14.
Summary assessment


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14.
Summary assessment

14.1 Introduction

The Seventh Environment Action Programme (7th EAP) plays a central role in the current European environment and climate policy landscape, providing strategic direction and a framework for EU environmental policies. Since its publication, it has underpinned initiatives such as the circular and low-carbon economy. Over the same period, there have been globally driven complementary policy developments in the form of the Paris Agreement on climate change and the 2030 agenda for sustainable development (Chapter 2).

The 7th EAP thematic priority objectives build on existing environment and climate legislation and policy initiatives and promote their implementation. Effective implementation of the environmental acquis provides the foundation for securing these broader, more strategic objectives as well as contributing to the 2050 sustainability vision of the 7th EAP. The preceding chapters provide an overview of past trends, outlooks and prospects towards policy objectives and targets. These are brought together here to provide an overview from the perspectives of the 7th EAP's priority objectives. The summary assessments of past trends and prospects are broader than those found in a series of reports published by the EEA, which used a stable set of indicators to monitor the progress of the 7th EAP at action level (EEA, 2016, 2017, 2018). The summary assessment also goes beyond those reports by providing a longer term outlook to 2030.

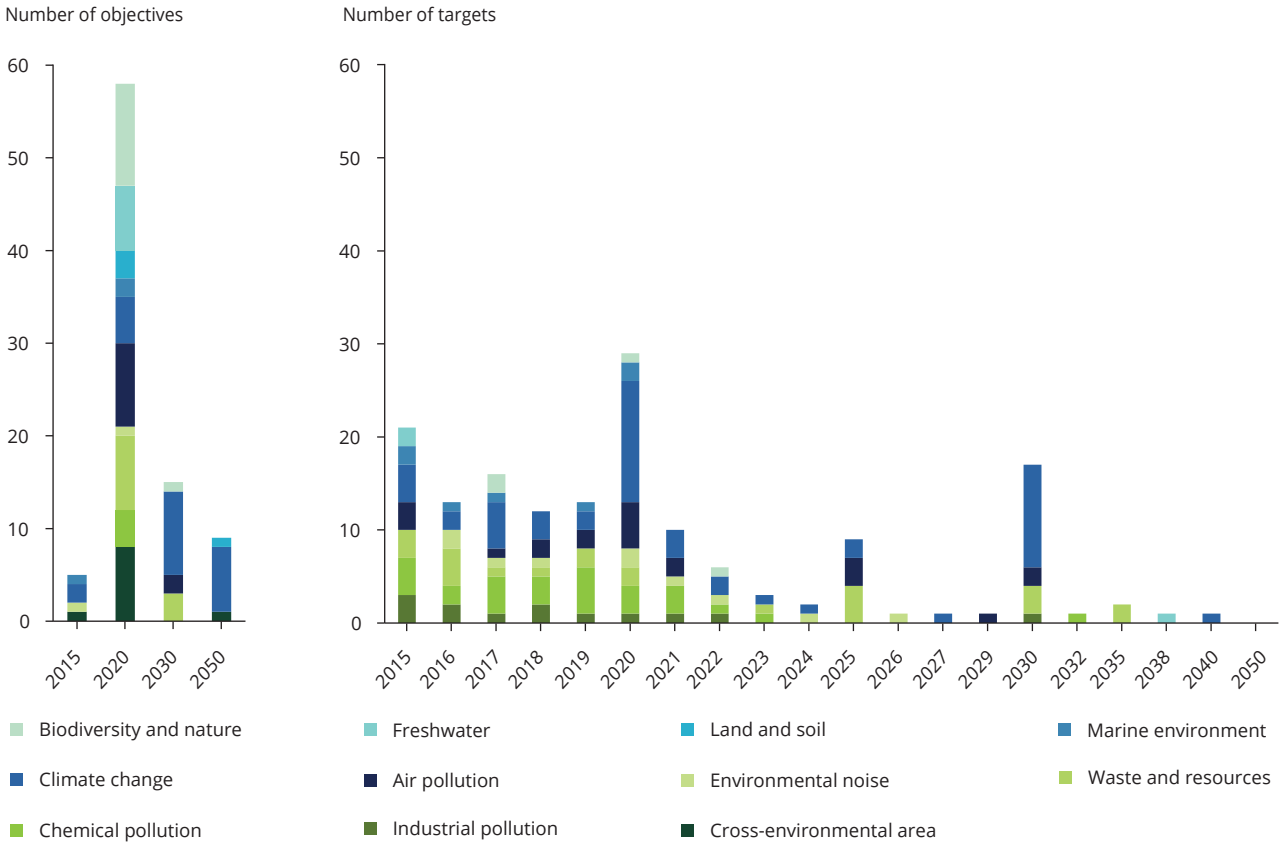
Effective implementation of the environmental acquis provides the foundation for achieving longer term policy objectives.

While environmental objectives are evenly spread across different themes, there are considerably more binding targets for climate change, air pollution, waste and chemicals than for biodiversity, freshwater and the marine environment and none for land and soil (Figure 14.1). Across the 10 environmental themes addressed in T*he European environment — state and outlook 2020* (SOER 2020), the substantial majority of binding targets and non-binding objectives are set for 2020 with a smaller number set for 2030. The summary assessment reflects this, primarily focusing on the 2020 and 2030 time horizons. It also looks ahead to consider prospects in the context of the Sustainable Development Goals (SDGs), as this comprehensive set of sustainability goals and targets can be expected to be increasingly integrated throughout future EU policy frameworks.

14.2 Summary assessment of past trends, outlooks and prospects

The overall summary assessment table presented below has been compiled from the summary assessments in Chapters 3-12. It is structured

FIGURE 14.1 Overview of non-binding objectives and binding targets of EU environmental policy, 2015-2050



Source: Paleari (2019).

While there has been progress in many areas, the EU falls short of achieving a number of environmental objectives and targets for 2020.

by the 7th EAP priority thematic objectives to provide an overview at a European level from the following cross-cutting perspectives: protecting, conserving and enhancing natural capital; resource-efficient, circular and low-carbon economy; and safeguarding from environmental risks to health and well-being.

The assessments summarised in Table 14.1 indicate that, although there have been improvements in many areas, substantial challenges remain and Europe is not on track to meet policy objectives and targets in many areas. The following sections assess progress and prospects in relation to the three thematic priority objectives and selected cross-cutting issues.

14.3 Protecting, conserving and enhancing natural capital

Priority objective 1 of the 7th EAP is 'to protect, conserve and enhance the Union's natural capital' (EU, 2013). The objective recognises the fundamental role of natural capital in determining economic prosperity and social well-being. The scope of the objective encompasses seven main areas:

TABLE 14.1 Summary of past trends, outlooks and prospects of meeting policy objectives/targets

Theme	Past trends and outlook		Prospects of meeting policy objectives/targets		
	Past trends (10-15 years)	Outlook to 2030	2020	2030	2050
Protecting, conserving and enhancing natural capital					
Terrestrial protected areas			☑		
Marine protected areas			☑		
EU protected species and habitats			☒		
Common species (birds and butterflies)			☒		
Ecosystem condition and services			☒		
Water ecosystems and wetlands			☒		
Hydromorphological pressures			☒		
State of marine ecosystems and biodiversity			☒		
Pressures and impacts on marine ecosystems			☒		
Urbanisation and land use by agriculture and forestry					☒
Soil condition			☒		
Air pollution and impacts on ecosystems			☐	☐	
Chemical pollution and impacts on ecosystems			☒		
Climate change and impacts on ecosystems			☒		
Resource-efficient, circular and low-carbon economy					
Material resource efficiency			☑		
Circular use of materials				☐	
Waste generation			☐		
Waste management			☐		
Greenhouse gas emissions and mitigation efforts			☑	☒	☒
Energy efficiency			☐	☒	☒
Renewable energy sources			☑	☒	☒
Emissions of air pollutants			☑	☐	
Pollutant emissions from industry			☐		
Clean industrial technologies and processes			☐		
Emissions of chemicals			☒		
Water abstraction and its pressures on surface and groundwater			☒		
Sustainable use of the seas			☐		
Safeguarding from environmental risks to health and well-being					
Concentrations of air pollutants			☒	☑	
Air pollution impacts on human health and well-being				☑	
Population exposure to environmental noise and impacts on human health			☒		
Preservation of quiet areas			☒		
Pollution pressures on water and links to human health			☒		
Chemical pollution and risks to human health and well-being			☒		
Climate change risks to society			☐		
Climate change adaptation strategies and plans			☐		

(1) biodiversity and ecosystem services; (2) transitional and coastal waters and freshwaters; (3) marine waters; (4) land; (5) the impact of air pollution on ecosystems and biodiversity; (6) the nutrient cycle; and (7) forests.

14.3.1 Progress and prospects to 2030 (2050)

The EU's natural capital is not yet being protected, conserved and enhanced in line with the ambitions of the 7th EAP. A low proportion of the assessed protected species (23 %) and habitats (16 %) are considered to be in favourable conservation status, and Europe is not on track to meet its overall target of halting biodiversity loss by 2020. Significant progress has been made in areas such as designation of protected areas, some species have recovered and action has been taken to address specific threats, for example the EU initiative on pollinators. Policy responses, although successful in some areas, have been insufficient to halt biodiversity loss and the degradation of ecosystem services. The prospects to 2030 would be more positive with more effective implementation of existing policies, effective management of sites and improved policy coherence, especially for sectoral policies, particularly agriculture (Chapter 3).

Reduced pollution has improved the quality of Europe's water, particularly following the implementation of urban waste water treatment. However, the objective of achieving good ecological status for all of Europe's water bodies by 2020 will not be met, as currently only 40 % of surface waters have achieved good ecological status and 38 % have achieved good chemical status. The situation is more positive regarding groundwater bodies, with 74 % achieving good chemical status and 89 % achieving good quantitative status. The main pressures on Europe's surface and groundwater bodies continue to arise from nutrient and other chemical pollution, changes in hydromorphology and water abstraction. While some pressures such as point source pollution and water abstraction have declined, others have not. Looking ahead, although Europe is on the way to achieving good status of its water bodies, river basin management will need to evolve to address the management of water quality and quantity in the context of a changing climate and potentially increasing pressures on aquatic ecosystems and wetlands. Doing so would also support the achievement of biodiversity and marine policy objectives (Chapter 4).

Turning to the marine environment, European countries have, through joint efforts, managed to reduce selected pressures and positive effects are starting to be seen. These include recovery of some fish stocks and species, and an increasing number of stocks are now being fished at maximum sustainable yield. The target for designation of marine protected areas has been met, but trends in widespread or common species are mixed. The target of achieving good environmental status of European marine waters by 2020 is unlikely to be achieved in relation to key pressures such as contaminants, eutrophication, invasive alien species and marine litter. Looking ahead, the marine environment is under pressure from the developing blue economy, which includes traditional and emerging maritime activities such as extraction of living and non-living resources, transport, energy production and tourism. In the face of this unprecedented amount of human activities competing to use the marine environment, the outlook for achieving the policy vision of healthy, clean and productive European seas is challenging (Chapter 6).

Land and soil function together to provide a range of ecosystem services including food production, nutrient cycling and climate change mitigation and adaptation. The proportions of Europe's main land cover types are relatively stable. Annual net land take has decreased from 922 km^2 in the period 2000-2006 to 440 km^2 in the period 2012-2018, and there has been a decline in the annual rate of loss of land to artificial surfaces. The current rate of land recycling is low (13 % of urban land development), yet this could be key to achieving the EU target of no net land take by 2050. Landscape fragmentation continues to increase, especially in some rural and less populated areas, although the increase was lower in and around Natura 2000 sites than in unprotected areas. Soil degradation remains an issue of concern across many parts of Europe, and the loss of soil functions impedes sustainable land management and therefore the 7th EAP objective of achieving this by 2020. Looking ahead, a review of the challenges facing Europe and developing a coherent policy framework would greatly assist

13 %

of urban land consumed, has been recycled despite urban land recycling being key to achieving the EU target of no net land take by 2050.

Further efforts are needed to protect, conserve and enhance the EU's natural capital in line with the ambitions of the 7th EAP.

BOX 14.1 Challenges, synergies and opportunities — integrated management of nitrogen

The need for integrated and adaptive management approaches for natural capital is clear. Current responses to complex problems can be characterised by fragmented approaches, as illustrated by the case of nitrogen. The 7th EAP aims to ensure that by 2020 'the nutrient cycle (nitrogen and phosphorus) is managed in a more sustainable and resource-efficient way.'

Diffuse pollution from nutrients, from agriculture in particular, affects the status of terrestrial, freshwater, coastal and marine ecosystems and biodiversity (Chapters 3, 4, 5 and 6). There have been improvements in the agricultural nitrogen balance (Chapter 13) and concentrations of nitrates in rivers and groundwater are declining (Chapter 4). The Nitrates Directive is a key instrument for reducing water pollution from nitrates from agricultural sources. A recent review concluded that, despite some positive progress, nutrient overload from agriculture continues to be one of the biggest pressures on the aquatic environment and that further efforts are needed (EC, 2018b).

There are still unacceptable losses of nitrogen to the environment and substantial improvements are needed to manage the nitrogen cycle sustainably. The *European nitrogen assessment* identified a package of seven key actions for better management of the European nitrogen cycle (Sutton et al., 2011). These related to agriculture, transport and industry, waste water treatment and societal consumption patterns and aimed to provide an integrated package for the development and application of policy actions. Six years later, the authors concluded that the *European nitrogen assessment* resulted in a better understanding of the nitrogen cycle and increased awareness of the issues, stimulating further assessments and policy development at global and national levels (Sutton et al., 2017). They also highlight the important role that food choices play in influencing nitrogen emissions (Westhoek et al., 2015) and the potential co-benefits of making a closer link between food choices and the environment, health and well-being (Chapter 16). ■

in achieving the SDG target of land degradation neutrality and the longer term 7th EAP ambition of no net land take by 2050, along with slowing trends in the expansion of urban areas and transport infrastructure (Chapter 5).

Air pollution continues to impact biodiversity and ecosystems through the deposition of excessive nitrogen resulting in eutrophication. In many areas nitrogen inputs from the atmosphere exceed levels that ecosystems can tolerate without being damaged and, in 2016, around 62 % of the area of European ecosystems was exposed to excessive levels. Looking ahead, exceedances should decline, but medium-term projections suggest that biodiversity in 58 % of all Natura 2000 areas will remain at risk from excessive atmospheric nitrogen deposition in 2030 (Chapter 8).

Concentrations in the environment of some individual chemicals targeted by policy instruments have decreased and can be expected to decline further. However, the effects of most chemicals on ecosystems have not been assessed. Accumulation of chemicals and the continued emission of persistent and hazardous chemicals suggest that the impacts of chemical pollution on ecosystems will not decrease and that Europe is not on track to minimise the significant adverse effects of chemicals on the environment by 2020 (Chapter 10).

62 %

of the area of European ecosystems was exposed to levels of nitrogen beyond that which they can safely tolerate.

Climate change is already impacting biodiversity and ecosystems. Looking ahead, climate change impacts are expected to intensify and the underlying drivers of biodiversity loss are expected to persist (Chapter 7). This means that the outlook for protecting, conserving and enhancing natural capital is not positive. Natural capital will continue to be degraded and depleted from habitat loss, fragmentation and degradation, as well as climate change, natural resource extraction, pollution and invasive alien species. Socio-economic activities such as agriculture, fisheries, transport, industry and energy production will continue to exert pressures and demands on Europe's ecosystems. For the forestry and the

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BOX 14.2 Challenges, synergies and opportunities — harnessing the co-benefits of mitigation actions

Pursuing the objective of turning Europe into a resource-efficient, green and competitive low-carbon economy provides opportunities to harness synergies across policy areas. At the same time, it also poses challenges in terms of recognising and addressing trade-offs.

Climate change mitigation is a useful example to illustrate these co-benefits and trade-offs. First of all, recent decreases in greenhouse gas (GHG) emissions in times of economic growth in Europe show that climate change mitigation and economic progress are not mutually exclusive. Indeed, since 2000 eco-industries have outperformed the total economy of the EU-28 in terms of creating economic prosperity and employment. Between 2000 and 2015, employment in eco-industries grew by about 47 % compared with 6 % for the overall economy (Chapter 13).

Climate change mitigation also has strong co-benefits for air pollution. Shifts in the energy sector as a result of EU climate mitigation policy (e.g. the EU Emissions Trading System and renewable energy targets) have contributed to reductions in air pollutants. In addition, policies such as the Nitrates Directive, the market reform of the common agricultural policy and the Landfill Directive have had positive effects on reducing non-carbon dioxide gases, such as methane and nitrous oxide (Chapter 7). In turn, trade-offs between climate change mitigation and air pollution policies need to be carefully considered. For example, promoting diesel vehicles because of their lower carbon dioxide emissions and promoting biomass as a carbon-neutral fuel for domestic heating has led to a decline in air quality, especially in urban areas (Chapter 8). The Montreal Protocol and the banning of chlorofluorocarbons (CFCs), which subsequently caused an increase in the use of substituted hydrofluorocarbons (HFCs), regulated by the Kyoto Protocol, illustrates the need for policy coherence and integrated approaches.

There are also substantial co-benefits between measures to promote renewable energy, energy efficiency and climate mitigation. The additional consumption of renewable energy since 2005 has allowed the EU to cut its demand for fossil fuels and related GHG emissions by about one tenth (EEA, 2017). Reducing GHG emissions, increasing energy efficiency and increasing the share of renewable energy in final energy consumption are complementary and are part of the 2030 climate and energy framework and the recent EU strategy for a climate-neutral economy by 2050 (EC, 2018a). In addition, actions to protect and restore ecosystems can contribute to mitigation and adaptation efforts by reducing emissions caused by ecosystem degradation and by enhancing carbon stocks. ■

fisheries sectors, projected increases in demand for biomass/wood and seafood will require the use of integrated ecosystem management approaches and sustainable forest management to ensure sustainable use of natural capital.

In conclusion, Europe risks destroying its natural capital without a full appreciation of what is being lost. For example, the overall economic benefits of the Natura 2000 network have been estimated at EUR 200-300 billion per year (Brink et al., 2013) and the cost of not reaching the headline targets of the EU biodiversity strategy to 2020 has been estimated at EUR 13 billion per year (COWI and Eunomia, 2019). The mapping and assessment of ecosystems and their services (MAES) process and the EU knowledge innovation project on natural capital accounting (KIP INCA) will strengthen the knowledge base for future actions at European and national levels, including the incorporation of natural capital into accounting systems in order to integrate natural capital concerns adequately into economic systems and decision-making.

Europe risks destroying its natural capital without a full appreciation of what is being lost.

Particularly in relation to biodiversity, when policy objectives and targets are not met, there is a tendency to reiterate them while extending the time frame. Retaining ambition is essential but current approaches do not address the root cause of most of the pressures on Europe's natural capital, which are linked to societal systems of production and consumption. In addition to further implementation of existing policies, including sectoral policies and increased

use of nature-based solutions, structural changes in these societal systems are needed to sufficiently reduce pressures on natural capital and put Europe on track to meeting the ambitions set out in the 7th EAP and the EU biodiversity strategy. These aspects are assessed in Part 3.

14.4 A resource-efficient, circular and low-carbon economy

Priority objective 2 of the 7th EAP is 'to turn the Union into a resource-efficient, green and competitive low-carbon economy' (EU, 2013). Therefore, it is based on the recognition that the prevailing economic paradigm, based on continuously growing natural resource use and harmful emissions, cannot be sustained in the long term (EEA, 2015). The scope of the objective encompasses five main areas: (1) resource efficiency; (2) waste; (3) climate and energy; (4) sustainable consumption and production; and (5) water efficiency.

14.4.1 Progress and prospects to 2030 (2050)

Concerning resource efficiency and the circular economy, trends since 2000 in Europe's territory are encouraging. Material consumption in the EU Member States (EU-28) declined during the last decade, and resource efficiency improved as gross domestic product increased. The circular use of materials has also slightly improved since 2004. Together, this has led to an increase in resource productivity of almost 39 % since 2000, albeit with large differences between countries. This indicates progress in dematerialising economic output, although these trends do not take into account materials used and discarded during the production of imported goods. Looking ahead, prospects to 2030 are highly uncertain, partly due to the absence of measurable and binding policy targets, while global demand for resources is expected to rise strongly (Chapter 9).

Past trends for resource efficiency, the circular economy, and climate and energy are encouraging; the outlook is less positive.

When it comes to waste, past trends show an increase in the amount of total waste generated in Europe, although there are large differences among countries and there has been some decoupling of waste from economic development and population growth. The outlook to 2030 is less optimistic, as certain types of waste are expected to increase and many waste prevention programmes are rather weak and their effectiveness at the European level is unknown. More encouragingly, waste management is improving, with increasing recycling rates and less reliance on landfilling. These positive waste management trends are expected to continue; however, several countries are expected to miss their binding waste management targets and the quality aspects of recycled materials requires increased attention (Chapter 9).

The climate and energy targets for the short (2020), medium (2030) and long term (2050) are a fundamental pillar for achieving a resource-efficient and low-carbon economy. Past trends show that the EU has made substantial progress in decoupling carbon emissions from economic growth. Total greenhouse gas (GHG) emissions declined by 22 % between 1990 and 2017 as a result of the combined effect of policies and measures, and economic factors, including shares of energy from renewable sources increasing steadily to 17.5 % in 2017. Energy efficiency has improved as well, and final energy consumption decreased to levels similar to those in 1990. However, since 2014 an increase in final energy demand has been observed, driven in particular by increased demand from the transport sector. If this trend continues, the EU's 2020 target for energy efficiency might not be met without additional efforts (Chapter 7).

The medium and long-term outlook for climate and energy is less positive. With existing policies and measures, the estimates reported by Member States suggest reductions in GHG emissions of 29 % by 2030 compared with 1990 levels, whereas the EU target is at least 40 %. Even faster rates of emission reductions and stronger mitigation efforts will be required to meet the 2050 objective of reducing GHG emissions by at least 80 %. Likewise, for the EU to reach its 2030 energy targets of 32 % renewables and 32.5 % energy efficiency, continuing at the current rate of progress will not be sufficient. EU legislation was adopted in 2018 in all three areas to ensure stronger climate action to reduce GHG emissions, increase the use of renewables and deliver on energy efficiency targets (Chapter 7). The transformation into a low-carbon energy system requires substantial investments across all sectors and increased efforts regarding the implementation of energy efficiency measures and the further deployment of renewable energy sources, including their uptake in the transport sector.

Transforming Europe into a green and competitive economy requires adopting sustainable patterns of production and consumption. This involves reducing the overall environmental pollution load and the environmental impact of major economic sectors. Past trends show a mixed picture in this regard.

Encouragingly, there have been strong decreases in overall emissions of the main air pollutants, although since 2000 the rates of reduction have levelled off (Chapter 8). Industrial emissions to air and water have decreased substantially, emissions to air of some chemicals have decreased, and clean industrial technologies and processes are gaining ground (Chapter 12). Likewise, more sustainable practices have emerged in the forestry and maritime sectors. Other past trends are less positive. Despite improved efficiencies overall, environmental pressures from transport have increased due to growing demand. Emissions of ammonia from agriculture have recently increased, and the production and consumption of chemicals hazardous to health and the environment has remained stable.

Looking ahead, the prospects for moving towards sustainable production and consumption in key sectors are mostly mixed or even negative. Air, soil and water pollution from agriculture is expected to remain high, despite some regional improvements in relation to the nitrogen balance. GHG emissions, and air and water pollutant emissions from industry are expected to further decline. In the transport sector, GHG emissions might stabilise, but their high level means that transport sector emissions will be a key barrier to the EU's reaching its GHG reduction targets. Regarding chemical production, increases are projected, and hazardous substances in products coming from outside Europe are of particular concern.

Lastly, water efficiency has improved, with decreases in water abstraction of 19 % from 1990 to 2015 for the EU as a whole, but water abstraction still exceeds 20 % of the renewable freshwater resource in 19 % of Europe's areas (Chapter 4). Looking ahead, climate change is expected to increasingly determine water availability, and thus increased focus will be needed on measures to further reduce water use by households and agriculture.

Reaching the EU's long-term policy goals requires sustainable production and consumption patterns.

In conclusion, Europe has been able to reduce GHG emissions and air pollution, improve resource efficiency and energy efficiency, and achieve higher shares of renewable energy while increasing economic growth. However, much remains to be done to improve the environmental sustainability of Europe's production and consumption patterns and to reach long-term policy targets and objectives. This would require consideration of the co-benefits and trade-offs between policy areas, including climate, resource efficiency and environmental policies, in the design of new legislation. In addition, the assessment of progress does not take into account the full environmental impacts of production and consumption in Europe exerted outside Europe. These aspects are assessed in Part 3.

14.5 Safeguarding people from environmental risks to health and well-being

Priority objective 3 of the 7th EAP is 'to safeguard the Union's citizens from environment-related pressures and risks to health and well-bring' (EU, 2013). Therefore, it is based on the recognition that human health and well-being are intimately linked to the state of the environment. The scope of the objective encompasses seven main areas: (1) air quality; (2) environmental noise; (3) drinking and bathing water quality; (4) hazardous chemicals; (5) pesticides; (6) nanomaterials; and (7) climate change adaptation.

14.5.1 Progress and prospects to 2030 (2050)

Environmental pressures continue to contribute significantly to the overall burden of disease in Europe, in particular non-infectious diseases. While emissions of air pollutants have declined, almost 20 % of the EU-28 urban population lives in areas with air pollutant concentrations above at least one EU air quality standard and up to 95 % lives in areas exceeding World Health Organization (WHO) air quality guidelines for ozone. The latest estimates indicate that exposure to fine particulate matter (≤ 2.5 µm, $PM_{2.5}$) is responsible for around 400 000 premature deaths in Europe every year with the largest relative impacts observed in central and eastern European countries. Looking ahead, it is envisaged that the commitments to reduce air pollutant emissions by 2030 will result in a decrease in the population exposed to $PM_{2.5}$ concentrations above WHO guidelines. The estimated number of premature deaths attributable to $PM_{2.5}$ should halve, although at 194 000 there is still a need to substantially reduce the number. Developments in the transport sector are also not compatible with objectives for local air quality (Chapter 8).

Environmental noise continues to constitute a major environmental health problem, with at least 20 % of the EU's population living in areas where noise levels are considered to be harmful to health. It is estimated that long-term exposure to environmental noise contributes to at least 48 000 new cases of heart disease each year. Although

BOX 14.3 Challenges, synergies and opportunities — addressing inequalities

Safeguarding human health is an important driver for environmental policy, but environmental risks to health do not affect everyone in the same way. The unequal distribution of environmental and socio-economic conditions combined with pervasive inequalities affects vulnerability to multiple environmental pressures, including those related to environment and climate.

There are pronounced regional differences in social vulnerability and exposure to environmental health hazards across Europe (EEA, 2019). Groups such as children, the elderly and those in poor health are more vulnerable and tend to be more adversely affected than the general population. The impacts of noise, air pollution and extreme temperatures on health closely reflects socio-economic differences within society. Groups of lower socio-economic status, for example the unemployed and those on low incomes, tend to be more negatively affected. This is as a result both of greater exposure from living in inadequate housing or areas with intense road traffic and of higher vulnerability linked to the ability to avoid or cope with environmental health hazards.

These inequalities are only partially addressed by current policy and practice and are likely to continue in the future. To address this, policies will need to respond to an ageing and increasingly vulnerable population concentrated in urban areas and to the unequal distribution of costs and benefits across society. Enhancing coherence between social and environmental policies regarding health, climate change, air pollution and urban design will help tackle inequalities in environmental risks and impacts on health and well-being. ■

Human health and well-being remain affected by exposure to air pollution, noise, hazardous chemicals and climate change.

a considerable number of people are exposed to noise and 6.5 million people suffer sleep disturbance, this has remained stable since 2012 despite efforts to achieve a significant reduction. Looking ahead, the Environmental Noise Directive has not yet achieved its full potential. Further implementation and progress in developing quiet areas will contribute to reducing the health impact of noise and also benefit biodiversity (Chapter 11).

There have been improvements in drinking and bathing water quality and both are generally of high quality throughout Europe, reflecting decades of effort and investment. However, some persistent and mobile chemicals resist even advanced drinking water treatment. There is a lack of robust data on the actual exposure of the European population to hazardous chemicals, as well as on their toxicity, to inform an understanding of the risks to human health. Concerns have been increasing over endocrine diseases and disorders, which have grown in line with more widespread use of chemicals. Concerns are also growing in relation to exposure to neuro- and immunotoxic chemicals, which impair childhood development and can result in chronic disease outcomes later in life or in successive generations. Looking ahead, while there is uncertainty around future developments, the accumulation of persistent chemicals and continued emissions of hazardous chemicals suggest that human exposure to complex mixtures of chemicals over a lifetime will not decrease and that Europe is not on track to meet the objective of minimising risks to health from hazardous chemicals by 2020 (Chapter 10).

Climate change presents both direct and indirect risks to health and well-being, especially for more vulnerable groups through impacts from heat waves, forest fires, flooding and changing patterns in the prevalence of infectious diseases. Looking ahead, accelerating climate change is likely to further increase

negative health effects, particularly mortality from heat waves (Chapter 7). Responses such as ecosystem-based adaptation have potential to reduce the vulnerability of communities to climate change and when designed, implemented and monitored appropriately can deliver multiple benefits, including improved health and well-being.

Looking ahead, the outlook for reducing environmental risks to health and well-being is uncertain. The complexity of systemic risks to health, coupled with important gaps and uncertainties in the knowledge base, warrant a precautionary approach. Early identification of emerging issues can help ensure a higher level of public safety and environmental protection. A recent review of emerging health and environment issues highlighted a range of risks, including chemicals in recycled materials, pharmaceuticals and illicit drugs in waste water and surface waters, and persistent and mobile chemicals (EC, 2018c).

In conclusion, European policies have successfully reduced some risks to health and well-being, especially those from air pollution. However, human health and well-being are still affected by exposure to air pollution, noise, hazardous chemicals and increasing risks from climate change. Fully implementing and strengthening the policies Europe has put in place is expected to reduce these impacts. Developing a stronger framework integrating environment and health is an opportunity to take a more holistic approach in which risks to health are managed by considering hazard, exposure and vulnerability and supported by a stronger knowledge base.

14.6 Understanding state, trends and prospects

Looking across the three priority areas of the 7th EAP presented in Table 14.1, Europe has made progress in reducing some key environmental pressures. There are differences in the scope and number of themes included in the summary table in the SOER 2015 (EEA, 2015) and in Table 14.1 that need to be taken into account in any comparison. Overall the summary table shows a similar picture to that presented in SOER 2015 in that policies have had a clearer impact in reducing environmental pressures than in protecting ecosystems and biodiversity, and human health and well-being.

95 %

of Europeans live in areas with ozone pollution that is above WHO guidelines.

Reductions in environmental pressures have not yet translated into a sufficient reduction in environmental impacts, resulting in an outlook towards 2030 that is less positive than past trends in many areas, particularly in relation to natural capital. The outlook for most themes reflects a mixed picture regarding developments across the wide range of factors that determine environmental outcomes.

The prospects for meeting policy objectives and targets show that Europe is either not on track or only partially on track to achieve the majority of objectives and targets included in the assessment. In relation to energy and climate change, the prospects differ when considering different time horizons and prospects are better in the short term than in the longer term.

SOER 2020 shows that Europe is either not on track or only partially on track for the majority of goals and targets.

A variety of factors contribute to this picture, for example:

- While some pressures from agriculture, GHG and air pollutant emissions and levels of resource use have decreased, they remain substantial.

- The complexity of environmental systems can cause a considerable time lag between reducing pressures and improvements in the state of and prospects for natural capital and human health and well-being. In addition, legacies from the past, such as hydromorphological changes in rivers, accumulated pollutants and soil sealing, continue to negatively impact on natural capital and ecosystem services.

- The pace of progress has slowed in relation to, for example GHG emissions, industrial emissions, waste generation, the nitrogen balance, energy efficiency, the share of renewable energy and employment in the environmental goods and services sector. This indicates the need to go beyond incremental improvements and address the systemic drivers behind environmental pressures, such as resource-intensive production and consumption patterns, increasing demand for transport and continuing urbanisation, to achieve the scale of change needed.

- Environmental outcomes are often determined by a complex mixture of factors, as clearly illustrated by the wide range of factors that contribute to biodiversity loss. This can limit the effectiveness of policy measures if the impacts of external pressures counteract the effects of policy measures and local management efforts.

• The situation in Europe is also influenced by global developments, as illustrated by climate change. Europe contributes to global warming — currently 8 % of global GHG emissions — while at the same time it is affected by changes in the global climate system. This includes direct effects, such as increased risks of flooding, heat waves and droughts, and also possible indirect effects triggered by climate change impacts outside Europe, such as global food price volatility or the economic repercussions of extreme weather events.

14.7 Supporting action — the Seventh Environment Action Programme enabling framework

The 7th EAP enabling framework aims to support effective action to achieve the three priority objectives (POs). It contains a range of horizontal measures that also aim to benefit environmental policy beyond the scope and time frame of the 7th EAP (EU, 2013). The focus here is on three of the key pillars of the enabling framework, with the others, namely securing investment for environment and climate policy (PO 6), enhancing the sustainability of cities (PO 8) and increasing the effectiveness of addressing international environment and climate-related challenges (PO 9), as addressed in Parts 3 and 4.

14.7.1 Improving implementation

Priority objective 4 of the 7th EAP is 'to maximise the benefits of Union environment legislation by improving implementation' (EU, 2013). A recent study estimated that the total costs to society of current gaps in the implementation of environmental policy is at least EUR 55 billion annually (COWI and Eunomia, 2019). The European Commission launched the Environmental Implementation Review in 2016 with the aim of improving implementation by identifying causes of gaps in implementation and addressing systemic obstacles to environmental integration across policy sectors. The main challenges and good practices are mapped across countries. A review undertaken by the European Parliament on the implementation of the 7th EAP identified a range of issues that need to be addressed (European Parliament, 2017). These are coherent with the assessments in the preceding chapters, which identify a range of successes and challenges regarding implementation.

The cost of not implementing EU environmental policy is at least EUR 55 billion annually.

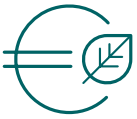
Looking across the three thematic priority areas, significant gaps in implementation, enforcement, financing and policy integration are affecting efforts to protect European ecosystems (EC, 2019a). While Europe has reached its target regarding designation of protected areas, designation is not a guarantee of effective management and conservation (Chapters 3 and 6). However, the situation regarding a resource-efficient, circular and low-carbon economy is more positive. There is a good level of implementation of climate legislation and the 2020 targets will be met. However, waste management and waste prevention have been identified as problematic issues (EC, 2019a; European Parliament, 2017). Regarding environmental risks to health and well-being, key areas to address include the failure to implement air quality legislation in urban areas, the need to accelerate reduction of emissions by further reducing emissions from transport and agriculture, and developing action plans to tackle environmental noise.

In addition, important policy gaps remain. For example, a coherent policy to protect Europe's soils from erosion, compaction, sealing and contamination is missing, and policies to curb land take and land fragmentation lack clear targets, measures and incentives. Current policy frameworks contain few long-term binding objectives and targets (Figure 14.1), which, combined with shorter and medium-term targets, can enable progress towards longer term, more strategic objectives such as the 7th EAP's vision for 2050.

14.7.2 Environmental integration and policy coherence

Priority objective 7 of the 7th EAP is 'to improve environmental integration and policy coherence' (EU, 2013). This reflects the fact that achieving environment and climate policy objectives depends not only on effective implementation but also on integration of the environment into other policy areas. Although some progress has been made (Chapter 13), overall, environment and climate-related concerns are not sufficiently integrated into other policy areas, with the common agricultural policy (CAP) regularly identified as lacking coherence with the 7th EAP (European Parliament, 2017). The preceding chapters have also highlighted the need for improved coherence between the common fisheries policy, the CAP and biodiversity objectives (Chapter 3) and between rural development plans under the CAP and the Water Framework Directive (Chapter 4) and chemical and waste management

policies (Chapter 9). Strengthening environmental integration into policy areas such as agriculture, transport, industry and energy, and EU spending programmes is essential, but the overall approach of environmental integration has not been successful when it comes to addressing environmental pressures from economic sectors.



System transitions are needed to achieve the EU's 2050 vision of a sustainable, climate-neutral economy.

14.7.3 The knowledge base for environmental policy

Priority objective 5 of the 7th EAP is 'to improve the knowledge and evidence base for Union environmental policy' (EU, 2013). The summary assessment tables in Chapters 3-12 provide information on the robustness of the knowledge base underpinning the assessments in terms of the quality of the evidence, uncertainty and knowledge gaps across the range of environmental themes. Regarding natural capital, important developments such as the MAES process and the EU knowledge innovation project on natural capital accounting (KIP INCA) will strengthen the knowledge base for policy and decision-making. The knowledge base is improving regarding the impacts of climate change and species loss on ecosystem services (European Parliament, 2017). Regarding environmental risks to health, important gaps remain in relation to chemicals, particularly the effects of exposure to mixtures (Chapter 10) and the interaction between systemic risks and other health determinants (European Parliament, 2017).

Looking across the three priority areas, there are also differences regarding the availability of forward-looking information. Outlook information is very limited or lacking for many areas related to natural capital or environmental risks to health and well-being. There is much better availability of outlook information, particularly quantitative projections and modelling of scenarios in relation to climate, energy, air pollutants and transport.

14.8 Looking ahead: the Seventh Environment Action Plan vision, the Paris Agreement and the Sustainable Development Goals

The recent evaluation of the 7th EAP highlights its value in providing a framework that has enabled stakeholders to come together to set priorities and one that has contributed to greater coherence in and commitment to EU and national policies and actions. The consensus built around the 7th EAP has also helped European countries speak with one voice in the global context in relation to the SDGs and the Paris Agreement (EC, 2019b).

Efforts over recent decades on policy implementation and integration mean that Europe's environment is in better shape than it would have been otherwise, providing a solid foundation for future developments. However, the value of this can be expected to decline over time as impacts on the climate, ecosystems and human health are expected to persist or increase. This points to the need for further efforts regarding policy implementation and integration, as well as systemic and integrated approaches that address natural capital, climate change, resource use and environment and health challenges in a broader sustainability context.

While the interrelated nature of the priority objectives of the 7th EAP provide an opportunity to harness synergies across policy areas and scales, this also presents challenges in terms of addressing issues in an integrated way. Gaps remain between ambitions, for example that 'structural changes in production, technology and innovation as well as consumption patterns and lifestyles have reduced the overall impact of production and consumption in the food, housing and mobility sectors' and the largely thematic and sectoral focus of current actions. Indeed, the evaluation of the 7th EAP highlights that the ecological impacts of the mobility sector and food system remain too high (EC, 2019b).

A major opportunity exists in relation to the climate-neutral, circular and bioeconomy strategies in the EU. These frameworks rely on the same natural resource base; therefore, more integrated management of natural resources, including consideration of potential synergies and trade-offs, would enable more effective reduction of environmental pressures along the value chain. This would improve consistency between producer and consumer-oriented policy interventions and bring a spatial perspective that respects ecosystem functions, prioritises conservation measures and accounts for the dynamics of the wider countryside.

Looking ahead, achieving the 2050 vision of the 7th EAP, as well as Europe's related vision for a sustainable economy, will require system transitions supported by new types of knowledge, policy design and governance arrangements. These aspects are assessed more fully in Parts 3 and 4.