# 1. Introduction

The European Commission's Communication to the March 2002 Barcelona EU summit, *The Lisbon strategy —making change happen*, is an important milestone on the way to ensuring sustainable development in Europe. Reliable and up-to-date information on progress made towards sustainable development, and the underlying factors that influence the way society develops, is obviously of fundamental importance if the sustainable development strategy agreed by the European Council last year is to deliver real results.

To support the environmental dimension of the strategy, as well as the sixth environmental action programme (6EAP) and the 'Cardiff process' of sectoral environmental integration, the European Environment Agency, as the key information provider on environmental issues at the European level, has been developing regular indicator-based reports for several years. The Agency's showcase products in this field are *Environmental signals* and the annual TERM report, which tracks progress in integrating environmental considerations into the transport sector. Starting with the 2003 editions, these reports will also cover in a consistent way the new EEA member countries in central and eastern Europe and the Mediterranean basin. Later this year the Agency will publish indicator-based environmental reports following a similar approach on energy and tourism. It is also beginning work, together with the Commission services, on an indicator-based environmental report on agriculture. Eurostat is an important data provider for all these reports.

The nature and format of the *Environmental signals* series allows each edition to address an appropriate selection of environmental problems, based on their particular relevance and timeliness to the policy debate and the need to update issues at different intervals, some yearly (e.g. greenhouse gas emissions), others every few year (e.g. impacts of tourism). Each report in the series is not intended to be comprehensive. In this report Chapters 2–7 focus on economic sectors and Chapters 8–15 on some major environmental issues. For comprehensive background information on European environmental problems, readers should refer to other EEA products such as state-of-the-environment reports or thematic monographs, all available on the EEA web site (http://eea.eu.int). That site also provides a gateway to individual indicator and related environmental information at European, EU and national levels. Its data service gives access to many of the statistics on which the indicators in this report are based.

## 1.1. The EU policy agenda and the need for indicators

Over the past few years, the EU Council has paid considerable attention to the major policy goals underlined in the Amsterdam Treaty, namely sectoral integration and sustainable development:

- The 1998 Council Cardiff Initiative stimulated the integration of environment and other policies, and as such put the integration process and sustainability thinking on a faster track.

- The 1999 Helsinki summit discussed the first sectoral integration strategies, and placed these in the framework of the development of an overall sustainability strategy and of the 6EAP. At the same time the summit set in place a cycle for revisiting progress in sectoral integration at the European Council level.

- The Lisbon summit, in March 2000, set a new strategic goal for the next

decade: to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion.

- The Stockholm summit, in March 2001, signalled the need for joining the Lisbon strategy with the sustainable development strategy and expressed the intention to review progress in all dimensions of sustainable development in the context of the annual Spring European Council.

- The Gothenburg summit, in June 2001, agreed a strategy for sustainable development. Building on the proposal for the 6EAP and on the sectoral strategies for environmental integration, the Council identified a number of objectives and measures in four priority areas: climate change, transport, public health and natural resources. Therefore, the summit established a completely new approach to policy making focused on all three aspects of sustainability.

- The Laeken summit, in December 2001, welcomed the adoption of the key indicators to be used to assess the implementation of the Strategy for sustainable development at its meeting in March 2002 in Barcelona (see Table 1.1).

Table 1.1. **Environment indicators for the Barcelona Spring European Council**

| Environmental aspects of sustainable development |
|---|
| 1. Greenhouse gas emissions |
| 2. Share of renewables in electricity generation |
| 3. Volume of transport (tonne- and passenger-km) relative to GDP |
| 4. Modal split of transport |
| 5. Urban air quality |
| 6. Municipal waste |
| 7. Energy efficiency (in the general indicators section) |

- The Barcelona summit, in March 2002, however, did not address further the processes of environmental integration into economic and sectoral policies, or in sustainable development.

The Commission, in October 2001, proposed that the following additional environmental indicators should be developed in the near future:

- consumption of toxic chemicals
- disability-free life expectancy
- biodiversity
- resource productivity
- recycling rate of selected materials
- generation of hazardous waste.

The Council proposed more indicators for the future in December 2001 (European Council, 2001). However, few indicators are currently available at the interfaces between environment, society and economy because multiple causes are generally difficult to capture, unless more 'systemic' indicators are used. Such systemic indicators, such as efficiency-of-use indicators, should focus on higher level actions rather than on the individual consequences that arise from, for example, the use of energy, materials and chemicals.

## 1.2. The EEA contribution

The general function of the European Environment Agency is to serve the various policy processes with consistent and targeted sets of indicators and assessments.

***Support to the sixth environmental action programme***

The EEA supports environmental policy by providing sets of indicators for each of the issues and by developing the *Environmental signals* report as a multi-purpose tool to report on the overall progress on issues and sectors. The thematic indicator reports serve to maintain a high level of knowledge and attention on specific environmental issue policies.

***Support to the Cardiff integration process***
Following the success of the transport and environment reporting mechanism (TERM), the EEA, with its partners, is developing similar indicator-based reporting on environment and energy, environment and agriculture, environment and tourism and, if resources are available, a report on fisheries.

***Support to the sustainable development strategy***
The process of regular reporting to spring European Councils is a unique opportunity for the EEA to deliver key indicators and assessments on environmental aspects of sustainable development, including progress towards integration of environment in sectoral activities.

Through its *Environmental signals* report the EEA will provide the Commission and other parts of the Community with the main indicators for the 'Synthesis' report.

## 1.3. Presentation of the indicators

***Indicator framework and types***
The assessments in this report are based on indicators that cover the most important aspects of the socio-economic and environment framework (**D**riving forces, **P**ressures, **S**tate of the environment, **I**mpacts, and societal **R**esponses – the so-called DPSIR assessment framework), including eco-efficiency indicators. Analysis of the indicators can be found in detailed fact sheets on the EEA's web site. The key indicators presented in this report illustrate the most important trends in each policy domain. 'Smiley faces' indicate progress, or lack of it, for each indicator.

Within this framework, indicators are presented in a standard format. Firstly, at an international level, totals are shown for EU Member States or EEA member countries. This is particularly relevant where there are international agreements on action to tackle continental or global problems (e.g. greenhouse gas emissions).

**Progress on the development of indicators to support the 6EAP and thematic strategies** Table 1.2.

| 6EAP themes | Status of EEA developments |
|---|---|
| **Climate change** | emission indicators |
| | climate indicators planned under 2002 work programme |
| **Nature and biodiversity** | indicators under development in co-operation with DG Environment |
| Accidents and disasters | no activities planned |
| Soil protection | indicators under development |
| Marine ecosystems | indicators under development with Marine Conventions |
| **Environment and health and the quality of life** | co-operation with WHO on definition and development of indicators on human health and environment |
| Air pollution | indicators under development |
| Water quality | indicators under development |
| Chemicals and pesticides | headline indicator-development by Eurostat |
| Noise | no activities planned |
| Urban environment | support to indicator initiatives in co-operation with DG Environment |
| **Natural resources and waste** | indicator under development |

**Note**: priority themes of 6EAP are in bold

**Progress on the development of indicators to support the Cardiff process** Table 1.3.

| | |
|---|---|
| Transport | TERM regular report: 2000, 2001. 2002 report to focus on Accession Countries |
| Energy | first report June 2002 |
| Agriculture | joint project with Commission to start in 2002 towards a first publication in 2003 |
| Fisheries | EEA activities starting |
| Tourism | pilot version in December 2002 |
| Industry<br>Development<br>Internal market<br>Ecofin & General affairs | no EEA activities yet |

**Note**: Tourism is not one of the sectors included under the Cardiff process. Nevertheless, the European Commission is developing several activities for the integration of environment.

**Country groupings used in this report:**

EU: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK

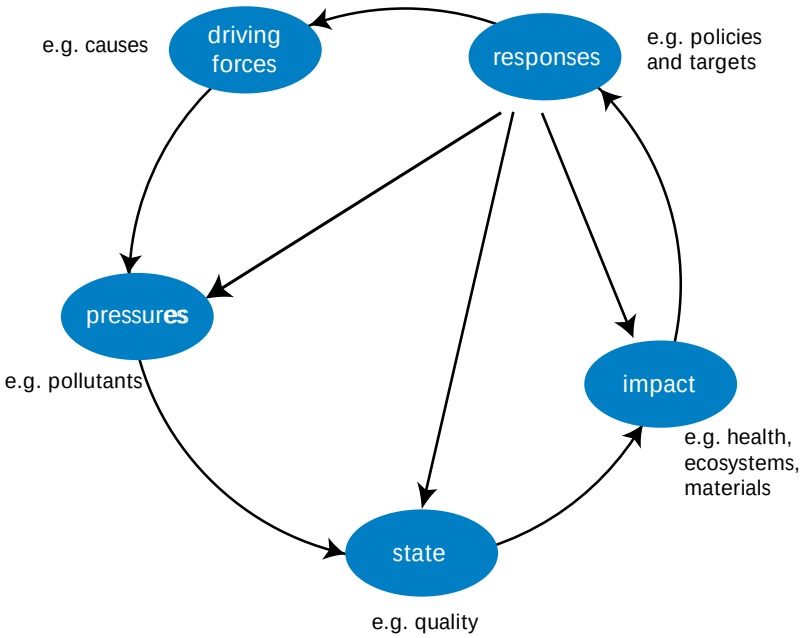
EEA: EU + Iceland, Liechtenstein and Norway

Nordic countries: Denmark, Finland, Iceland, Norway and Sweden

Central Europe: Austria, Belgium, Denmark, Germany, Ireland, Liechtenstein, Luxembourg, the Netherlands and the UK

Southern Europe: France, Greece, Italy, Portugal and Spain

Figure 1.1. **DPSIR assessment framework**




**Source**: EEA

Secondly, where possible and relevant, national breakdowns are provided for benchmarking national environmental performance and highlighting the differences between countries.

***Quality of the information***

Each indicator presented in the report is subject to a simple scoring based on the quality of information upon which it is derived. The overall score of 'high', 'medium' or 'low', indicated by the number of stars (with three representing high), is derived from adding, with equal weights, the scores for relevancy and accuracy, as well as comparability over time and geographical area. A short explanation is provided in annex to highlight issues related to the source information or the indicator calculation method.

The smiley faces in the boxes next to each indicator aim to give a concise assessment of the indicator:

positive trend, moving towards target

some positive development, but either insufficient to reach target or mixed trends within the indicator

unfavourable trend

Unless explicitly stated, the assessment is based on the whole period covered by the indicator.

## 1.4. The next report in the series

The development of indicator-based reporting in support of important European policy processes (see Section 1.1) provides a particular focus for the EEA's work. For example, the European Commission, Eurostat and the EEA, in cooperation with Member States, will produce an analytical report to support the Council decision (European Council, 2001) to adopt seven environmental indicators; a complementary list of 34 environmental sustainability indicators to be further scrutinised and developed are also included. The policy relevance of the indicators, over time and space, and the updating of information are among the numerous elements to be taken into account in this analysis.

For the 2003 reports, efforts will be made to ensure data is as up-to-date as possible; this has almost been achieved for greenhouse gas emissions, with data for 2000 fully validated in March 2002. Efforts will also be made to show current trends through extrapolations (the technique of 'nowcasting'), thereby making the environmental data as up-to-date as the economic data.

The continuity in the scope and aims of the *Environmental signals* series is an important asset for the consistency and usefulness of environmental information. Synergies and complementarities with indicator-based reporting by the European Commission (e.g. 'Synthesis' report, Annual environment policy report) should streamline the development of the series, as well as its consolidation. The next report in the series will cover the accession countries to reflect the Council request for their inclusion in the 'Synthesis' report. In addition, upon a request from the European Commission, the 2003 edition will mark the merging with the Eurostat publication on 'Pressure indicators'.

**Topics covered and focus of indicators in the EEA environmental signals series** Table 1.4.

| | *Environmental signals 2000* | *Environmental signals 2001* | *Environmental signals 2002* |
|---|---|---|---|
| **Energy** | • energy intensity, consumption by fuel type and supply sector eco-efficiency<br>• emissions from electricity generation<br>• share of renewables/CHP<br>• prices and taxes | • energy intensity, consumption by fuel type and supply sector eco-efficiency<br>• emissions from electricity generation<br>• share of renewables/CHP<br>• nuclear waste and oil spills | • energy intensity, consumption by fuel type and supply sector eco-efficiency<br>• emissions from electricity generation<br>• share of renewables/CHP<br>• prices and taxes |
| **Transport** | • transport eco-efficiency<br>• passenger and freight transport modal split<br>• prices and taxes | • transport eco-efficiency<br>• travel distance<br>• passenger and freight transport modal split<br>• prices and taxes | • transport eco-efficiency<br>• passenger and freight transport modal split<br>• clean technology and fuels<br>• prices and taxes |
| **Agriculture** | • agricultural eco-efficiency<br>• livestock numbers and fertiliser / pesticide consumption<br>• irrigated land<br>• organic farming | • agricultural eco-efficiency<br>• agricultural intensity and environmental management<br>• nutrient surpluses<br>• CAP expenditure<br>• organic farming | • agricultural eco-efficiency<br>• agricultural intensity and farmland birds<br>• nutrient surpluses<br>• CAP expenditure<br>• organic farming |
| **Industry** | • eco-efficiency | | |
| **Tourism** | | • travel by transport modes<br>• tourism intensity and expenditure<br>• energy use<br>• eco-labelling | |
| **Households** | | • number, size and expenditure<br>• energy consumption<br>• eco-labelling | • eco-efficiency<br>• water and energy consumption<br>• eco-labelling |
| **Fisheries** | | | • size of fleet<br>• fish stock status<br>• aquaculture |
| **Climate change** | • emissions of GHGs<br>• mean temperature | • emissions of GHGs<br>• mean temperature | • emissions of GHGs<br>• mean temperature |
| **Stratospheric ozone depletion** | • ozone layer<br>• ozone depleting substances<br>• UV radiation | | |
| **Air pollution** | • emissions (acidifying gases, ozone precursors)<br>• limit value exceedances (atmospheric ozone, particulates)<br>• crops/forest ozone exposure<br>• acidification/eutrophication | • emissions (acidifying gases, ozone precursors, particulates)<br>• limit value exceedances (ozone, particulates)<br>• acidification/eutrophication | • emissions (acidifying gases, ozone precursors, particulates)<br>• limit value exceedances (ground-level ozone, particulates, $SO_2$, $NO_x$)<br>• crops/forest ozone exposure |
| **Waste and material flows** | • municipal waste generation<br>• waste disposal (landfilling and incineration)<br>• packaging waste<br>• total material requirement | • municipal waste generation<br>• waste disposal (landfilling)<br>• sewage sludge | • municipal waste generation<br>• waste disposal (landfilling and incineration)<br>• packaging waste<br>• hazardous waste<br>• total material requirement |
| **Water quantity** | • water exploitation index<br>• water use by sector | | • water exploitation index<br>• water use by sector |
| **Water quality (inland and marine)** | • nutrient sources<br>• nutrient concentrations in rivers, groundwater, lakes and coastal waters<br>• urban wastewater treatment | • nutrient concentrations in rivers<br>• organic pollution and urban wastewater treatment<br>• hazardous substances in marine waters and biota | • nutrients in rivers and coastal waters<br>• organic pollution and urban wastewater treatment<br>• bathing water quality<br>• marine oil pollution |
| **Land and soil** | | • soil contamination<br>• soil remediation | • soil sealing<br>• land take<br>• fragmentation of habitats |
| **Biodiversity** | • wetlands (degree of protection, pressures; impacts on species) | • grasslands (degree of protection, pressures, impacts on species) | • forests (area and naturalness, felling, condition, level of protection) |
| **Environmental taxes** | • proportion of total tax revenue | | • proportion of total tax revenue<br>• use of environmental taxes<br>• effectiveness |