

List of abbreviations

6th EAP	EU Sixth Environment Action Programme
BRIC	Country grouping including Brazil, Russia, India and China
BaP	Benzo(a)pyrene
CAFE	EU Clean Air For Europe programme
CAP	EU Common Agricultural Policy
CBD	Convention on Biological Diversity
CFC	Chlorofluorocarbons
CFP	EU Common Fisheries Policy
CH ₄	Methane
CO	Carbon monoxide
CO ₂	Carbon dioxide
CSI	EEA Core Set of Indicators
DALY	Disability-adjusted life years
dB	Decibel
DMC	Domestic material consumption
DWD	EU Drinking Water Directive
EBD	Environmental Burden of Disease
EC	European Communities
EEA	European Environment Agency
EFTA	European Free Trade Association
EMC	Environmentally-weighted material consumption
ENER	EEA energy indicators
EPR	EU Environment Policy Review
EQS	EU Environmental Quality Standards Directive
EU	European Union
EUR	Euro
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross domestic product
GHG	Greenhouse gas
GIS	Geographic information systems
GIS	Greenland ice sheet
GMES	Global Monitoring for Environment and Security
HANPP	Human appropriation of net primary production

HLY	Healthy life years
HNV	High Nature Value farmland
IPCC	Intergovernmental Panel on Climate Change
IRENA	Indicator Reporting on the integration of ENvironment concerns into Agricultural policy
LE	Life expectancy
LEAC	Land and ecosystem accounts
MA	Millennium Ecosystem Assessment
NAMEA	National accounts matrix extended by environmental accounts
NH ₃	Ammonia
NH _x	Ammonium and ammonia
NMVOC	Non-methane volatile organic compounds
NO _x	Nitrogen oxides
O ₃	Ozone
ODS	Ozone depleting substances
OECD	Organisation for Economic Cooperation and Development
PCB	Polychlorinated biphenyls
PM	Particulate matter — PM _{2.5} and PM ₁₀ denote different size of PM
REACH	EU Registration, Evaluation, Authorisation and Restriction of Chemicals Directive
SEBI	Streamlining European Biodiversity Indicators
SEIS	Shared Environmental Information System
SO ₂	Sulphur dioxide
SoE	State of the environment
SOER	'State and outlook of the European environment' report
TEEB	The Economics of Ecosystems and Biodiversity
TERM	Transport Environment Reporting Mechanism
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America
USD	US Dollars
UWWTD	EU Urban Waste Water Treatment Directive
WAIS	West Antarctic ice sheet
WEEE	Waste electrical and electronic equipment
WEF	World Economic Forum
WEI	Water exploitation index
WFD	EU Water Framework Directive
WHO	World Health Organization

Endnotes

Chapter 1

(^A) Under the SOER 2010 umbrella, a number of assessments have been developed — all of which are available on a dedicated web-portal at www.eea.europa.eu/soer:

- a synthesis report (this report) that presents an integrated assessment based on the evidence from the range of assessments developed in the SOER 2010 context and other EEA activities;
- a set of thematic assessments that describe the state of and trends in key environmental issues, review related socio-economic driving forces, and contribute to an evaluation of policy objectives;
- a set of country assessments of the environmental situation in individual European countries;
- an exploratory assessment of global megatrends relevant for the European environment.

(^B) Overview of the most recent national 'state of the environment' reporting across Europe:

Austria	2010	Umweltsituation in Österreich
Belgium	2009	Brussels: Synthèse de l'état de l'environnement 2007–2008
	2008	Flanders: MIRA-T 2008 — Flanders Environment Report
	2008	Wallonia: Environmental Outlook for Wallonia
Bulgaria	2007	Annual State of the Environment Report
Cyprus	2007	State of the Environment Report 2007
Czech Republic	2008	Report on the Environment in the Czech Republic
Denmark	2009	Natur og Miljø 2009
Estonia	2010	Estonian Environmental Review 2009
	2010	Estonian Environmental Indicators 2009
Finland	2008	Finland State of the Environment
France	2010	L'environnement en France
Germany	2009	Daten zur Umwelt (Environmental Data for Germany)
	2008	Daten zur Natur
Greece	2008	Greece — The State of the Environment — A Concise Report

Hungary	2010	State of environment in Hungary 2010
Iceland	2009	Umhverfiog auðlindir
Ireland	2008	Ireland's environment 2008
Italy	2009	Environmental Data Yearbook — Key Topics
Latvia	2008	Nacionālais ziņojums par vides stāvokli 2008
Liechtenstein	–	n.a.
Lithuania	2009	Lithuania 2008 State of environment. Only facts
Luxembourg	2003	L'Environnement en Chiffres 2002–2003
Malta	2008	The Environment Report 2008
Netherlands	2009	Milieubalans
Norway	2009	Miljøstatus 2009
Poland	2010	Raport o stanie środowiska w Polsce 2008 — raport wskaźnikowy
Portugal	2008	Relatório do Estado do Ambiente
Romania	2009	Raport anul privind Starea Mediului în România pe anul 2008
Slovakia	2009	State of the Environment Report of the Slovak Republic 2008
Slovenia	2010	Poročilo o okolju v Sloveniji 2009
Spain	2010	Perfil Ambiental de España 2009 — Informe basado en indicadores
	2009	El medio ambiente y el medio rural y marino en España 2008
Sweden	2009	Sweden's Environmental Objectives
Switzerland	2009	Environment Switzerland
Turkey	2007	Turkey State of the Environment Report
United Kingdom	2007	England: Several, separate SOE reports for different regions in England
	2008	Northern Ireland: State of the Environment Report for Northern Ireland
	2006	Scotland: State of Scotland's Environment
	2003	Wales: A Living and Working Environment for Wales
Albania	2008	Raport per Gjendjen e Mjedisit — State of Environment Report
Bosnia and Herzegovina	2010	State of Environment in the Federation of Bosnia and Herzegovina 2010
Croatia	2007	Izvešće o stanju okoliša u Republici Hrvatskoj
Former Yugoslav Republic of Macedonia	2000	Sostojba na zivotnata sredina 2000
	2008	Environmental Indicators — Republic of Macedonia 2008
Montenegro	2008	State of Environment in Montenegro
Serbia	2008	Report on the State of Environment in the Republic of Serbia for '08

- (^C) The assessment is based largely on the EEA's indicator sets (CSI – Core Set of Indicators, SEBI – Streamlining European Biodiversity Indicators, ENER – Energy Indicators) plus the EU Annual Environment Policy Review (EPR):

Greenhouse gas emissions	EPR, CSI 10
Energy efficiency	ENER 22, ENER 23, ENER 24, ENER 25
Renewable energy sources	ENER 28
Global mean temperature change	EPR, CSI 12
Pressure on ecosystems	EPR, CSI 05
Conservation status	EPR, SEBI 03, SEBI 05, SEBI 08
Biodiversity	SEBI 01 (birds and butterflies) EPR (fisheries) SEBI 12, SEBI 21
Soil degradation	IRENA (soil erosion)
Decoupling	SD indicator (Eurostat)
Waste generation	EPR, SOER 2010 including CSI 16
Waste management	EPR, SOER 2010 including CSI 17
Water stress	EPR, CSI 18
Water quality	CSI 19, CSI 20
Water pollution	CSI 22, CSI 24
Transboundary air pollution	EPR, CSI 01, CSI 02, CSI 03, CSI 05
Air quality in urban areas	EPR, CSI 04

- (^D) The ambition is to limit global mean temperature increase to below 2 °C above pre-industrial levels. This depends critically also on greenhouse gas emissions originating outside Europe.
- (^E) The EU-27 in 2008 was more than halfway towards its unilateral target to reduce greenhouse gas emissions by 20 % in 2020 compared to 1990. The provisions of the EU Emission Trading Scheme and the effort-sharing decision ensures that the 2020 target will be met, although the built-in flexibility makes it difficult to foresee the exact mix of policies and measures that industry, individual countries and the EU will use to reduce emissions.
- (^F) Includes both terrestrial and marine areas.
- (^G) Soil degradation in Europe is accelerating, with negative effects on human health, natural ecosystems and climate change, as well as on our economy. Soil erosion by wind and water, which is largely the result of unsuitable land management, is of particular concern in large parts of southern Europe and increasing. (See SOER 2010 *Thematic assessment – Soil* for further details.)

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- (^H) The most recent 'Annual Environment Policy Review' assesses the EU's generation and management of municipal waste to be of 'average performance or trend not clear, overall problem remains despite some mixed progress'. However, as the assessment presented here concentrates on the generation of waste only, it corresponds with the negative trend described in the Annual Environment Policy Review.
- (^I) The targets set out in the Water Framework Directive have to be reached by 2015; first assessments by member states show that a large percentage of water bodies will not reach good ecological and chemical status.
- (^J) The 6th Environment Action Programme (6th EAP) is a decision of the European Parliament and the Council adopted on 22 July 2002. It sets out the framework for environmental policymaking in the EU for the period 2002 to 2012 and outlines actions that need to be taken to achieve them. It identifies four priority areas: climate change; nature and biodiversity; environment and health; and natural resources and waste. Furthermore, the 6th EAP promotes the full integration of environmental protection into all Community policies and actions and provides the environmental component of the Community's strategy for sustainable development.

Chapter 2

- (^A) These include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) as well as various chlorofluorocarbons (CFCs). Note that much of the discussion in this section focuses on the role of carbon in general, and CO₂ in particular.
- (^B) The IAC (Inter Academy Council) has, in early 2010, started an independent review of the IPCC processes to further strengthen the quality of IPCC reports. Meanwhile, the conclusions from the IPCC 2007 report remain valid. (IAC, 2010. *Inter Academy Council Asked to Review Intergovernmental Panel on Climate Change*, press release, 10 March 2010).
- (^C) The growth in global GHG emissions increased steeply from 2000 to 2004 compared to the 1990s, but slowed down considerably after 2004. This is partly due to mitigation measures. The economic downturn is estimated to cause a decrease in global CO₂ emissions of 3 % in 2009, compared to 2008. (PBL, 2009. *News in Climate Science and Exploring Boundaries*, Netherlands Environmental Assessment Agency (PBL), PBL publication number 500114013, Bilthoven, the Netherlands).

- (^P) Changes in greenhouse gas emission presented here exclude net greenhouse gas emissions from land use, land-use change and forestry (LULUCF), as well as emissions from international aviation and international maritime navigation.
- (^E) 'Flexible mechanisms' is a term used to summarise means of meeting national GHG emission targets by market-based approaches to account for mitigation efforts supported in other countries. Such mechanisms include the clean development mechanism (which allows countries to benefit from GHG emissions in countries without emission reduction targets), and joint implementation (which allows countries to get credit investing in emission reduction projects with other countries).
- (^F) Targets based on: EC, 2009. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.
- (^G) The hot summer of 2003 in Europe, for example, has been estimated to have led to EUR 10 billion of economic losses to farming, livestock and forestry from the combined effects of drought, heat stress and fire.
- (^H) An updated overview table of progress towards developing national adaptation strategies is available at www.eea.europa.eu/themes/climate/national-adaptation-strategies.
- (^I) However, it should be noted that these benefits are expected to be greater by 2030 than in 2020, especially since a longer period would be available for implementing measures and for changes to occur in the energy system.

Chapter 3

- (^A) For the formal definition, see Convention of Biological Diversity (CBD). (UNEP, 1992. Convention on Biological Diversity. www.cbd.int/convention/articles.shtml?a=cbd-02).
- (^B) This chapter deals with biotic natural resources, such as food and fibre. Non-renewable natural resources, such as materials, metals and other minerals, as well as water as a resource, are dealt with in Chapter 4.
- (^C) Based on Corine land-cover data for 2006. Data coverage is for all 32 EEA member countries — with the exception of Greece and the United Kingdom — and 6 EEA cooperating countries.
- (^D) Forest undisturbed by man is forest which shows natural forest dynamics such as natural species composition, occurrence of dead wood, natural age structure and natural regeneration processes, the area of which is large enough to maintain its natural characteristics and where there has been no known human intervention or where the last significant human intervention was long enough ago to have allowed the natural species composition and processes to have become re-established. (This definition is based on the Temperate and Boreal Forest Resources Assessment of the Timber Committee of the United Nations Economic Commission for Europe (UNECE) and the Food and Agriculture Organization (FAO).)
- (^E) HNV (High Nature Value) farmland is defined as those areas in Europe where agriculture is a major (usually the dominant) land use and where that agriculture supports, or is associated with, either a high species and habitat diversity or the presence of species of European conservation concern, or both.
- (^F) Decoupled subsidies are paid not on the basis of the product volume, but, for example, on the basis of historical rights (the received payments in a reference year).
- (^G) Collection of data on exposure of biota to other chemicals (industrial chemicals, pesticides, biocides, pharmaceuticals) and its mixtures would be desired to provide a basis for the evaluation of effects of chemical pollution on biodiversity.

- ^(H) A fish stock is considered to be within safe biological limits (SBL), if the spawning stock biomass is more than approximately 17 % of an unexploited stock. This SBL indicator does not take wider ecosystem functioning into account. Much stricter criteria have therefore been proposed within the framework of the EU Marine Strategy Framework Directive. The reference level is the 'spawning stock biomass producing Maximum Sustainable Yield (MSY)', corresponding to about 50 % of an unexploited stock. An MSY indicator for Europe is not yet available.

Chapter 4

- ^(A) The definition of natural resources given in the EU Thematic Strategy on the sustainable use of natural resources is quite broad, including raw materials, environmental media, flow resources (such as running water, tides, wind) and space (such as land area).
(EC, 2005. Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions — Thematic Strategy on the sustainable use of natural resources. COM(2005) 0670 final).
- ^(B) Marine litter is any persistent, manufactured or processed solid material discarded, disposed of or abandoned in marine and coastal environments.
- ^(C) For Germany, it has been estimated that the platinum group metals embedded within catalytic converters exported in used cars equals around 30 % of the annual domestic consumption of these metals.
(Buchert, M.; Hermann, A.; Jenseit, W.; Stahl, H.; Osyguß, B.; Hagelüken, C., 2007. *Verbesserung der Edelmetallkreisläufe: Analyse der Exportströme von Gebrauchtwagen und -Elektrogeräten am Hamburger Hafen*. UBA-FB-Nr: 001005, Förderkennzeichen: 363 01 133. Umweltbundesamt. www.umweltdaten.de/publikationen/fpdf-l/3200.pdf).
- ^(D) Biowaste refers to biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises and comparable waste from food processing plants.

- (E) In the EU, between 118 and 138 million tonnes of bio-waste are produced every year, of which about 88 million tonnes is municipal waste. (EC, 2010. Communication from the Commission to the Council and the European Parliament on future steps in bio-waste management in the European Union. Brussels, 18.5.2010. COM(2010)235 final. http://ec.europa.eu/environment/waste/compost/pdf/com_biowaste.pdf).
- (F) WEI (water exploitation index) divides the total water abstraction by the long-term annual average resource. However, this indicator does not fully reflect the level of stress upon local water resources: this is primarily because the WEI is based on annual data and cannot, therefore, account for seasonal variations in water availability and abstraction.
- (G) EEA analyses of environmental impacts — GHG emissions, acidifying substances, ozone forming substances, material resources use — are based on a sample of nine EU Member States using NAMEA (National Accounting Matrix including Environmental Accounts): Austria, Czech Republic, Denmark, Germany, France, Italy, the Netherlands, Portugal, and Sweden.

Chapter 5

- (A) DALYs (disability-adjusted life years) indicate the potential number of healthy life years lost in a population, due to premature mortality, and to years spent with reduced quality of life due to disease.
- (B) Sum of Ozone Means Over 35 ppb (SOMO35) — the sum of the differences between maximum daily 8-hour running mean concentrations greater than $70 \mu\text{g}/\text{m}^3$ (= 35 parts per billion) and $70 \mu\text{g}/\text{m}^3$.
- (C) EU-25 refers to EU-27 Member States, without Bulgaria and Romania.
- (D) PM_{10} — fine and coarse particulate matter with a diameter below 10 micrometer.
- (E) $50 \mu\text{g}/\text{m}^3$ — daily mean not be exceeded on more than 35 days a calendar year.
- (F) $\text{PM}_{2.5}$ — fine particulate matter with a diameter below 2.5 micrometer.

- ([©]) For a discussion of uncertainty and methodological details, see ETC/ACC Technical Paper 2009/1: http://air-climate.eionet.europa.eu/docs/ETCACC_TP_2009_1_European_PM2.5_HIA.pdf.
- (^H) The average exposure indicator (AEI) is a 3-year running annual mean PM_{2.5} concentration averaged over the selected monitoring stations in agglomerations and larger urban areas, set in urban background locations.
- (^I) L_{den} is the day-evening-night noise indicator. L_{night} is the night-time noise indicator.
(EC, 2002. Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise).
- (^J) Such EU-funded research projects include the NoMiracle, EDEN and Comprendo project.
- (^K) The first outbreak of a chikungunya fever, transmitted by the Asian tiger mosquito, in Europe was reported in northern Italy in 2007.
- (^L) Cities in their administrative borders; see: http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/city_urban.

Chapter 6

- (^A) Based on EEA Corine land-cover data for 2006. Data coverage is for all 32 EEA member countries — with the exception of Greece and the United Kingdom — and 6 EEA cooperating countries.
(CLC, 2006. Corine land cover. Corine land cover 2006 raster data. www.eea.europa.eu/data-and-maps/data/corine-land-cover-2006-raster).

Chapter 7

- (^A) HANPP (human appropriation of net primary production) can be calculated in different ways, depending on the reference value for primary production. For estimating the impact on natural ecosystems, this can be related to an estimated primary production of the potential natural vegetation. In this definition, HANPP also takes changes in primary production resulting from land conversion into account.

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- (^B) DALYs (disability-adjusted life years) indicate the potential number of healthy life years lost in a population, due to premature mortality, and to years spent with reduced quality of life due to disease.
 - (^C) There is little agreement, however, about the definition of 'middle class' in economic terms.

Chapter 8

- (^A) However, it should be noted that these benefits are expected to be greater by 2030 than in 2020, especially since a longer period would be available for implementing measures and for changes to occur in the energy system.

Bibliography

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Table 1.2

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Chapter 2

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Figure 2.1

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Box 2.1

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Box 2.2

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Map 2.1

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