# European Environment Agency

## 1994-2019

We've spent **25 years** providing the information and analysis needed for a sustainable future built on better environmental laws and an informed and active European citizenry of 500 million people.

And now ...

... we are ready for the big challenges of the next 25 years. On our 50th birthday we plan to **celebrate living together in harmony with our environment** in a resilient Europe.

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**We've spent 25 years providing the information and analysis needed for a sustainable future built on better environmental laws and an informed and active European citizenry of 500 million …**

**and now we are ready for the big challenges of the next 25 years. Let's all look forward to celebrating living together in harmony with our environment in a resilient Europe on our 50th birthday.**

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Twenty-five years ago, the New York Times wrote that a newly-created European Environment Agency had begun 'building an exhaustive picture of the grime and muck, the ozone and the concrete that are slowly cannibalizing life in the European landscape'. The immediate challenge was 'to link Europe's multitude of groups and institutes observing the environment into a single continental monitoring network'.

The birth of the EEA was actually partly triggered, several years before, by Europe's worst environmental disaster: Chernobyl. After the nuclear meltdown in 1986, European Commission President Jacques Delors realised that there was no Europe-wide information resource on the environment.

However, a handful of pioneers at the Directorate General for the Environment of the European Commission were investigating how relevant information could be gathered to design environmental policies and legislation across Europe. Those pioneers began to work on two related aspects that were completely revolutionary for the time: a data-driven state of the environment report for Europe and the launch, in 1985, of a programme to coordinate environmental information in Europe, the CORINE programme. This was not a simple task but those pioneers succeeded.

In 1989, the European Commission presented proposals for a fully-fledged environment agency as well as a monitoring and information network. That year, the Danish government put forward the successful bid to host the Agency, referring to the need for solid data as the basis of an early warning system to help deal with environmental problems that did not respect national boundaries. Thus started a process that resulted in the decision in 1993 to base the EEA in Copenhagen. The European environment information and observation network (Eionet), which today is the gold standard in providing timely and targeted environmental information to policy makers and the public, was also born. This is the foundation on which we have based all our activities over 25 years. During that time, the goal has not changed: making sure we can see what is really going on in Europe's environment so action can be taken to look after it.

Climate change, biodiversity loss, over-exploitation of natural resources and air pollution. These are examples of the global environmental challenges we face. The recent UN report on Biodiversity and Ecosystem Services (IPBES) found that nature is being eroded at rates unprecedented in human history. It makes for shocking reading but assessments of this sort are key to solving our common problems.

Providing information about the state of Europe's environment is key to supporting policy-making. By recognising the complex nature of environmental and climate challenges, the EEA and Eionet go beyond the collection of data. We try to understand how nature, the economy and human health are connected and how related policies can best be constructed.

Thousands of people — scientists, technologists, politicians, administrators and citizens — have contributed to the growth of the EEA. On our birthday we would like to thank everyone who has been an active partner. We hope you will remember some of the events we describe and names we mention — and be proud to have been part of it all.

Yet, our work is not going to stop here. Paying close attention to important policy frameworks and initiatives, such as the 'European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy' and the United Nations 'Sustainable Development Goals', we are ready to take on the bigger and more complex challenges that lie ahead.

The people of Europe are demanding action. In May 2019, 96 % of Europeans interviewed said they are concerned about the state of the natural world and that we have a 'responsibility to protect nature' and that this is also 'essential for tackling climate change'. We are listening!

In 25 years' time, we want to say again 'We did it! We provided the data and the knowledge needed to support the building of a resilient, sustainable Europe which is living in harmony with our environment.'

**Hans Bruyninckx**
Executive Director, the European Environment Agency,
Copenhagen, June 2019

# Eionet: our beating heart


Eionet is *our* beating heart. The network links the EEA, seven European Topic Centres and approximately 1 500 experts from 39 countries in 400 national bodies dealing with environmental information.

Eionet delivers reliable and comparable information on Europe's environment as a result of efforts at the national level to **monitor, collect data and report**. Our 33 member countries and our six collaborating countries benefit from a platform where they can access and share advice, expertise and experience. This knowledge also assists national networks in assuring compatibility with EU and international reporting obligations.

Our **National Focal Points**, based in national environmental organisations or ministries, coordinate sub-networks of national experts to provide data and expertise in a specific environmental area. Each of our seven **European Topic Centres** consolidates expertise into virtual centres of excellence that support the EEA's work. They currently focus on:

- air pollution, transport, noise and industrial pollution;
- climate change mitigation and energy;
- climate change impacts, vulnerability and adaptation;
- biological diversity;
- inland, coastal and marine waters;
- urban, land and soil systems;
- waste and materials in the green economy.

**Shared infrastructure, knowledge and good practice**

To facilitate this knowledge network, the EEA developed a web-based infrastructure called Reportnet, which is a transparent means of delivering data and information to various regional and international organisations, not just to the European Commission.

Eionet and its underlying infrastructure strengthen the interface between science and policy by connecting people, and their regions and countries with the rest of Europe and the world. We are continuously evolving this infrastructure to allow us to better manage the volume of data and provide better analysis and deeper understanding.

# From the streets back to citizens — tracking air pollution in Europe

Often labelled as the 'silent killer', air pollution is responsible for the premature deaths of more than 400 000 Europeans every year according to EEA data. Sectors such as industry, transport, households and agriculture release air pollutants harmful to human health and the environment.

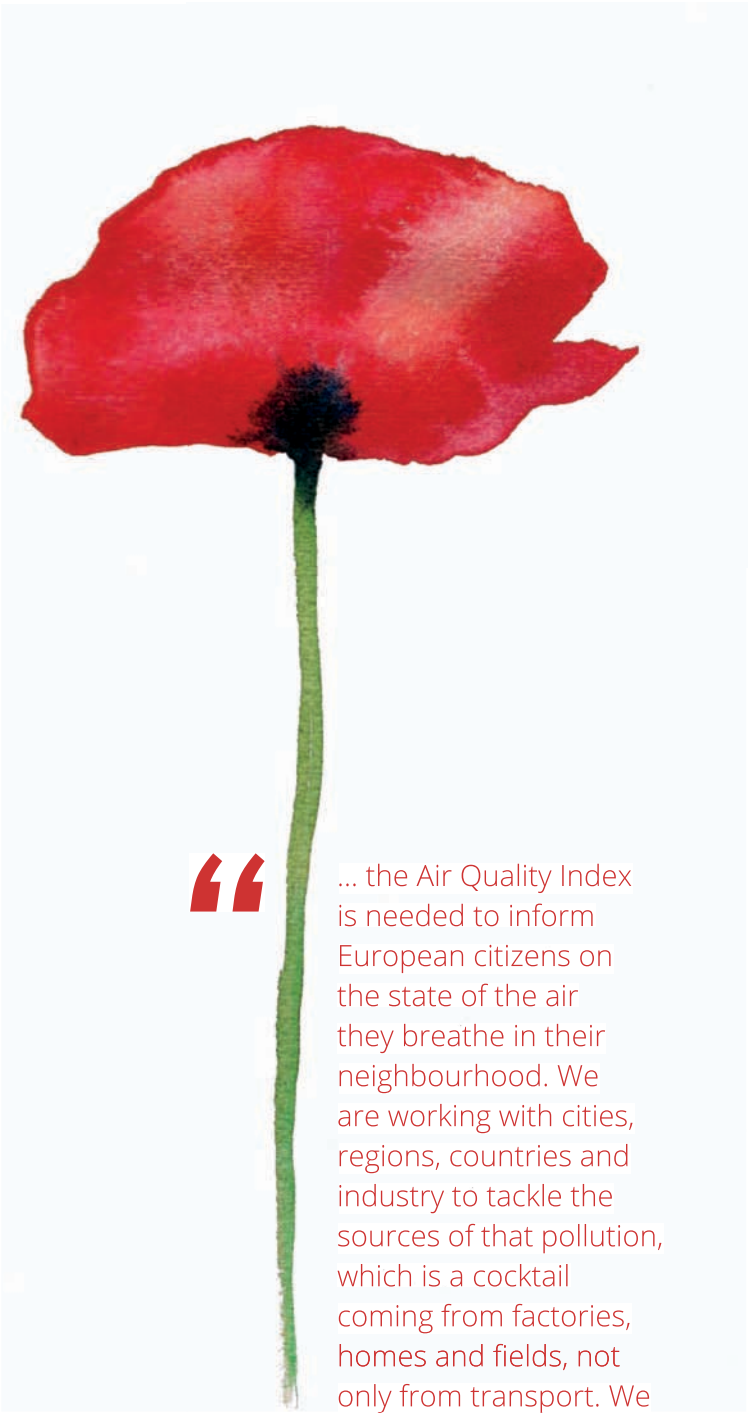
It is encouraging to see that over the past decade, air quality has slowly improved in many of Europe's cities as a direct result of implementing robust air quality policies at local, national and international levels. Nevertheless, many cities and regions still experience exceedances of the regulated limits for air pollutants; exceedances, which for some pollutants will persist over the coming years.

The EU's Seventh Environment Action Programme for 2014-2020 (7th EAP) confirms the EU's commitment to ensuring cleaner air by 2020 by moving closer to the more ambitious World Health Organization's recommended air quality reference levels.

The European Air Quality Index is an interactive map displaying up-to-date air quality information reported every hour by more than 2 000 traffic, urban and regional air quality monitoring stations across Europe. These data are complemented by air quality data provided by the EU's Copernicus Atmospheric Monitoring Service — a part of the EU Earth observation satellite system.

The index gives citizens and public authorities an overview of the air quality where they live or work, or in places they are traveling to. The index classifies air quality on a scale from good to very poor, based on five key pollutants: particulate matter (i.e. $PM_{2.5}$ and $PM_{10}$), ground-level ozone, nitrogen dioxide and sulphur dioxide.

The Agency's contribution goes beyond just looking after the air quality data monitored across Europe. It also adds value to these data by analysing them and providing feedback to European countries as well as institutions, scientists and citizens. The EEA's assessments on air quality address environmental status and trends, track progress against objectives and targets set in the European Union's air-related legislation and evaluate the effectiveness of policies. They also communicate complex phenomena in a manner that non-specialists can understand. The methodology behind the EEA Air Quality Index is now being used by a number of EEA Member Countries at a national level. This is just one example of how the EEA and Eionet contribute to the long-term objective of a cleaner and healthier environment.



> "... the Air Quality Index is needed to inform European citizens on the state of the air they breathe in their neighbourhood. We are working with cities, regions, countries and industry to tackle the sources of that pollution, which is a cocktail coming from factories, homes and fields, not only from transport. We must work together to improve air quality."
>
> Karmenu Vella,
> EU Commissioner for the Environment, Maritime Affairs and Fisheries, Brussels, November, 2017.

**I see major opportunities for the EEA and Eionet to enhance the impact and influence of practice-based knowledge … to communicate knowledge and motivate action you need to engage people emotionally. So we need knowledge that creates feelings. That often requires a good story.**

Per Mickwitz, chair of the EEA Scientific Committee, speaking in *Sustainability transitions: Now for the long term*, EEA report, 2016

**Our biggest task is to make sure that European citizens understand the vital role the environment plays in our everyday lives.**

Laura Burke, Chair of the EEA Management Board and Director General of the Irish Environmental Protection Agency, Copenhagen, September 2017

**Environment policy isn't just about protecting nature. It's about creating the conditions in which we can all prosper. It is jobs, wealth and health. There will be no green transition unless it's a just transition as well — an inclusive transition, building an economy where all citizens can find their place.**

Commissioner Vella, speaking at the launch of an EEA report on environment and social vulnerability, Brussels, February 2019

**Copernicus presents a huge opportunity for the European Union as it will provide information on our environment. It will monitor climate change and will improve security for our citizens. It will trigger investments made by companies delivering space infrastructure and will thus create growth and jobs. It will also encourage downstream industry, namely the people who develop innovative applications or services to ensure that citizens and enterprises benefit from such public investment.**

Antonio Tajani, President of the European Parliament, Brussels, May 2013

**The EEA's State of the Environment report provided some of the key inputs on the basis of which we were able to take important decisions that have allowed us to come forward with this proposal.**

Janez Potočnik, former European Commissioner for the Environment, speaking about SOER 2015

## 1994

**EEA/EIONET** operational.

**European Rivers and Lakes – Assessment of their Environmental State** – the first assessment of Europe's surface inland waters (EEA, the former Danish National Environment Research Institute).

European Environment Agency

## 1995

**Europe's Environment – The Dobris Assessment**, presented at the Third Pan-European Environment Ministers' Conference, provides a striking picture of how environmental problems are common to all European countries.

**Environment in the European Union 1995**, the first EEA state and outlook (SOER) report, addresses the targets of the fifth European Action Programme and focuses on sectoral integration.

**EEA website** goes live.

## 1996

First report on **Environmental Taxes – Implementation and Environmental Effectiveness** looks at market-based instruments established by EU environmental law.

## 1997

**Public Access to Environmental Information** report provides timely input to the review of the EU Directive 90/313/EEC on the freedom of access to information on the environment.

## 1998

Supporting the Fourth Pan-European Environment Ministers' Conference, **Europe's Environment – The Second Assessment** states that the environmental challenge provides a positive opportunity for a pro-active approach to re-orienting the economic policies of an enlarged Europe.

## 1999

**Environment in the European Union at the turn of the century**, the second EEA SOER report, provides a forward-looking approach to economic, sectoral and environmental policies

## 2000

**TERM 2000**, the first indicator-based report monitoring environmental integration in the transport sector.

First edition of **EEA's Environmental Signals**, indicates the implementation progress of environmental policies and the integration of sectors and the environment.

## 2001

**Renewable energies: success stories** demonstrates the EEA's determination to not only provide information but to gather and share best practice to support policy-making on matters of sustainable development.

## 2002

**Late lessons from early warnings: the precautionary principle 1996-2000** collects case studies on the use or misuse of the precautionary principle.

**Energy and environment in the European Union**, first indicator-based report on energy and environment.

**ReportNet** — Eionet's infrastructure for supporting and improving data and information flows is launched.

## 2003

**Third Pan-European State of the Environment Report** presents an integrated approach on environmental issues and sectoral policies to the Kiev Ministerial Conference.

## 2004

EEA **European Pollutant Register** launched.

## 2005

EEA receives **EMAS registration.**

**The European environment – state and outlook 2005, the third EEA SOER report** provides timely input to the mid-term review process of the Sixth Environment Action Programme.

## 2006

Joint EEA, JRC report on **Urban sprawl in Europe – the ignored challenge'** describes the need for action to ensure the future of our cities.

## 2007

**Europe's environment – the fourth assessment** presented at the Sixth Pan-European Ministerial Conference of the Environment for Europe process in Belgrade, suggests that a target to halt biodiversity loss in the pan-European region by 2010 will not be met.

**Water Information System for Europe (WISE)** web-portal providing water-related information ranging from inland waters to marine.

## 2008

Joint EEA, JRC, WHO report **Impacts of Europe's changing climate – 2008 indicator-based assessment** informs about climate change and identifies adaptation needed.

## 2009

The European Commission and the EEA jointly launch the **European Pollutant Release and Transfer Register**, containing information about the emissions of pollutants to air, water and land by industrial facilities

Ahead of COP15 in Copenhagen, **EEA Signals 2009** addresses climate change as a priority issue.

## 2010

**European Environment – state and outlook 2010**, the fourth EEA SOER report, addresses the priority areas of the Sixth Environment Action Programme and focuses on systemic environmental challenges.

**Biodiversity Information System for Europe (BISE)** - a gateway to information on biodiversity (EEA, European Commission).

**Natura 2000 viewer** provides up-to-date information on the European network of nature protection (EEA, European Commission).

## 2011

**120,000 bees** on EEA's roof managed by Bybi social enterprise.

EEA assessments on **new approaches to taxation** and the need for **natural capital accounts** are key input in to the European Commission's *Roadmap to a Resource Efficient Europe*

## 2012

**European Climate Adaptation Platform**, a 'one-stop shop' for adaptation information.

EEA implements the **Copernicus Land Monitoring Services**, providing users with geographical information on land cover/land use and variables related to vegetation state and the water cycle.

## 2013

Second edition of **Late lessons from early warnings: science, precaution, innovation**.

**Copernicus**, the world's most ambitious satellite-based earth observation programme, replaces the Global Monitoring for Environment and Security.

## 2014

**Marine Litter Watch** combines citizen engagement and modern technology to tackle marine litter.

**EEA Air Quality e-Reporting** platform provides faster access to air quality information.

EEA coordinates **Copernicus In Situ Component** — observation data from ground, sea or air-borne sensors.

## 2015

**European Environment – state and outlook 2015**, the fifth EEA SOER report, highlights the need for systemic transitions to achieve Europe's 2050 vision.

EEA and other EU agencies support the launch of the European Commission's **Information Platform for Chemical Monitoring** that monitors chemicals in humans and the environment.

## 2016

Joint EEA, Eionet report **Sustainability transitions: Now for the long term** is an initial attempt to explore the concepts of sustainability transitions and transformations.

## 2017

**European Air Quality Index** provides real-time air quality information.

**Wise-Marine** — a portal to share information on the state of the European marine environment (EEA, Commission Services).

## 2018

**European waters — Assessment of status and pressures 2018** informs the evaluation of the Water Framework Directive.

**The Circular economy and the bioeconomy — partners in sustainability** explores these two policy agendas.

## 2019

**Unequal exposure and unequal impacts: social vulnerability to air pollution, noise and extreme temperatures in Europe** draws attention to the close links between social and environmental problems.

**European Environment — state and outlook 2020, the sixth EEA SOER report,** focuses on the priority areas of the Seventh Environment Action Programme and prospects of sustainability.

Copernicus Sentinel 2A Image - Southern France

# Monitoring

# Data

# Indicators

# Assessment

# Knowledge

# Communication

# What's happening? Does it matter? Are we reaching targets? Are we improving? Are the measures working?

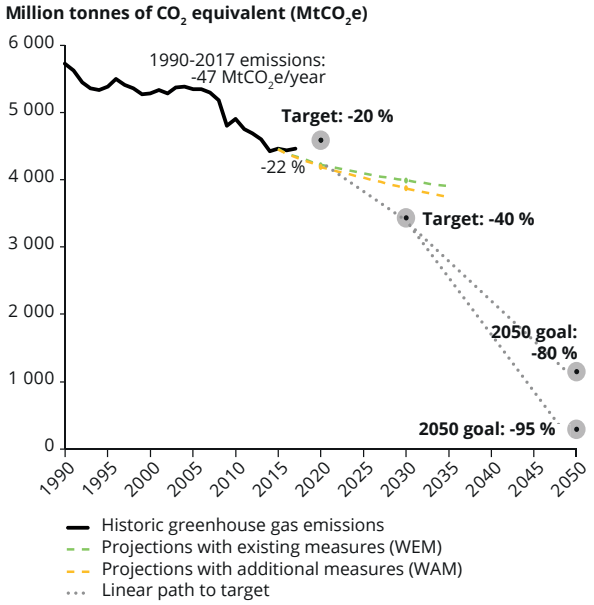
The EEA and Eionet co-create knowledge using a variety of approaches, including, what we refer to as the MDIAKC approach. The steps in the chain refer to the monitoring of the environment, which produces data, which is then turned into indicators that tell us about a specific topic or topics and which, in turn, can be developed into an integrated assessment on a wider issue. Reflecting on what we learn then allows us to deepen our knowledge, which we communicate with those who will find it useful.

Early in the chain we are looking to see that the monitoring is of the highest quality, so it can be used to answer questions reliably. Many kinds of measurements of environmental parameters are introduced at the monitoring stage, from people taking water samples by hand to automatic air quality sensors and to the colossal flood of real-time data pouring in from Copernicus satellite instruments.

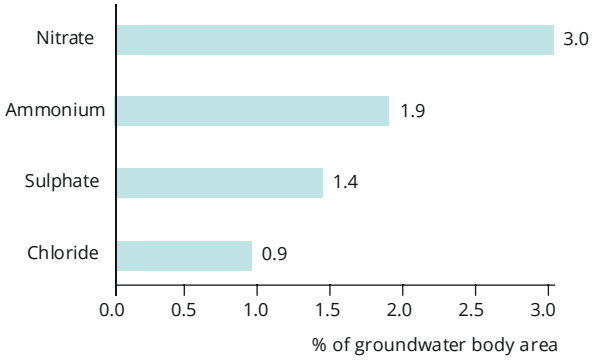
The MDIAKC process is part of our DNA. We focus on the whole chain; we create data, information and knowledge that always exist within a context. We organise this work internally across our eight EEA programmes, which include the following thematic, support, coordination and communications functions:

- Administrative services
- Coordination and strategy
- Communications
- Data and information services
- Natural capital and ecosystems
- Climate change, energy and transport
- Health and sustainable resource use
- Integrated assessments for sustainability

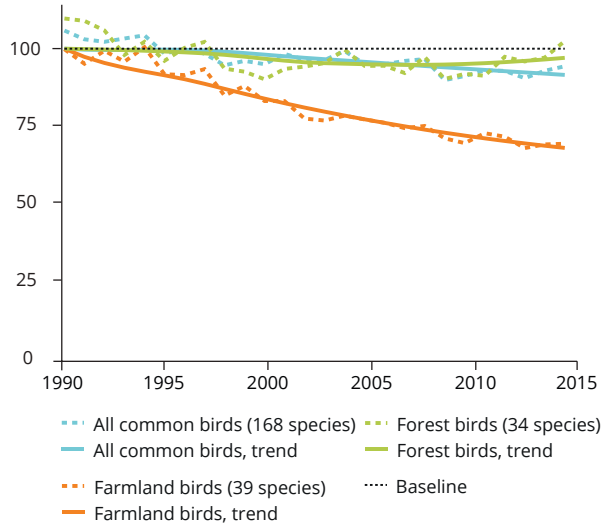
**Greenhouse gas emission trends, projections and targets in the EU, 1990-2050**




**Pollutants with a trend reversal by area of groundwater bodies**




**EU Common birds - population index (1990 = 100)**



# Natural capital and ecosystems

Biodiversity, or biological diversity, is the term used to capture the variety of all ecosystems, species and genes on Earth. Biodiversity sustains life on Earth and, as part of our 'natural capital', delivers numerous vital services including: provision of food, medicines and energy, pollination of crops, purification of water, protection from pests and diseases, and from climate change and natural disasters.

Despite biodiversity's intrinsic value and its fundamental importance for humans, it is threatened by human activities and continues to be lost. This is estimated to reduce global gross domestic product by 3 % each year.

That is why we monitor biodiversity as carefully as we can. Anyone from the citizen to the scientist can collect data and information from across Europe on a range of topics. These include protected areas, species and habitats; terrestrial, freshwater and marine ecosystems and their services; and interactions between nature, society and the economy. These data and information help achieve the sustainable use of natural capital.

# Climate change, energy and transport

Climate change is already happening. The occurrence of several climate and weather extremes, including heat waves, heavy precipitation, floods and droughts, in many regions of Europe have increased.

Climate change is a key environmental, economic and social challenge globally and in Europe.
On the one hand, most economic activities are contributing to climate change by emitting greenhouse gases or affecting carbon sinks; on the other hand, all ecosystems, many economic activities, as well as human health and well-being are sensitive to climate change.

At the EEA we develop and deliver policy-relevant data, indicators and assessments on climate change mitigation, impacts, vulnerability and adaptation, as well as on land use, land use change and forestry, and the environmental aspects of the energy and transport systems. This information supports the EU in being the most ambitious region of the world in terms of taking action to mitigate against and adapt to climate change.

# Health and sustainable resource use

A clean environment is essential for human health and well-being. However, the interactions between the environment and human health are highly complex and difficult to assess. The best-known health impacts are related to ambient air pollution, poor water quality and insufficient sanitation. Much less is known about the health impacts of hazardous chemicals. Noise is an emerging environment and health issue. Climate change, the depletion of stratospheric ozone, biodiversity loss and land degradation can also affect human health.

At the EEA, we lead and coordinate activities that inform the development of policies addressing human health and well-being, as well as sustainable and efficient resource use. These include activities in the areas of air pollution, environmental noise, chemicals, sustainable resource use, industrial pollution of the air, water, and soil contamination.

The European Human Biomonitoring Initiative is an example of the ground-breaking work the EEA is involved in that uses human biomonitoring to assess our exposure to chemicals and to better understand the associated health impacts and improve chemical risk assessment. This project is a joint effort of 28 countries, the European Commission and the EEA, and is co-funded under the Horizon 2020 Research and Innovation programme.

# Integrated assessments for sustainability

Policies have a key role in determining and improving the state of our environment. European environmental policies have developed significantly since the first Environment Action Programme in 1973. Since then several hundred legal acts addressing environmental issues have been adopted. Environmental policy evaluation helps to identify how and which policies work, and what their contribution can be to 'living well, within the limits of our planet'.

The systemic challenges facing us as a society require integrated approaches to address persistent environmental and health problems, and to transition to a green economy. The EEA supports EU sustainable development objectives through knowledge development, integrated assessments and stakeholder processes in cooperation with Eionet, the European Commission, the European Parliament, research networks and civil society. Together we are mapping and investing in new knowledge needs and delivering innovative, integrated assessments that examine how the EU can best respond to the fundamental challenges of sustainable change.

*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 safe and sustainable global society.*

**Towards 2050**

# The interface of science, policy, society

Today, European citizens — led by our children — are marching in the streets demanding practical action on climate change and a range of other environmental issues. At the same time, the EU has the most comprehensive environmental standards in the world.

The EEA sits between the public concern and the objectives of that legislation. From the onset of our journey, we have recognised the need to operate at the interface between science, policy and society. This role is more important than ever if we are to support the fundamental transitions towards sustainability while protecting the well-being of citizens. This is urgent work. The Intergovernmental Panel on Climate Change warned in 2018 that we have only 12 years to restrict global warming to 1.5 °C.

We are already building a new EEA strategy towards 2030 in the context of these demands and using our latest findings. For example, our next SOER report will assess the implementation of existing policy targets up to 2020 and 2030 and will highlight the urgency of the longer-term transitions necessary to achieving the 2050 vision of sustainability.

SOER 2020 will be key to providing input to the long term EU environment programming ahead.  It will reflect on emerging challenges and future pathways that can facilitate the inclusion of environmental considerations, such as ecosystem resilience and discussions about societal transition and governance models.

# Looking back, moving forward

The great Danish theologian and philosopher, Søren Kierkegaard said that 'life can only be understood backwards; but it must be lived forwards'. That dilemma of looking back while moving consistently forward is especially relevant for us as we celebrate 25 years 'at the heart of Europe's environment'.

Part of our preparations to mark this achievement included looking back through our archives and speaking to past and present colleagues. We also took the opportunity to ask some of our stakeholders for key words they associate with the EEA. 'Data and information'; 'knowledge'; 'network'; 'policy'; and 'society' came up again and again in terms of how you see the EEA and Eionet now. The same words come up when people imagine our role on our 50th birthday when we believe we will be celebrating that we are close to the goal of a Europe 'living well within environmental limits'.

Looking back from the future, our 25th birthday will probably be seen as a turning point from which we moved forward, knowing that although our key mission and those key words would remain the same, our methods were going to grow and change.

At our 25th birthday, the world was realising that it could not go on in its old ways. Changes in the way we live and work were needed to deal with the threats to the environment and climate we faced. Key human systems underpinning our society: energy, transport, food, farming and housing — the nuts and bolts of how we live — all had to be rethought.

What exactly did we do to help bring about change in the next 25 years? We wish that we could tell you the full story now, but we are not at that 50th birthday party yet. But we can outline how we are moving into the future.

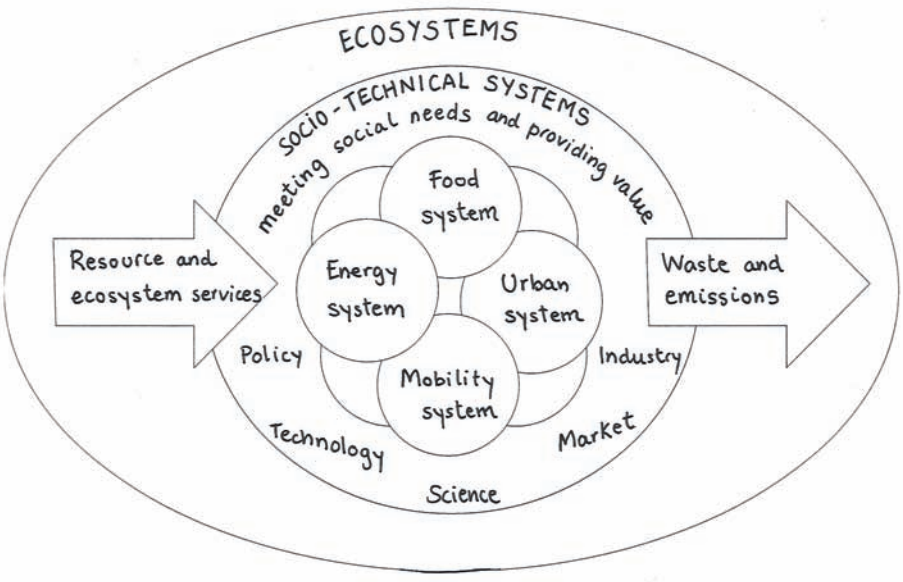
# Our future — data and information

When the questions get tougher, good data are ever more essential. To reach that goal of living well within environmental limits, we know that we will enthusiastically embrace the scale and the complexity of the new data that are beginning to appear. That includes data from researchers in the field, the Earth-observation satellites of the Copernicus programme and the growing networks of sensors on the ground, in the air, out at sea and deep in the ocean. Just as important is the potential for new inputs from the citizens of Europe whose electronic devices and connections give them a chance to participate in monitoring the environment, experimenting with new life styles, and seeing the impact of what they do. The data are rapidly changing in volume, variety, and velocity as real-time data grow, and our focus will be on keeping up with the three 'Vs'.

The potential is immense and can enable a better understanding of what is happening where, why it is happening, and who will be affected by it and how. Looking back, we will see that this will have created unprecedented possibilities for informing and transforming society as well as protecting the environment. Combining unfamiliar new sources of data to create a sharper and more coherent picture will be a big challenge for us, albeit one that will be met by the remarkable skillset that already exists within the EEA and Eionet.

Handling 'big data' will require changes to infrastructure and partnerships. Analysing the data will be an even bigger challenge. We are already adapting reporting processes and increasing organisational flexibility so that we can rapidly absorb the new tools of artificial intelligence and deep learning, with their enormous potential for improving modelling and forecasting.

At our 50th birthday party we will be astonished at how much deeper our understanding of the environment has become.



# Our future — network

Eionet will remain as our core. In parallel, however, we will have broadened our sources of information and formed new partnerships across government, business and society. As we moved into the future, we will have tried to bring together the grand scale and the local level, and see the environment and the way we live in one integrated picture. We will have put environmental changes alongside socio-economic trends and better understand the choices that citizens make.

There are many emerging communities of people who look at societal change in different ways that we will have linked to so that we could co-create new insights. Among them are those looking at the interaction of technology and society, the resilience of systems under stress, the conditions under which rapid change can become possible, and the 'natural laboratories' in big cities where communities create change for themselves from the bottom up.

As the decades pass, we will probably be astonished at the new kinds of networks that emerge to share knowledge and which will allow previously unimagined levels of innovation to come to fruition. Among the citizens of Europe, new ways of living will have emerged and spread, and the local will have been brought into contact with the global though networks that engage multiple stakeholders and new knowledge.

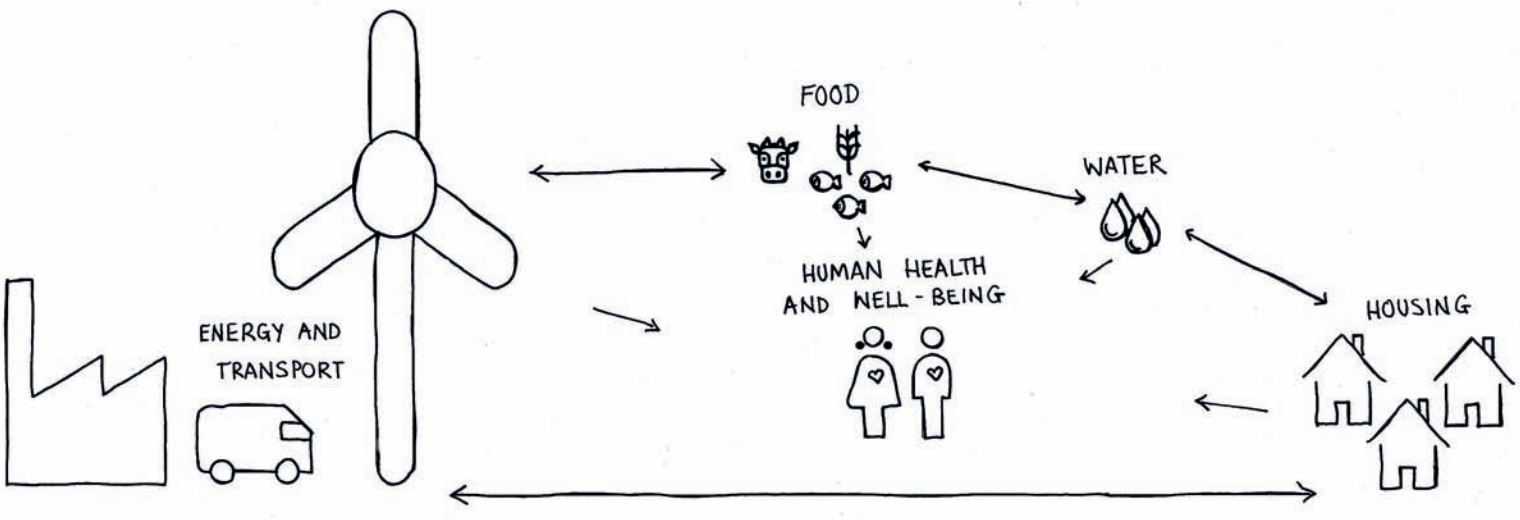
# Our future — knowledge

To help the transition to the sustainable society of the future, we know that we are going to have to create knowledge with unprecedented scale and depth, which crosses environmental, social, political and financial boundaries and is readily accessible to policy makers and the 500 million citizens of Europe.

On our 50th birthday, we hope that we will be able to look back and see that our knowledge went beyond the monitoring and assessment of environmental problems that filled our earliest decades, although that job will have continued into the future. Alongside that, we will have moved on to support radical innovation and the creation of forward-looking solutions. It will be a new form of knowledge that will be used to understand how we can most easily go beyond incremental change and make major transitions in the way we live, eat, travel and use energy.

We'll see that we learnt to acquire the skills needed to understand what it is about societal systems that make transitions more difficult or easier, where blocks to progress may appear, and how to break away from the 'lock in' of the entrenched systems of the past. We will have got to grips too with much bigger, global long-term trends, which may be affecting the future. We will have continued to play to our key strengths as an organisation that brings together others, translates across disciplines, builds networks and provides analysis and new insights.

That may sound like an optimistic look back from the future, but at our 25th birthday the search for new knowledge is already emerging. That is clear in our efforts to map out a circular economy that links resource use, waste management, reductions in energy use and consumption trends, and in our studies of megatrends and sustainability transitions. We are on the way.



# Our future — policy

In the decades leading up to our 50th birthday, our optimistic view is that policy makers will have adapted and changed in order to lead the way towards an equitable, sustainable society.

A culture of foresight, experimentation and interaction will have emerged in order for new technologies, practices and business models to flourish. Governments will have learned how to leverage the innovative powers of citizens and business. They will have supported diverse innovative activities from publicly-funded research and development projects to local social movements, as well as creating new networks of participants. They will have learnt that not everything can be brought about by top-down planning, and that encouraging and sustaining networks created by others can be the most effective way to bring about change.

That at least is how we might foresee the future of policy unfolding and we are ready to develop the support needed, even though we are sure that there will be many unexpected surprises. Sustainability transitions may affect existing systems and business with the introduction of new technologies and practices. Impacts on particular sectors or regions can be severe when technologies need to be phased out or new systems introduced.  Governments will have big roles in offsetting inequities and helping structural change.

At our 50th birthday party, the heroes of the transition to a sustainable society will likely have been our cities and our young people. As hubs for innovation and experimentation, our cities will have provided great opportunities for learning and networks, and proven their skills at achieving system change at local scales. Our young people will have taken their energy and drive into our universities and start-ups that will keep Europe at the forefront of change.

# Our future — society

The future society we hope to be living in is summed up by the EU's 7th EAP:

> *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 safe and sustainable global society.*

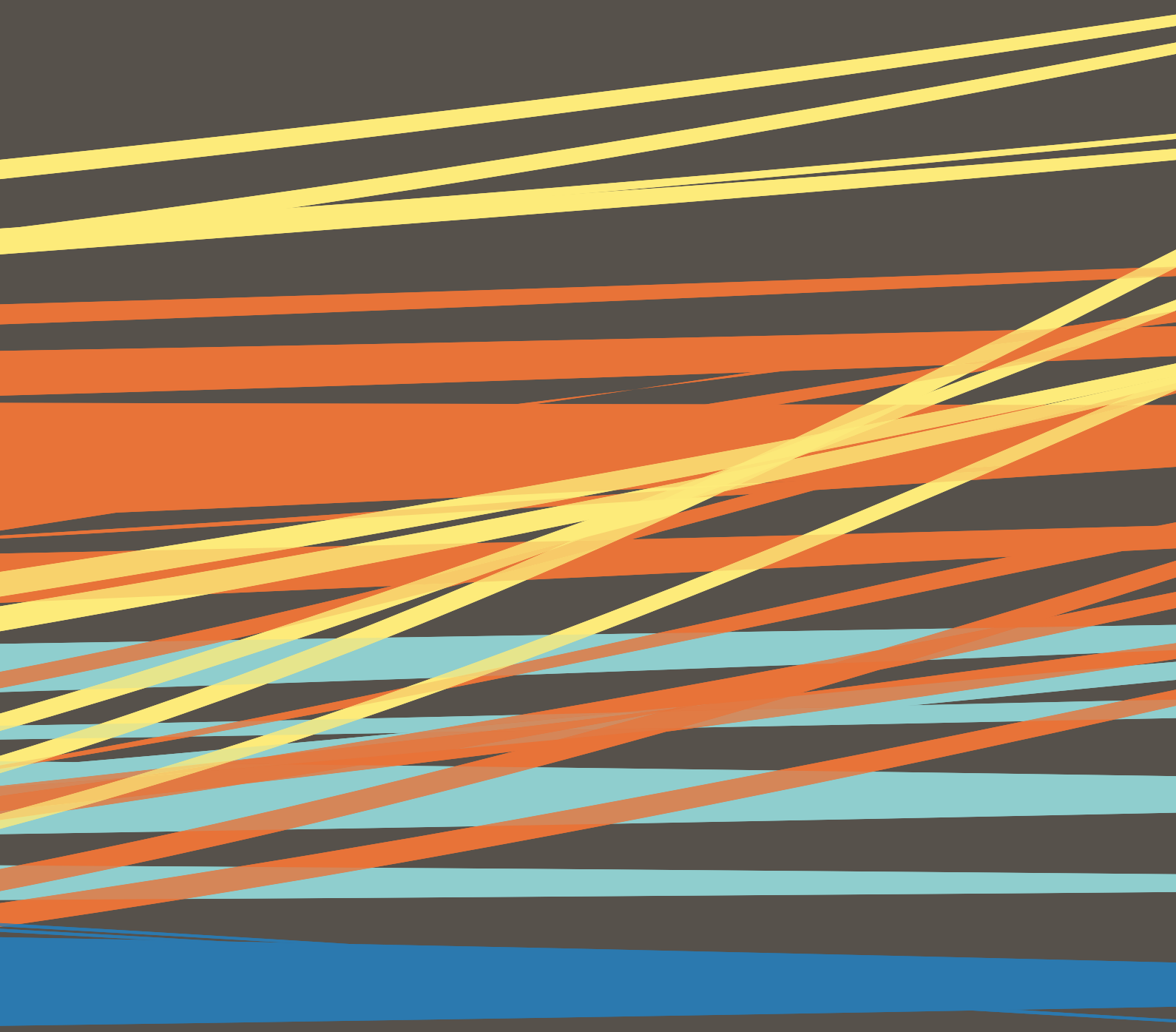
This vision for 2050 is confirmed by the European Commission in *A Clean Planet for All*, the EU long-term vision for a prosperous, modern, competitive and climate neutral economy. By 2044, on our 50th birthday, we expect to be close to achieving it.

Without the benefit of hindsight, we do not know exactly which route we will have taken to this future. We do know now that incremental change will no longer do in energy, transport, housing and farming. But which choices will prove to be wise ones? Will hydrogen prove important in powering transport? Will new agricultural practices boost the sequestration of carbon in the soil and help deal with global warming? Will the citizens of Europe react enthusiastically and change their consumption habits to help the environment? Will new technologies of virtual presence render business travel unnecessary?

On our 25th birthday party we face a maze of questions that we must answer and we relish the challenge. Europe is already a leader in environmental technology and research. If Europe and its empowered citizens make the right decisions, it will reach that long-term vision, provide a shining example to the rest of the world and create a sustainable, equitable society where wealth is measured by the quality of all the lives lived there.

We feel confident that looking back at 50, the EEA and Eionet will have helped provide the wisdom, new knowledge and new ways to measure progress that helped policy makers and citizens pass through what is going to be a challenging transformation to a new society.

# A picture is worth a million (or more) bytes



# A picture is worth a million (or more) bytes

*We live in a fascinating* and *complex world. Come with us on a visual tour and discover how we handle big data and turn it into big ideas.*

*The infographics that follow do not present the full picture — far from it — but they do show how our understanding of the challenges and opportunities facing society are developing. They also give you a sense of the sheer volume of data we receive on a myriad of themes; the mosaic of environmental legislation within which we operate; and the connections that we make with the four environmental topics: nature, air and climate, economic sectors, and sustainability and well-being.*

*You'll see how the great data explosion has contributed to our knowledge. You'll also see some of what the EEA has been up to these last 25 years. Who knows what these visualisations will look like on our 50th birthday!*

---

## Environmental topics and subtopics

**Air and climate**

Air pollution, Climate change adaptation, Climate change mitigation

**Economic secotrs**

Agriculture, Energy, Environmental technology, Fisheries, Green economy, Household consumption, Industry, Tourism, Transport

**Nature**

Biodiversity and ecosystems, Land use, Marine, Soil, Water

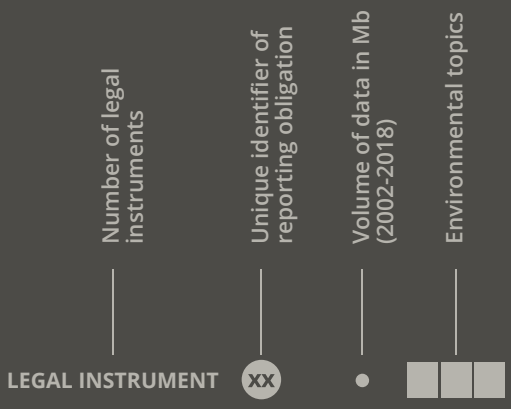
**Sustainability and well-being**

Chemicals, Environment and health, Environmental scenarios, Natural resources, Noise, Policy instruments, Resource efficiency and waste, Sustainability transitions, Urban environment, Specific regions

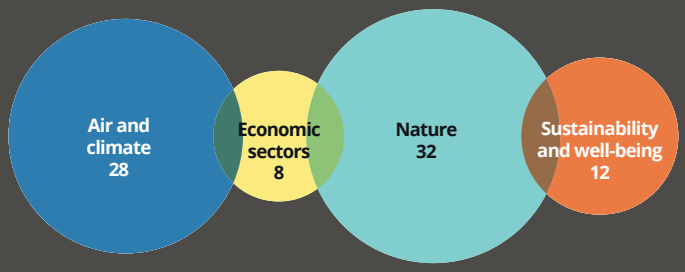
# It's all about the data

Take a look at how essential ReportNet — Eionet's infrastructure for supporting and improving data and information flows — is to the EEA's work, and to environmental and climate governance and protection in Europe. This visualisation is a partial snapshot showing how ReportNet links environmental legislation with the realities of our four environmental topics. How we crunch the data and turn them into knowledge is a story for another time and place, but it is instructive to see at the end of the process where the topics integrate. For example, note how economic sectors always overlap with one or more of the other topics.

## Legend

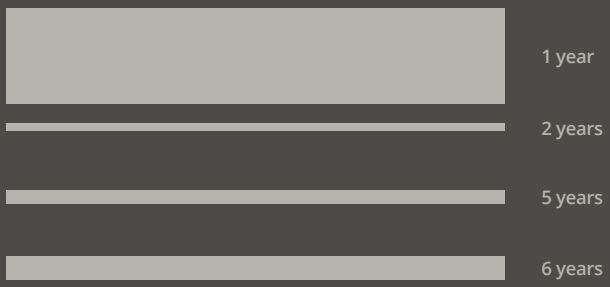


## Number of reporting obligations by environmental topic

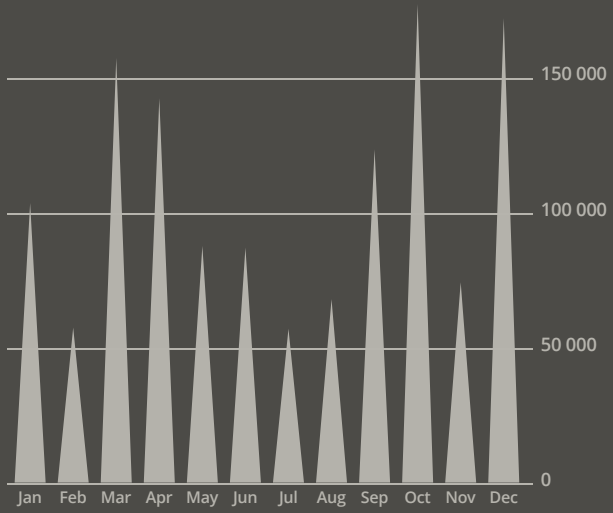


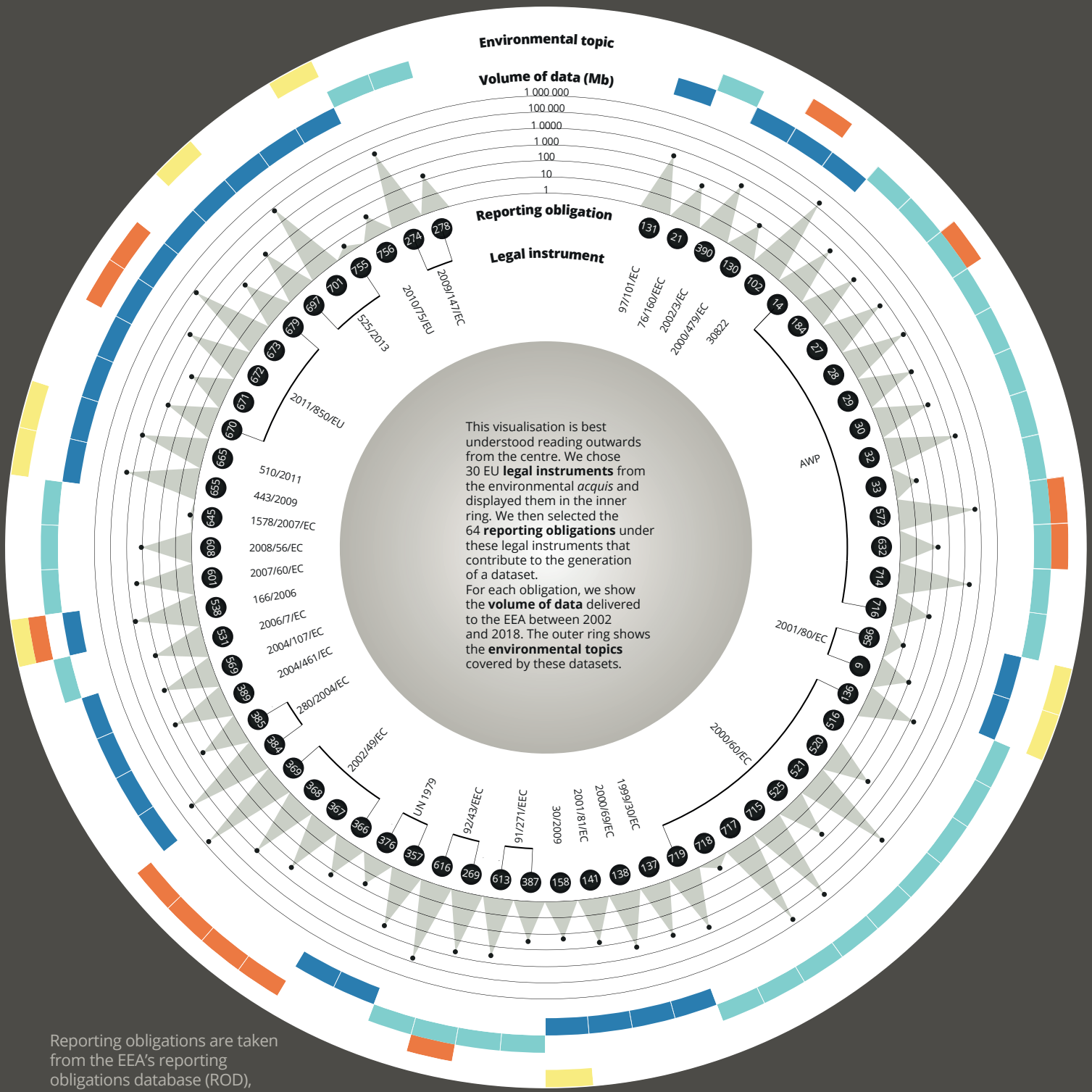

## Reporting obligations by requesting authority


## Reporting frequency of obligations




## Data delivery volume per month in 2018 (Mb)






Reporting obligations are taken from the EEA's reporting obligations database (ROD), which is part of ReportNet. ROD contains records describing environmental reporting obligations that countries have to international organisations.

## Reporting obligations by unique identifier

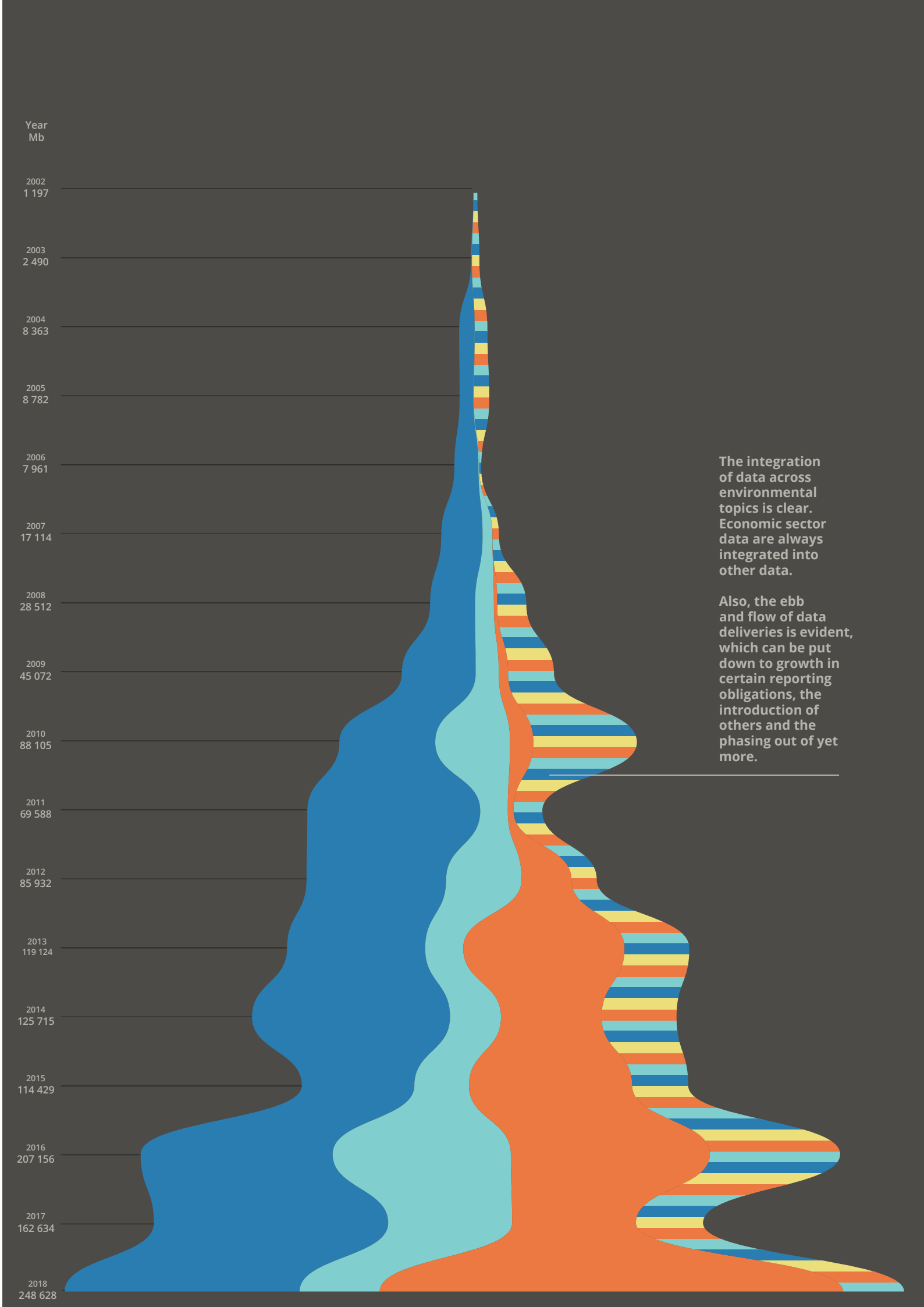
**131** Air quality
**21** Bathing water
**390** Ozone
**130** Pollutant release and transfer
**102** Greenhouse gases
**14** Water quality in transitional, coastal and marine waters
**184** Water quantity
**27** Land cover
**28** River quality
**29** Lake quality
**30** Groundwater quality
**32** Nationally designated areas
**33** Soil contamination
**572** Land cover
**632** Emissions to water
**714** Water quality
**716** Spatial data (water)
**586** Large combustion plants
**9** Large combustion plants
**136** River basin districts
**516** Transposition in national legislation (WFD)
**520** Monitoring programmes (WFD)
**521** River Basin Management Plans
**525** River Basin Districts
**715** River Basin Management Plans
**717** River Basin Management Plans
**718** River Basin Management Plans
**719** River Basin Management Plans
**137** Air quality
**138** Air quality
**141** Emission inventories and projections
**158** Fuel quality
**387** Urban waste water treatment
**613** Urban waste water treatment
**269** River basin districts
**616** Natura 2000 sites (Habitats)
**357** Long-range transboundary air pollution
**376** Air pollution
**366** Noise
**367** Noise
**368** Noise
**369** Noise
**384** Greenhouse gases
**385** Projections and national programmes
**389** Air quality
**569** Air quality
**531** Bathing water
**538** Pollutant release and transfer
**601** Flooding
**608** Marine Strategy Framework Directive
**645** Inland waters
**655** $CO_2$ emissions from cars
**665** $CO_2$ emissions form light commercial vehicles
**670** Air quality
**671** Air quality
**672** Air quality
**673** Air quality
**679** Air quality
**697** Greenhouse gases
**701** Greenhouse gases
**755** Greenhouse gases
**756** Large combustion plants
**274** Natura 2000 sites (Birds)
**278** Birds Directive

# The great data explosion

It's hard to imagine just how much the volume of data we handle at the EEA has grown in these 25 years. Taking 2002 as a starting point (because that's when ReportNet was launched), this visualisation shows consistent growth in data received on the four environmental topics. Today we handle close to 250 times more data than in 2002.

## Environmental topics

- Air and climate
- Economic sectors
- Nature
- Sustainability and well-being
- More than one environmental topic


Year
Mb
2002
1 197
2003
2 490
2004
8 363
2005
8 782
2006
7 961
2007
17 114
2008
28 512
2009
45 072
2010
88 105
2011
69 588
2012
85 932
2013
119 124
2014
125 715
2015
114 429
2016
207 156
2017
162 634
2018
248 628
The integration of data across environmental topics is clear. Economic sector data are always integrated into other data.
Also, the ebb and flow of data deliveries is evident, which can be put down to growth in certain reporting obligations, the introduction of others and the phasing out of yet more.

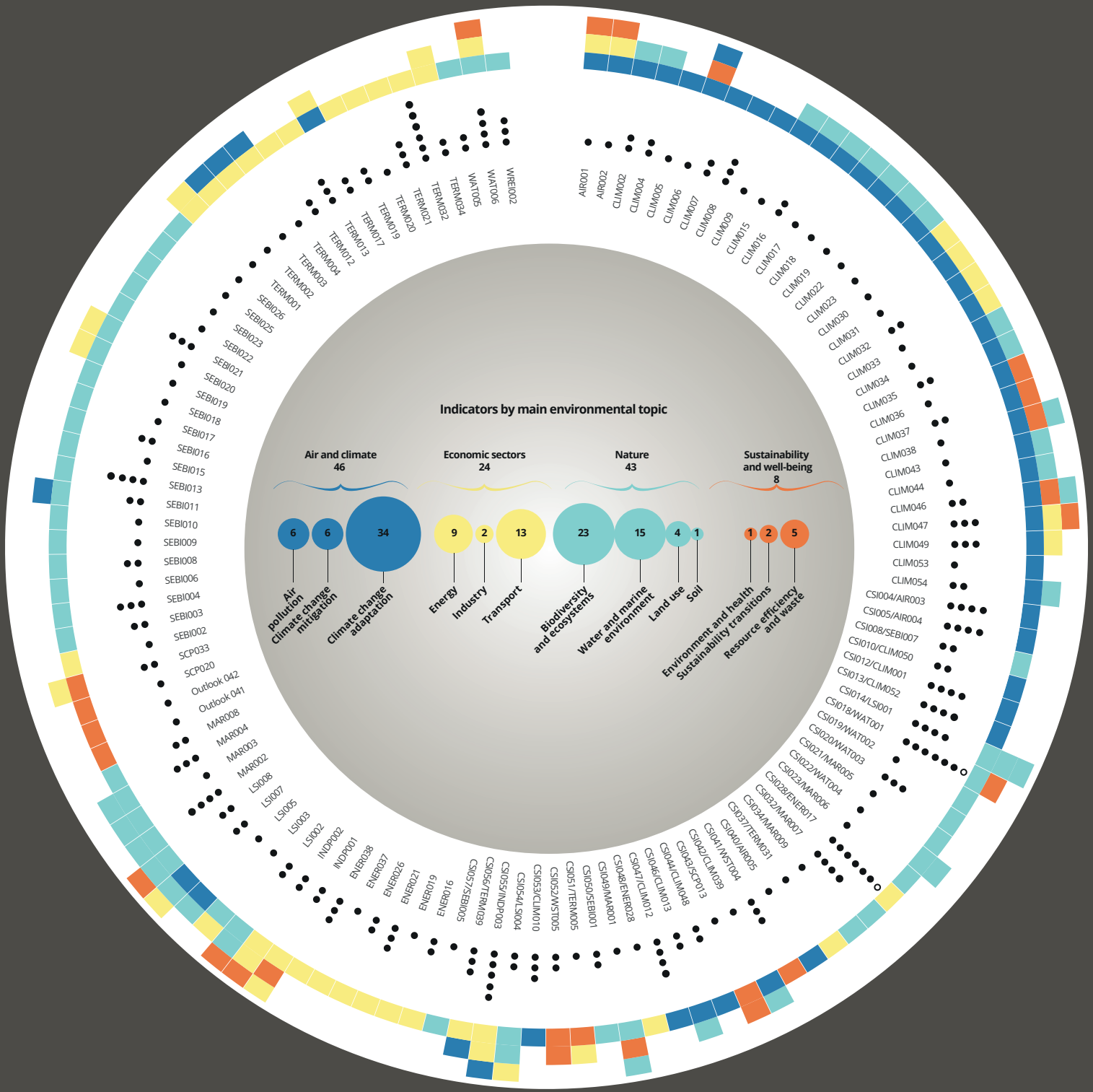
# An indication of things to come …

Indicators are one step up the food chain from data. They enable us to understand the trends and statuses that raw data don't easily show. The EEA produces 122 indicators. Reading from the centre of the chart, we see the thematic breakdown of the indicators. The inner ring shows the codes of the 122 indicators, while the dots represent the number of data sets each indicator is based on. Finally, the outer ring again brings our attention to the joined-up nature of environmental thinking these days. Nearly everything is connected; for example, air and climate, economic sectors and nature are brought together under CLIM047, while LSIOO8 covers air and climate, nature and economic sectors.

## Legend


## Environmental topics

- Air and climate
- Economic sectors
- Nature
- Sustainability and well-being


Indicators by main environmental topic
Air and climate
46
Economic sectors
24
Nature
43
Sustainability and well-being
8
6
6
34
9
2
13
23
15
4
1
1
2
5
Air pollution
Climate change mitigation
Climate change adaptation
Energy
Industry
Transport
Biodiversity and ecosystems
Water and marine environment
Land use
Soil
Environment and health
Sustainability transitions
Resource efficiency and waste
AIR001
AIR002
CLIM002
CLIM004
CLIM005
CLIM006
CLIM007
CLIM008
CLIM009
CLIM015
CLIM016
CLIM017
CLIM018
CLIM019
CLIM022
CLIM023
CLIM030
CLIM031
CLIM032
CLIM033
CLIM034
CLIM035
CLIM036
CLIM037
CLIM038
CLIM043
CLIM044
CLIM046
CLIM047
CLIM049
CLIM053
CLIM054
CSI004/AIR003
CSI005/AIR004
CSI008/SEBI007
CSI010/CLIM050
CSI012/CLIM001
CSI013/CLIM052
CSI014/LSI001
CSI018/WAT001
CSI019/WAT002
CSI020/WAT003
CSI021/MAR005
CSI022/WAT004
CSI023/MAR006
CSI028/ENER017
CSI032/MAR007
CSI034/MAR009
CSI037/TERM031
CSI040/AIR005
CSI041/WST004
CSI042/CLIM039
CSI043/SCP013
CSI044/CLIM048
CSI046/CLIM013
CSI047/CLIM012
CSI048/ENER028
CSI049/MAR001
CSI050/SEBI001
CSI051/TERM005
CSI052/WST005
CSI053/CLIM010
CSI054/LSI004
CSI055/INDP003
CSI056/TERM039
CSI057/SEBI005
ENER016
ENER019
ENER021
ENER026
ENER037
ENER038
INDP001
INDP002
LSI002
LSI003
LSI005
LSI007
LSI008
MAR002
MAR003
MAR004
MAR008
Outlook 041
Outlook 042
SCP020
SCP033
SEBI002
SEBI003
SEBI004
SEBI006
SEBI008
SEBI009
SEBI010
SEBI011
SEBI013
SEBI015
SEBI016
SEBI017
SEBI018
SEBI019
SEBI020
SEBI021
SEBI022
SEBI023
SEBI025
SEBI026
TERM001
TERM002
TERM003
TERM004
TERM012
TERM013
TERM017
TERM019
TERM020
TERM021
TERM032
TERM034
WAT005
WAT006
WRE002

# A holistic approach to assessment

Take a look at the 'blades of grass' in this visualisation. Over the last 25 years the different coloured types of grass seem to have become more intertwined. Now imagine the different colours represent the number of reports published per topic. If you ever thought our reports were progressively more integrated, you were right! In the beginning, they dealt mainly with single topics. Now look at the more recent reports — they are more holistic. A recent report about air and climate, for example, may well contain subtopics from each of the other areas. This visualisation shows how natural systems are intrinsically linked, how human systems do not exist in isolation, and how we need more and deeper knowledge across the spectrum of environmental topics to better understand systemic behaviours and plan for a more sustainable future.

## Environmental topics and subtopics

**Air and climate**

1 Air pollution
2 Climate change adaptation
3 Climate change mitigation

**Nature**

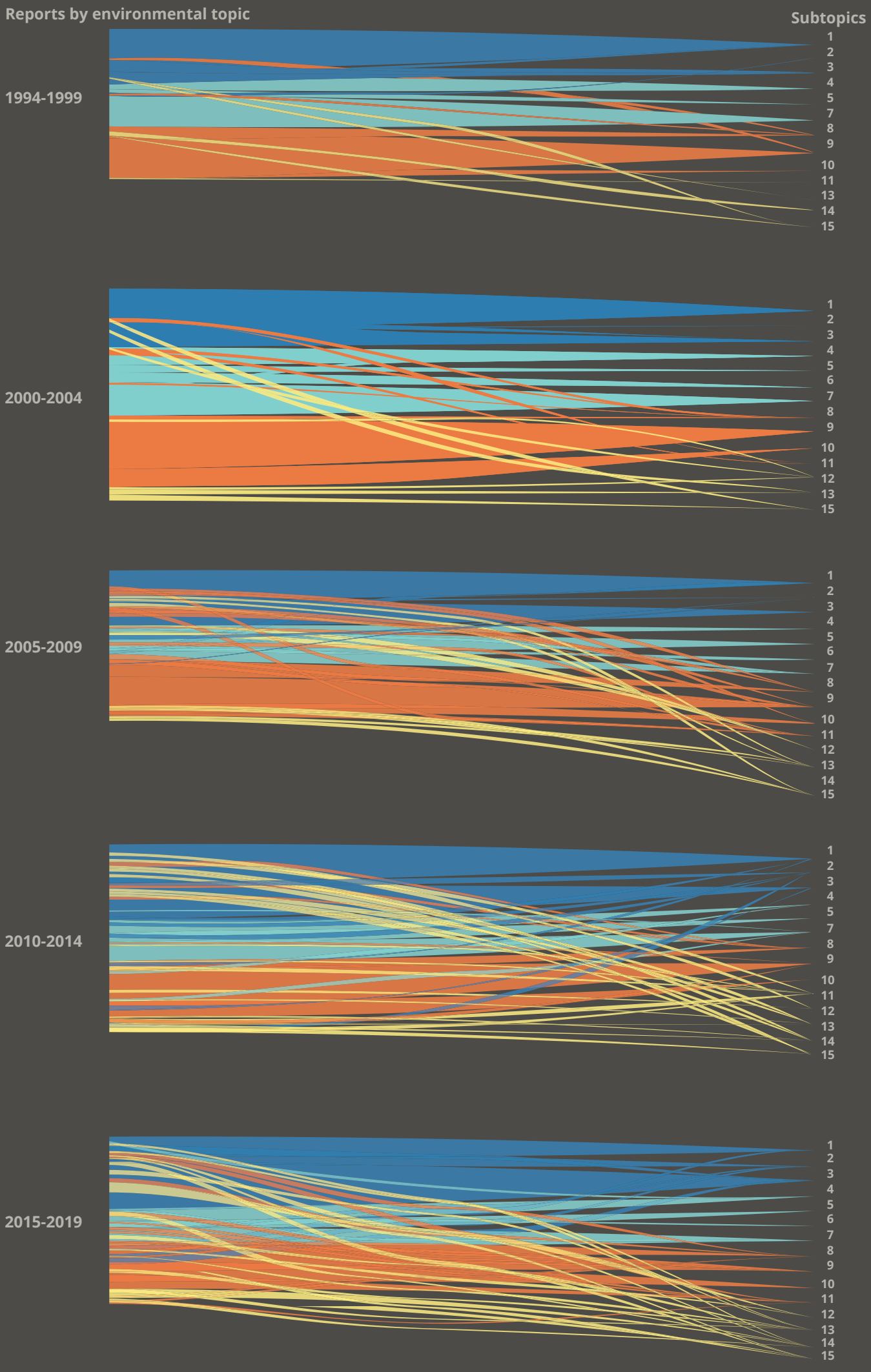
4 Biodiversity and ecosystems
5 Land use
6 Soil
7 Water and marine environment

**Sustainability and well-being**

8 Environment and health
9 Policy instruments
10 Resource efficiency and waste
11 Sustainability transitions

**Economic secotrs**

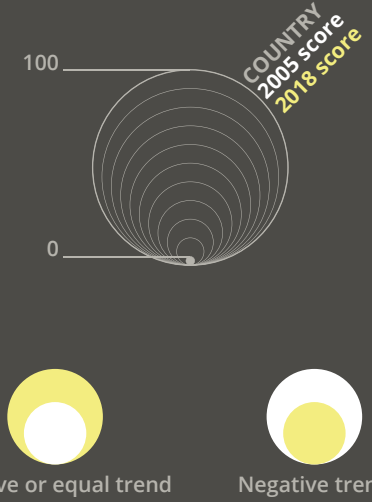
12 Agriculture
13 Energy
14 Industry
15 Transport

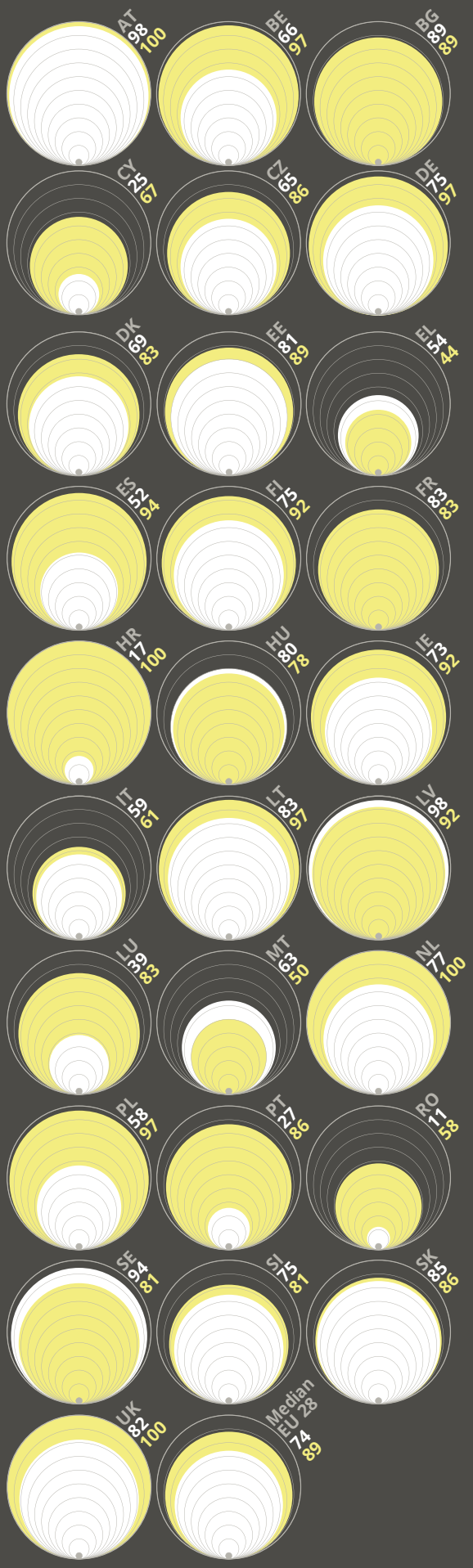

Reports by environmental topic
Subtopics
1994-1999
2000-2004
2005-2009
2010-2014
2015-2019
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

# At the core of what we do

Eionet core data flows are, of course, core to what we do! These are the data flows every country reports to us. They are the foundation of many assessments, maps, and indicators. They allow us to develop a comprehensive picture of Europe's environment. Countries are scored on their core data flow submission performance, encouraging friendly competition but also allowing us to see where we need to make our network stronger. The overwhelming trend since 2005 (the first year scores for all countries were available) is positive, but work still needs to be done. Take a look to see how your country is performing …

## Legend

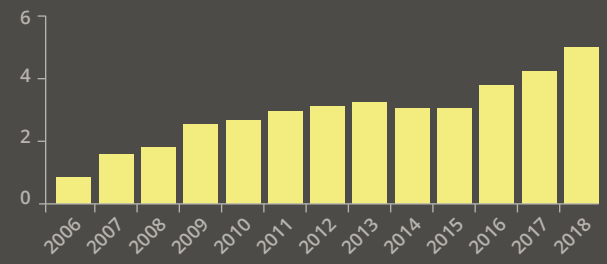


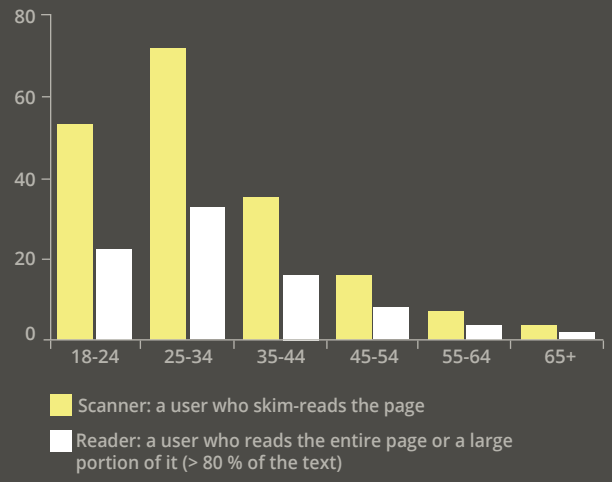
# How do you access the information?

It's vital to know we're getting our message to you. These simple charts provide a glimpse into your habits as users. Of course, internet use has grown steadily but the number of users accessing our map servers has rocketed in the last few years, reflecting technological improvements and your preference for visual information. And the user demographic proves what we are hearing in the media; that young people are more engaged with environmental issues than ever before. We believe these young leaders can 'be the change' that is needed to make our societies sustainable by our 50th birthday.

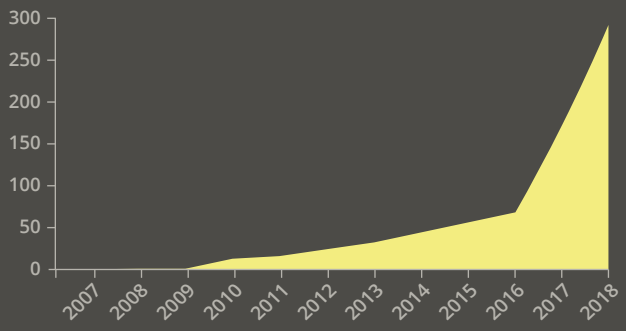
Unique users of EEA website (in millions)



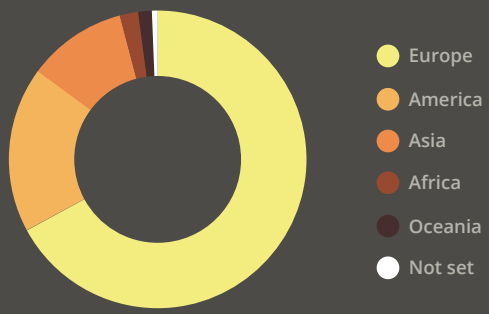

Users by age group (in thousands)



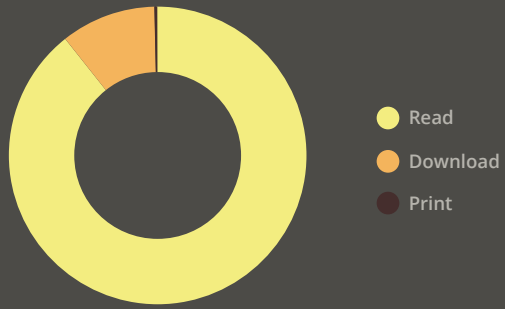

Number of requests on EEA map servers (Discomap) (in millions)




Where do our users come from?




What do our web users do?



**As a society, we face major challenges. We need enlightened policies and governance, and an engaged citizenry if we are to achieve, long-term sustainability.**

A future in which we are all living well, within the limits of our planet requires us to transition to a new type of society built with new knowledge, new policies, new governance.

The EEA and Eionet are already supporting this change with our experience, our data and information, and our know-how. The future really does start now.

# European Environment Agency

Illustration © Alejandra Bize



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