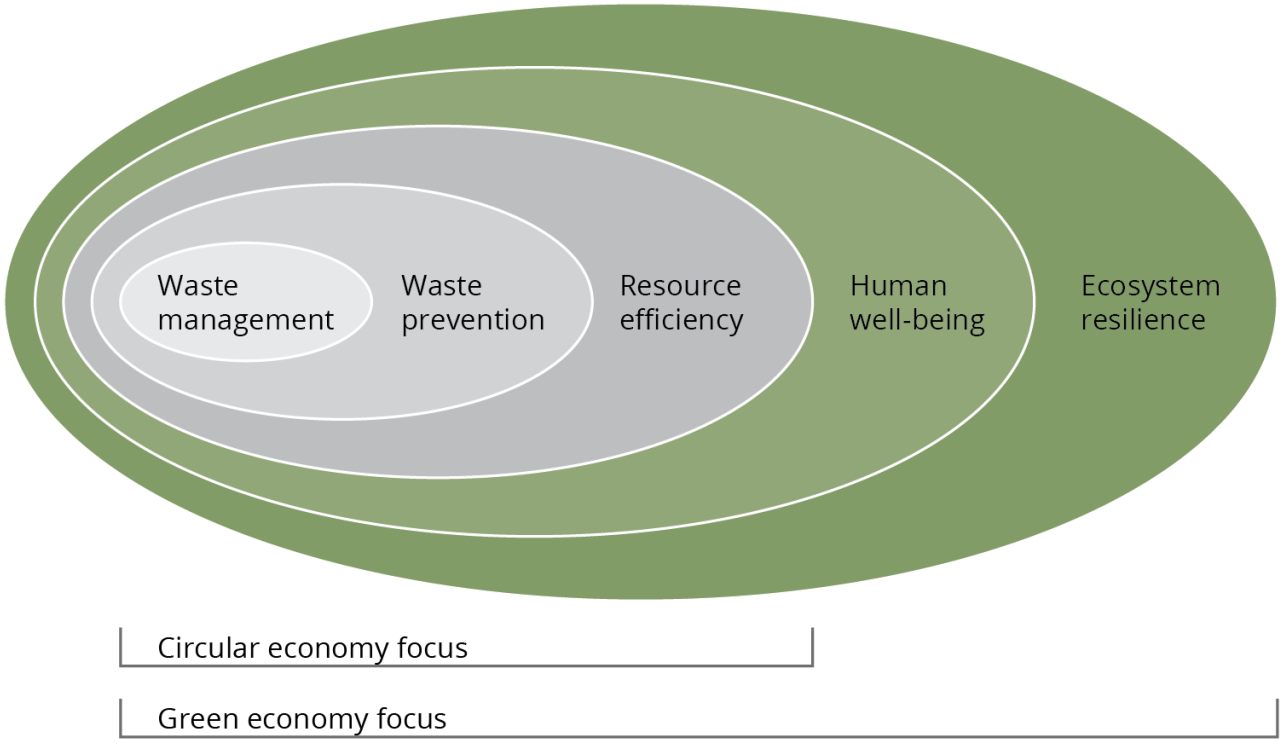


Source: National footprint accounts 2008, Human Development Index (HDI). Note: The Human Development Index is calculated based on indicators of life expectancy at birth, education and per capita income. It is expressed as a value between 0 and 1, from least to most developed countries. The Ecological Footprint quantifies the area of land that a population needs (per capita) to produce the resources it consumes and to absorb its waste. World biocapacity is the global productive area available (per capita) on Earth.

Related content

Material resource efficiency & use | Waste management | Waste | Resource efficiency

The green economy as an integrating framework for policies on material use



Source: EEA.

Related content
Material resource efficiency & use
Waste management
Waste
Resource efficiency

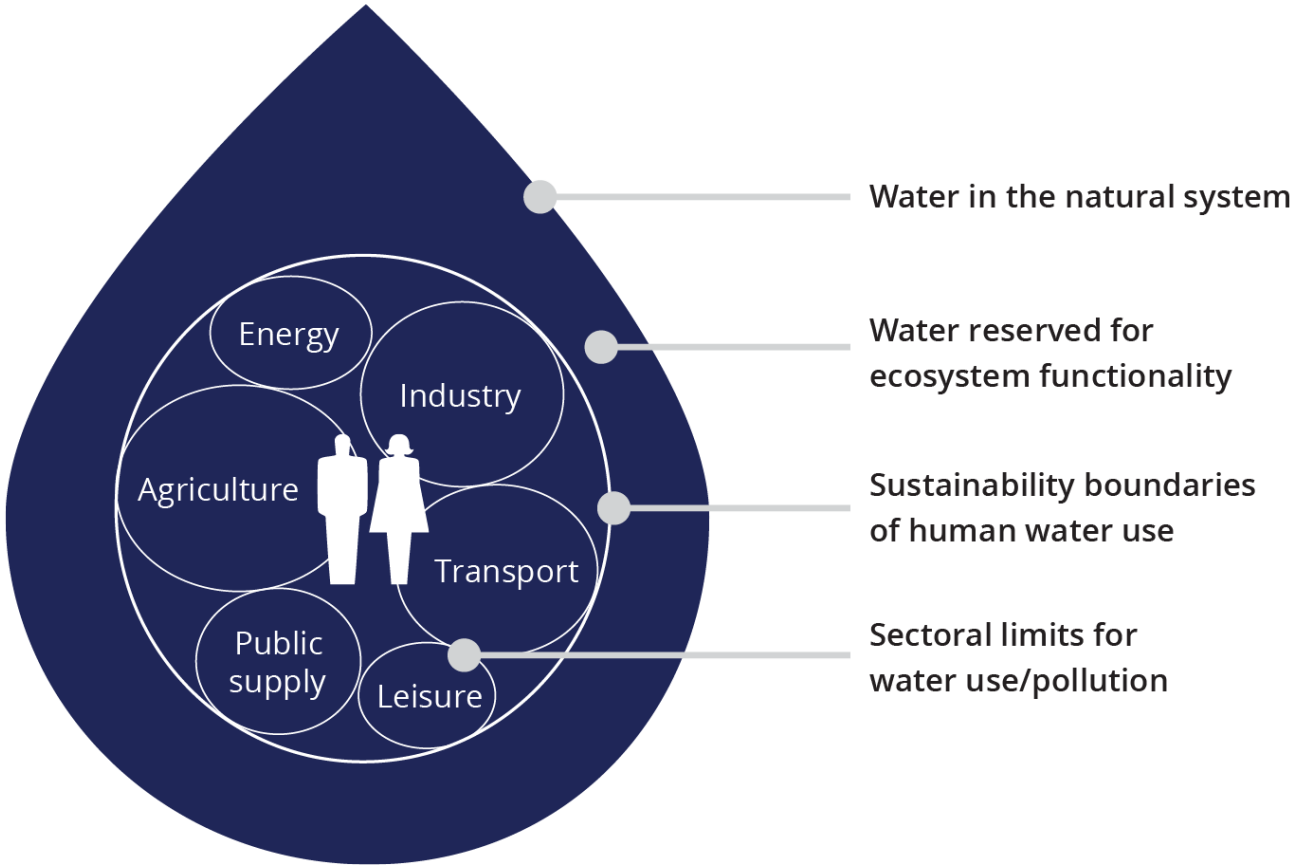
Hydrological systems and sustainable water management

- Intensive agriculture, urbanisation, energy production and flood protection have altered European hydrological systems and freshwater habitats for decades.
- Climate change adds to these challenges (higher water temperature, more floods or water scarcity).
- Less than half of all water bodies have a ‘good status’.
- Full and coordinated implementation of water and nature legislation would restore aquatic habitats and foster water efficiency.

Related content

Ecol. status of freshwater bodies | Water quality and nutrient loading | Water use and water stress

Sustainable water allocations to ecosystems and competing users



Source: EEA.

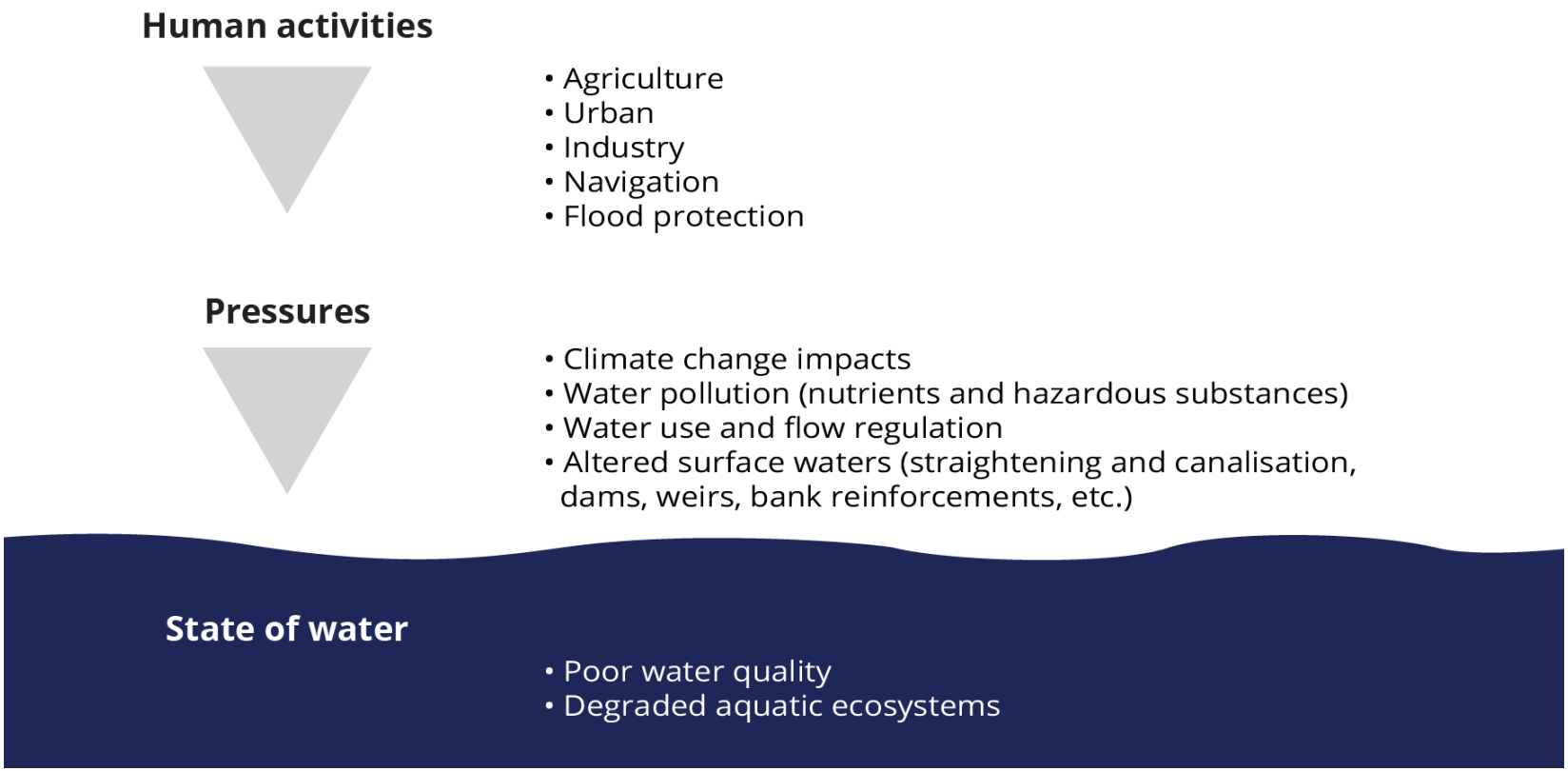
Related content

Ecol. status of freshwater bodies

Water quality and nutrient loading

Water use and water stress

Relationship between driving forces, pressures and the state of water



Source: EEA.

Related content

Ecol. status of freshwater bodies

Water quality and nutrient loading

Water use and water stress

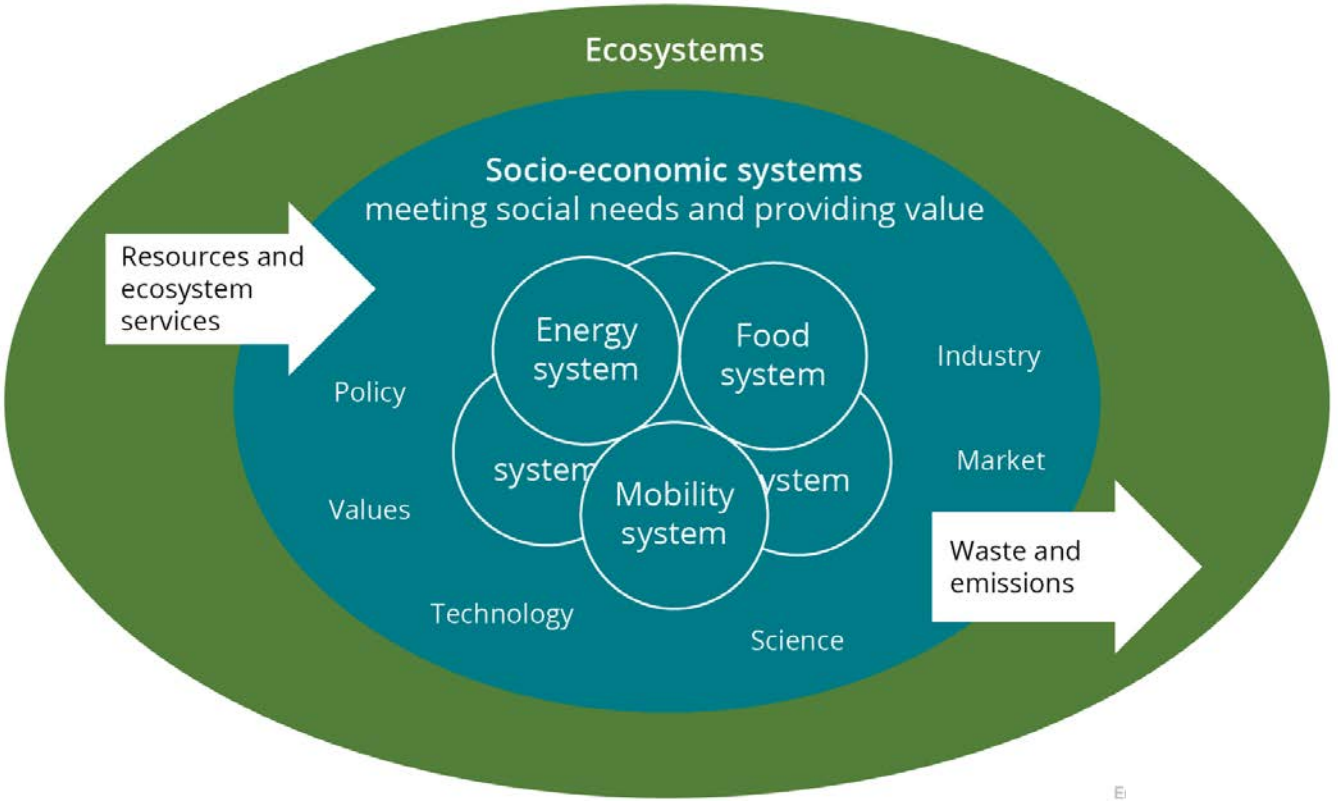
Natural capital and ecosystem services

- Europe's natural capital is under growing cumulative pressure from intensive agriculture, fisheries and forestry, and urban sprawl.
- A substantial volume of relevant EU legislation already exists but lacks adequate integration to sectoral policies.
- Mismanagement of natural capital also persists because its full value is not reflected in socio-economic policies and choices despite its fundamental importance for society's welfare.
- Sustained efforts are needed globally to integrate it into national accounts.

Related content

Terrestrial and freshwater biodiversity | Climate change impacts on ecosystems | Agriculture | Biodiversity

Ecosystems underpin socio-economic systems of production and consumption



Source: based on EEA Multiannual Work Programme 2014–2018

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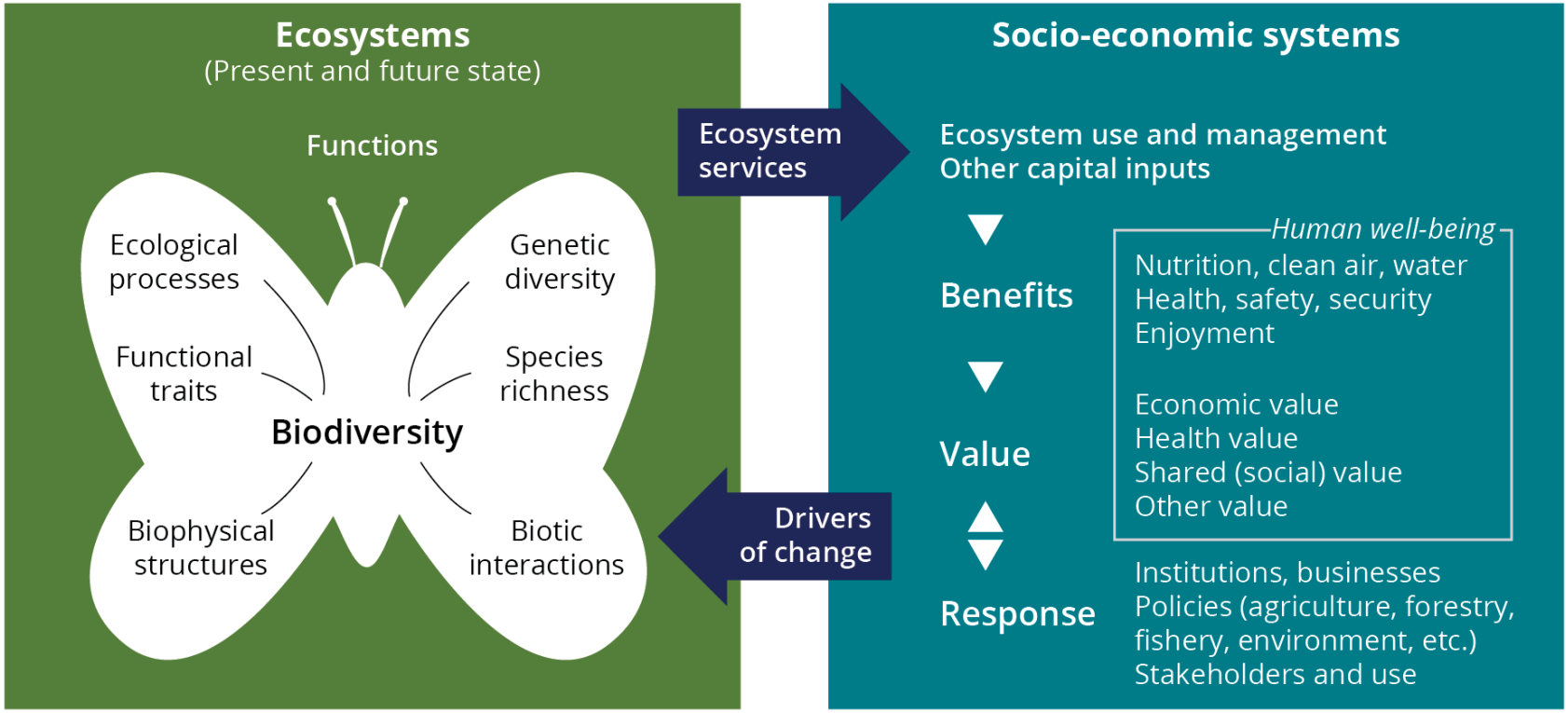
Climate change impacts on ecosystems
Energy consumption & fossil fuel use
Agriculture
Biodiversity
Energy
Transport

Conceptual framework for ecosystem assessments



Source: Source: Maes et al., 2013.

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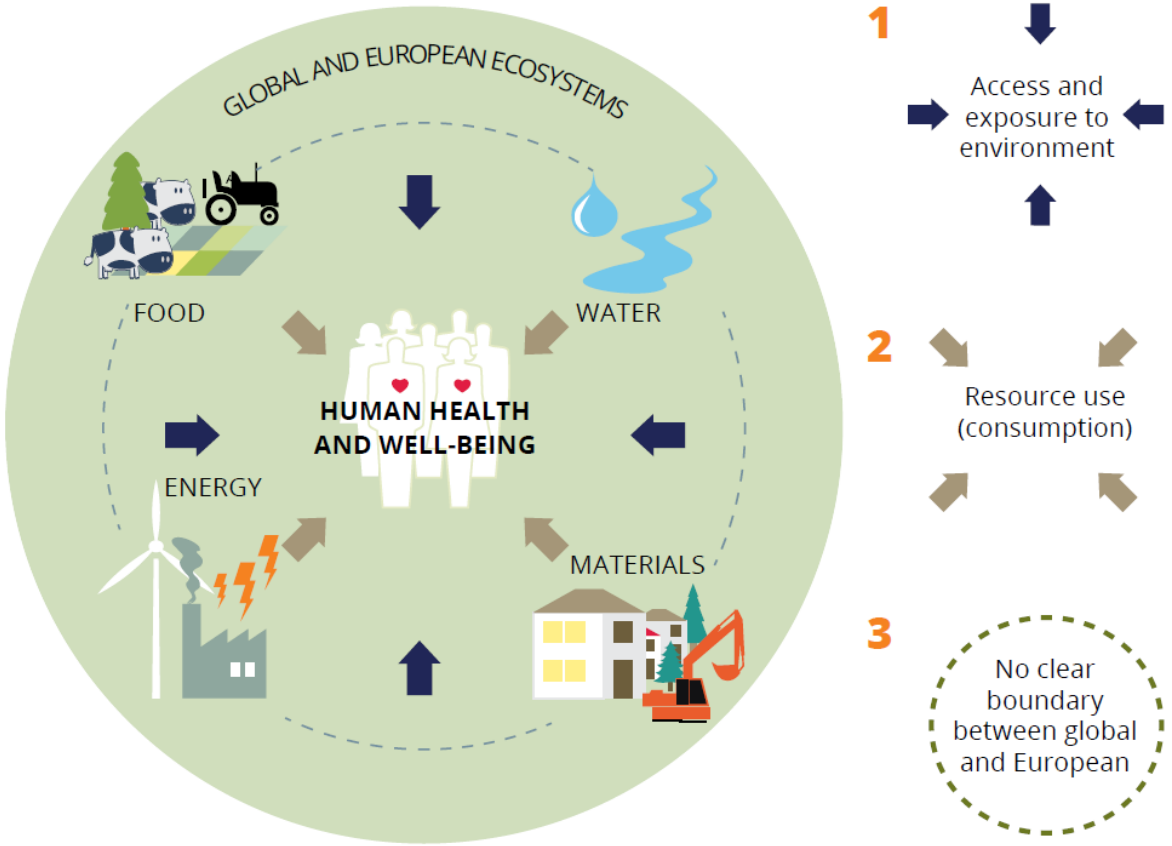
Terrestrial and freshwater biodiversity | Climate change impacts on ecosystems | Energy consumption & fossil fuel use | Agriculture | Biodiversity | Energy | Transport

Three systemic characteristics of environmental challenges



Source: EEA Signals 2014.

Related content

Terrestrial and freshwater biodiversity | Climate change impacts on ecosystems | Energy consumption & fossil fuel use | Agriculture | Biodiversity | Energy | Transport

Urban systems

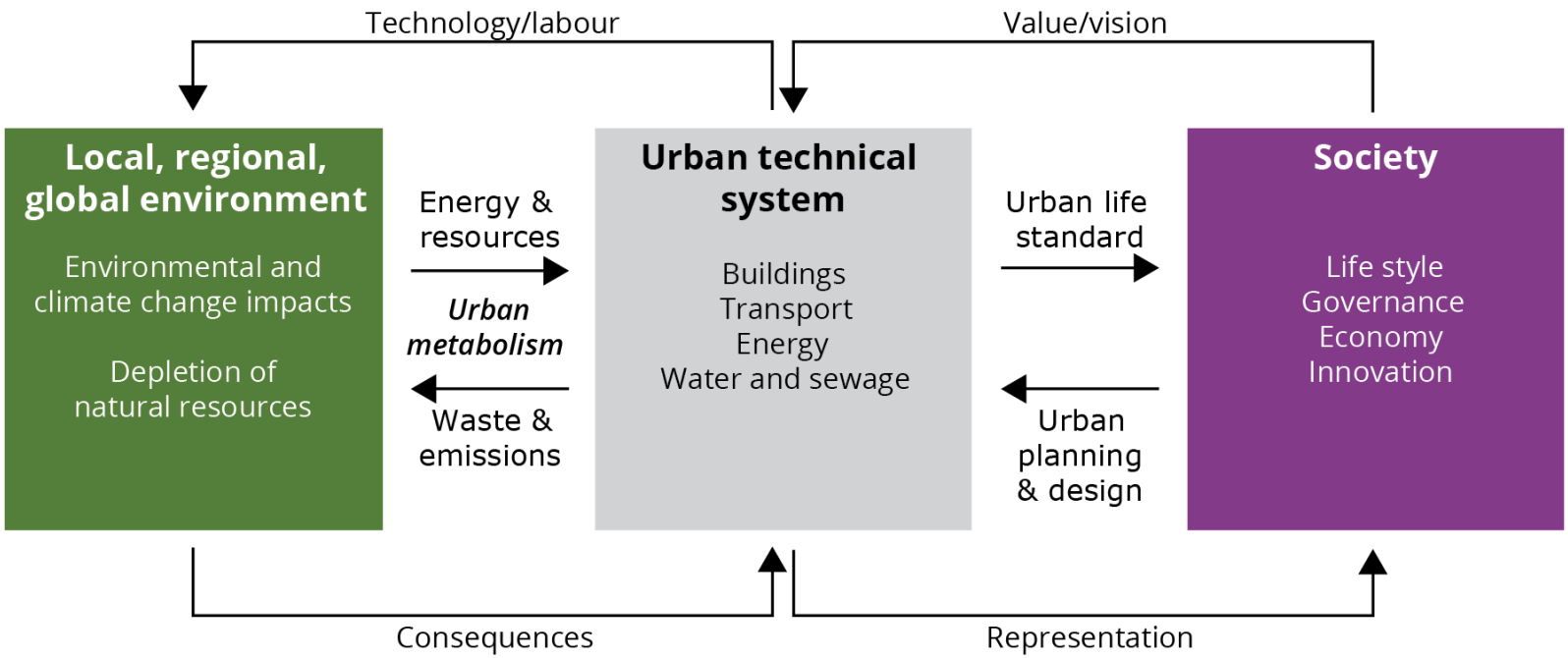
- 75 % of Europeans — and more in the future — live in or around cities. The quality of life therein depends much on the environmental conditions. Insufficiently managed urbanisation leads to an increase in ‘land take’, soil sealing, fragmentation of habitats and health-related issues.
- European cities are dense but are becoming less so, urban sprawl thus continues.
- The role of cities is critical to achieving Europe’s objectives for a low carbon, resource-efficient and ecosystems resilient society.

Related content

Noise pollution

Urban systems and grey infrastructure

The urban system



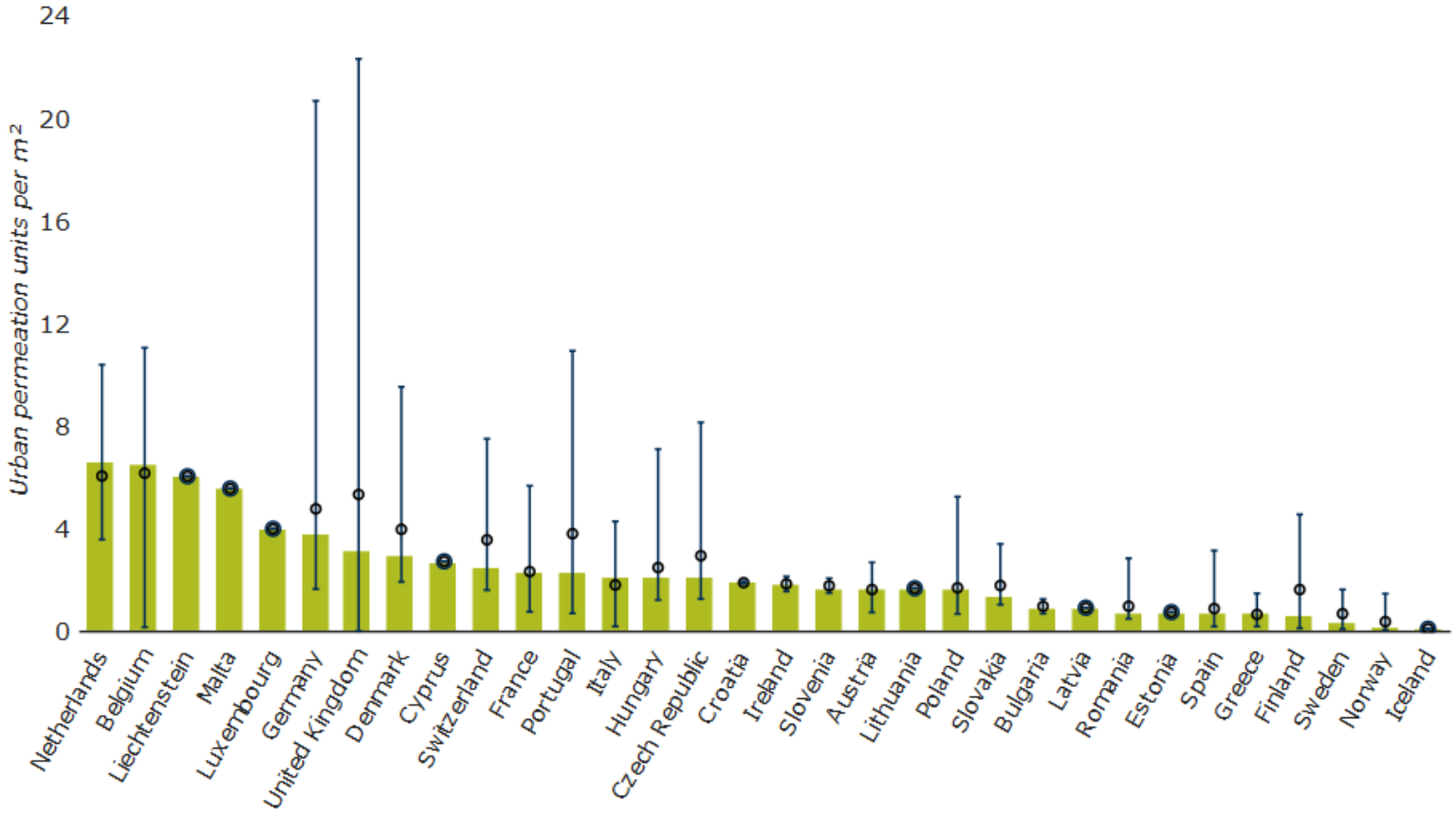
Adapted from: Bai X, Schandl H: Urban ecology and industrial ecology. In The Routledge Handbook of Urban Ecology. Edited by Douglas I, Goode D, Houck M, Wang R. Routledge; 2011:26-37.

Related content

Noise pollution

Urban systems and grey infrastructure

Urban sprawl by country and within countries (2009)



Data sources: Jaeger, Soukup, Orlitova, Schwick, Hennig, Kienast (2014) ongoing. Calculation done by ETC/SIA for EEA and FOEN. Calculations are based on Copernicus HRL Imperviousness 2009

Note: There are large differences between various NUTS2 regions within each country. The thin line shows the urban sprawl within countries, NUTS2 regions (maximum and minimum).The dots show the mean values.

Related content

Noise pollution

Urban systems and grey infrastructure

European Environment Agency

BACK TO TABLE OF CONTENTS

Cross-country comparisons

04

- Agriculture – organic farming
- Air pollution – emissions of selected pollutants
- Biodiversity – protected areas
- Energy – energy consumption and share of renewable energy
- Freshwater quality – nutrients in rivers
- Mitigating climate change – greenhouse gas emissions
- Resource efficiency – material resource efficiency and productivity
- Transport – passenger transport demand and modal split
- Waste – municipal solid waste generation and management

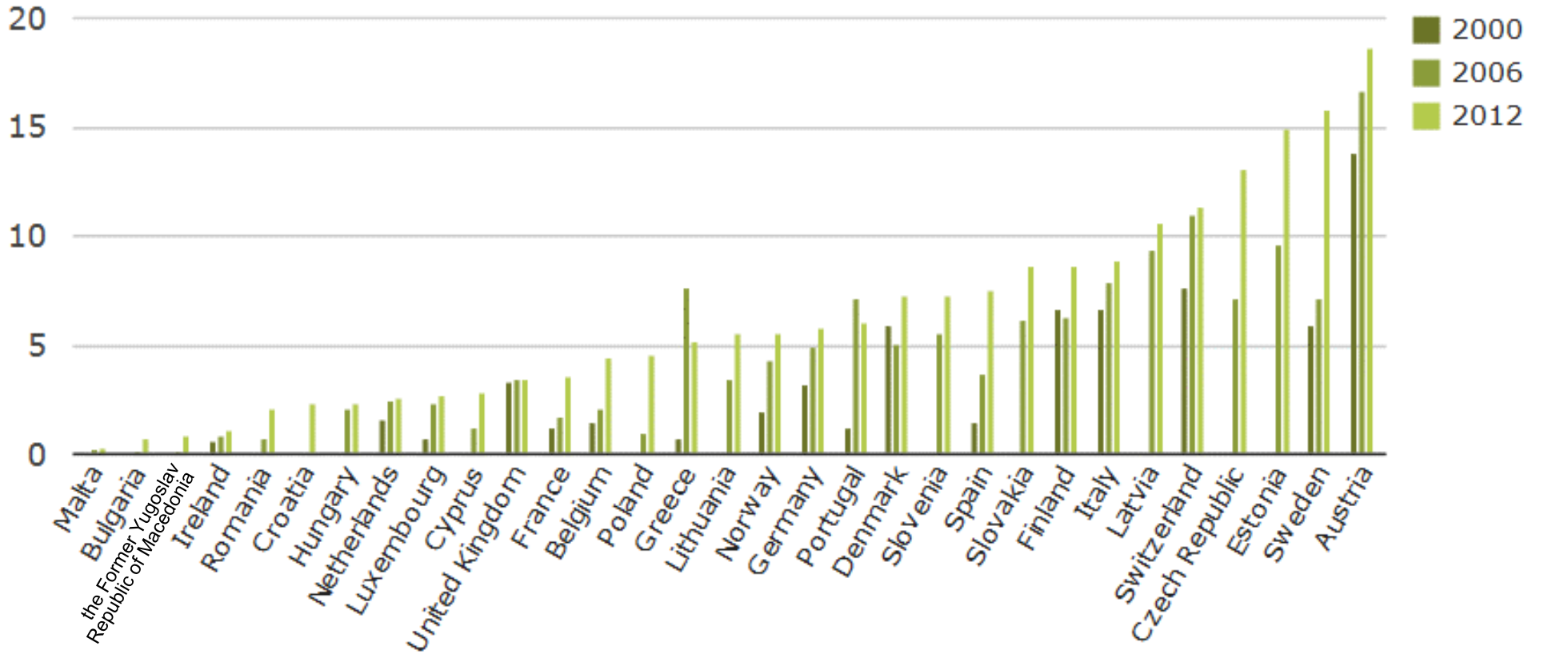
Agriculture — organic farming

- Reducing agriculture's environmental impacts requires a transition towards innovative, low-input systems.
- Organic production plays a role in increasing the efficiency of nutrient management and reducing pesticide use.
- While there has been rapid development in recent years, in 2012 the total area under organic farming was still only 5.7 % of total utilised agricultural area, with more than a 60-fold difference in the share of organic farming amongst countries.

Related content

Terrestrial and freshwater biodiversity | Land use and soil functions | Water use and water stress | Agriculture

Total organic crop area as a share of total utilised agricultural area in 31 European countries (2000, 2006 and 2012

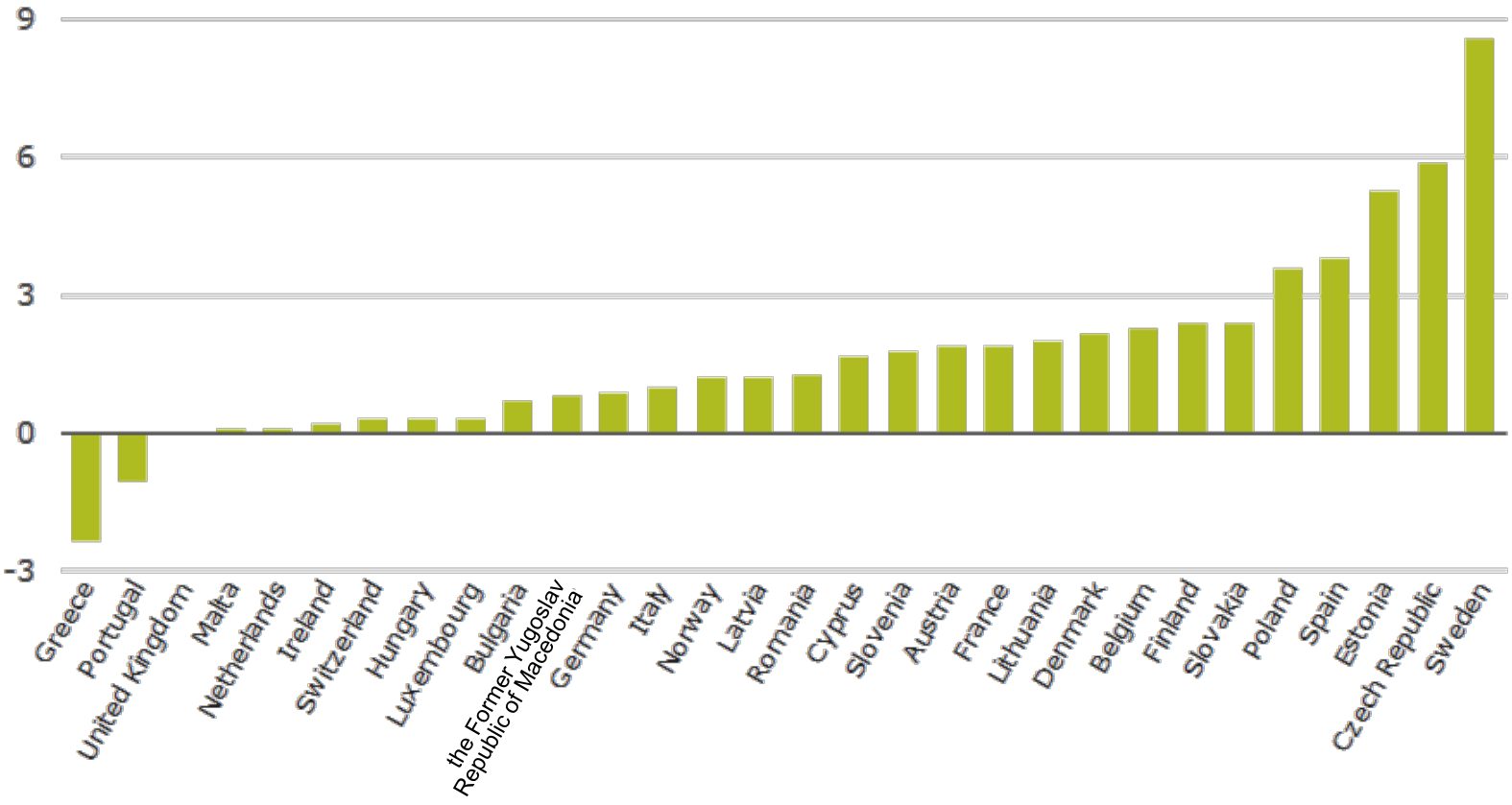


Data sources: Eurostat. Certified organic crop area by crops products, FOEN. Indicator on organic farming, EEA – Indicator SEBI020
Note: Due to lack of data: Greece, 2011 instead of 2012; Cyprus, 2011 instead of 2012; Norway, 2009 instead of 2012.

Related content

Terrestrial and freshwater biodiversity | Land use and soil functions | Water use and water stress | Agriculture

Percentage change in the share of organic agriculture from 2006-2012 in 30 European countries

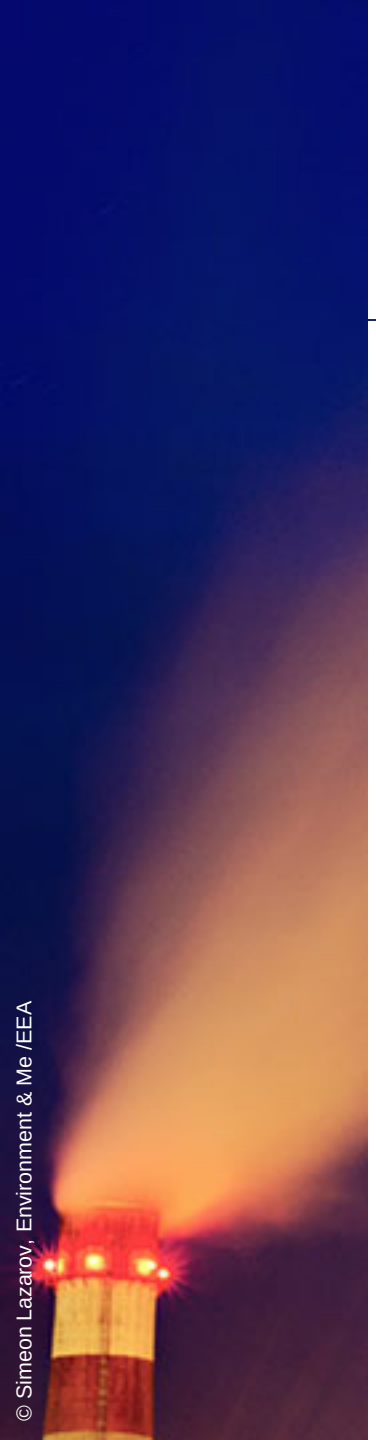


Data sources: Eurostat. Certified organic crop area by crops products;
Areas under organic agricultural production as % of cultivable area and total agricultural area, p4 FOEN;
Indicator on organic farming, EEA – Indicator SEBI020

Related content

Terrestrial and freshwater biodiversity | Land use and soil functions | Water use and water stress | Agriculture

Air pollution — emissions of selected pollutants

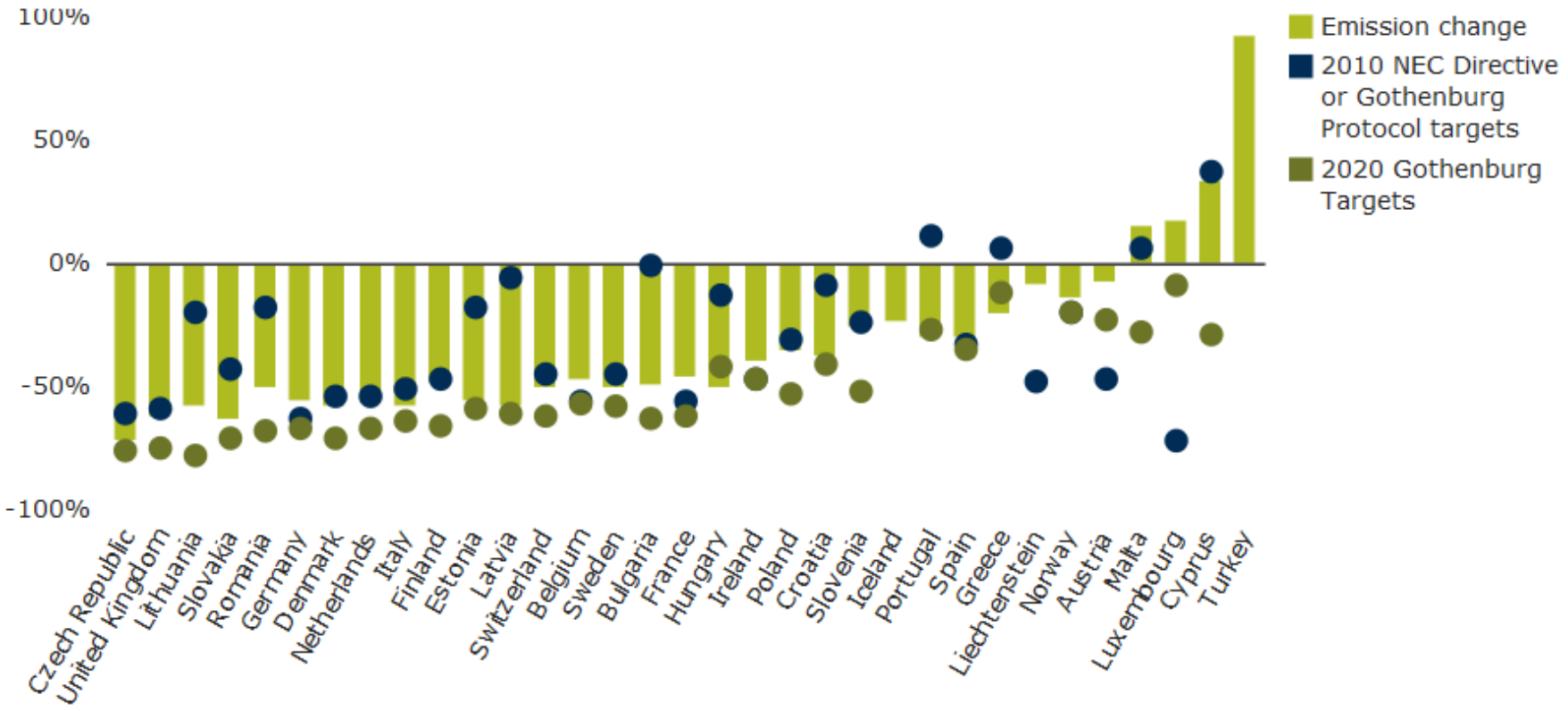


- Emissions of NOX, SOX, NH3 and NMVOC have decreased significantly in most countries between 1990 and 2012.
- However, air pollution still causes significant harm to health and the environment in Europe.
- The majority of countries are making progress towards meeting their 2020 targets under the 2012 revised Gothenburg Protocol.
- As a result, air quality in Europe is slowly improving.

Related content

Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Air pollution

Change in emissions of NOX (nitrogen oxides) in 33 European countries (1990 to 2012) and comparison with the 2010 NEC Directive and Gothenburg Protocol targets



Data sources: EEA. National emissions reported to the Convention on Long-range Transboundary Air Pollution (LRTAP Convention)
Note: 2020 Gothenburg targets scaled from 2005 base year to show percentage reduction from 1990.

Related content

Air pollution & its ecosystem impacts | Industrial pollution to air, soil and water | Air pollution & related envi. health risks | Urban systems and grey infrastructure | Air pollution

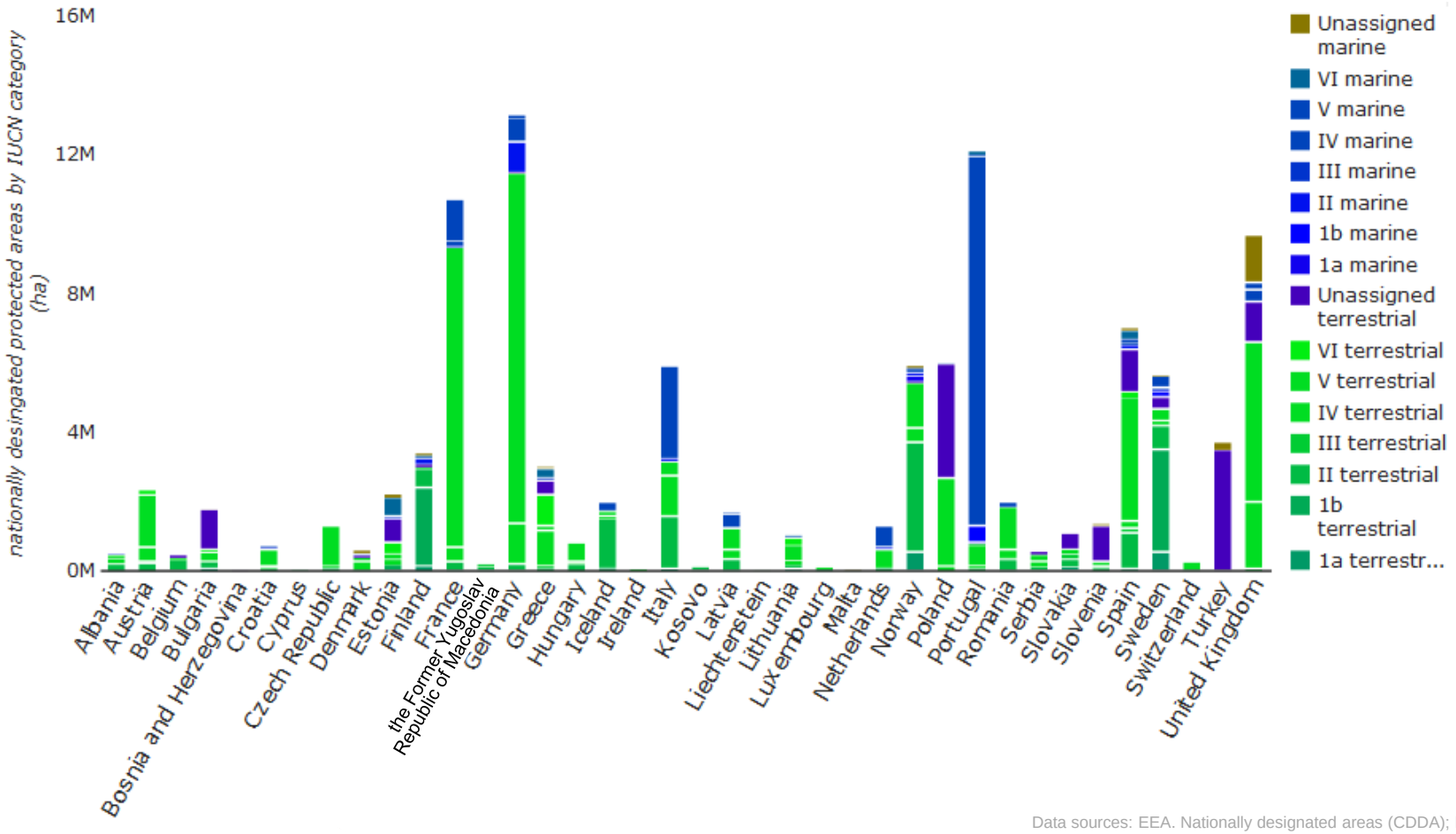
Biodiversity — protected areas

- The total area of designated protected areas currently covers about 21 % of terrestrial territory and inland waters, although further expansion of the marine network is required to meet targets.
- Designation of protected areas is not a guarantee of biodiversity protection.
- Effective biodiversity conservation within protected areas also requires management with a focus on species, habitats and ecosystems; measures to tackle the causes of biodiversity loss; and coherent networks of protected areas.

Related content

Terrestrial and freshwater biodiversity | Climate change impacts on ecosystems | Biodiversity

Nationally designated protected areas by IUCN category in 38 European countries



Data sources: EEA. Nationally designated areas (CDDA); EEA – Indicator SEBI007

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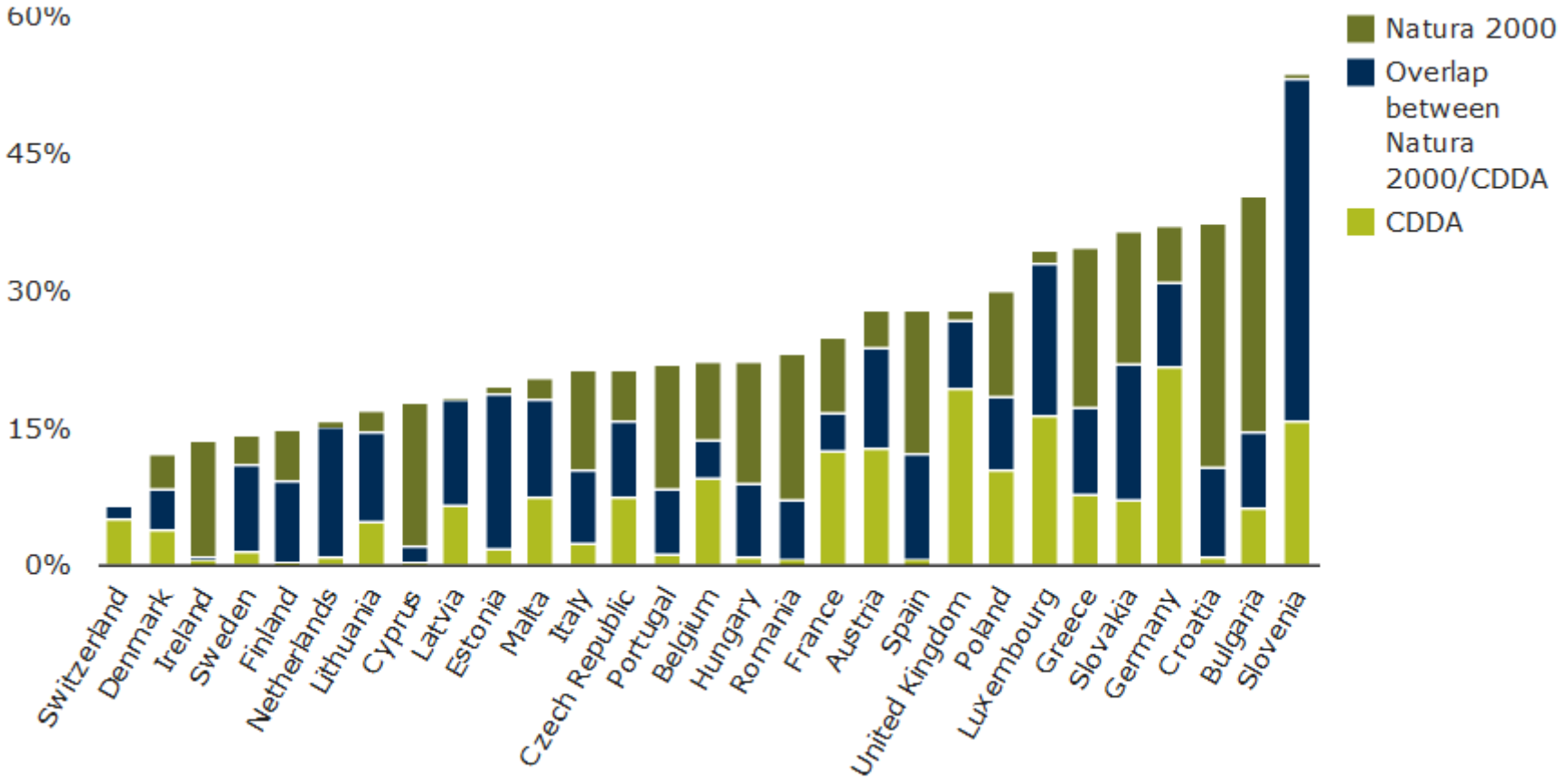
European Environment Agency

Complementarity between European designations (Natura 2000 and the Emerald Network) and national designations by share of terrestrial area in 29 European countries



Data sources: EEA. Nationally designated areas (CDDA); EEA. Natura 2000 data - the European network of protected sites; FOEN. Swiss Emerald network sites; EEA – Indicator SEBI007
Note: The overlap for Switzerland refers to Emerald Network sites rather than Natura 2000. CDDA — Common database of designated areas.

Related content
Terrestrial and freshwater biodiversity
Climate change impacts on ecosystems
Biodiversity

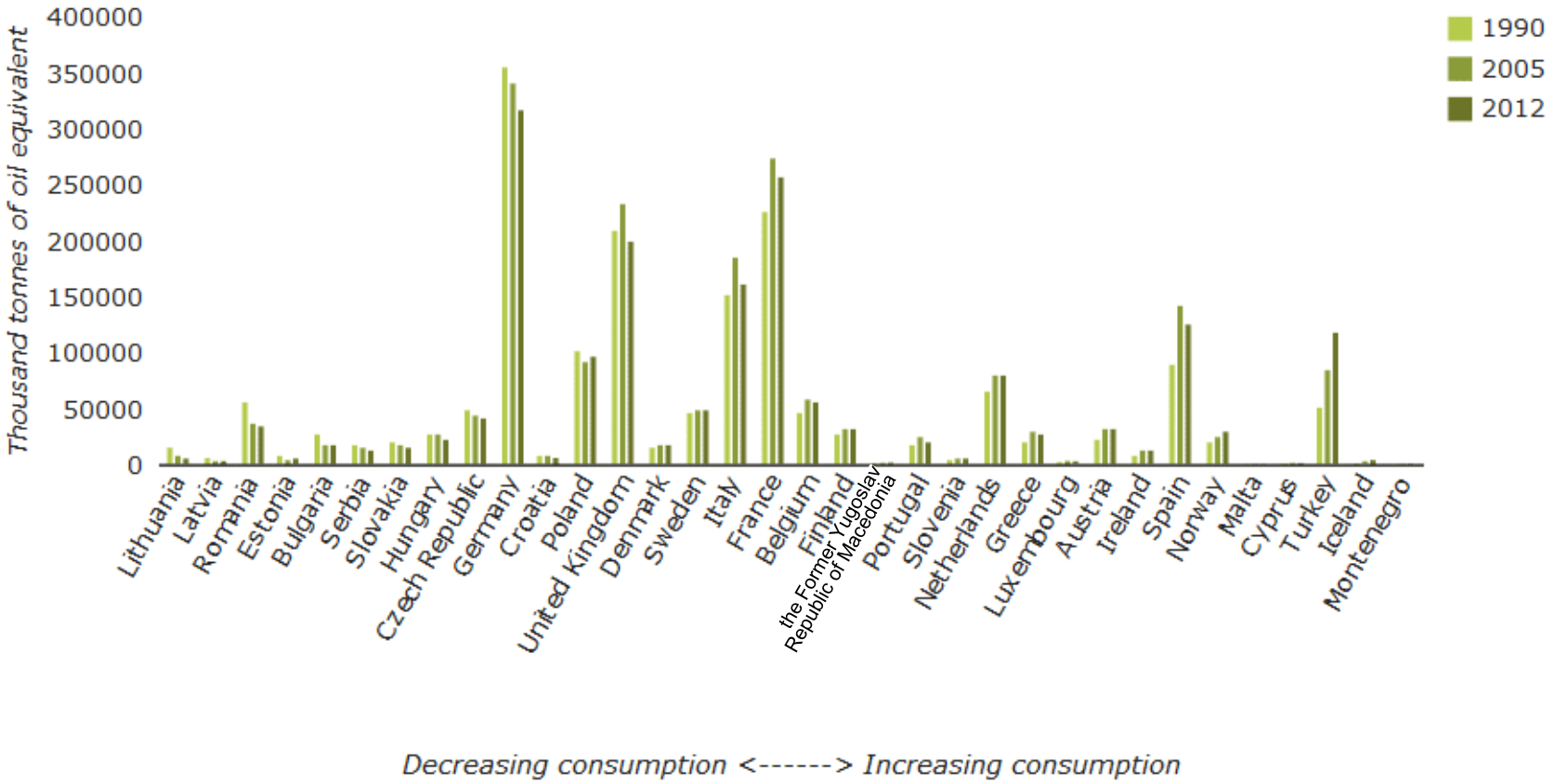
Energy — energy consumption and share of renewable energy

- There was a small overall increase in gross inland energy consumption (GIEC) from 1990 to 2012, however national trends varied significantly with consumption increasing in 20 and decreasing in 13 countries.
- From 1990 to 2012 there was an increase in the share of renewable energy in GIEC in 32 out of 34 countries.
- There has been progress in energy efficiency policy but there is significant variation in the level of ambition and coherence of policy measures amongst countries.

Related content

Energy consumption & fossil fuel use | Urban systems and grey infrastructure | Energy

Gross inland energy consumption in 34 European countries (1990, 2005 and 2012)



Data sources: Eurostat. Gross inland energy consumption, by fuel

Note: Countries are in order of the percentage change in gross inland energy consumption from 1990 to 2012 with Lithuania having the largest decrease and Iceland the largest increase. Only 2005 and 2012 data is available for Montenegro.

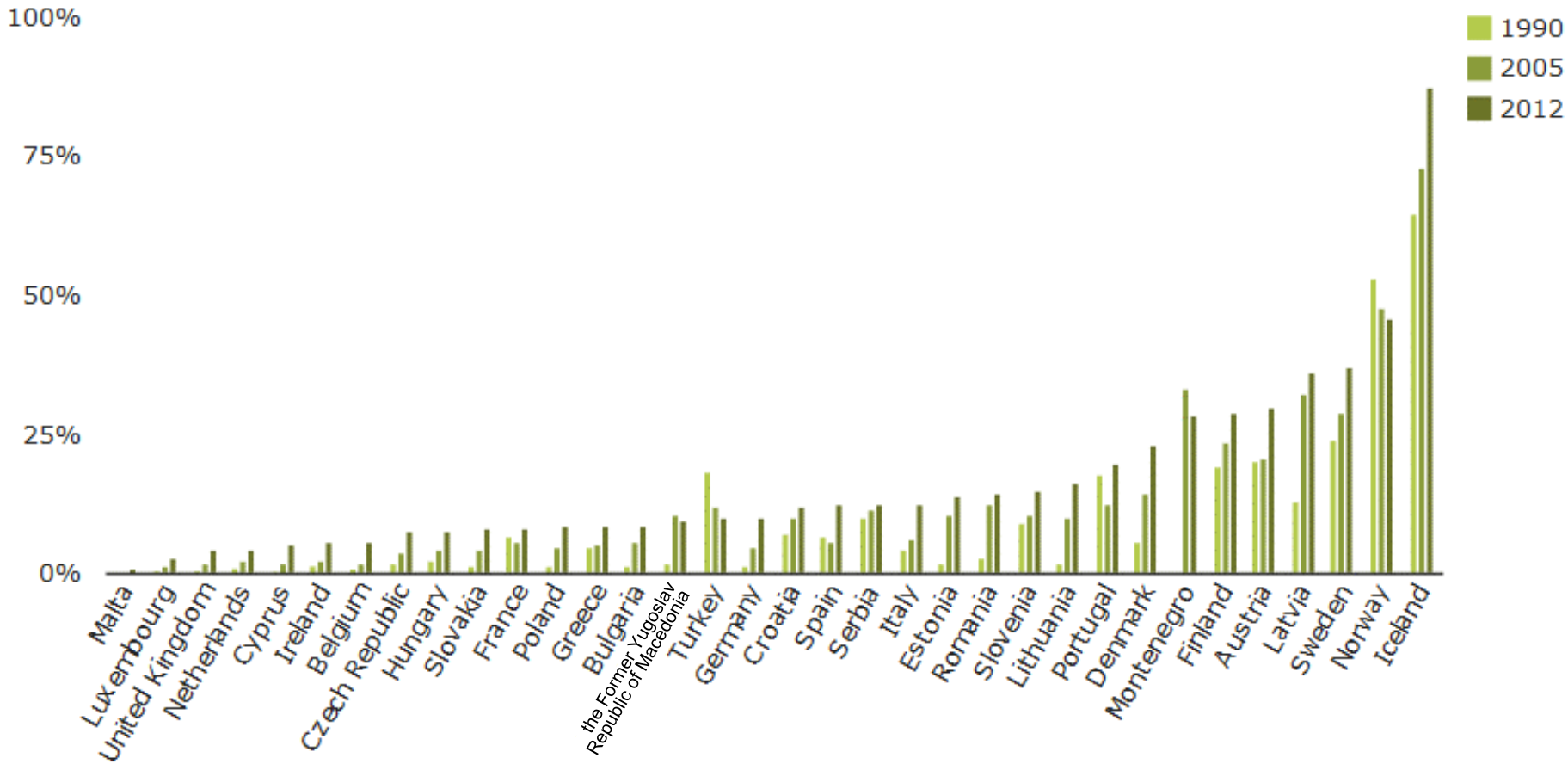
Related content

Energy consumption & fossil fuel use

Urban systems and grey infrastructure

Energy

Percentage share of renewable energies in gross inland energy consumption in 34 European countries



Data sources: Eurostat. Gross inland energy consumption, by fuel; EEA – Indicator ENER029

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European Environment Agency

Freshwater quality — nutrients in rivers

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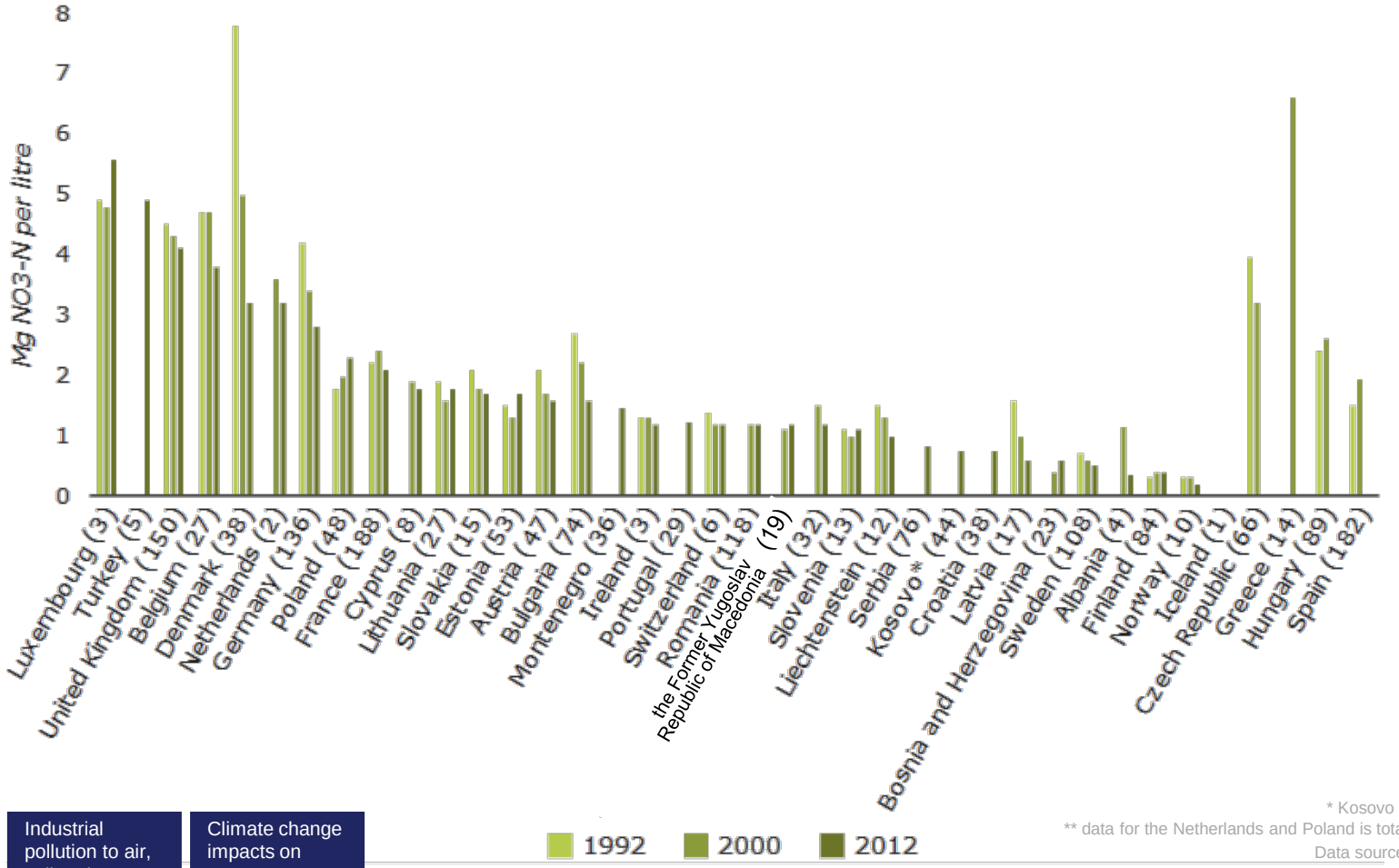
- Nutrient enrichment of Europe's freshwaters is a concern, with pollution from agriculture a cause of poor water quality.
- Average nitrate concentrations in European rivers reduced by over 20 % between 1992 and 2012, whilst orthophosphate concentrations more than halved.
- Enhanced integration of water policy objectives into other policy areas, especially agriculture, is essential to ensure that a sufficient quantity of good quality water is available for people's needs and the environment.

Related content

Ecol. status of freshwater bodies
Water quality and nutrient loading
Climate change impacts on ecosystems
Industrial pollution to air, soil and water
Water pollution & related envi. health risks
Urban systems and grey infrastructure
Chemicals & related envi. health risks
Water use and water stress
Freshwater quality

Average concentration of nitrate-nitrogen in rivers in 38 European countries (1992, 2000 and 2012)



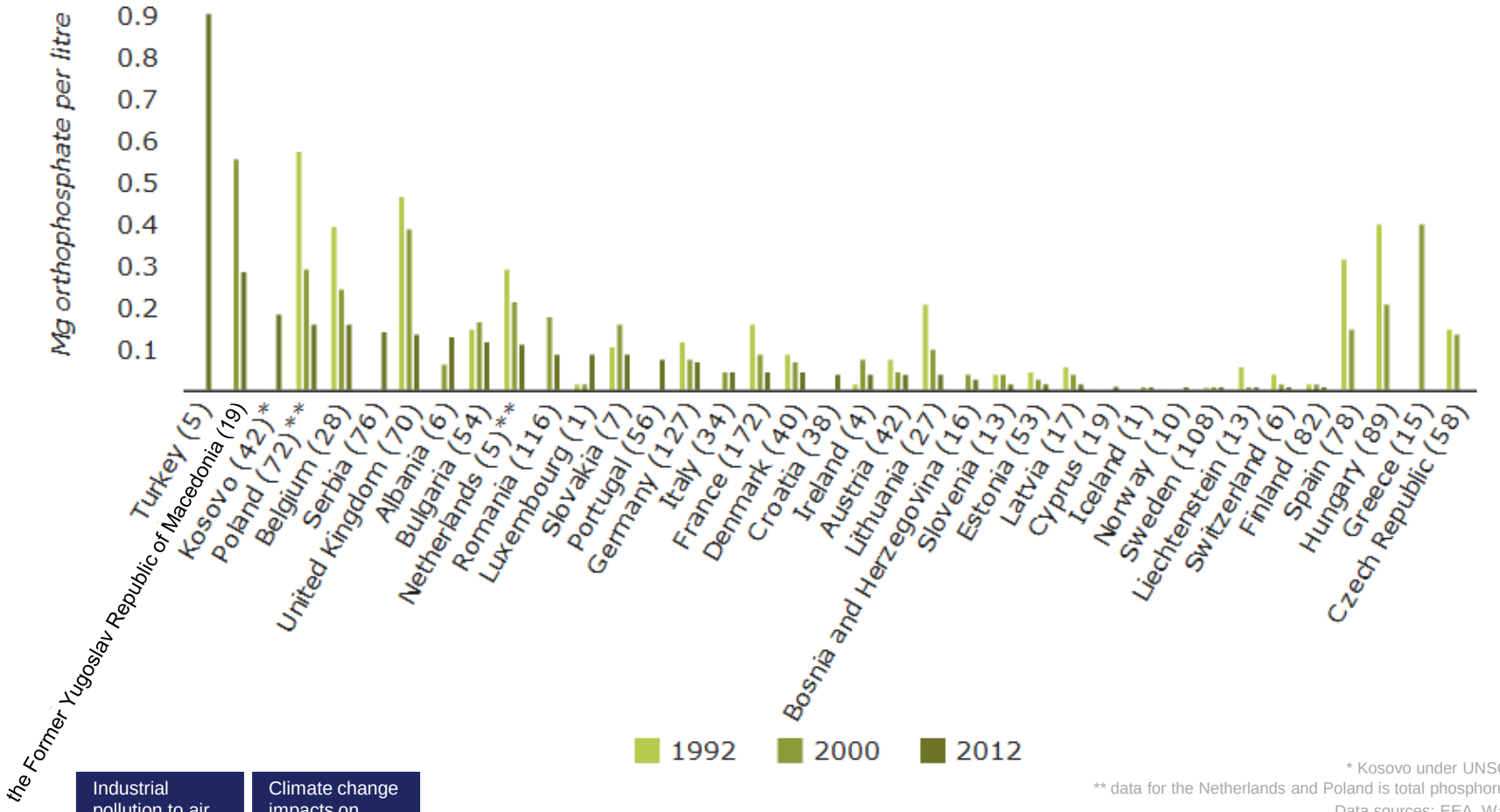
* Kosovo under UNSCR 1244/99 (42);
** data for the Netherlands and Poland is total phosphorus concentration.
Data sources: EEA. Waterbase - Rivers

Related content

Industrial pollution to air, soil and water
Climate change impacts on ecosystems

Water pollution & related envi. health risks
Urban systems and grey infrastructure
Chemicals & related envi. health risks
Water use and water stress
Ecol. status of freshwater bodies
Water quality and nutrient loading
Freshwater quality

Average concentration of orthophosphate in rivers in 37 European countries (1992, 2000 and 2012)



* Kosovo under UNSCR 1244/99 (42);
** data for the Netherlands and Poland is total phosphorus concentration.
Data sources: EEA. Waterbase - Rivers

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Water pollution & related envi. health risks
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Industrial pollution to air, soil and water
Chemicals & related envi. health risks
Climate change impacts on ecosystems
Water use and water stress
Ecol. status of freshwater bodies
Water quality and nutrient loading
Freshwater quality

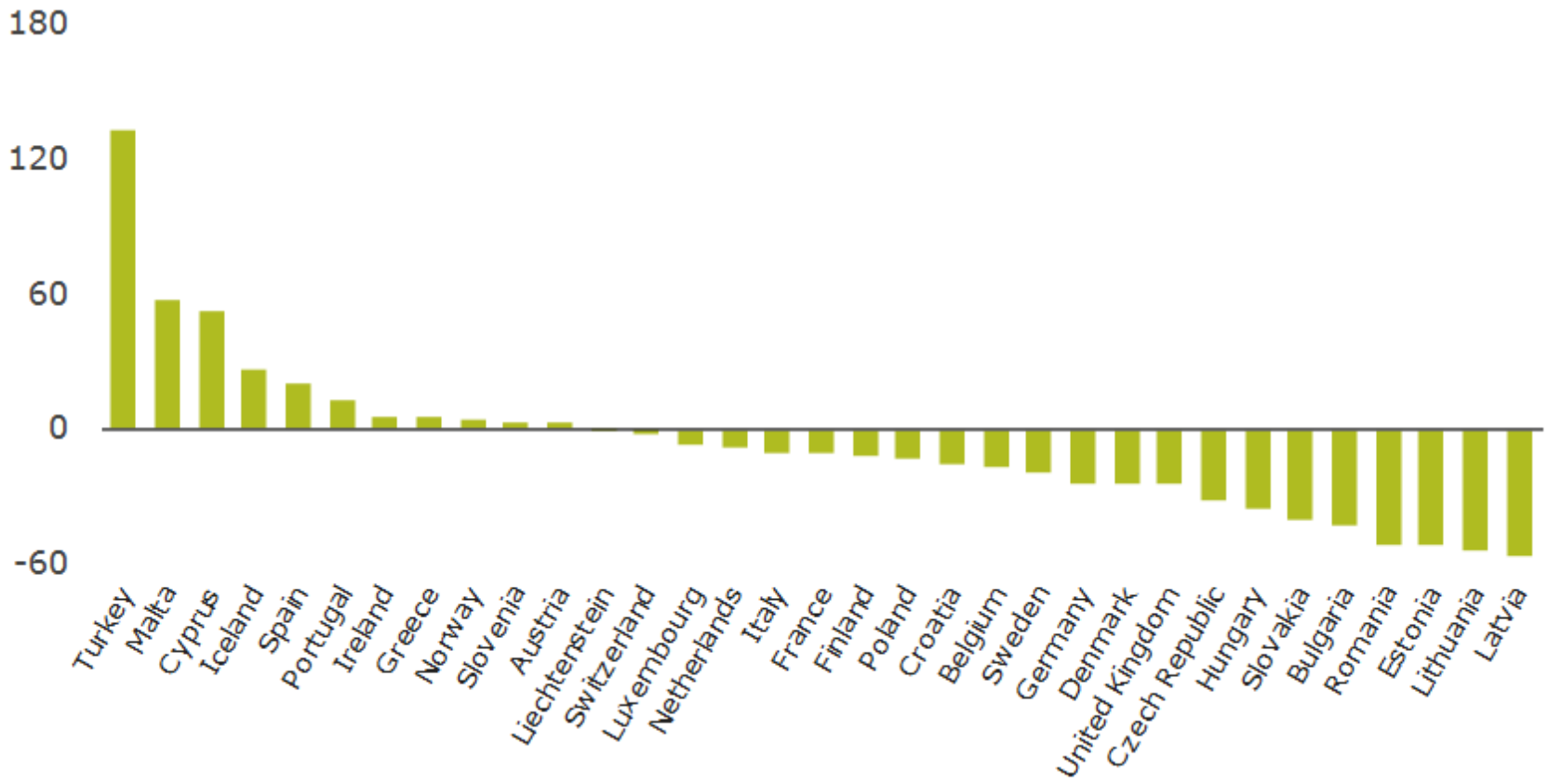
Mitigating climate change — greenhouse gas emissions

- Almost all European countries with an individual greenhouse gas limitation or reduction target under the Kyoto Protocol are on track towards achieving their targets.
- The majority of European Union member states expect to meet their individual emission targets for the non-trading sectors under the Effort Sharing Decision.
- However, for 14 countries, additional measures are needed to bring emissions below the annual targets from 2013 to 2020.

Related content

GHG emissions & CC mitigation | Energy consumption & fossil fuel use | Mitigating climate change

Percentage change in total greenhouse gas emissions in EEA countries (1990-2012)

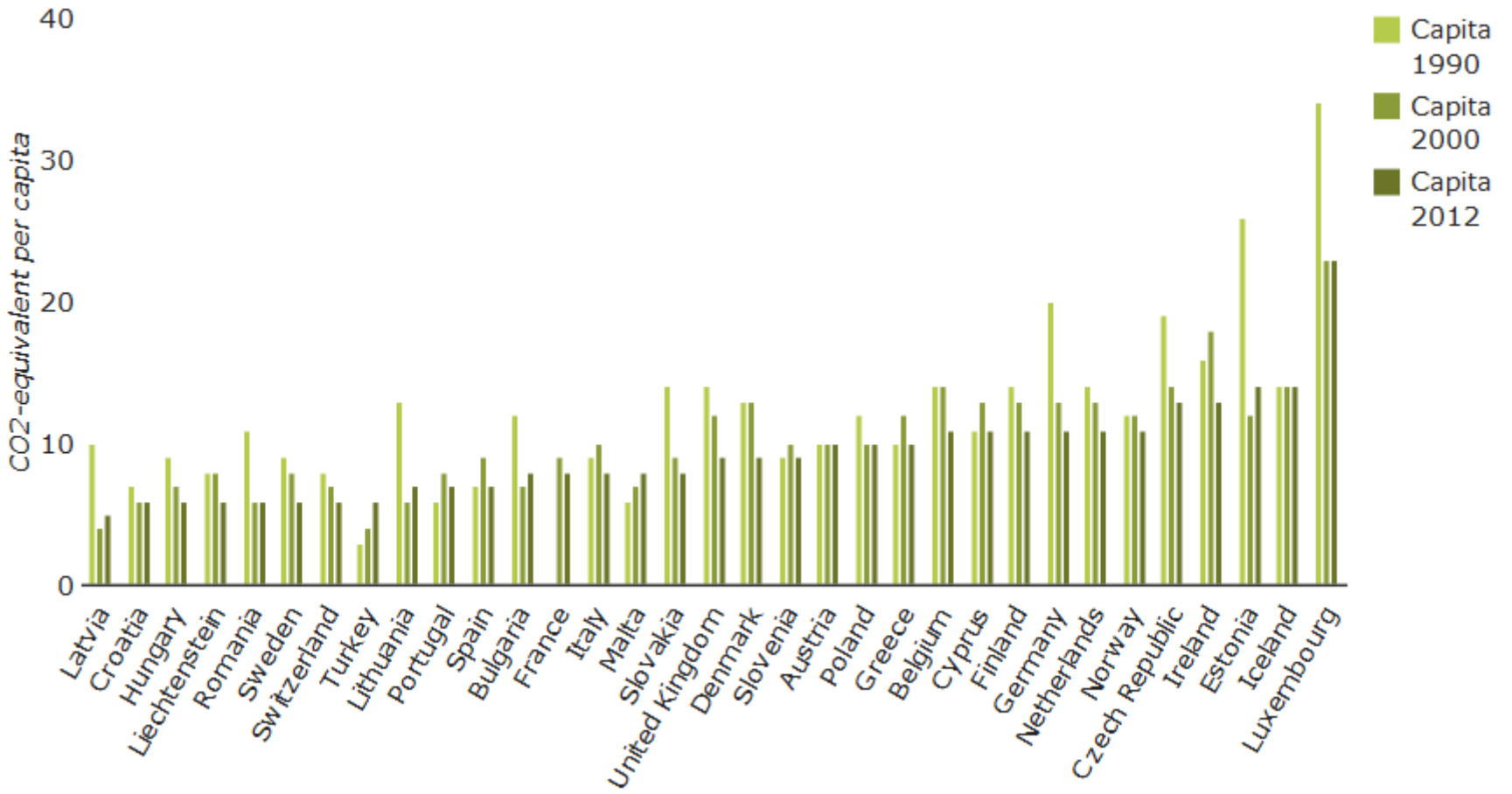


Data sources: EEA. National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism

Related content

GHG emissions & CC mitigation | Energy consumption & fossil fuel use | Mitigating climate change

Greenhouse gas emissions per capita in EEA countries (1990, 2000 and 2012)



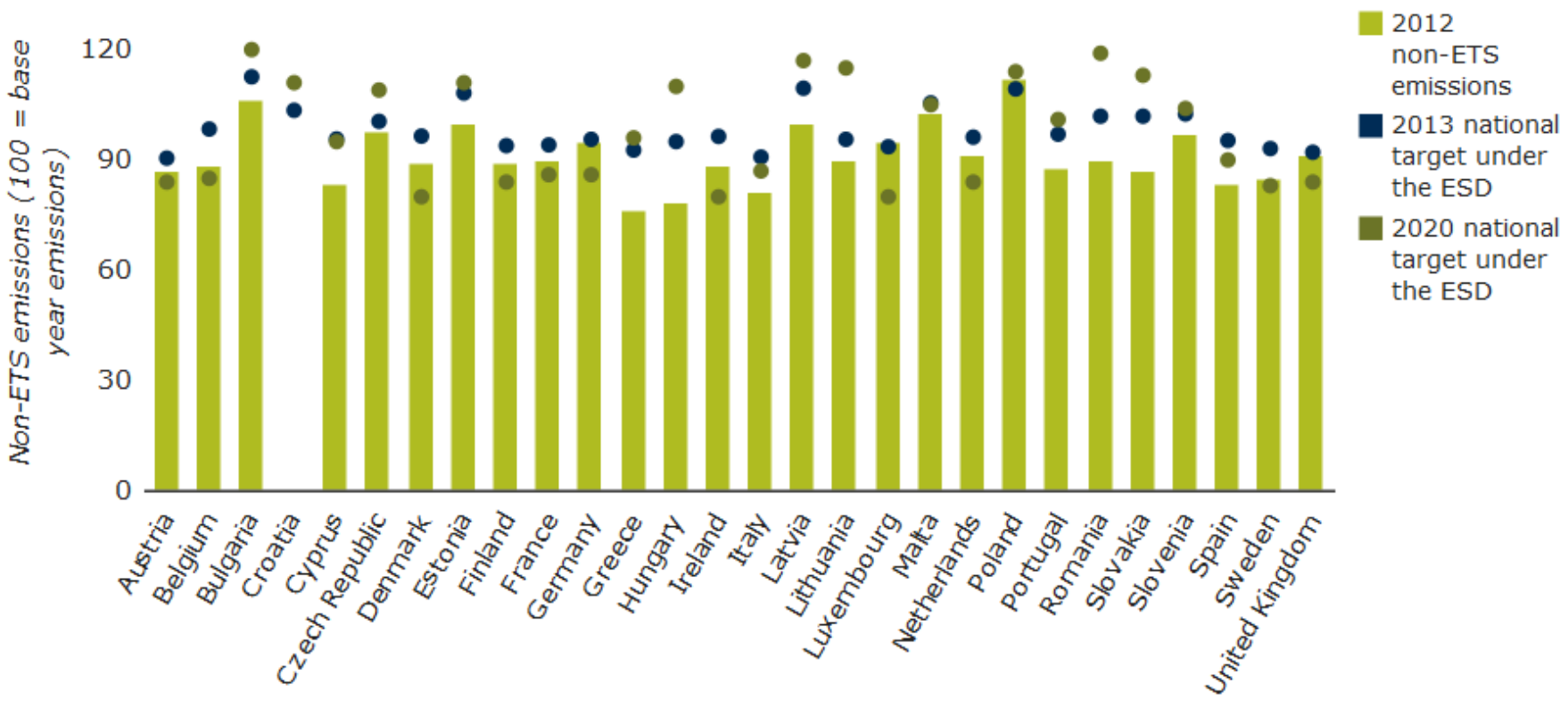
Data sources: EEA. National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism; Eurostat. Population on 1 January by age and sex.

Related content

GHG emissions & CC mitigation | Energy consumption & fossil fuel use | Mitigating climate change

European Environment Agency

Progress towards 2013 and 2020 targets for EU Member States under the Effort Sharing Decision



Data sources: EEA. National emissions reported to the UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism
EEA. CITL v16; EEA. Annual European Community greenhouse gas inventory 1990–2012 and inventory report 2013; EC. Decision No 406/2009/EC
Note: ESD — Effort Sharing Decision. ETS — Emissions Trading Scheme.

Related content

GHG emissions & CC mitigation | Energy consumption & fossil fuel use | Mitigating climate change

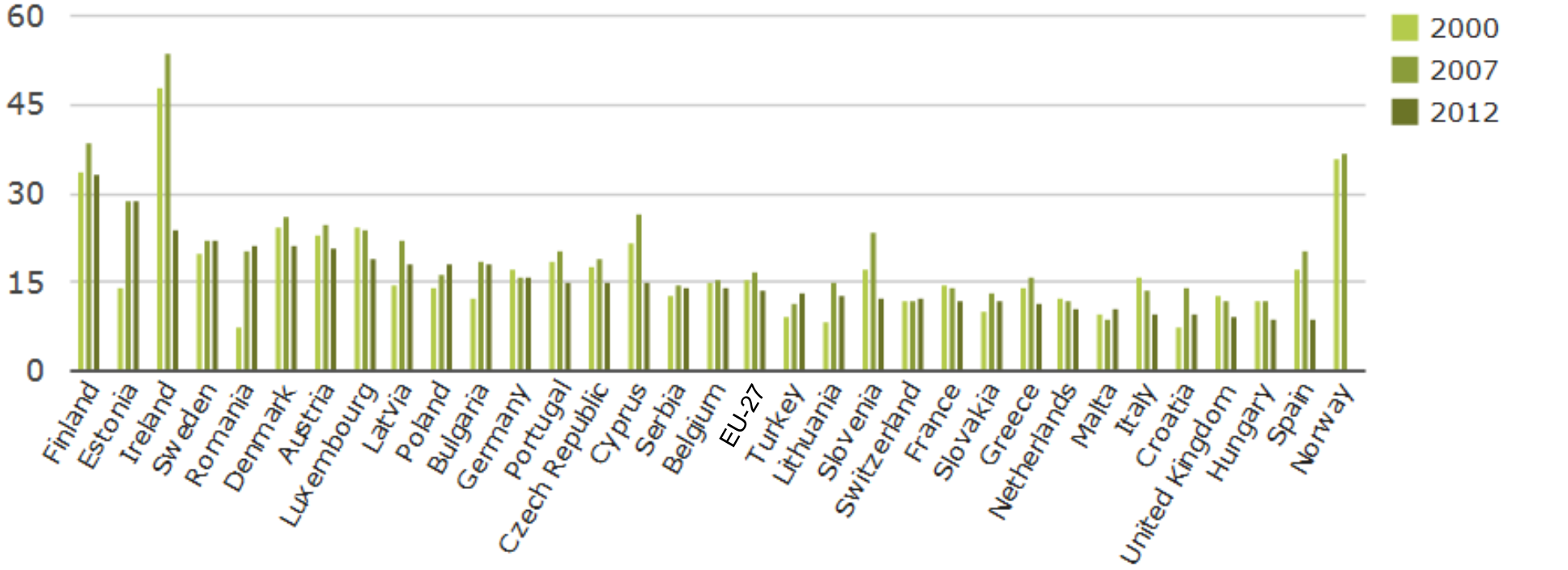
Resource efficiency — material resource efficiency and productivity

- Per capita consumption of material resources increased between 2000 and 2012 in 13 countries and decreased in 19.
- Significant increases were primarily due to large-scale infrastructure investments, with the largest declines related to the economic crisis and a collapse in construction activities.
- Four countries have consistently been the most resource-efficient economies, with six remaining at the bottom of resource-productivity rankings, indicating opportunities for further improvements and actions.

Related content

Material resource efficiency & use | Waste management | Urban systems and grey infrastructure | Resource efficiency | Green economy

Material resource use (DMC) per capita in 32 European countries (2000, 2007 and 2012)



Data sources: Eurostat. Material Flow Accounts

Note: A time series was available for 32 countries, but for four countries the full time series was not available: 2000 not available for Serbia so 2001 data are shown; latest data year for Norway was 2008; 2012 data not available for Switzerland and Turkey so 2011 data shown.

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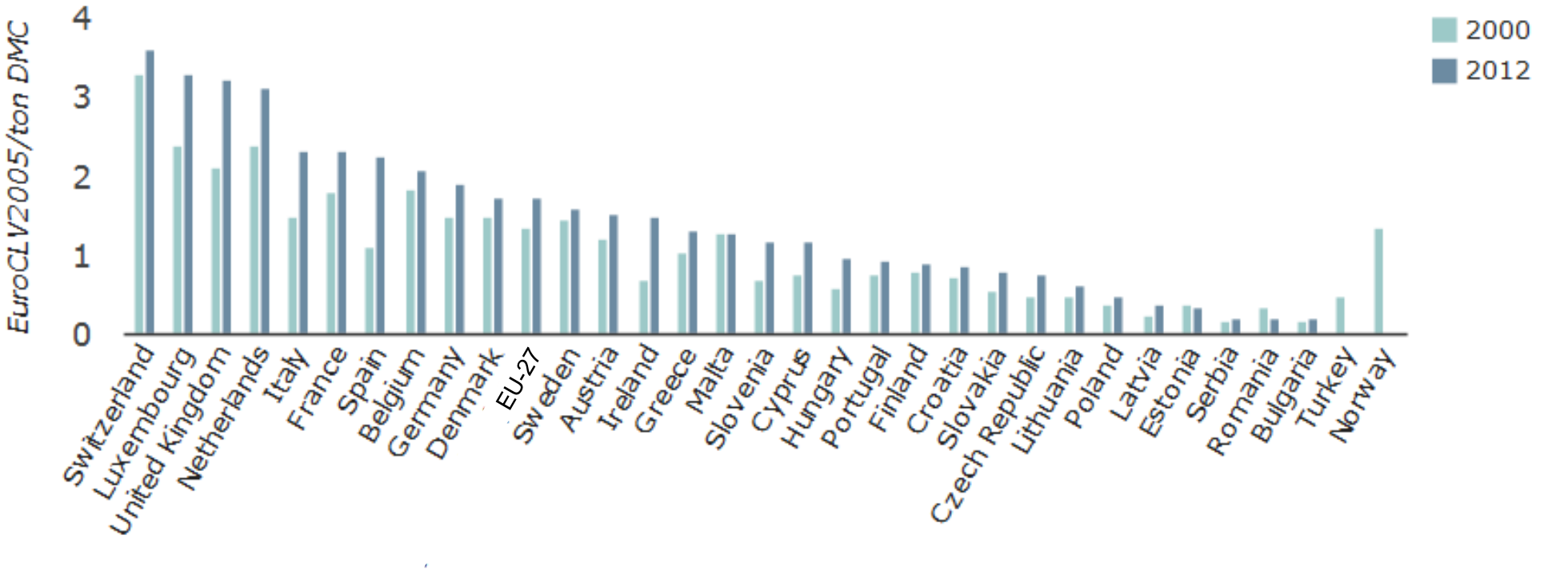
Resource productivity (GDP/DMC) in 32 European countries (2000 and 2012)



Note: A time series was available for 32 countries but for four countries the full 2000-2012 time series was not available (2000 not available for Serbia so 2001 is shown; 2011 shown for Switzerland and latest data available for Norway was 2008 and Turkey was 2010). For the calculation of resource productivity Eurostat uses the GDP in units of Euros in chain-linked volumes to the reference year 2005 at 2005 exchange rates (code: EUR_CLV05_KG).

Data sources: Eurostat. Resource productivity

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Transport — passenger transport demand and modal split

- There was an increase in passenger transport demand between 2005 and 2012, although overall it has been stable in recent years.
- However, national trends varied significantly, with demand increasing in 23 countries and decreasing in 10.
- In 2012, the car was the dominant mode of transport in all countries.
- Car passenger transport has generally decreased in the last three years (2009 to 2012) with a significant drop in some countries.

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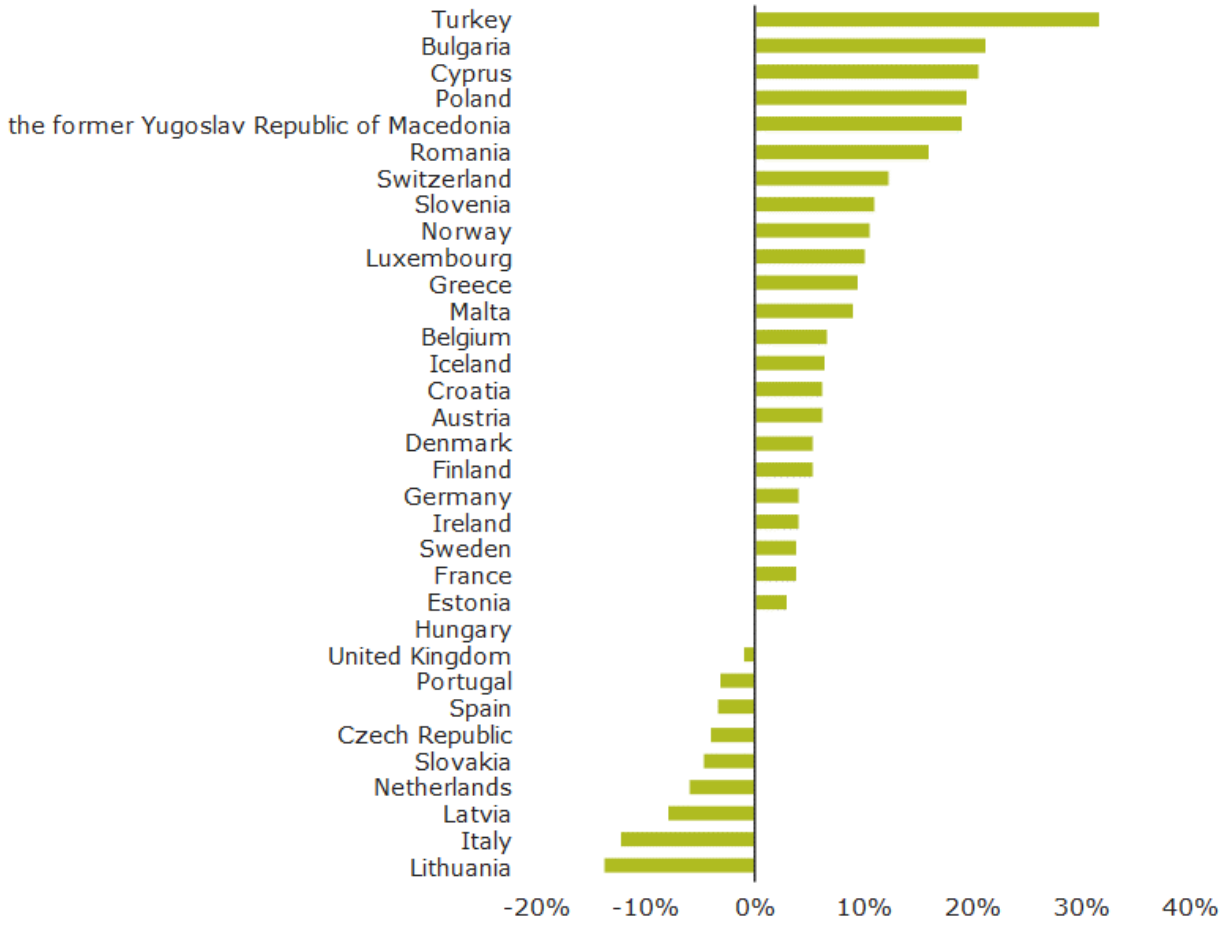
Percentage change in total passenger transport demand in 33 European countries (2005 - 2012)



Data sources: DG Mobility and Transport. Performance of passenger transport (pkm)

Related content

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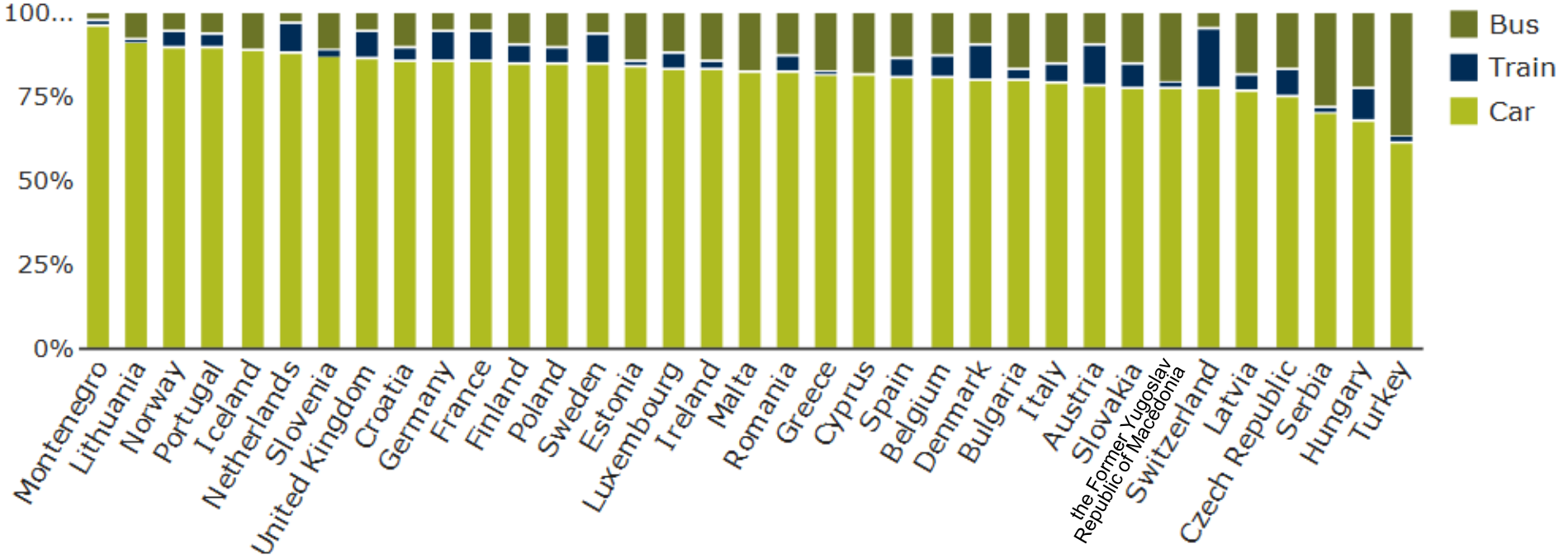
Modal split of passenger transport in 35 European countries in 2012



Data sources: Eurostat. Passenger transport modal split; EC. Statistical pocketbook 2014 Full version pdf

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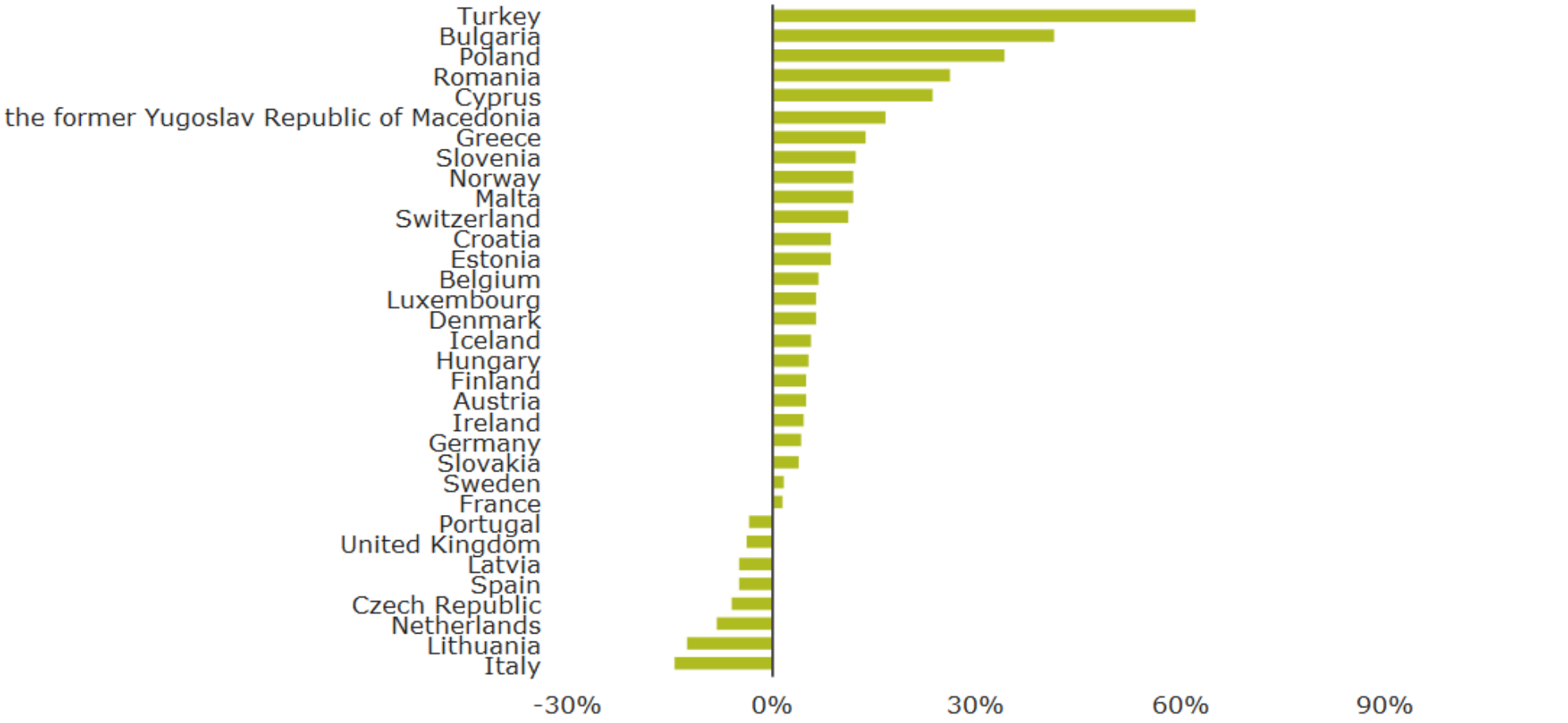
Percentage change in car passenger transport demand in 33 European countries (2005 – 2012)



Data sources: DG Mobility and Transport. Performance of passenger transport (pkm)

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Waste — municipal solid waste generation

© Stipe Surać, Waste-smART /EEA

- Generation of municipal waste per capita has declined slightly from 2004 to 2012, but it is clearly better managed now than ten years ago.
- The number of countries recycling and composting more than 30 % of municipal waste increased from 11 to 17 out of 34, and those landfilling more than 75 % of their municipal waste declined from 11 to 8.
- The large differences in performance indicate room for further improvement and actions to meet the 2020 target to recycle 50 % of municipal waste.

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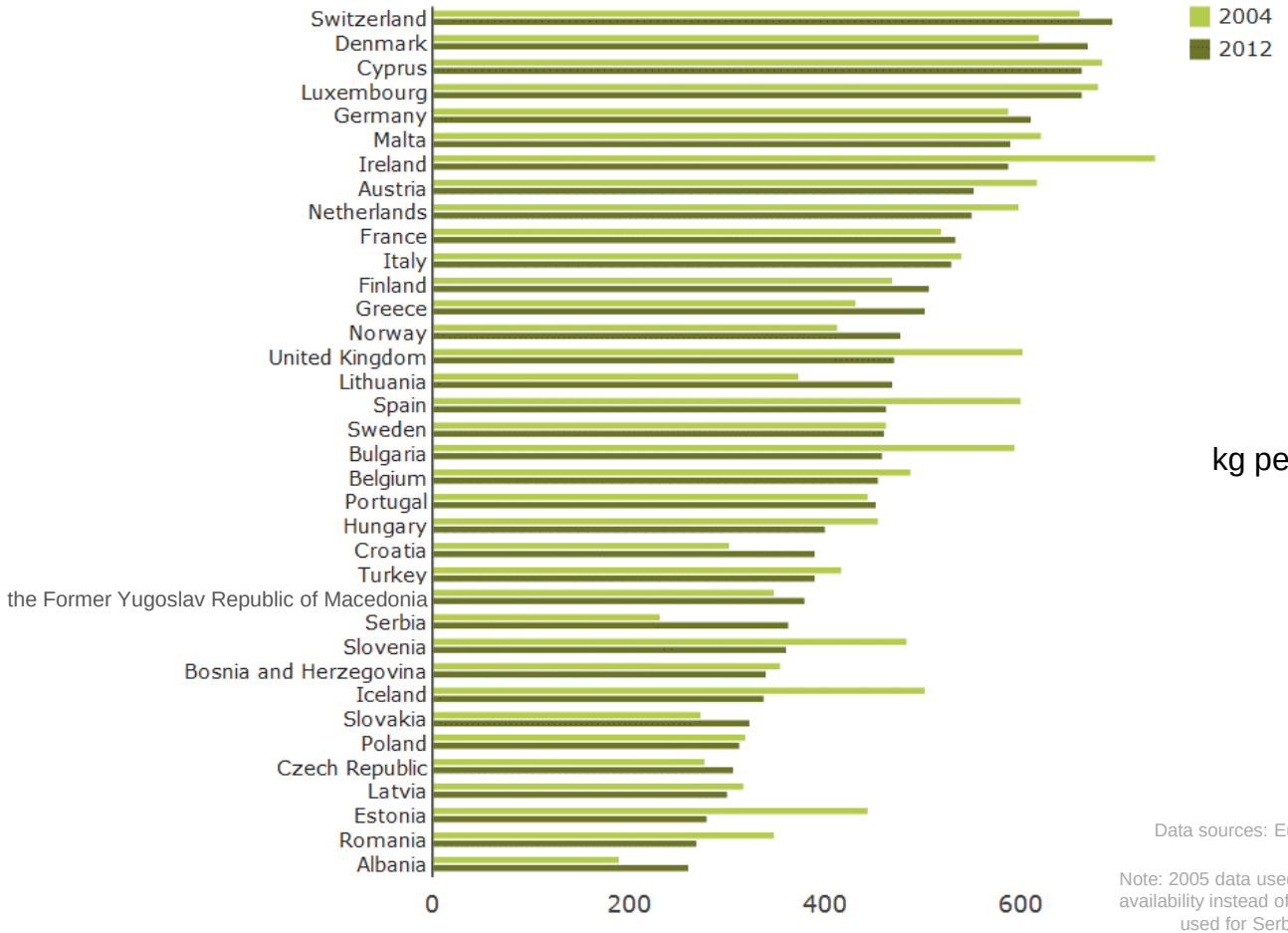
Municipal waste generated per capita in 36 European countries (2004 to 2012)



Data sources: Eurostat. Municipality waste statistics; Eurostat. Demography national data population. Population on 1 January by age and sex.

Note: 2005 data used instead of 2004 for Poland due to changes in methodology. Due to data availability instead of 2004 data, 2008 data were used for Bosnia and Herzegovina; 2006 data used for Serbia; and 2008 data used for the Former Yugoslav Republic of Macedonia..

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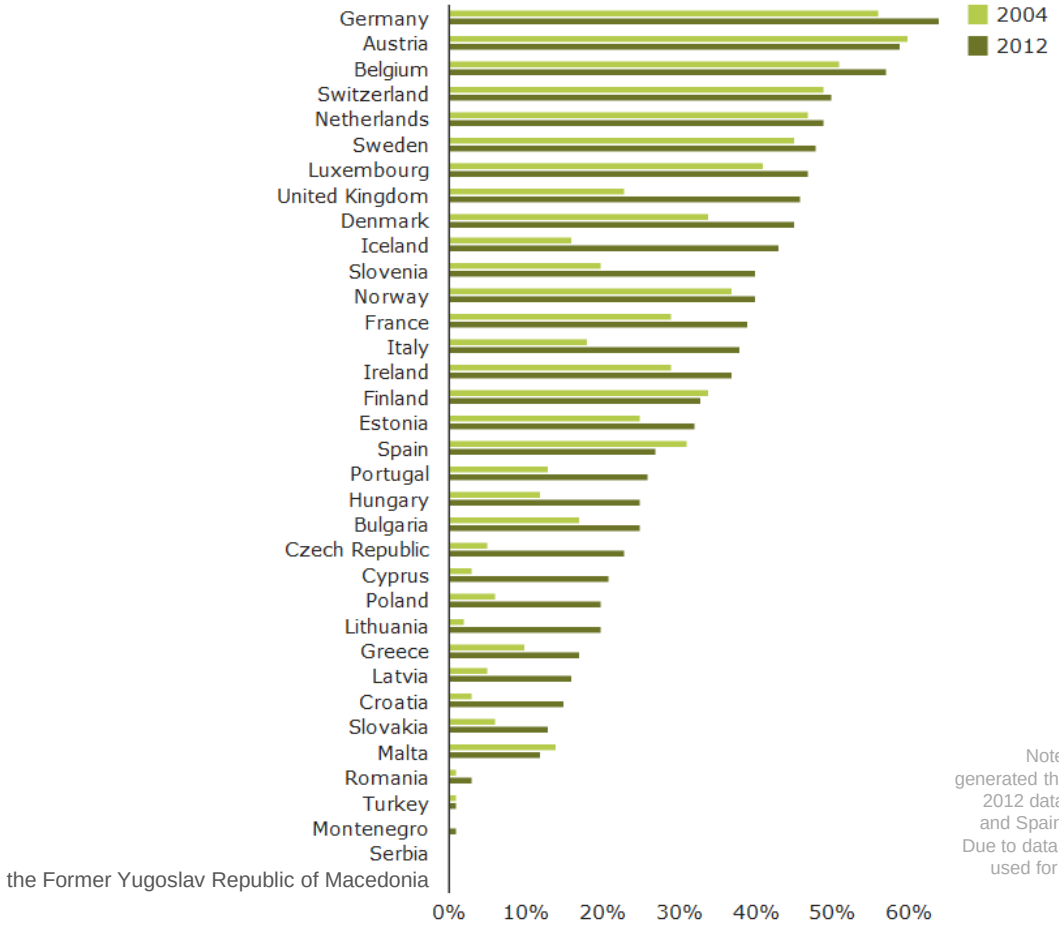
Municipal waste recycling in 35 European countries (2004 and 2012)



Note: Note: The recycling rate is calculated as the percentage of municipal waste generated that is recycled and composted. Changes in reporting methodology means that 2012 data are not fully comparable with 2004 data for Austria, Cyprus, Malta, Slovakia and Spain. 2005 data used instead of 2004 for Poland due to changes in methodology. Due to data availability instead of 2004 data, 2003 data were used for Iceland; 2007 data used for Croatia; and 2006 data used for Serbia. For the former Yugoslav Republic of Macedonia, 2008 data were used for 2004, and 2011 used for 2012.

Data sources: Eurostat. Municipality waste statistics

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Countries and regions

05

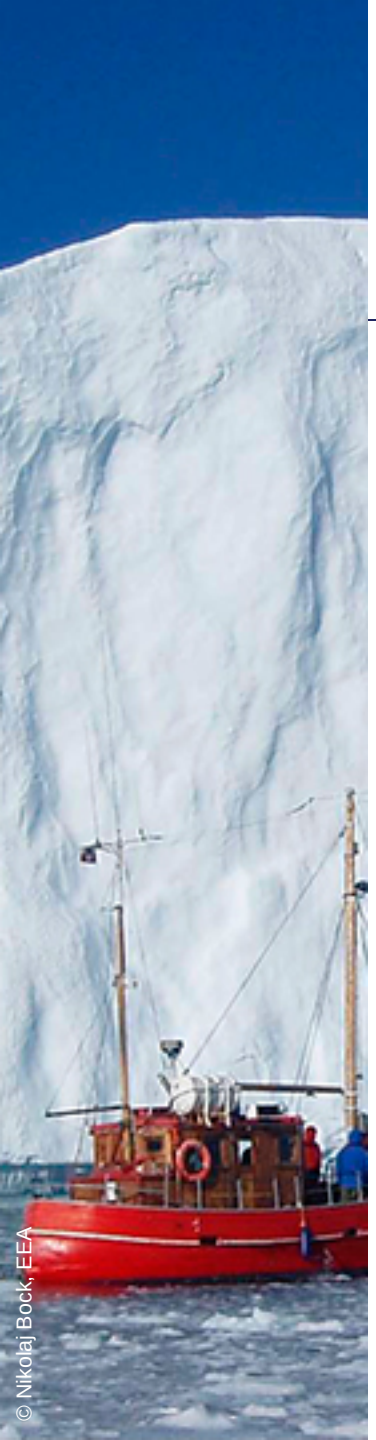
- Overview of SOER country and regional briefings
- Arctic region
- Black Sea region
- Mediterranean Sea region

SOER country and regional briefings

- A set of 39 online briefings, which summarise reports on the state of the environment in:
  - 33 EEA member countries (28 EU Member States, Iceland, Liechtenstein, Norway, Switzerland, Turkey)
  - 6 cooperating countries in the Western Balkans (Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Montenegro, Serbia, Kosovo under the UN Security Council Resolution 1244/99).
- A set of 3 regional briefings produced by EEA

Related content

Arctic | Black Sea | Mediterranean



Arctic region

Key challenges facing the region:

- increasing economic development of the Arctic;
- global climate change and its rapid effects on the Arctic;
- policy developments and international cooperation related to the Arctic.

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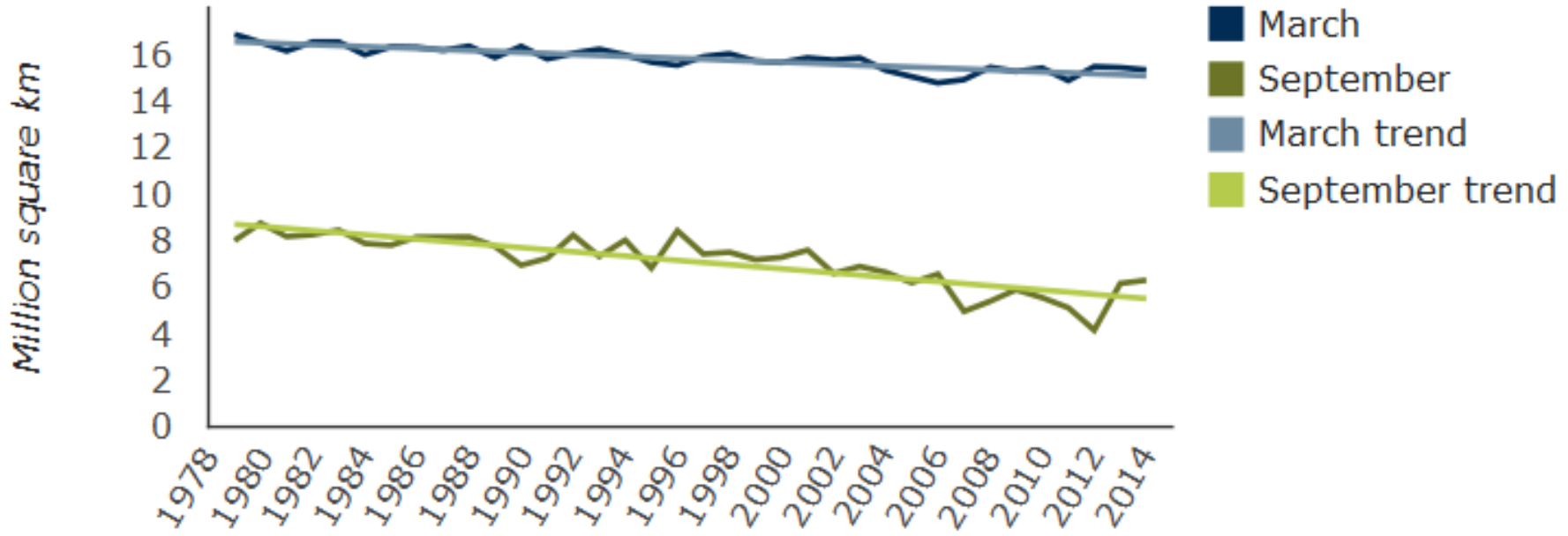
Climate change impacts on ecosystems

Climate change impacts and adaptation

Arctic sea-ice extent



Data sources: EUMETSAT OSI SAF. Sea ice extent; CryoClim. Sea ice extent; EEA – Indicator CLIM010

Note: Between 1979 and 2014, the Arctic lost on average 42 000 km2 of sea ice per year in winter and 91 000 km2 per year at the end of summer. The decline in summer sea ice appears to have accelerated since 1999. Trend lines and observation points for March (the month of sea-ice extent maximum) and September (the month of sea-ice extent minimum) have been indicated. This figure does not reflect the loss of sea ice thickness, which has also been declining over the same period. Data delivered through MyOcean.

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Climate change impacts on ecosystems

Climate change impacts and adaptation

Black Sea region

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Key transboundary challenges :

- eutrophication/nutrient enrichment;
- changes in marine living resources;
- chemical pollution (including oil); and
- biodiversity/habitat changes, including the introduction of alien species.

Related content

Marine and coastal biodiversity | Climate change impacts on ecosystems | Marine environment | Maritime activities

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Mediterranean Sea region

- The Mediterranean Sea region is surrounded by 22 countries, which together share a coastline of 46 000 km.
- Approximately one-third of the Mediterranean population is concentrated along its coastal regions. Population growth, combined with the growth of coastal urban hubs, generates multiple environmental pressures.
- The Mediterranean Sea region is one of the areas most responsive to climate change due to water scarcity, concentration of economic activities in coastal areas, and reliance on climate-sensitive agriculture.
- It is estimated that between 10 000 and 12 000 marine species thrive in the Mediterranean Sea. Many of these species are threatened by a range of human activities.

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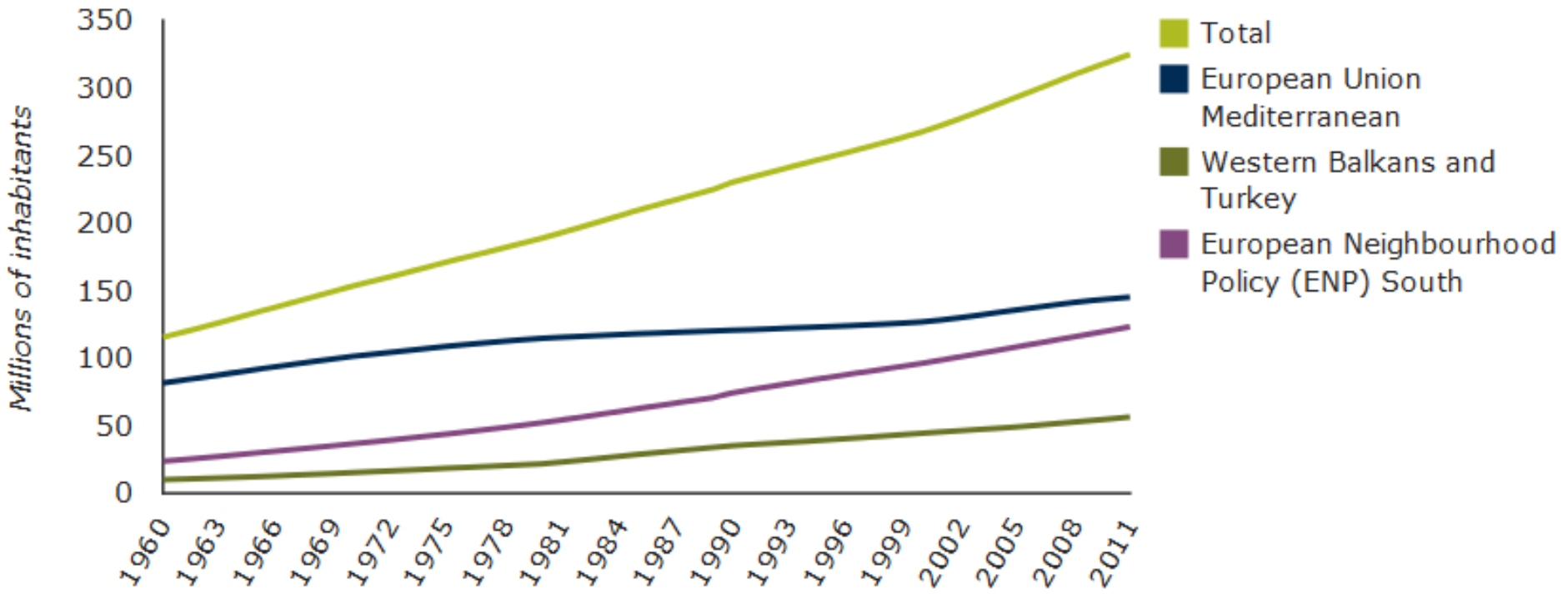
Urban population growth of the Mediterranean countries



Source: Plan Bleu from World Bank Staff estimates based on United Nations, World Urbanization Prospects, 2013.

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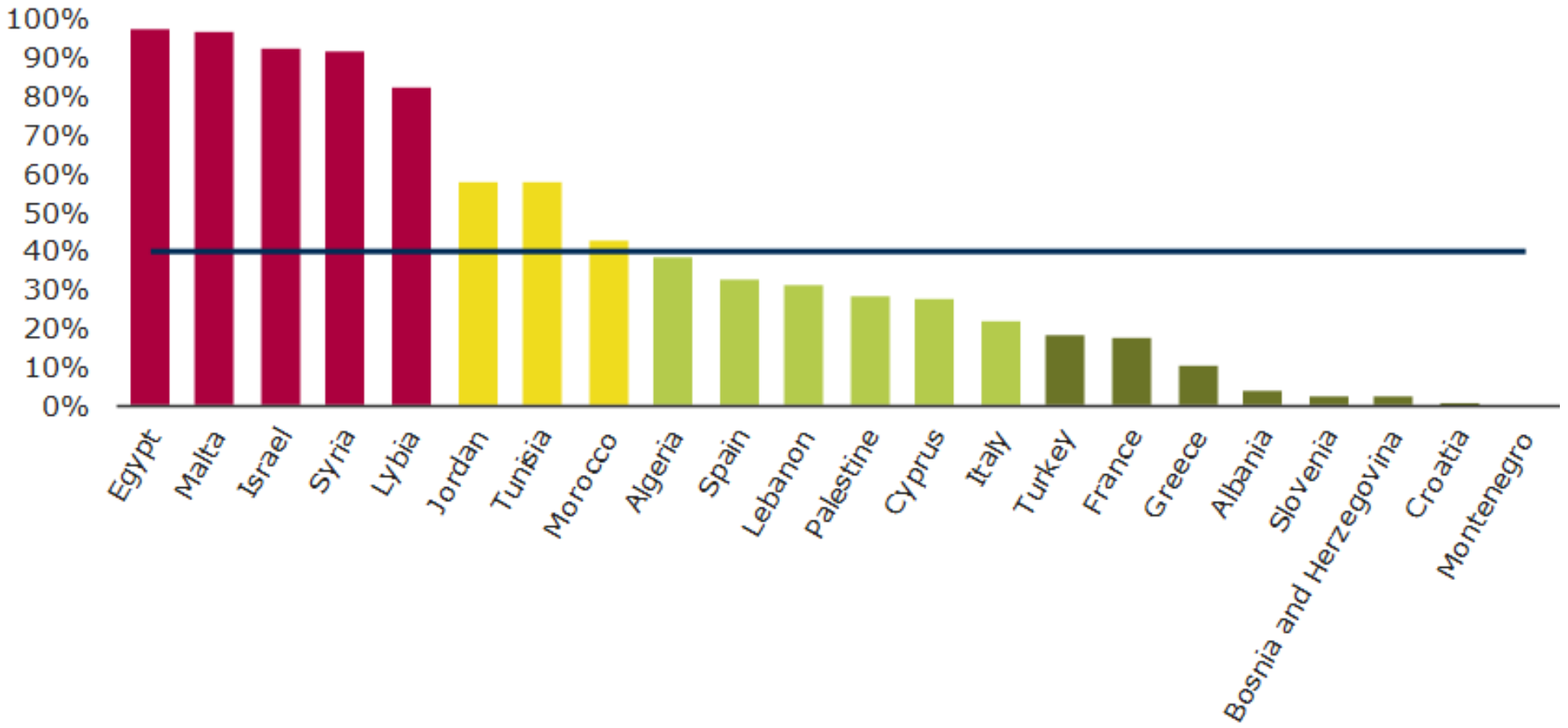
Water Exploitation Index for renewable freshwater resources in Mediterranean countries (2005-2010)



Note: Blue line represents the "water stress threshold". Data sources: Plan Bleu. Mediterranean strategy for sustainable development follow-up.

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