

EEA core set of indicators

Guide

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Guide

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Foreword

The EEA management board approved the core set of indicators in March 2004. The set has been established for three main purposes: to provide a manageable and stable basis for indicator-based reporting by the EEA; to prioritise improvements in the quality and geographical coverage of data flows, especially Eionet priority data flows; and, to streamline EEA/Eionet's contributions to other European and global indicator initiatives, for example, EU structural indicators, EU sustainable development indicators and OECD environment indicators.

This guide provides information on the quality of the 37 indicators in the EEA core set. Its primary role is to support improved implementation of the core set in the EEA, European topic centres and the European environment information and observation network (Eionet). In parallel, it is aimed at helping users outside the EEA/Eionet system make best use of the indicators in their own work. It is hoped that the guide will promote cooperation on improving indicator methodologies and data quality as part of the wider process to streamline and improve environmental reporting in the European Union and beyond.

The indicators in the core set were selected from a much larger set on the basis of criteria widely used elsewhere in Europe and by the OECD. The criteria are listed in Section 2.1. While all the criteria are important when considering indicators, particular attention has been paid to relevance to policy priorities, objectives and targets; the availability of high-quality

data over both time and space, and the application of well-founded methods for indicator calculation.

The core set will be reviewed on a regular basis with stakeholders in Eionet. The trend assessment for each of the 37 indicators will be updated in line with data flow cycles and published on the web, as well as selectively in several EEA publications, including the EEA Signals report.

This guide should be used in conjunction with the core set of indicators (CSI), which is available on the EEA's web site at <http://www.eea.eu.int/coreset>. This is the point of dissemination for:

- the specification of each of the indicators in the core set;
- links to the updated assessments;
- information on changes to the core set made under the regular review process;
- improvements through ongoing work on data quality and methodological development.

EEA hopes this guide will be of use to all those involved in indicator reporting as well as of interest for all EEA clients and cooperating parties.

European Environment Agency

March 2005

Definitions

Indicator	An indicator is a measure, generally quantitative, that can be used to illustrate and communicate complex phenomena simply, including trends and progress over time. 'An indicator provides a clue to a matter of larger significance or makes perceptible a trend or phenomenon that is not immediately detectable. An indicator is a sign or symptom that makes something known with a reasonable degree of certainty. An indicator reveals, gives evidence, and its significance extends beyond what is actually measured to a larger phenomenon of interest' (IETF, 1996).
EEA core set of indicators	The core set supports EU policy priorities, is regularly updated, and is of known quality. It is based on nine selection criteria (see Section 2.1.) and approved by EEA member countries.
Other EEA indicators	The EEA also works with other indicators for its assessments. Some of these are developed for eventual inclusion in the core set (such as chemicals, material flows); others for specific processes such as to support reporting on progress with sectoral integration (transport, energy, agriculture).
Indicator profile	The indicator profile contains information on the indicator specification (see below) plus assessment of the latest trends for the indicator, including supporting graphics and data. A standard set of information from the complete profile for each indicator is available on the EEA's web site.
Indicator specification	The indicator specification contains general information that explains aspects that are relatively static over time; these include the indicator name, its policy relevance, data sources, methodologies and guidelines for presentation of the assessment.
DPSIR	The work of the EEA is built around a conceptual framework known as the DPSIR assessment framework. DPSIR stands for 'driving forces, pressures, states, impacts and responses'. DPSIR builds on the existing OECD model and offers a basis for analysing the interrelated factors that impact on the environment. Reference: http://org.eea.eu.int/documents/brochure/brochure_reason.html .
Type of indicator	The EEA classifies its indicators according to a typology: A = descriptive indicator, B = performance indicator, C = eco-efficiency indicator, D = policy effectiveness indicator, E = total welfare indicator.
Policy question	A short question related to EU priority policy objectives. The key message, indicator trend and assessment should answer the policy question.
Target	A quantitative value which usually underpins a European Union or other international policy objective. The target usually has a time deadline that should be met through the design and implementation of measures by countries.
Threshold	A threshold is a point or level which if being approached or exceeded then policy or other actions should be considered in order to alleviate adverse impacts either on the environment or people's health.
Data set name	Name of original data set, which contains national data delivered by countries to be used in the indicator construction.
Data source	Name of institution, which owns the original data set.
Reporting obligations of the data set	Name of reporting obligation (legal or moral) under which countries deliver their national data. EEA has developed a database known as the reporting obligations database (ROD) that contains such information http://rod.eionet.eu.int/ .

Glossary for indicator management: <http://ims.eionet.eu.int/IMS/About/references>.

1. EEA core set of indicators: purpose, scope and users

Purpose

In 2004, the EEA identified a core set of 37 indicators (see list in Annex 1).

The purpose of the core set of indicators is to:

- prioritise improvements in the quality and coverage of data flows, which will enhance comparability and certainty of information and assessments;
- streamline contributions to other indicator initiatives in Europe and beyond;
- provide a manageable and stable basis for indicator-based assessments of progress against environmental policy priorities.

Scope

The establishment and development of the EEA core set of indicators has been guided by the need to identify a small number of policy-relevant indicators that are stable, but not static, and that give answers to selected priority policy questions. They should, however, be considered alongside other information if they are to be fully effective in environmental reporting.

The core set covers six environmental themes (air pollution and ozone depletion, climate change, waste, water, biodiversity and terrestrial environment) and four sectors (agriculture, energy, transport and fisheries). All the topics address EU policy priorities, as described in the EEA strategy ⁽¹⁾.

Some other relevant priorities (chemicals, noise, industry, consumption, material flows) have not yet been included because

indicators are insufficiently developed, but this will be the main focus for the future development of the core set. The EEA has no plans to develop a specific set of environment and health indicators but will continue to contribute to other activities in this area, notably by the WHO and the European Commission.

Each indicator in the core set can be positioned in the DPSIR framework, (D = driving forces, P = pressures, S = states, I = impacts, R = responses) but they are not spread in a balanced and comprehensive way (see Annex 3). The primary aim with the core set is to focus on priorities and be policy-relevant, not to provide the basis for integrated assessment across DPSIR.

The indicators are also classified by type (A = descriptive indicator, B = performance indicator, C = eco-efficiency indicator, D = policy effectiveness indicator, E = total welfare indicator). All of the indicators in the core set are either descriptive or performance based and one of the challenges for the future will be to develop more and better indicators of eco-efficiency, policy effectiveness and welfare (see Annex 3). Issues like the value and degradation of natural capital, global resource flows, cost-effectiveness and the intergenerational and environmental aspects of the quality of life, will be considered in this regard.

Each indicator has its own storyline that goes through the indicator profile (see definition in the beginning and link to Indicator profile template: <http://ims.eionet.eu.int/IMS/About/references>). All parts of the profile are connected and support the answers to policy questions (see Annex 4) in a coherent way from the gathering of data to the application of methodologies, to the trend calculation, through final presentation and assessment of the indicator. The profile

¹ Available at http://org.eea.eu.int/documents/strategy-docs/strategy_web-en.pdf.

also includes an evaluation of the overall quality of the indicator, based on the nine criteria described in Section 2.1.

For the core set, there are 40 different sources of data and around 100 different data sets (see Annex 5). Eurostat is the main data source with about 30 data sets followed by the Environment DG with about 14 data sets, and the EEA is the source for nine data sets on air, water, soil, land cover and designated areas. Many times the same data sets are used for different indicators to allow the issue to be looked at from several angles, for different purposes and by different users.

Many of the indicators in the EEA core set are also used in indicator processes being implemented elsewhere, notably at the European Commission, OECD, and WHO. Annex 6 describes these processes and provides an analysis of how each of the core set indicators map to similar indicators found under other processes.

Users

The core set of indicators is designed for various users, who have a variety of information needs.

Its assessments and key messages are targeted mainly at policy makers at the EU and national level who can use the outcomes to inform progress with their policies. EU and national institutions can also use the core set to support streamlining of data flows at the EU level.

Environmental experts can use it as a tool for their own work by using the underlying data and methodologies to do their own analysis. They can also look at the set critically, give feedback and so contribute to future EEA core set developments.

General users will be able to access the core set on the web in an easily understandable way, and use available tools and data to do their own analyses and presentations.

2. EEA CSI is supported by a dynamic process

Quality assurance and update

The core set selection has been based on criteria widely used elsewhere in the EU and OECD, while accommodating EEA needs and management practices.

Criteria for selection of the EEA core set of indicators

1. Policy relevance

This criterion is checked against identified objectives in EU and other international policy documents and reviewed in consultation with countries.

2. Progress towards targets

This criterion becomes relevant where quantitative or qualitative targets linked to objectives have been set in policy documents.

3. Available and routinely collected data

This criterion is based on the extent to which data requirements are supported by reporting obligations signed up to by countries. Both legal and non-legal obligations are taken into account. This criterion also supports streamlining of data flows and ensures that the indicator can be updated regularly.

4. and 5. Spatial and temporal coverage

These criteria are based on the actual coverage of reported data compared with the target coverage. The EEA aims to cover all of its 31 member countries, unless the focus of the indicator is different (for example, where indicators are based on the implementation of directives by the EU-25). The aim is also to have time trends available as far back as possible.

6. National scale and representativeness of data

This criterion enables benchmarking of countries' performances. The EEA therefore works with countries to obtain common understanding on the data sources used for calculating indicators and on methodologies used for benchmarking.

7. Understandability of indicators

This criterion focuses on clear definition of the indicator and appropriate assessment and presentation. Contradictory messages should not occur (crosschecking across the core set ensures this); if any do occur, they should be explained.

8. Methodologically well founded

This criterion can be met through a clear description of the methodology and formulae used, with appropriate scientific references. This criterion is more likely to be satisfied if a similar indicator is also being used in other indicator initiatives at the international level.

9. EU priority policy issues

This criterion is applied to ensure that indicators map to priorities for policy and in the EEA management plan. The priority issues should also frame the core set as a whole, be the basis for balance across the core set and support its regular review.

Continuing evaluation of the indicators against these criteria will be an important basis for future quality assurance of the core set (see quality overview of core set indicators by topic and in the specification of each indicator in <http://www.eea.eu.int/coreset>). Attention will be paid to some topics that still need improvement (biodiversity, terrestrial, chemicals, noise, ecological water quality, etc.) and to some aspects of individual indicators that seem to be weak (such as spatial coverage of the indicators on passenger transport demand and gross nutrient balance, or the methodology for answering policy questions on consumption and production of ozone-depleting substances). More transparency is also needed on the data sources and the reporting obligations behind the data, to ensure the most cost-effective use of national data and to enable more effective country benchmarking exercises. These criteria will also be used in future to decide whether new indicators should be added to the core set or existing ones deleted from it. The Agency will review the core set regularly with its member countries and other stakeholders. The outcomes and actions resulting from these reviews will be subject to endorsement by the EEA management board.

EEA indicator-related activities

The EEA has several indicator-related activities in its management plan, ranging from the methodological and development issues to publishing of indicators. Indicators are published as contribution to other EU indicator activities (TERM, IRENA, EU headline indicators), and as part of assessments in topic reports. Core set indicators will be regularly published in the EEA indicator-based report EEA Signals and on the web (see calendar of indicator publishing in Annex 2 and published EEA indicator-related reports by topics in Annex 7).

Web publishing and indicator management

The EEA has published indicators on web since 2001 (<http://themes.eea.eu.int/indicators/>). The indicators have

been updated as new data have become available. Web users get information on the underlying data and key message for each indicator, as well as the complete assessment and graphical information underpinning the message. Additional background documentation is available for those who wish to obtain a fuller picture.

For the core set, EEA is developing a web-based indicator management service that extends the above concept. This application allows thematic and sectoral experts to manage the EEA core set and facilitates communication in their wider work on indicators. The specification of the indicator and its assessment is stored in the indicator management service <http://ims.eionet.eu.int/IMS/>. The relationship between the data required for the indicator and reporting obligations are provided from the EEA data service and from the reporting obligations database (ROD). This system-based approach to linking directly to the data provided by countries will provide a transparent audit trail enabling efficient information flows and tracking of the quality of data from the original source in countries to final presentation at the European level.

The indicator management service (IMS) will be fully operational by the end of 2005, and will support the following indicator tasks:

- drafting, reviewing (including consultation with countries), quality assurance and publishing (including dissemination calendar) of all indicators in the core set;
- downloading of indicator data sets for own use and calculation;
- discussion forums on indicator outcomes and to support regular review processes;
- glossary for management of the core set indicators;
- access to procedural guidelines and templates.

Indicators and reporting obligations as part of a shared information system

Indicators are a useful tool for prioritising which environmental information is most useful as part of a shared European environmental information system.

The indicator approach assumes that data is only requested from member countries if it is policy-relevant and supplies the basis for environmental assessment. Many data requests occur because countries have made legally binding commitments. This obligation-based reporting — on the state of the environment, compliance or policy effectiveness — is also often relevant for assessing environmental progress (and is widely used by the EEA for its indicators) but in some cases it can be outdated because the nature of problems have changed since the legislation was adopted. This type of reporting therefore needs to be complemented by reporting of data through other channels leading to more relevant and demand-driven environmental information. This has been the approach taken by the EEA when requesting additional data from countries in Eionet — a good example is the Corine Land Cover 2000 dataset. Both reporting approaches result in a common pool of environmental information — some obligation-driven, some responding to new requirements based on most recent policy demands, which have not yet found their way into legislation — which is policy relevant and which is seen to be used.

Future developments on the integration and use of environmental data will be strongly influenced within the 'Infrastructure for spatial information in Europe' (Inspire) initiative, which seeks to trigger the creation of a European spatial information infrastructure, that delivers to the users integrated spatial information services. These services should allow the users to identify and access spatial or geographical information from a wide range of sources, from the local level to the global level, in an inter-operable way for a

variety of uses. Over time, environmental data will be fully integrated within the Inspire infrastructure. The establishment by 2008 of a European capacity for global monitoring of environment and security (GMES) will further contribute to securing the provision of environmental information. Such a capacity will encompass a wide range of information sources, making full use of Earth-based in-situ monitoring capacities as well as airborne and space-based Earth observation. Strong links between Inspire and GMES will ensure that new monitoring and observation capacities established by the latter will be integrated, accessible and usable within the framework of Inspire.

Several international organisations have activities to develop frameworks and indicator sets for environmental issues, environment-sector integration and sustainable development issues. Annex 6 contains a brief description of international indicator activities and an overview of the linkage between the EEA core set indicators and similar indicators in the international sets. The EEA aims to contribute, with the core set of indicators, to the wider picture in the indicator area with a streamlining of data flows and an improving quality of indicators.

Role of stakeholders

National perspectives are very important for the development, publication and use of the core set of indicators. The EEA has already run two consultation processes with countries and is providing up-to-date information about developments.

A combination of formal (consultation, review of core set) and informal (voluntary contributions, country tests) involvement of countries supports the general processes of core set development, using meetings of Eionet expert thematic and national focal point groups, the scientific committee and the EEA management board. The development of the indicator management service will host a forum for discussion.

Annex 1: EEA core set of indicators

Overview, 2004

Theme	CSI	Indicator title	Specification version
Air pollution and ozone depletion	1	Emissions of acidifying substances	2004
	2	Emissions of ozone precursors	2004
	3	Emissions of primary particulates and secondary particulate precursors	2004
	4	Exceedance of air quality limit values in urban areas	2004
	5	Exposure of ecosystems to acidification, eutrophication and ozone	2004
	6	Consumption of ozone-depleting substances	2004
Biodiversity	7	Threatened and protected species	2004
	8	Designated areas	2004
	9	Species diversity	2004
Climate change	10	Greenhouse gas emissions and removals	2004
	11	Projections of greenhouse gas emissions and removals and policies and measures	2004
	12	Global and European temperature	2004
	13	Atmospheric greenhouse gas concentrations	2004
Terrestrial	14	Land take	2004
	15	Progress in management of contaminated sites	2004
Waste	16	Municipal waste generation	2004
	17	Generation and recycling of packaging waste	2004
Water	18	Use of freshwater resources	2004
	19	Oxygen-consuming substances in rivers	2004
	20	Nutrients in freshwater	2004
	21	Nutrients in transitional, coastal and marine waters	2004
	22	Bathing water quality	2004
	23	Chlorophyll in transitional, coastal and marine waters	2004
	24	Urban wastewater treatment	2004
	25	Gross nutrient balance	2004
Agriculture	26	Area under organic farming	2004
	27	Final energy consumption	2004
Energy	28	Total energy intensity	2004
	29	Total energy consumption	2004
	30	Renewable energy consumption	2004
	31	Renewable electricity	2004
Fisheries	32	Status of marine fish stocks	2004
	33	Aquaculture production	2004
	34	Fishing fleet capacity	2004
Transport	35	Passenger transport demand	2004
	36	Freight transport demand	2004
	37	Use of cleaner and alternative fuels	2004

Annex 2: Calendar of indicator publishing

Overview, 2004

CSI	Indicator title	Publishing plan	Frequency
Air pollution and ozone depletion			
1	Emissions of acidifying substances	November 2005	Yearly
2	Emissions of ozone precursors	November 2005	Yearly
3	Emissions of primary particulates and secondary particulate precursors	November 2005	Yearly
4	Exceedance of air quality limit values in urban areas	November 2005	Yearly
5	Exposure of ecosystems to acidification, eutrophication and ozone	November 2005	Yearly
6	Consumption of ozone-depleting substances	November 2005	Yearly
Biodiversity			
7	Threatened and protected species	December 2007	5-yearly
8	Designated areas	December 2005	Yearly
9	Species diversity	December 2004	5-yearly
Climate change			
10	Greenhouse gas emissions and removals	June 2005	Yearly
11	Projections of greenhouse gas emissions and removals and policies and measures	June 2005	Yearly
12	Global and European temperature	June 2005	Yearly
13	Atmospheric greenhouse gas concentrations		
Terrestrial			
14	Land take	June 2005	10-yearly
15	Progress in management of contaminated sites	December 2005	Yearly
Waste			
16	Municipal waste generation	December 2005	2-yearly
17	Generation and recycling of packaging waste	December 2005	Yearly
Water			
18	Use of freshwater resources	September 2005	Yearly
19	Oxygen-consuming substances in rivers	September 2005	Yearly
20	Nutrients in freshwater	September 2005	Yearly
21	Nutrients in transitional, coastal and marine waters	September 2005	Yearly
22	Bathing water quality	September 2005	Yearly
23	Chlorophyll in transitional, coastal and marine waters	September 2005	Yearly
24	Urban wastewater treatment	September 2005	Yearly
Agriculture			
25	Gross nutrient balance	June 2008	3-yearly
26	Area under organic farming	April 2005	Yearly
Energy			
27	Final energy consumption	December 2005	Yearly
28	Total energy intensity	December 2005	Yearly
29	Total energy consumption	December 2005	Yearly
30	Renewable energy consumption	December 2005	Yearly
31	Renewable electricity	December 2005	Yearly
Fisheries			
32	Status of marine fish stocks	September 2005	Yearly
33	Aquaculture production	September 2005	Yearly
34	Fishing fleet capacity	September 2005	Yearly
Transport			
35	Passenger transport demand	December 2005	Yearly
36	Freight transport demand	December 2005	Yearly
37	Use of cleaner and alternative fuels	December 2005	Yearly

Annex 3: EEA core set of indicators in the DPSIR framework and by type

Overview, 2004

	D	P	S	I	R	A	B	C	D	E
Air quality and ozone depletion		4		2			6			
Biodiversity			1	1	1	3				
Climate change		2	2			1	3			
Terrestrial			1		1	2				
Waste		1.5			0.5	1.5	0.5			
Water		1	5		1	6	1			
Agriculture					1	2				
Energy	3				2	2	3			
Fishery	2		1			3				
Transport	2				1	2	1			
Total	7	9.5	10.5	3	7	22.5	14.5			

D = Driving force indicator

P = Pressure indicator

S = State indicator

I = Impact indicator

R = Response indicator

A = Descriptive indicator

B = Performance indicator

C = Efficiency indicator

D = Policy effectiveness indicators

E = Total welfare indicator

Further description can be found in EEA report: *Environmental indicators: Typology and overview*. Technical report No 25, 1999 (<http://reports.eea.eu.int/TEC25/en>).

Annex 4: Policy questions related to the EEA core set of indicators

Overview, 2004

CSI	Policy question K = Key policy question S = Specific policy question	Indicator title
1	K: What progress is being made in reducing emissions of acidifying pollutants across Europe? S: How do different sectors and processes contribute to emissions of acidifying pollutants?	Emissions of acidifying substances
2	K: What progress is being made in reducing emissions of ozone precursors across Europe? S: How do different sectors and processes contribute to emissions of ozone precursors?	Emissions of ozone precursors
3	K: What progress is being made in reducing emissions of particulates (PM ₁₀) and their precursors across Europe? S: How do different sectors and processes contribute to the emissions of PM ₁₀ and their precursors?	Emissions of primary particulates and secondary particulate precursors
4	K: What progress is being made towards the limit values for SO ₂ , NO ₂ and PM ₁₀ and the target values for ozone as defined in the AQ-FWD and its daughter directives in the EEA-31 as a whole?	Exceedance of air quality limit values in urban areas
5	K: What is the progress towards AQ limit values? (Exceedances of critical loads ecosystems)	Exposure of ecosystems to acidification, eutrophication, and ozone
6	K: Are ozone-depleting substances being phased out according to the agreed schedule?	Consumption of ozone-depleting substances
7	K: Will the loss of biodiversity be halted by 2010? S: What measures are being taken to conserve or restore biodiversity?	Threatened and protected species
8	K: What measures are being taken to conserve or restore biodiversity? S: What measures are being taken to conserve or restore biodiversity at national level? S: What measures are being taken to conserve or restore biodiversity at the EU level? S: Are these measures effective in reaching the objectives?	Designated areas
9	K: What is the state and trend of biodiversity? S: What is the state and trend of birds, butterflies and mammals related to certain ecosystem types?	Species diversity
10	K: What is the progress in reducing GHG emissions towards the Kyoto Protocol targets in Europe? S: What are the emission changes by sector? S: What are the emission changes by greenhouse gases?	Greenhouse gas emissions and removals
11	K: What is the projected European progress (to 2010) in GHG emissions reduction towards the Kyoto Protocol targets: with current domestic policies and measures, with additional domestic policies and measures and with additional use of the Kyoto mechanisms? S: What is the projected European progress (to 2010) in GHG by sectors?	Projections of greenhouse gas emissions and removals and policies and measures
12	K: Will the global average temperature increase stay within the 2 °C target and the rate of global average temperature increase will stay within the 0.2 °C per decade target? S: Will the European average temperature increase stay within the 2 °C target and will, the rate of European average temperature increase stay within 0.2 °C per decade?	Global and European temperature
13	K: Will GHG concentration remain below levels needed to limit global temperature rise to 2 °C or less; typically this requires GHG concentrations to stay below 550 ppm CO ₂ -equivalents in the long term?	Atmospheric greenhouse gas concentrations

(contd)

CSI	Policy question K = Key policy question S = Specific policy question	Indicator title
14	K: What is the specific footprint of land take by built-up areas and its development/increasing in relation to general trends and to the European integration policies?	Land take
15	K: How well is the problem of contaminated sites being addressed (clean-up of historical contamination and prevention of new contamination)? S: What are the sectors contributing to soil contamination and what are their contributions? S: How much progress is being achieved in the management and control of local soil contamination? S: What are the main contaminants that affect soil and groundwater in and around contaminated sites? S: How much is being spent on cleaning-up soil contamination and what is the share of public budgets?	Progress in management of contaminated sites
16	K: Are we reducing the generation of municipal waste?	Municipal waste generation
17	K: Are we preventing the generation of packaging waste? S: Do we manage the generated waste (packaging) in a sustainable way?	Generation and recycling of packaging waste
18	K: Is the abstraction rate of water-use sustainable? S: Is the use of water by sectors sustainable?	Use of freshwater resources
19	K: Is the pollution of rivers by organic matter decreasing?	Oxygen-consuming substances in rivers
20	K: Are nutrient concentrations in our surface waters decreasing? K: Are we reducing the impact of nitrate on our groundwaters?	Nutrients in freshwater
21	K: Are nutrient concentrations in our surface waters decreasing?	Nutrients in transitional, coastal and marine waters
22	K: Is bathing water quality improving?	Bathing water quality
23	K: Is eutrophication in European surface waters decreasing?	Chlorophyll in transitional, coastal and marine waters
24	K: How effective are existing policies in reducing discharges of nutrients and organic matter? S: Is the Urban WasteWater Treatment Directive (91/271/ECC) being implemented in Member States?	Urban wastewater treatment
25	K: How are emissions from agriculture developing? Is the environmental impact of agriculture improving?	Gross nutrient balance
26	K: What are the environmentally-relevant key trends in agricultural production systems?	Area under organic farming
27	K: Are we using less final energy?	Final energy consumption
28	K: Are we decoupling energy consumption from economic growth?	Total energy intensity
29	K: Are we switching to less polluting fuels to meet our energy consumption?	Total energy consumption
30	K: Are we switching to renewable energy sources?	Renewable energy consumption
31	K: Are we switching to renewable energy sources to meet our electricity needs?	Renewable electricity
32	K: Is the use of commercial fish stocks sustainable?	Status of marine fish stocks
33	K: Is the current level of aquaculture sustainable? S: How is the environmental performance of aquaculture?	Aquaculture production
34	K: Is the size and capacity of the European fishing fleet being reduced?	Fishing fleet capacity
35	K: Is passenger transport demand being decoupled from economic growth? S: Is the percentage of passenger car transport in total inland passenger transport being reduced relative to other modes?	Passenger transport demand
36	K: Is freight transport demand being decoupled from economic growth? S: Is the percentage of goods transported by road being reduced relative to other modes?	Freight transport demand
37	K: Is the EU's progress towards promoting cleaner and alternative fuels satisfactory?	Use of cleaner and alternative fuels

Annex 5: Data sets used in EEA core set of indicators

Overview, 2004

Summary

	Total data sets	From Eurostat	From Commission	From EEA	From UN and other conventions	Others
Total data sets	97	31	14	9	18	25
Legal reporting obligations (RO) (*)	50	29	14		7	
Moral reporting obligations (RO) (*)	16			9	4	3
Reporting obligations (RO) None/unknown (*)	31	2			7	22

Note: * Number of data sets supported by reporting obligations.

List of data sets by indicator

CSI	Indicator title	Data sets	Data sources	Geo-referenced data set
1	Emissions of acidifying substances	National emission ceilings inventory (from 2005) (*)	Environment DG	No
		Trends in emissions of acidifying pollutants (CLRTAP/EMEP) (*)	Convention on Long-range Transboundary Air Pollution (CLRTAP/EMEP)	No
2	Emissions of ozone precursors	Trends in emissions of ozone precursors (CLRTAP/EMEP) (*)	Convention on Long-range Transboundary Air Pollution (CLRTAP/EMEP)	No
		Trends in emissions of acidifying pollutants (CLRTAP/EMEP) (*)	Convention on Long-range Transboundary Air Pollution (CLRTAP/EMEP)	No
		Trends in emissions of greenhouse gases (EEA sector classification and IPCC sector classification) (*)	United Nations Framework Convention on Climate Change (UNFCCC); Environment DG	No
		National emission ceilings inventory (from 2005) (*)	Environment DG	No

(contd)

CSI	Indicator title	Data sets	Data sources	Geo-referenced data set
3	Emissions of primary particulates and secondary particulate precursors	Trends in emissions of acidifying pollutants (CLRTAP/EMEP) ^(*)	Convention on Long-range Transboundary Air Pollution (CLRTAP/EMEP)	No
		Trends in emissions of particulates	Convention on Long-range Transboundary Air Pollution (CLRTAP/EMEP)	No
		RAINS Model CAFE baseline PM ₁₀ emissions estimates	IIASA	No
		National emission ceilings inventory (from 2005) ^(*)	Environment DG	No
4	Exceedance of air quality limit values in urban areas	Settlements pan-Europe (STEU)	Eurostat	Yes
		Airbase ^(*)	Environment DG	Yes
		Questionnaire for annual reporting on ambient air quality assessment	Environment DG	Yes
5	Exposure of ecosystems to acidification, eutrophication and ozone	Airbase ozone measurements		Yes
		EMEP Chemical Coordinating Centre (CCC) ozone measurements		Yes
		EMEP Coordination Centre for Effects (CCE) critical thresholds and their exceedances		Yes
		European land use database (to be replaced from 2004 by Corine Land Cover) ^(*)		Yes
6	Consumption of ozone-depleting substances	Production of ozone depleting substances	UNEP (United Nations Environment Programme) Ozone Secretariat	No
		Ozone-depleting substances — statistical fact sheet	Environment DG	No
7	Threatened and protected species	IUCN Red List of Threatened Species	IUCN — World Conservation Union	No
		Annexes of the EC 79/709 and 92/43 Directives	Environment DG	Yes ⁽¹⁾
		Annexes of Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1979)	Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	Yes ⁽¹⁾
8	Designated areas	Nationally designated areas (CDDA) ^(*)	EEA	Yes
		Common database on designated areas (CDDA International)	UNEP/WCMC (World Conservation Monitoring Centre)	Yes
		Conclusions of the Natura 2000 bio-geographic seminars	Environment DG	Yes ⁽¹⁾
		Natura 2000 database	Environment DG	Yes

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CSI	Indicator title	Data sets	Data sources	Geo-referenced data set
9	Species diversity	Trends of bears	Large Carnivore Initiative Council of Europe/WWF	No
		Trends of wolves	Large Carnivore Initiative Council of Europe/WWF	No
		Trends of farmland birds	European Bird Census Council, BirdLife International; Royal Society for the Protection of Birds	No
		Trends of woodland, park and garden birds	European Bird Census Council, BirdLife International; Royal Society for the Protection of Birds	No
		Trends of butterflies	The Dutch Butterfly Conservation	No
10	Greenhouse gas emissions and removals	Trends in emissions of greenhouse gases (EEA sector classification and IPCC sector classification) (*)	United Nations Framework Convention on Climate Change (UNFCCC); Environment DG	No
11	Projections of greenhouse gas emissions and removals and policies and measures	National communications	UNFCCC	No
		National projections, policies and measures	Environment DG	No
12	Global and European temperature	Global average monthly and annual temperature	Climatic Research Unit (CRU) University of East Anglia, UK	Yes
		European average annual and monthly temperature, Based on CruTempV2 (CRU, KNMI)	KNMI (Netherlands Meteorological Institute)	Yes
		Trends in annual, summer and winter temperature station data in Europe	KNMI (Netherlands Meteorological Institute)	Yes
		Trends in the frequency of summer days (> 25 °C) and cold, and heat wave occurrence, based on station data in Europe	KNMI (Netherlands Meteorological Institute)	Yes
13	Atmospheric greenhouse gas concentrations	CO ₂ concentrations	SIO (Scripps Institution of Oceanography)	Yes
		CH ₄ and N ₂ O concentrations	Atmospheric lifetime experiment (ALE), the global atmospheric gases experiment (GAGE), and the present advanced GAGE (AGAGE)	Yes
		HFC-134a and SF6 concentrations	NOAA/CMDL/HATS (National Oceanic and Atmospheric Administration/Climate Monitoring and Diagnostics Laboratory)	Yes

(contd)

CSI	Indicator title	Data sets	Data sources	Geo-referenced data set
14	Land take	Land use by main category	Eurostat	No
		CLC2000, CLC change database (*)	EEA	Yes
15	Progress in management of contaminated sites	Soil contamination (*)	EEA	No
16	Municipal waste generation	Population: total, urban and rural	World Bank	No
		Wastebase — Municipal waste	Eurostat; OECD	No
17	Generation and recycling of packaging waste	Packaging waste generation and treatment in EU	Environment DG	No
		Gross domestic product at market prices (Eurostat)	Eurostat	No
		Population: total, urban and rural	World Bank	No
18	Use of freshwater resources	Annual water abstraction by source and by sector	Eurostat	No
		Irrigated area	Food and Agriculture Organisation (FAO)	No
		Population: total, urban and rural	World Bank	No
19	Oxygen-consuming substances in rivers	Waterbase — Rivers (*)	EEA	Yes
20	Nutrients in freshwater	Waterbase — Groundwater	EEA	Yes
		Waterbase — Lakes (*)	EEA	Yes
		Waterbase — Rivers (*)	EEA	Yes
21	Nutrients in transitional, coastal and marine waters	Waterbase — Transitional, coastal and marine waters (*)	EEA; ICES (International Council for the Exploration of the Seas); Black Sea Environmental Programme (OceanBase Version 2.02 TU-BS)	Yes
		Euromaps on CD-ROM. Digital Map Data, Version 1.0	Bartholomew Digital Data. Harper Collins Publishers, London, UK	Yes
22	Bathing water quality	Compliance to the bathing water quality directive 76/160/EEC: coastal and fresh water zones	Environment DG	No

(contd)

CSI	Indicator title	Data sets	Data sources	Geo-referenced data set
23	Chlorophyll in transitional, coastal and marine waters	Waterbase — Transitional, coastal and marine waters (*)	EEA; ICES (International Council for the Exploration of the Seas); Black Sea Environmental Programme (OceanBase Version 2.02 TU-BS)	Yes
		Euromaps on CD-ROM. Digital Map Data, Version 1.0	Bartholomew Digital Data, Harper Collins Publishers, London, UK	Yes
24	Urban wastewater treatment	National population connected to wastewater treatment plants	Eurostat	No
		National programmes for urban wastewater treatment	Environment DG	No
25	Gross nutrient balance	Nitrogen balances	Eurostat	Yes ⁽²⁾
26	Area under organic farming	Certified and policy-supported organic and in-conversion land area	Organic Centre Wales	No
		Land use, utilised agricultural area (UAA)	Eurostat	No
27	Final energy consumption	Supply, transformation, consumption — all products — annual data	Eurostat; International Energy Agency (IEA)	No
28	Total energy intensity	Energy intensity of the economy	Eurostat	No
		Gross inland consumption of energy (Supply, transformation, consumption — all products — annual data)	Eurostat	No
		Gross domestic product at (1995) market prices	Eurostat	No
		Supply, transformation, consumption — all products — annual data	Eurostat; International Energy Agency (IEA)	No
29	Total energy consumption	Supply, transformation, consumption — solid fuels — annual data	Eurostat; International Energy Agency (IEA)	No
		Supply, transformation, consumption — oil — annual data	Eurostat; International Energy Agency (IEA)	No
		Supply, transformation, consumption — gas — annual data	Eurostat; International Energy Agency (IEA)	No
		Supply, transformation — nuclear energy — annual data	Eurostat; International Energy Agency (IEA)	No
		Supply, transformation, consumption — renewables and wastes (total, solar heat, biomass, geothermal, wastes) — annual data	Eurostat; International Energy Agency (IEA)	No

(contd)

CSI	Indicator title	Data sets	Data sources	Geo-referenced data set
30	Renewable energy consumption	Supply, transformation, consumption — all products — annual data	Eurostat; International Energy Agency (IEA)	No
		Supply, transformation, consumption — renewables and wastes (total, solar heat, biomass, geothermal, wastes) — annual data	Eurostat; International Energy Agency (IEA)	No
		Supply, transformation, consumption — renewables (hydro, wind, photovoltaic) — annual data	Eurostat; International Energy Agency (IEA)	No
		Supply, transformation, consumption — renewables (biofuels) — annual data	Eurostat; International Energy Agency (IEA)	No
31	Renewable electricity	Share of renewable energy (including indicative targets)	Environment DG; Eurostat; International Energy Agency (IEA)	No
		Primary production of hydro power (Supply, transformation, consumption — renewables (hydro, wind, photovoltaic) — annual data)	Eurostat; International Energy Agency (IEA)	No
		Primary production of wind energy (Supply, transformation, consumption — renewables (hydro, wind, photovoltaic) — annual data)	Eurostat; International Energy Agency (IEA)	No
		Primary production of photovoltaic power (Supply, transformation, consumption — renewables (hydro, wind, photovoltaic) — annual data)	Eurostat; International Energy Agency (IEA)	No
		Gross electricity generation — Geothermal power plants (Supply, transformation, consumption — electricity — annual data)	Eurostat; International Energy Agency (IEA)	No
		Gross electricity generation — Biomass-fired power stations (Supply, transformation, consumption — electricity — annual data)	Eurostat; International Energy Agency (IEA)	No
		Total gross electricity generation (Supply, transformation, consumption — electricity — annual data)	Eurostat; International Energy Agency (IEA)	No
		Gross inland consumption of electricity (Supply, transformation, consumption — electricity — annual data)	Eurostat; International Energy Agency (IEA)	No

(contd)

CSI	Indicator title	Data sets	Data sources	Geo-referenced data set
32	Status of marine fish stocks	ICES Advisory Committee on Fishery Management (ACFM) Reports	ICES (International Council for the Exploration of the Seas)	Yes ⁽³⁾
		General Fisheries Commission for the Mediterranean (GFCM) Sub-Committee on Stock Assessment (SCSA) reports	Food and Agriculture Organisation (FAO)	Yes ⁽³⁾
		International Commission for the Conservation of Atlantic Tuna (ICCAT) Standing Committee on Research and Statistics (SCRS) reports	International Commission for the Conservation of Atlantic Tuna (ICCAT)	Yes ⁽³⁾
		ICES Fishing areas	ICES	Yes
		GFCM management units	Food and Agriculture Organisation (FAO)	Yes
33	Aquaculture production	Aquaculture production: quantities 1950–	Food and Agriculture Organisation (FAO)	Yes ⁽³⁾
		Aquaculture production — Quantities (tonnes live weight)	Eurostat	Yes ⁽³⁾
		Gross aquaculture production	OSPAR	
		Total nutrient loads	Helcom	
		Fishing areas		Yes
		Length of coastline		
34	Fishing fleet capacity	Fishing fleet	Eurostat	No
		FAO Bulletin of Fishery Statistics	Food and Agriculture Organisation (FAO)	No
		Fishing fleet (no formal title)	Fisheries DG	No
35	Passenger transport demand	Volume of passenger transport relative to GDP	Eurostat	No
		Modal split of passenger transport	Eurostat	No
		Passenger-kilometre	International Civil Aviation Organisation (ICAO)	No
		Final energy consumption of the air transport sector	Eurostat	No
36	Freight transport demand	Volume of freight transport relative to GDP	Eurostat	No
		Modal split of freight transport	Eurostat	No
37	Use of cleaner and alternative fuels	Supply, transformation, consumption — gas — annual data	Eurostat	No
		Supply, transformation, consumption — oil — annual data	Eurostat	No
		Supply, transformation, consumption — renewables (biofuels) — annual data	Eurostat	No
		EU fuels sales by fuel type	Environment DG	No

Note:

* Data set supported by Eionet priority data flow.

¹ Georeferenced by biogeographical region.² Georeferenced by NUTS level 2.³ Georeferenced by fishing area.

Annex 6: EEA core set indicators linkages to other international indicators

International environmental indicator sets

Overview, 2004

The following table lists a brief description of international indicator activities. The OECD has been one of the main actors in relation to development of environmental and sector indicators over the past 15 years. The EU activities in relation to indicators started in the mid-1990s with a Eurostat project on pressure indices. The development of indicators at an EU level has been speeded up after the European Council in Cardiff in summer 1998 together with activities in relation to integration of environmental concerns in relation to environmental policies.

International indicator sets and brief summary description	Abbreviation
CEC structural indicators: http://epp.eurostat.cec.eu.int/portal/page?_pageid=1133,1400891,1133_1402816&_dad=portal&_schema=PORTAL . An annual synthesis report (spring report) on the basis of the structural indicators provide an instrument for an objective assessment of the progress made towards the Lisbon objectives. The 42 structural indicators cover the five domains of employment, innovation and research, economic reform, social cohesion, environment as well as the general economic background.	CEC SI
Eurostat's sustainable development indicators (SDI) task force Circa Forum: http://forum.europa.eu.int/Public/irc/dsis/susdevind/information . Since 2002, Eurostat has been working on a set of sustainable development indicators related to the EU sustainable development strategy.	ESS SDI
Eurostat energy, transport and environment indicators: http://epp.eurostat.cec.eu.int/portal/page?_pageid=1073,1135281,1073_1135295&_dad=portal&_schema=PORTAL&p_product_code=KS-DK-04-001 and http://epp.eurostat.cec.eu.int/cache/ITY_OFFPUB/KS-DK-04-001/EN/KS-DK-04-001-EN.PDF . The pocketbook entitled Energy, transport and environment indicators comprises a broad set of data collected by Eurostat and the European Environment Agency. The objective of this publication is to provide an overview of the most relevant indicators on energy, transport and the environment, with particular focus on sustainable development. It presents data for the EU-25 Member States, for the EFTA countries as well as for Bulgaria, Romania and Turkey.	Eurostat ETE
Eurostat 'Towards environmental pressure indicators for the EU': http://epp.eurostat.cec.eu.int/portal/page?_pageid=1073,1135281,1073_1135295&_dad=portal&_schema=PORTAL&p_product_code=KS-59-04-249 . In 1990 and 2001, Eurostat published a set of environmental pressure indicators for the EU, addressing the most important anthropogenic pressures on the environment in 8–10 major policy fields. In 2003, Eurostat updated and extended to cover the acceding countries, the indicators in four of these policy fields, namely, air pollution, climate change, resource depletion and waste, for which data are readily available at Eurostat and the European Environment Agency. 2003 report in pdf: http://epp.eurostat.cec.eu.int/cache/ITY_OFFPUB/KS-59-04-249/EN/KS-59-04-249-EN.PDF . TEPI homepage at JRC including methodology sheets: http://esl.jrc.it/envind/hm_me_en.htm .	EU TEPI

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International indicator sets and brief summary description	Abbreviation
<p>OECD's different sets of environmental indicators are described in OECD 2003: 'Environmental indicators — development, measurement and use. Reference paper' ⁽²⁾</p> <p>OECD key environmental indicators (KEI) OECD core environmental indicators (CEI) OECD agriculture-environment indicators OECD energy-environment indicators OECD transport-environment indicators OECD sustainable household consumption indicators</p>	<p>OECD KEI OECD CEI OECD AGRI OECD EEI OECD TEI OECD SDH</p>
<p>UN Commission on Sustainable Development (UNCSD): The 1992 Rio Conference recognised the importance of indicators for decision-making and Chapter 40 of Agenda 21 calls for the development of indicators of sustainable development indicators.</p> <p>In 1996, the UNCSD launched a working list of 134 SDI related to the different chapter of Agenda 21 including economic, environmental, social and institutional indicators (http://www.un.org/esa/sustdev/natlinfo/indicators/indisd/english/english.htm). Eurostat reported in 2002 in the report 'Measuring progress towards a more sustainable Europe' 59 of the CSD1996 indicators for the EU-15 countries (http://epp.eurostat.cec.eu.int/cache/ITY_OFFPUB/KS-37-01-203/EN/KS-37-01-203-EN.PDF).</p> <p>In 2001, the UNCSD proposed a core set consisting of 57 indicators (http://www.un.org/esa/sustdev/natlinfo/indicators/isdms2001/table_4.htm).</p>	<p>CSD1996</p> <p>CSD2001</p>
<p>International Atomic Energy Agency and International Energy Agency 2001: indicators for sustainable energy development.</p>	<p>IEA SDE</p>
<p>WHO Environment and Health (EH) indicators: http://www.who.dk/EHIndicators/Publications/20030625_1.</p> <p>The WHO — European Centre for Environment and Health is implementing a project to establish an environmental health (EH) indicator system. The system is designed to serve public health monitoring and environmental policies in Member States as well as to support multinational analyses. The methodology developed by the WHO project provides the basis for a set of core environment and health indicators for EU countries. On the basis of the European Commission-sponsored WHO project 'Development of environment and health indicators for the EU countries' (ECOEHS) a working group, in 2003, identified a set of environment and health indicators adequate for EH monitoring in the EU covering the following seven issues: air quality, noise, housing and settlement, transport accidents, water and sanitation, chemical emergencies and radiation. In early spring 2004, WHO started a pilot study on the feasibility of the proposed 45 indicators in the EU Member States.</p>	<p>WHO EH</p>
<p>Sustainability profile — European common indicators. The development of a European common set of local sustainability indicators comes from a joint initiative from the European Commission (Environment DG), the European Environment Agency and from the expert group on the urban environment. The indicator set contains 10 indicators: http://www.europa.eu.int/comm/environment/urban/home_old_en.htm#Documents.</p>	<p>ECI</p>
<p>Convention on Biological Diversity (CBD), The 2010 biodiversity target — Indicators. Eight indicators have been identified for immediate testing and several requiring further development and leading to a balanced set suitable for assessing progress at the global level towards the 2010 target, and for effectively communicating trends in biodiversity related to the three objectives of the Convention.</p>	<p>CBD2004</p>

² Available at <http://www.oecd.org/dataoecd/7/47/24993546.pdf>.

Comparison of EEA core set of indicators with other international indicator sets

Overview, 2004

In the tables, the EEA core set indicators are compared with identical or similar indicators in indicator sets, produced by international organisations. Abbreviations for the international indicator sets can be found in the first table in this annex.

Air pollution, ozone layer depletion, climate change, energy and transport

CSI	Indicator title	Identical or similar indicator by international organisations S: short-term indicator M: medium-term indicator L: long-term indicator
	Air pollution and ozone depletion	Review papers: Energy and emission indicators ⁽³⁾ OECD 1999: Advanced air quality indicators and reporting (http://www.oilis.oecd.org/oilis/1999doc.nsf/linkto/env-epoc-ppc(99)9-final).
1	Emissions of acidifying substances	Eurostat ETE: Emissions of acidifying substances (EEA) ESS SDI Emissions of acidifying substances and ozone precursors and GDP at constant prices EU TEPI AP-1 Emissions of nitrogen oxides (NO _x) EU TEPI AP-3 Emissions of sulphur dioxide (SO ₂) EU TEPI AP-7 Emissions of ammonia (NH ₃) OECD KEI SO _x and NO _x emission intensities OECD CEI Index of acidifying substances (M/L) OECD CEI Emissions of NO _x and SO _x (S) CSD1996 Emissions of sulphur oxides CSD1996 Emissions on nitrogen oxides WHO EH Air_P1Emissions of air pollutants
2	Emissions of ozone precursors	ESS SDI Emissions of acidifying substances and ozone precursors and GDP at constant prices EU TEPI AP-1 Emissions of nitrogen oxides (NO _x) EU TEPI AP-2 Emissions of non-methane volatile organic compounds (NMVOCs) OECD KEI SO _x and NO _x emission intensities OECD CEI Emissions of NO _x and SO _x (S) CSD1996 Emissions on nitrogen oxides WHO EH Air_P1Emissions of air pollutants
3	Emissions of primary particulates and secondary particulate precursors	EU TEPI AP-1 Emissions of nitrogen oxides (NO _x) EU TEPI AP-3 Emissions of sulphur dioxide (SO ₂) EU TEPI AP-4 Emissions of particles WHO EH Air_P1Emissions of air pollutants
4	Exceedance of air quality limit values in urban areas	CEC SI Urban air quality ESS SDI Population exposure to air pollution by particulate matters OECD KEI Population exposure to air pollution (M) OECD CEI Concentrations of air pollutants (S) OECD CEI Population exposure to air pollution (M) CSD1996/CSD2001 Ambient concentrations of pollutants in urban areas WHO EH Air_Ex1 Exposure to ambient air pollutants (urban) ECI A.5 Quality of local ambient air

³ Boonekamp, P.G.M. 2002: *Energy and emission indicators: International inventory and assessment*. Report from Energy Research Centre of the Netherlands (ECN). Available at <http://www.ecn.nl/library/reports/2002e/c02072.html> and <http://www.ecn.nl/docs/library/report/2002/c02072.pdf>.

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CSI	Indicator title	Identical or similar indicator by international organisations
5	Exposure of ecosystems to acidification, eutrophication, and ozone	ESS SDI Exceedance of critical loads of acidifying substances and N in sensitive natural areas OECD CEI Concentrations in acid precipitation (S) OECD CEI Exceedance of critical loads of pH in water and soil (M/L)
6	Consumption of ozone depleting substances	EU TEPI Indicators on emissions of ozone depleting substances (halons, CFCs, etc.) OECD KEI Indices of apparent consumption of ozone-depleting substances (ODS) OECD CEI Apparent consumption of CFCs and halons OECD CEI Index of apparent consumption of ozone-depleting substances (ODP) (M) CSD1996/CSD2001 Consumption of ozone-depleting substances
Climate change		Review papers: Energy and emission indicators ⁽³⁾
10	Greenhouse gas emissions and removals	CEC SI Greenhouse gases emissions Eurostat ETE: Greenhouse gases emissions (EEA) Eurostat ETE: Carbon dioxide emissions by main sector ESS SDI Total greenhouse gas emissions ESS SDI GHG emissions by sector EU TEPI CC1-CC11 Emissions of single GHG OECD KEI CO ₂ emission intensities (S) OECD KEI Index of greenhouse gas emissions (M) OECD CEI Emissions of CO ₂ , CH ₄ , N ₂ O & CFC (S/M) OECD CEI Index of greenhouse gas emissions (M) CSD1996/CSD2001 Emissions of greenhouse gases (3GHG/6GHG) ECI Local contribution to global climatic change
11	Projections of greenhouse gas emissions and removals and policies and measures	Commissions draft decision ⁽⁴⁾ (2004) contains obligations for countries to report projections on GHG emissions.
12	Global and European temperature	OECD CEI Global mean temperature (S)
13	Atmospheric greenhouse gas concentrations	OECD CEI Atmospheric concentrations of greenhouse gases (S)
Energy		Review papers: Energy and emission indicators ⁽³⁾ CEC 2001: Energy and environment indicators IAEA and IEA 2001 ⁽⁵⁾ : Indicators for sustainable energy development
27	Final energy consumption (by sector)	Eurostat ETE Final energy consumption, by sector ESS SDI Final energy consumption by sector OECD EEI — Total final consumption by sector IEA SDE Energy intensity by sector
28	Total energy intensity	CEC SI Energy intensity of the economy Eurostat ETE Energy intensity ESS SDI Energy intensity of the economy OECD KEI Intensity of energy use/Energy efficiency index OECD CEI Energy intensity (total primary energy supply per unit of GDP or per capita) (S) OECD EEI Total final consumption by sector CSD2001 Energy Use per unit of GDP IEA SDE Energy use per unit of GDP

⁴ Commission draft decision laying down rules implementing Decision 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.

⁵ International Atomic Energy Agency and International Energy Agency report available at <http://www.iea.org/dbtw-wpd/textbase/papers/2001/csd-9.pdf>.

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CSI	Indicator title	Identical or similar indicator by international organisations
29	Total energy consumption (by fuel)	Eurostat ETE Gross inland consumption ESS SDI Final energy consumption by fuel OECD CEI Structure of energy supply (S) OECD EEI Total primary energy supply by fuel type OECD EEI Total final consumption by fuel type OECD EEI Electricity generation by fuel type CSD1996/CSD2001 Annual energy consumption per capita IEA SDE Energy consumption per capita IEA SDE Energy mix
30	Renewable energy consumption	Eurostat ETE Gross inland consumption from renewables and share on total gross inland consumption ESS SDI Share of renewable energy (including indicative targets), by source CSD2001 Share of consumption of renewable energy resources
31	Renewable electricity	CEC SI Share of renewable energy Eurostat ETE Contribution of electricity from RES to total electricity consumption CSD2001 Share of consumption of renewable energy resources
Transport		Review papers: EEA transport and environment reporting mechanism (TERM)
35	Passenger transport demand	CEC SI Volume of inland transport (tonne-km and passenger-km) relative to GDP CEC SI Modal split of transport Eurostat ETE Passenger transport by rail, buses and coaches, air and sea ESS SDI Vehicle-km and GDP at constant price ESS SDI Car share of inland passenger transport OECD TEI Road traffic trends and densities (passenger, goods) CSD1996/CSD2001 Distance travelled per capita by mode of transport WHO EH Distance travelled ECI Local mobility and passenger transportation
36	Freight transport demand	CEC SI Volume of inland transport (tonne-km and passenger-km) relative to GDP CEC SI Modal split of transport Eurostat ETE Volume of freight transport ESS SDI Road share of inland freight transport ESS SDI Volume of freight transport and GDP at constant price OECD CEI Road traffic volumes OECD TEI Freight transport trends by mode
37	Use of cleaner and alternative fuels	ESS SDI Consumption of biofuels, as a % of total fuel consumption in transport OECD CEI/TEI Consumption of road fuels

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CSI	Indicator title	Identical or similar indicator by international organisations
	Waste	Review papers: EEA 2003: <i>Assessment of information related to waste and material flows — a catalogue of methods and tools</i> . Technical report No 96 ⁽⁶⁾ pp. 48–52 reviews waste indicators
16	Municipal waste generation	CEC SI Municipal waste (collected, landfilled and incinerated) Eurostat ETE Treatment and disposal of municipal waste/ municipal waste collected ESS SDI Generation of waste by all economic activities and by households ESS SDI Municipal waste collected per capita ESS SDI Municipal waste treatment, by type of treatment method OECD KEI Municipal waste generation intensities OECD CEI Generation of waste (municipal, industrial, hazardous, nuclear) CSD1996/CSD2001 Generation of industrial and municipal solid waste
17	Generation and recycling of packaging waste	OECD CEI Recycling rates (glass & paper) (S/M) OECD CEI Waste minimisation (to be further developed) CSD1996/CSD2001 Rate of waste recycling and reuse

⁶ Available at http://reports.eea.eu.int/technical_report_2003_96/en.

Biodiversity and terrestrial

CSI	Indicator title	Identical or similar indicator by international organisations
	Biodiversity	Review papers: EEA 2004: <i>An inventory of biodiversity indicators in Europe, 2002</i> . Technical report No 92 ⁽⁷⁾
7	Threatened and protected species	CBD2004 Change in status of threatened species (IUCN Red List) (under development) ESS SDI Change in status of threatened and/or protected species OECD KEI Threatened species OECD CEI Threatened or extinct species as a share of total species known CSD1996 Threatened species as a percent of total native species CSD2001 Abundance of selected key species
8	Designated areas	CEC SI Protection of natural resources — Areas proposed under the habitats and birds directives ESS SDI Sufficiency of Member States proposals for protected sites under the EU habitats directive CBD2004 Coverage of protected areas OECD KEI Species and habitat or ecosystem diversity (M) OECD KEI Area of key ecosystems (M) OECD CEI Protected areas as % of national territory — and by type of ecosystem CSD1996/CSD2001 Protected area as a percent of total area CSD2001 Area of selected key ecosystems ECI Protected areas as a percentage of total municipal area
9	Species diversity	CBD2004 Trends in abundance and distribution of selected species ESS SDI Biodiversity Index ESS SDI Population trends of farmland birds CSD1996/CSD2001 Abundance of selected key species BirdLife International birds as biodiversity indicators ⁽⁸⁾
	Terrestrial	Review papers: EEA 2001: <i>Towards spatial and territorial indicators using land cover data</i> , Technical report No 59 ⁽⁹⁾ EEA 2002: <i>Assessment of data needs and data availability for the development of indicators on soil contamination</i> , Technical report No 81 ⁽¹⁰⁾
14	Land take	ESS SDI Land-use change (Evolution of built-up, natural and agricultural land) ESS SDI Growth of built-up area as a % of total land area OECD CEI Habitat alteration and land conversion from natural state (L) to be further developed (for example, road network density, change in land cover, etc.) CSD1996 Land use change; changes in land conditions CSD2001 Area of urban formal and informal settlements
15	Progress in management of contaminated sites	ESS SDI Percentage of total land area at risk of soil contamination OECD CEI Rehabilitated areas (M/L) CSD1996 Area of land contaminated by hazardous wastes

⁷ Available at http://reports.eea.eu.int/technical_report_2004_92/en/tab_content_RLR.

⁸ Available at http://www.birdlife.net/eu/pdfs/birdlife_indic_position.pdf.

⁹ Available at http://reports.eea.eu.int/Technical_report_No_59/en.

¹⁰ Available at http://reports.eea.eu.int/technical_report_2002_81/en.

Water

CSI	Indicator title	Identical or similar indicator by international organisations
	Water	Review papers: EEA 2003: <i>Europe's water: an indicator-based assessment</i> . Topic report No 1/2003 ⁽¹¹⁾
18	Use of freshwater resources	EU TEPI Surface water abstraction; groundwater abstraction and water consumption per capita ESS SDI Fresh water abstraction as a % of available resources OECD KEI Intensity of use of water resources OECD CEI Intensity of use of water resources — (abstractions/available resources) (S) CSD1996/CSD2001 Annual withdrawals of ground and surface water as of a percent of available water/total renewable water CSD1996 Domestic consumption of water per capita CSD1996 Groundwater reserves
19	Oxygen consuming substances in rivers	OECD CEI BOD/DO in inland waters (S/M) CSD1996/CSD2001 Biochemical oxygen demand (BOD) in water bodies
20	Nutrients in freshwater	OECD CEI Concentration of N & P in inland waters (S/M) OECD AGRI Water quality risk indicator OECD AGRI Water quality state indicator
21	Nutrients in transitional, coastal and marine waters	OECD CEI Concentration of N & P in marine waters (S/M) CSD1996 Releases of nitrogen and phosphorus to coastal waters HELCOM indicator fact sheets: Horizontal variation of dissolved nutrients in the Baltic Sea in 2002
22	Bathing water quality	CEC DG ENV The annual bathing water report provide similar diagrams/indicators WHO EH Exceedance of recreational water limit values for microbiological parameters/Recreational water compliance (WatSan_S1)
23	Chlorophyll in transitional, coastal and marine waters	CSD1996 Algae index CSD2001 Algae concentration in coastal waters Helcom indicator fact sheets ⁽¹²⁾ : Chlorophyll concentrations from satellite remote sensing of ocean colour and temporal variations and regional differences in chlorophyll concentrations from satellite remote sensing of ocean colour
24	Urban wastewater treatment	Eurostat ETE Share of population connected to urban wastewater treatment plants by type of treatment EU TEPI WP-5 Water treated/water collected ESS SDI Population connected to wastewater treatment systems OECD KEI Wastewater treatment connection rates OECD CEI Population connected to sewage treatment plants (S) CSD1996 Wastewater treatment WHOEH Wastewater treatment coverage

¹¹ Available at http://reports.eea.eu.int/topic_report_2003_1/en.

¹² Available at <http://www.helcom.fi/environment/indicators2003.html>.

Agriculture and fisheries

CSI	Indicator title	Identical or similar indicator by international organisations
	Agriculture	Review papers: IRENA; Communication from the Commission to the Council and the European Parliament 2000: Indicators for the integration of environmental concerns into the common agricultural policy. COM(2000) 20 final OECD 2001: Environmental indicators for agriculture Vol. 3
25	Gross nutrient balance	ESS SDI Nitrogen surplus OECD CEI Nutrient balance (L) OECD CEI N and P from fertiliser use and from livestock (S) OECD AGRI Use of farm inputs and natural resources — nitrogen balance CSD1996/CSD2001 Use of fertilisers
26	Area under organic farming	ESS SDI Share of organic farming OECD AGRI Whole farm management — organic farming
	Fisheries	Review papers: EEA 2003: <i>An indicator-based approach to assessing the environmental performance of European marine fisheries and aquaculture</i> , Technical report 87 ⁽¹³⁾
32	Status of marine fish stocks	CEC SI Protection of natural resources — Fish stocks in European marine waters ESS SDI Fish catches outside safe biological limits ESS SDI Trends for spawning stocks of selected species OECD KEI Intensity of use of fish resources OECD CEI Fish resources — Fish catches, size of spawning stocks, fishing quotas CSD1996 Maximum sustained yield for fisheries CSD2001 Annual catch by major species
33	Aquaculture production	No aquaculture production indicator has been found in international sets
34	Fishing fleet capacity	ESS SDI Size of fishing fleet ESS SDI Structural support to fisheries and % allocated to promote environmentally friendly fishing practices No other fishing fleet indicators have been found in other international sets

¹³ Available at http://repository.eea.eu.int/reports/technical_report/87/full_report/en/html/abstract.

Annex 7: Main EEA indicator-related products by environmental issue and sector

Agriculture	The IRENA operation. The IRENA indicators correspond to the list of agri-environmental indicators published in COM(2001)
Agriculture	<i>Towards agri-environmental indicators: Integrating statistical and administrative data with land cover information.</i> Topic report No 6/2001: http://reports.eea.eu.int/topic_report_2001_06/en
Air pollution	<i>Air pollution in Europe 1990–2000.</i> Topic report No 4/2003: http://reports.eea.eu.int/topic_report_2003_4/en
Biodiversity	<i>An inventory of biodiversity indicators in Europe, 2002.</i> Technical report No 92: http://reports.eea.eu.int/technical_report_2004_92/en
Climate change	<i>Impacts of Europe's changing climate.</i> EEA Report No 2/2004: http://reports.eea.eu.int/climate_report_2_2004/en
Climate change	<i>Greenhouse gas emission trends and projections in Europe.</i> Environmental issue report No 36: http://reports.eea.eu.int/environmental_issue_report_2003_36/en
Energy	<i>Energy and environment in the European Union.</i> Environmental issue report No 31: http://reports.eea.eu.int/environmental_issue_report_2002_31/en
Fisheries	<i>An indicator-based approach to assessing the environmental performance of European marine fisheries and aquaculture.</i> Technical report No 87: http://reports.eea.eu.int/technical_report_2003_87/en/tab_content_RLR
Land cover/ Terrestrial	<i>Towards spatial and territorial indicators using land cover data.</i> Technical report No 59: http://reports.eea.eu.int/Technical_report_No_59/en
Material flow	Total material requirement of the European Union. Technical report No 55: http://reports.eea.eu.int/Technical_report_No_55/en
Soil	<i>Assessment of data needs and data availability for the development of indicators on soil contamination.</i> Technical report No 81: http://reports.eea.eu.int/technical_report_2002_81/en
Soil sealing	<i>Proceedings of the Technical Workshop on Indicators for Soil Sealing Copenhagen, 26 to 27 March 2001.</i> Technical report No 80: http://reports.eea.eu.int/technical_report_2002_80/en
Transport	<i>TERM 2004 — Ten key transport and environment issues for policy-makers.</i> EEA Report No 3/2004: http://reports.eea.eu.int/TERM2004/en
Transport	<i>TERM 2002 — Paving the way for EU enlargement — Indicators of transport and environment integration.</i> Environmental issue report No 32: http://reports.eea.eu.int/environmental_issue_report_2002_24/en/tab_summary_RLR
Transport	<i>TERM 2001 — Indicators tracking transport and environment integration in the European Union.</i> Environmental issue report No 23: http://reports.eea.eu.int/term2001/en/tab_summary_RLR
Transport	<i>Are we moving in the right direction? Indicators on transport and environmental integration in the EU: TERM 2000.</i> Environmental issue report No 12: http://reports.eea.eu.int/ENVISSUENo12/en
Waste	<i>Assessment of information related to waste and material flows — a catalogue of methods and tools.</i> Technical report No 96: http://reports.eea.eu.int/technical_report_2003_96/en , Waste indicators pp. 48–53
Water	<i>Europe's water: an indicator-based assessment.</i> Topic report No 1/2003: http://reports.eea.eu.int/topic_report_2003_1/en
Water	<i>Testing of indicators for the marine and coastal environment in Europe — Part 1: Eutrophication and integrated coastal zone management.</i> Technical report No 84: http://reports.eea.eu.int/technical_report_2002_84/en
Water	<i>Testing of indicators for the marine and coastal environment in Europe — Part 2: Hazardous substances.</i> Technical report No 85: http://reports.eea.eu.int/technical_report_2003_85/en

(contd)

Water	<i>Testing of indicators for the marine and coastal environment in Europe — Part 3: Present state and development of indicators for eutrophication, hazardous substances, oil and ecological quality.</i> Technical report No 86: http://reports.eea.eu.int/technical_report_2003_86/en
Water	ETC/Water 2002: Core set of indicators for water. Final draft January 2002
General	<i>Environmental indicators: Typology and overview.</i> Technical report No 25, 1999 <i>Environmental signals 2002 — Benchmarking the millennium, general indicator-based report</i>

Annex 8: Quality evaluation of the EEA core set of indicators

The quality of each indicator has been evaluated using the approach described in the table below. The starting point for the evaluation is a subset of the criteria used to select the indicators in the first place. A scoring system has been defined for each criterion. The cumulative result of the evaluation for the indicator is presented as a radar diagram.

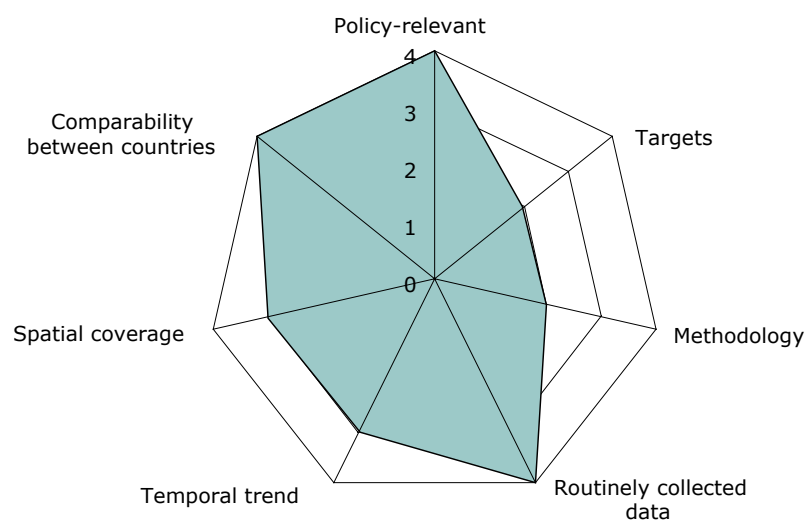
The criteria and possible scores are described below and an example of a radar diagram is presented. The full set of quality evaluations for the core set at December 2004 are available under Related documents at: <http://www.eea.eu.int/coreset>.

Criteria	0	1	2	3	4
Is the indicator policy relevant, i.e. supporting EU policies' priority issues?	Not an EU policy issue and an EEA priority issue				An EU policy issue and an EEA priority issue
Does the indicator monitor progress toward the quantified targets?	No targets	Targets but the indicator do not fully reflect these	Qualitative targets (generic)	Qualitative targets (specific) or quantified targets not time bound	Quantified targets time bound
Is the indicator conceptually and methodologically well founded, i.e. in use by other international organisations and/or clear and documented methodology?	Methodology description is missing	Methodology needs major improvements	Methodology needs some improvements		Methodology well founded with references
Is the indicator based on readily available and routinely collected data?	Data not readily available	Some data available — but missing collection procedures	Based on ad hoc data collection or international sources (such as global temperature)		EEA priority data flow or statistical collection by Eurostat or by EU directives
Does the spatial coverage include all or most of EEA countries?		Data from some countries or global/ European data	Around half of EEA countries for example, the EU-15	Around 25 countries	Data from nearly all EEA countries
Is the data coverage sufficient to illustrate temporal trends?		Only data from 1–3 years	Trend 4–9 years	Trend longer than 10 years	Trend longer than 10 years for most countries
Be consistent in space and temporal coverage and representative for countries (countries comparison)	Country comparison relevant but not possible for the moment	Country comparison not relevant (such as temperature)	Regional comparison or between subset of countries		Possible to use indicator for country benchmarking

Example

CSI 018 Use of freshwater resources

Policy-relevant	4
Targets	2
Methodology	2
Routinely collected data	4
Temporal trend	3
Spatial coverage	3
Comparability between countries	4



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