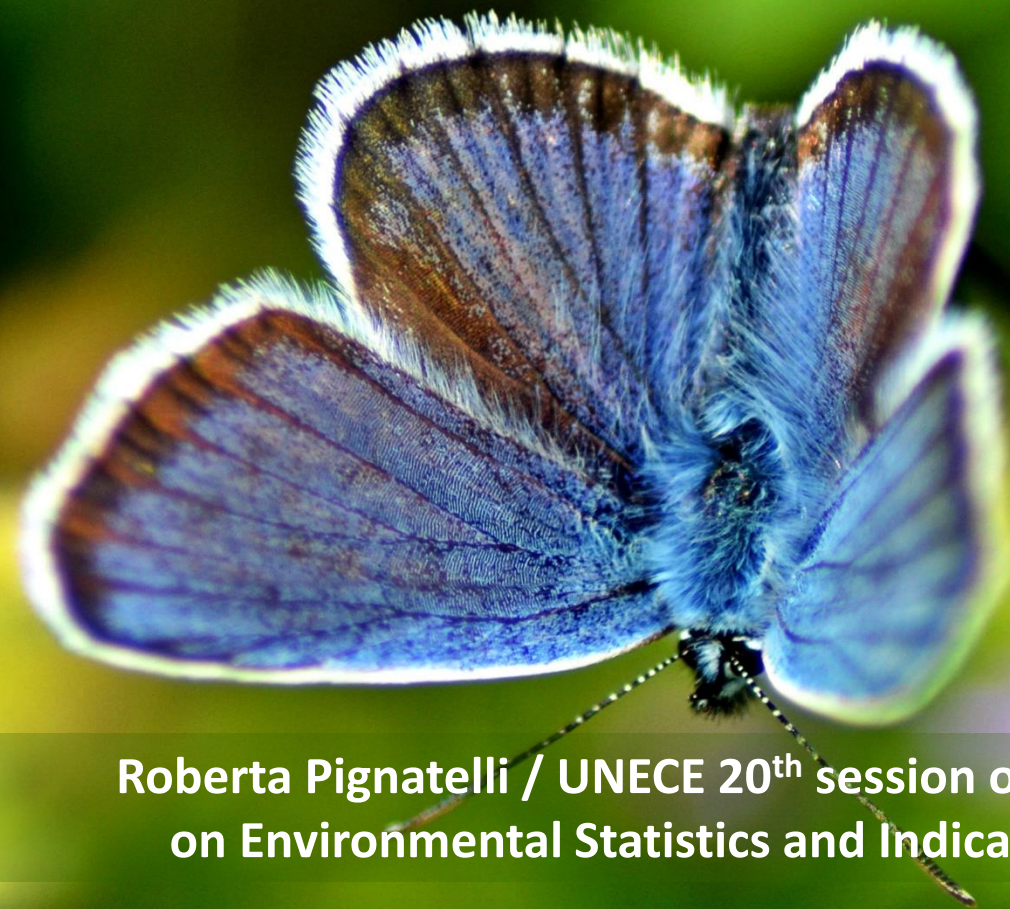


Recent developments in environmental indicators at the European Environment Agency



Roberta Pignatelli / UNECE 20th session of the Joint Task Force
on Environmental Statistics and Indicators / 16-17 Oct 2023



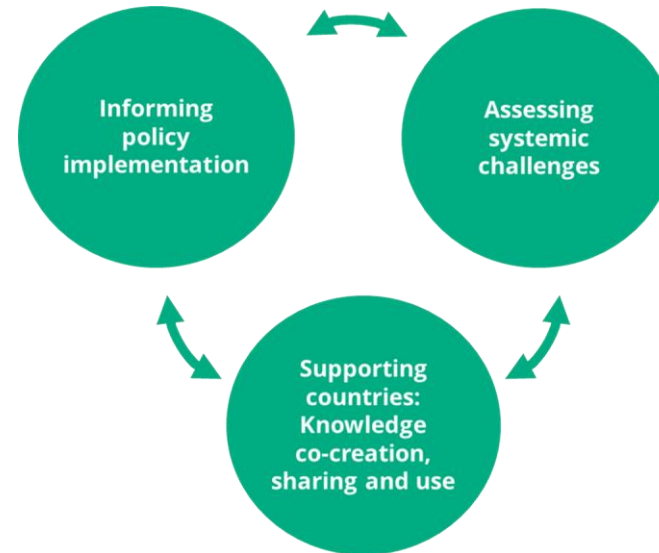
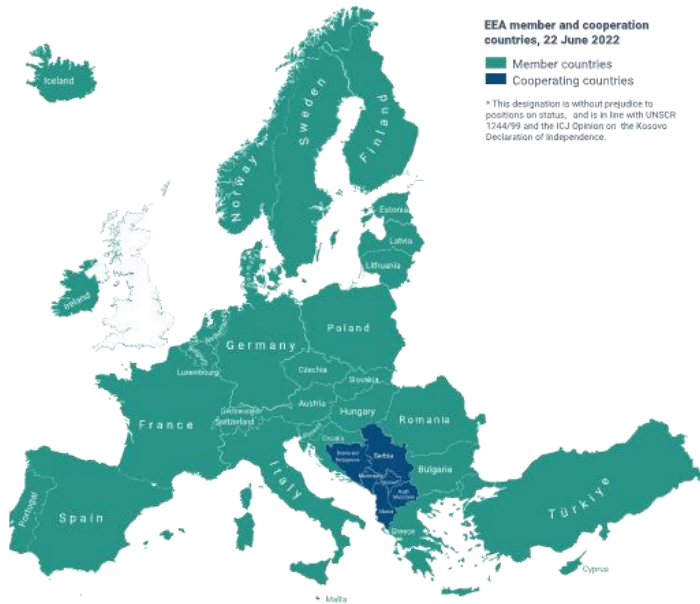
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- 1. EEA-Eionet and its indicators**
 - 2. Increasing support to policy monitoring frameworks**
 - 3. Recent developments in EEA statistical work**

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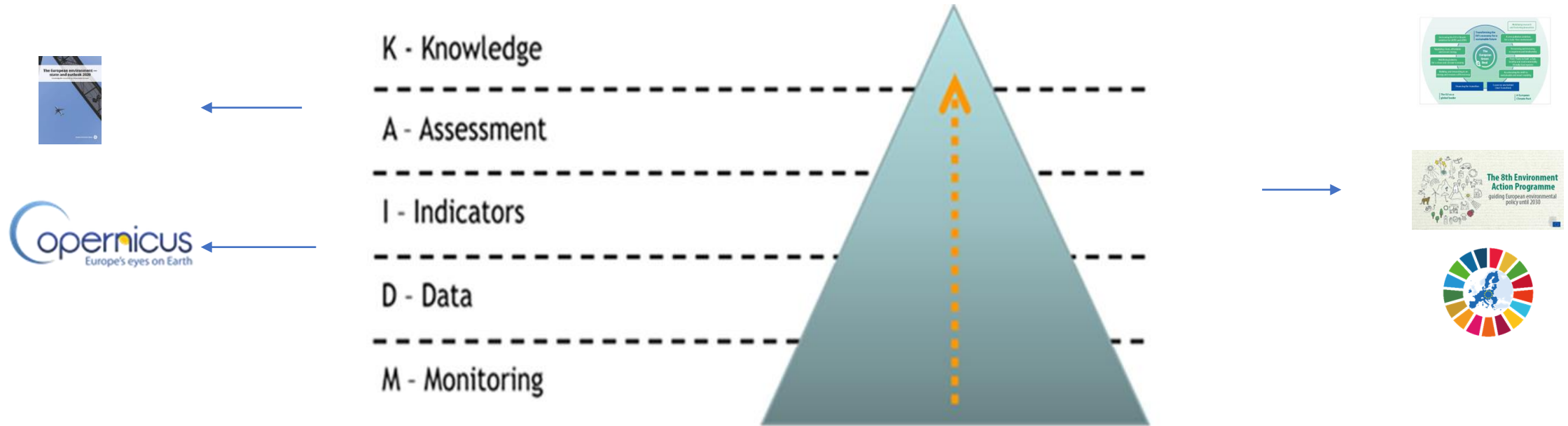


European environment information and observation network (Eionet)

- EEA & Eionet provide reliable and independent information on Europe's environment and climate to European citizens and policy-makers
- Broad knowledge base: 2000 experts, 400 national institutions, 38 countries
- 13 Eionet groups - 7 European Topic Centres
- Capacity to assess progress, prospects, drivers of change, potential policy responses



The M-D-I-A-K framework: central role for indicators



A significant part of EEA-Eionet activities concerns production/use/dissemination of **environmental indicators**, supporting all phases of policy making (designing policy frameworks, setting targets, policy monitoring, policy evaluation, communicating)

92 indicators – 16 environmental topics

Indicators (EEA)

EEA indicators: some features

Topic	Indicators
Water	17
Climate change mitigation	11
Biodiversity	9
Transport and mobility	8
Waste and recycling	8
Air pollution	7
Climate change adaptation	6
Land use	5
Sustainability solutions	4
Sustainable finance	4
Energy	3
Environmental health impacts	3
Agriculture and food	2
Industry	2
Nature protection and restoration	2
Soil	1
Total	92

EEA indicators cover all environmental topics, with a focus on Water (18%) and Climate change mitigation (12%)



Geographical coverage

EU-27: 82%

EEA-32: 16%

Update frequency

Yearly: 79%

2-6 years: 21%



Timeliness

< t-2 years: 67 %

Others: (t-3) – (t-6) years



Classification of EEA indicators

Typology (by policy phase supported):

- A. Descriptive indicators ('What's happening?')
- B. Performance indicators ('Are we reaching targets?')
- C. Efficiency indicators ('Are we improving?')
- D. Policy effectiveness indicators ('Are the measures working?')
- E. Total welfare indicators ('Are we, on the whole, better off?')

DPSIR (Driving forces – Pressure – State – Impact – Response) framework

- Interaction between environment and socio-economic activities
- Consistent with OECD conceptualisation of indicators and [UNSD FDES](#) definitions



	D	P	S	I	R	Total
A. Descriptive	3	22	20	9	9	62
B. Performance	2	3	3	4	1	13
C. Efficiency	1	1	2	1	2	8
D. Effectiveness	0	1	2	0	6	9
E. Welfare	0	0	0	0	0	0
Total	6	27	27	14	18	92

• *Unbalanced distribution by type (67% Descriptive, no Welfare)*

• *Balanced distribution by DPSIR (29% State, 29% Pressure, 41% others)*



List of EEA indicators (1/2)

AGRICULTURE AND FOOD: Agricultural area under organic farming in Europe; Drought impact on ecosystems in Europe

AIR POLLUTION: Emissions of the main air pollutants in Europe; Eutrophication caused by atmospheric nitrogen deposition in Europe; Exceedance of air quality standards in Europe; Exposure of Europe's ecosystems to ozone; Heavy metal emissions in Europe; Income-related environmental inequalities associated with air pollution in Europe; Persistent organic pollutant emissions in Europe

BIODIVERSITY: Abundance and distribution of selected species in Europe; Common bird index in Europe; Conservation status of habitats under the EU Habitats Directive; Conservation status of species under the EU Habitats Directive; Ecological footprint of European countries; Ecosystem coverage in Europe; Marine protected areas in Europe's seas; Natura 2000 sites designated under the EU Habitats and Birds Directives; Public awareness of biodiversity in Europe

CLIMATE CHANGE ADAPTATION: Arctic and Baltic Sea ice; Economic losses from weather- and climate-related extremes in Europe; European sea surface temperature; Extreme sea levels and coastal flooding; Forest fires in Europe; Global and European temperature

CLIMATE CHANGE MITIGATION: Atmospheric greenhouse gas concentrations; CO₂ performance of new passenger cars in Europe; Greenhouse gas emission intensity of electricity generation in Europe; Greenhouse gas emissions from agriculture in Europe; Greenhouse gas emissions from energy use in buildings in Europe; Greenhouse gas emissions from land use, land-use change and forestry; Hydrofluorocarbon phase-down in Europe; Progress in emission reductions in the EU Emission Trading System; Progress towards national greenhouse gas emission targets in Europe; Total greenhouse gas emission trends and projections in Europe; Use of auctioning revenues generated under the EU Emissions Trading System

ENERGY: Emissions and energy use in large combustion plants in Europe; Primary and final energy consumption in Europe; Share of energy consumption from renewable sources in Europe

ENVIRONMENT AND HEALTH: Exposure of Europe's population to environmental noise; Health impacts of exposure to noise from transport; Premature deaths due to exposure to fine particulate matter in Europe

INDUSTRY: Consumption of ozone-depleting substances; Industrial pollutant releases to air in Europe

List of EEA indicators (2/2)

LAND USE: Impact of land use on vegetation productivity in Europe; Imperviousness and imperviousness change in Europe; Landscape fragmentation pressure in Europe; Net land take in cities and commuting zones in Europe; Progress in the management of contaminated sites in Europe

NATURE PROTECTION AND RESTORATION: Forest connectivity (forest fragmentation) in Europe; Terrestrial protected areas in Europe

SOIL: Soil moisture deficit

SUSTAINABILITY SOLUTIONS: Consumption footprint (based on life cycle assessment); Eco-innovation index; Employment in the environmental goods and services sector; Gross value added of the environmental goods and services sector

SUSTAINABLE FINANCE: Environmental protection expenditure; Fossil fuel subsidies; Green bonds; Share of environmental taxes in total tax revenues

TRANSPORT AND MOBILITY: CO2 performance emissions of new vans in Europe; Emissions of air pollutants from transport in Europe; New registrations of electric vehicles in Europe; Share of buses and trains in inland passenger transport; Use of collective transport modes for passenger transport and non-road transport modes for freight transport in Europe; Use of renewable energy for transport in Europe; Greenhouse gas emission intensity of fuels and biofuels for road transport in Europe; Greenhouse gas emissions from transport in Europe

WASTE AND RECYCLING: Circular material use rate in Europe; Diversion of waste from landfill in Europe; EU circular material use rate; Europe's consumption footprint; Europe's material footprint; Europe's material footprint; Waste generation in Europe; Waste recycling in Europe

WATER: Changes in fish distribution in European seas; Chlorophyll in transitional, coastal and marine waters in Europe; Ecological status of surface waters in Europe; Global and European sea-level rise; Hazardous substances in marine organisms in European seas; Industrial pollutant releases to water in Europe; Marine non-indigenous species in Europe's seas; Nitrate in groundwater; Nutrients in freshwater in Europe; Nutrients in transitional, coastal and marine waters in Europe; Ocean acidification; Oxygen concentrations in coastal and marine waters surrounding Europe; Pesticides in rivers, lakes and groundwater in Europe; Status of marine fish and shellfish stocks in European seas; Water abstraction by source and economic sector in Europe; Water scarcity conditions in Europe (Water Exploitation Index plus); Oxygen consuming substances in European rivers



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EU Sustainable Development Goals

- UN 2030 Agenda for Sustainable Development -> 17 SDGs, 169 targets, 231 indicators
- EU committed to implementing the SDGs in all its policies -> 17 SDGs, 100 indicators
- Eurostat “Sustainable development in the European Union – Monitoring report on progress towards the SDGs in an EU context – 2023 edition”
- 2023 review currently ongoing – Next report in May 2024



15 EEA indicators in 7 Goals

- **Indicators:** Ammonia emissions from agriculture; Average CO2 emissions per km from new passenger cars; Bathing sites with excellent water quality; Biochemical oxygen demand in rivers; Climate-related economic losses; Grassland butterfly index; Land take; Net greenhouse gas emissions; Net greenhouse gas emissions of the LULUCF sector; Nitrate in groundwater; Phosphate in rivers; Premature deaths due to exposure to fine particulate matter (PM2.5); Marine protected areas; Soil sealing index; Terrestrial protected areas
- **Goals:** SDG 2 (Zero Hunger), SDG 3 (Good health and well-being), SDG 6 (Clean water and sanitation), SDG 12 (Responsible consumption and production), SDG 13 (Climate action), SDG 14 (Life below water), SDG 15 (Life on land)
- **3 new indicators proposed for inclusion:** Drought impact on ecosystems; Green bond issuance; People exposed to noise levels dangerous for human health

<https://ec.europa.eu/eurostat/web/sdi/overview>



8th Environment Action Programme

- The 8th EAP builds on the European Green Deal and is the EU basis for achieving the UN SDGs
- The EEA assesses progress towards the 8th EAP objectives in annual reports (first: Dec 2023)



28 EEA indicators

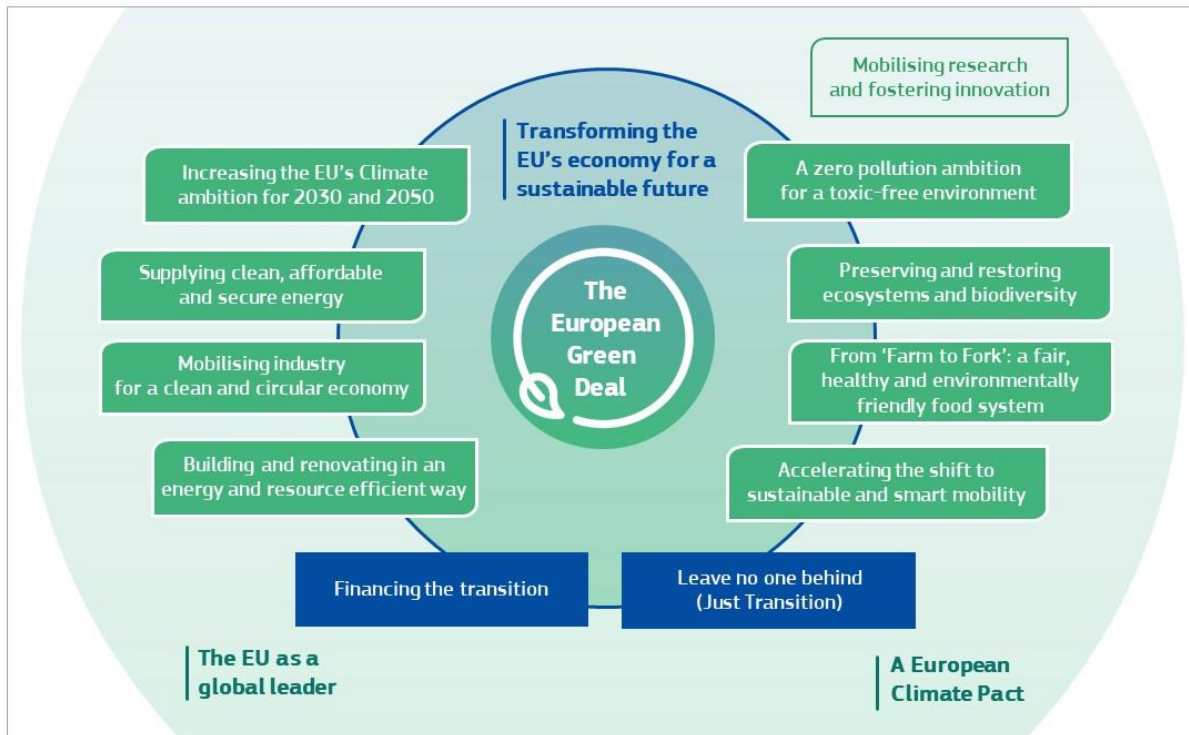
- **Climate change mitigation:** Total greenhouse gas emission trends and projections in Europe; Greenhouse gas emissions from land use, land-use change and forestry in Europe
- **Climate change adaptation:** Economic losses from climate-related extremes in Europe; Drought impact on ecosystems in Europe
- **A regenerative circular economy:** Europe's material footprint; Waste generation in Europe
- **Zero pollution and a toxic free environment:** Premature deaths due to exposure to fine particulate matter in Europe; Nitrate in groundwater
- **Biodiversity and ecosystems:** Terrestrial protected areas in Europe; Marine protected areas in Europe's seas; Common bird index in Europe; Forest connectivity
- **Environmental and climate pressures related to EU production and consumption:** Primary and final energy consumption in Europe; Share of energy consumption from renewable sources in Europe; Circular material use rate in Europe; Share of buses and trains in inland passenger transport; Agricultural area under organic farming in Europe
- **Enabling conditions:** Share of environmental taxes in total tax revenues; Fossil fuel subsidies; Environmental protection expenditure; Green bonds; Eco-innovation index
- **Living well, within planetary boundaries:** Net land take in cities and commuting zones in Europe; Water scarcity conditions in Europe (Water exploitation index plus); Consumption footprint (based on life cycle assessment); Employment in the environmental goods and services sector; Gross added value of environmental goods and services sector; Income-related environmental inequalities associated with air pollution in Europe

<https://www.eea.europa.eu/en/topics/at-a-glance/state-of-europes-environment/environment-action-programme>



European Green Deal

- EGD will transform the EU into a modern, resource-efficient and competitive economy, ensuring no net emissions of greenhouse gases by 2050, economic growth decoupled from resource use, and no person and no place left behind
- Eurostat: Statistics for the European Green Deal : <https://ec.europa.eu/eurostat/cache/egd-statistics/>



5 EEA indicators

- **Reducing our climate impact**
 - Greenhouse gas emissions
 - Greenhouse gas emissions by sector
 - Climate related economic losses
- **Protecting our planet and health:**
 - Protected areas
 - Premature deaths due to exposure to fine particulate matter (PM2.5)
- **Enabling a green and just transition**



Strategic Foresight

- 2020 report “Strategic Foresight - Charting the course towards a more resilient Europe” by the European Commission
- European Commission’s strategy to integrate strategic foresight into EU policy-making
- Analyses resilience along four interrelated dimensions – social and economic, geopolitical, green and digital

-> JRC Resilience dashboards for the social and economic, green, digital and geopolitical dimensions

3 EEA indicators

- **Green dashboard:**
 - Fatalities from climate extremes
 - Insured losses from climate extremes
- **Social and economic dashboard:**
 - Years of life lost due to PM2.5

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https://commission.europa.eu/system/files/2021-11/dashboard_report_annex_20211129_en_0.pdf

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EEA-Eionet Strategy 2021-2030

- Revision of EEA indicators in 2019-2020 -> Short information packages that combine a European picture with national level data and key strategic messages
- The new indicators' structure reflects the focus of the new [EEA-Eionet Strategy](#) – Towards a more integrated knowledge base in support of EU policies
- EEA-Eionet will enable a sustainable Europe through **trusted and actionable knowledge** for informed decision-making on environment and climate priorities and solutions, in line with Europe's policy ambitions



Strategic Objectives:

- *Supporting policy implementation and sustainability transitions*
- *Providing timely input to solutions for sustainability challenges*
- *Building stronger networks and partnerships*
- *Making full use of the potential of data, technology & digitalisation*
- *Resourcing our shared ambitions*



Role for EEA indicators

EEA indicators continue to constitute the building blocks of environmental knowledge by

- maintaining the mechanisms in place that lead from data to policy monitoring
- allowing the development of new methodologies (composite indices, dashboards, etc.) for monitoring current and future policies and strategies

Further developments in terms of accuracy and timeliness will derive by the increasing use of Copernicus-based data

Goal: measure and assess progress towards sustainability

Increased cooperation is needed between all actors involved

- Statisticians
- Scientists
- Policy-makers
- Civil society

... at both regional and national level



The SLA Eurostat-EEA (2023-2026)

Signed in Nov 2022 - Covering 4 years

Objective: providing **high-quality services** to Eurostat

- Develop a dissemination infrastructure (data/statistics/indicators)
- Regular provision of data/statistics/indicators for EU SDG indicators
- Contribute to the regular production of EU wide ecosystem accounts
- Make better use of Eurostat products in EEA analyses and assessments products

The terms data-statistics-indicators are used in accordance with the UN FDES

**Consistency with UNECE
work on indicators**



Project structure

Five work packages:

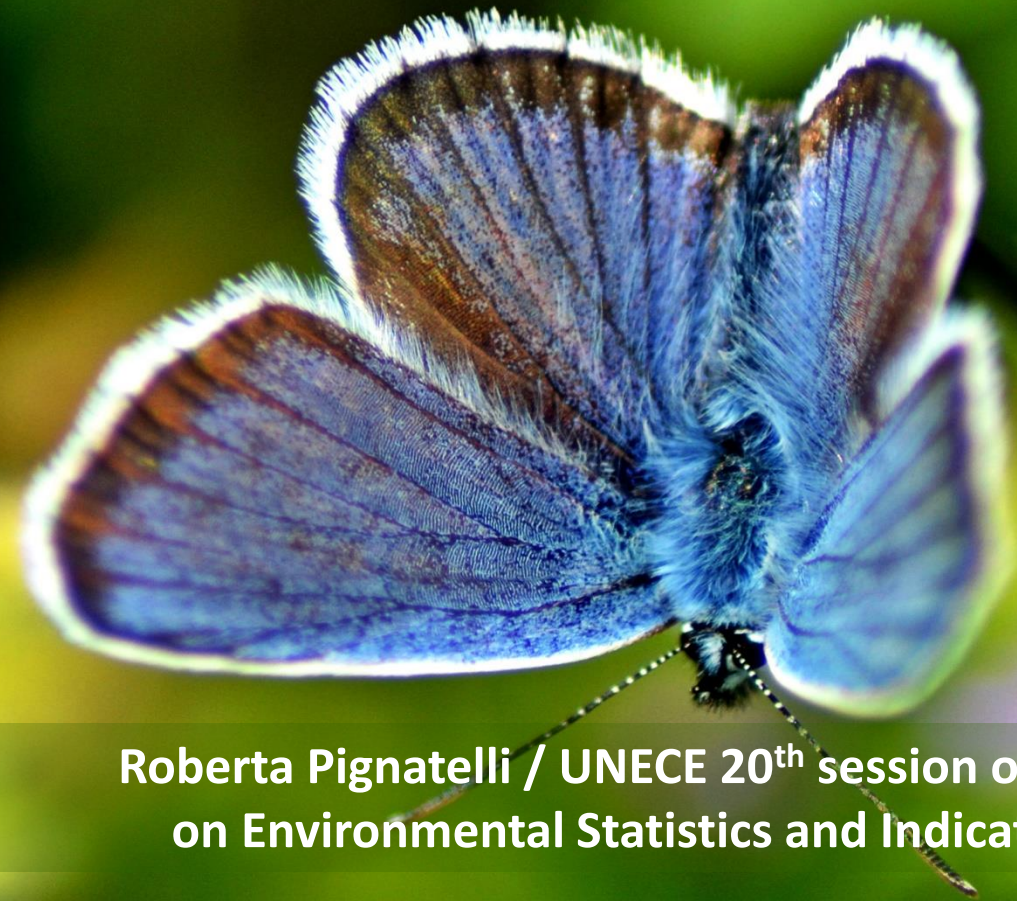
- WP0: Project management (*Roberta Pignatelli, Sustainability Transition*)
- WP1: Developing a dissemination infrastructure (*Jonathan Maidens, Data and Information Services*)
- WP2: Supporting EU SDG monitoring (*Roberta Pignatelli, Sustainability Transition*)
- WP3: Supporting ecosystem accounting (*Jan-Erik Petersen - Biodiversity, Health and Resources*)
- WP4: Making better use of Eurostat products (*Aleksandra Sima, Sustainability Transitions*)

15 EEA staff involved - incl. three new Contract Agents recruited for the SLA

All EEA Programmes involved, directly or through the EEA Indicator Steering Committee



Thank you



**Roberta Pignatelli / UNECE 20th session of the Joint Task Force
on Environmental Statistics and Indicators / 16-17 Oct 2023**