

Europe's environment

The fourth assessment



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Abbreviations and acronyms

AAUs	assigned amount units	CCS	carbon capture and storage
ACAP	Arctic Council Action Plan	Cd	cadmium
ACEA	European Automobile Manufacturers' Association	CDDA	Common Database on Designated Areas
ACIA	Arctic Climate Impact Assessment	CDM	Clean Development Mechanism
ACS	automatic control stations	Cefic	European Chemical Industry Council
ADB	Asian Development Bank	CEHAPE	Children's Environment and Health Action Plan for Europe
AMAP	Arctic Monitoring and Assessment Programme	CEMR	Council of European Municipalities and Regions
AMD	Armenian dram	CENef	Center for Energy Efficiency
APHEIS	Air Pollution and Health: A European Information System	CEP	Caspian Environment Programme
API	air pollution index	CEPA	Communication, Education and Public Awareness
ASCIs	Areas of Special Conservation Interest	CEPF	Critical Ecosystem Partnership Fund
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas	CEPI	Confederation of European Paper Industries
ASEF	Asia-Europe Foundation	CERA	Cambridge Energy Research Associates
AWI	The Alfred Wegener Institute	CERs	certified emission reductions
BaP	benzo(a)pyrene	CFCs	chlorofluorocarbons
BauA	Federal Institute for Occupational Safety and Health, Germany	CFP	Common Fisheries Policy
BDE	bromo diphenyl ether	C ₆ H ₆	benzene
BFRs	brominated flame retardants	CH ₄	methane
BMB NEMO	Baltic Marine Biologists database on Non-indigenous Estuarine and Marine Organisms	CI	confidence interval
bn	billion	CIFAS	Cross-compliance Indicators in the context of the Farm Advisory System
BOD	biochemical oxygen demand	CIS	Commonwealth of Independent States
BREF	Best Available Technology Reference Documents	CISSTAT	Interstate Statistical Committee of the Commonwealth of Independent States
BSC	Black Sea Commission	CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
BTC	Baku-Tbilisi-Ceyhan (oil pipeline)	CLE	current legislation
°C	degree Celsius	CLRTAP	Convention on Long-range Transboundary Air Pollution
CAFE	Clean Air for Europe	CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CALM	Coordination of European Research for Advanced Transport Noise Mitigation	CMR	carcinogenic, mutagenic and repro-toxic chemicals
CAP	Common Agricultural Policy	CMS	Convention on Migratory Species
CAPACT	Capacity Building for Air Quality Management and the Application of Clean Coal Combustion Technologies in Central Asia	CO	carbon monoxide
CARDS	Community Assistance for Reconstruction, Development and Stabilisation	CO ₂	carbon dioxide
CAREAP	Regional Environmental Action Programme for Central Asia	COAST	Conservation and Sustainable use of Biodiversity in the Dalmatian Coast through Greening Coastal Development
CAREC	Regional Environmental Centre for Central Asia	COD	chemical oxygen demand
CBD	Convention on Biological Diversity	COMEXT	Eurostat database on trade data
CCI RF	Chamber of Commerce and Industry of the Russian Federation	COP	Conference of the Parties
CCMS	Committee on the Challenges of Modern Society	COR	Committee of the Regions
		CORINE	Coordination of Information on the Environment
		CPR	continuous plankton recorder

CROSTAT	Central Bureau of Statistics of the Republic of Croatia	EEA	European Environment Agency
CRF	Common Reporting Format	EEB	European Environmental Bureau
CRU	Climatic Research Unit	EEC	European Economic Community
CSD	Commission on Sustainable Development	EECCA	Eastern Europe, Caucasus and Central Asia
CSI	Core Set of Indicators	EEHC	European Environment and Health Committee
DALYs	disability-adjusted life years	EEK	Estonian kroon
dB	decibel	EEZ	Exclusive Economic Zone
DDE	dichlorodiphenyl dichloroethylene	EfE	Environment for Europe
DDT	dichlorodiphenyl trichloroethane	EFNCP	European Forum on Nature Conservation and Pastoralism
DEFRA	Department for Environment Food and Rural Affairs, United Kingdom	EFTA	European Free Trade Association
DEPA	Danish Environmental Protection Agency	EHPR	Environment and Health Performance Review
DESD	Decade of Education for Sustainable Development	EIA	Environmental Impact Assessment
DEU	Domestic Extraction Used	EICTA	European Information & Communications Technology Industry Association
DFT	Department for Transport, United Kingdom	Eionet	European Environment Information and Observation Network
DG	Directorate General	EIPRO	Environmental Impact of Products
DG SANCO	Directorate General for Health and Consumer Protection	ELOISE	European Land-Ocean Interaction Studies
DKK	Danish krone	EMAS	Eco-Management and Audit Scheme
dl	decilitre	EM-DAT	Emergency Disasters Data Base
DMC	Domestic Material Consumption	EMEP	European Monitoring and Evaluation Programme
DMI	Direct Material Input	EMS	European Marine Strategy
DMI	Danish Meteorological Institute	ENEA	European Network of Environmental Authorities
DOE	designated operational entity	ENHIS	Environment and Health Information System
DPSIR	driving forces — pressures — state — impact — response	ENP	European Neighbourhood Policy
DTI	Department of Trade and Industry, United Kingdom	ENTEC	Environmental and Engineering Consultancy
EAP	Environment Action Programme	ENVSEC	Environment and Security Initiative
EBCC	European Bird Census Council	EPA	Environmental Protection Agency
EBD	Environmental Burden of Disease	EPER	European Pollutant Emission Register
EBRD	European Bank for Reconstruction and Development	EPR	Environmental Performance Review
EC	European Commission	EPRTTR	European Pollutants Release and Transfer Register
ECB	European Chemicals Bureau	eq	equivalent
ECCP	European Climate Change Programme	ERUs	emission reduction units
ECDC	European Centre for Disease Prevention and Control	ESD	Education for Sustainable Development
ECHO	European Commission Humanitarian Aid Office	ESL	European Statistical Laboratory
ECMT	European Conference of Ministers of Transport	ESPON	European Spatial Planning Observation Network
ECNC	European Centre for Nature Conservation	ETC/ACC	European Topic Centre on Air and Climate Change
ECOEHIS	Development of environmental health indicators for European Union countries	ETC/BD	European Topic Centre on Biological Diversity
ECP	Ecoregional Conservation Plan		
EE	Eastern Europe		

ETC/RWM	European Topic Centre on Resource and Waste Management	GFCM	General Fisheries Commission for the Mediterranean
ETC/WTR	European Topic Centre on Water	GFN	Global Footprint Network
ETR	Environmental Tax Reform	GHG	greenhouse gas
ETS	Emissions Trading Scheme	GHS	Globally Harmonized System
EU	European Union	GIS	Green Investment Schemes
EU-10	Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. Joined the European Union on 1 May 2004	GISS	Goddard Institute for Space Studies
EU-15	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, the United Kingdom	GIWA	Global International Waters Assessments
EU-25	EU-15 + EU-10	GMAPS	Global Model of Ambient Particulates
EUCC	European Union Coastal Conservation	GM crops	genetically modified crops
EUNIS	European Nature Information System	GMES	Global Monitoring for Environment and Security
EUR	euro	GMOs	genetically modified organisms
EUR-A	EU-15, EFTA and other western European countries, Croatia, the Czech Republic, Cyprus and Malta	GMP	global monitoring plan
EUR-B	most of the Caucasus, Central Asia and south-eastern Europe, Poland and Slovakia	GOST	State standard of the Russian Federation (Russian:государственный стандарт)
EUR-C	Eastern Europe, Estonia, Latvia, Lithuania, Hungary and Kazakhstan	GPA	Global Programme of Action
Eurocontrol	European Organisation for the Safety of Air Navigation	GPP	green public procurement
EUROPARC	Federation of Nature and National Parks of Europe	GRID	Global Resources Information Database
Eurostat	Statistical Office of the European Communities	GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH
EUWI MED	EU Water Initiative — Mediterranean component	ha	hectare
FAO	Food and Agriculture Organisation	HadSST2	Hadley Centre SST data set
FAOSTAT	Food and Agriculture Organisation's Statistical Database	HBM	Human Biomonitoring
FEC	Final Energy Consumption	HC	hydrocarbon
F-gases	fluorinated gases	HCB	hexachlorobenzene
FISHSTAT	software for fishery statistics	HCFCs	hydrochlorofluorocarbons
FP	Framework Programme	HCH	hexachlorocyclohexane
FSA	Food Standards Agency	HCMR	Hellenic Centre for Marine Research
FWD	Framework Directive	HELCOM	Helsinki Commission — Baltic Marine Environment Protection Commission
g	gram	HFCs	hydrofluorocarbons
GAINS	Greenhouse Gas and Air Pollution Interactions and Synergies	Hg	mercury
GBP	Great Britain pound	HNV	high nature value
GDP	gross domestic product	HP	hydroxypyrene
GEF	Global Environment Facility	HPVC	High Production Volume Chemical
GEMS	Global Environment Monitoring System	IA	Impact Assessment
GEO	Global Environment Outlook	IACMST	Inter-Agency Committee on Marine Science and Technology
GEOSS	Global Earth Observation System of Systems	IAEA	International Atomic Energy Agency
GerES	German Environmental Survey	ICARDA	International Centre for Agricultural Research in the Dry Areas
		ICBL	International Campaign to Ban Landmines
		ICCA	International Council of Chemical Associations
		ICCAT	International Commission for the Conservation of Atlantic Tunas
		ICCM	International Conference on Chemicals Management

ICES	International Council for the Exploration of the Sea	k	kilo
ICLEI	International Council for Local Environmental Initiatives	KAMA	Korea Automobile Manufacturers Association
ICM	integrated crop management	KCBTA	Kyrgyz Community Based Tourism Organisation
ICZM	Integrated Coastal Zone Management	KEO	Carpathians Environment Outlook
IDPs	Internally Displaced Persons	km	kilometre
IEA	International Energy Agency	I/L	litre
IEEP	Institute for European Environmental Policy	LBS	land-based sources
IES	Institute for Environment and Sustainability	LIFE	EU Financial Instrument for the Environment
IFCS	Intergovernmental Forum on Chemical Safety	LMEs	Large Marine Ecosystems
IFOAM	International Federation of Organic Agriculture Movements	LTAA	long-term annual average
IHPA	International HCH and Pesticides Association	LULUCF	Land use, land-use change and forestry
IIASA	International Institute for Applied Systems Analysis	M	million
ILO	International Labour Organisation	m	metre
IMO	International Maritime Organisation	MA	Millennium Ecosystem Assessment
IMR	Institute of Marine Research, Norway	MAB	Man and the Biosphere Reserves Programme
INSPIRE	Infrastructure for Spatial Information in Europe	MAC	maximum allowable concentrations
IOMC	Inter-Organization Programme for the Sound Management of Chemicals	MAP	Mediterranean Action Plan
IPCC	Intergovernmental Panel on Climate Change	MARPOL	International Convention for the Prevention of Marine Pollution from Ships
IPCS	International Programme on Chemical Safety	MCPFE	Ministerial Conference on the Protection of Forests in Europe
IPIECA	International Petroleum Industry Environmental Conservation Association	MDGs	Millennium Development Goals
IPPC	Integrated Pollution Prevention Control	MEdIES	Mediterranean Education Initiative for Environment & Sustainability
IPSC	Institute for the Protection and Security of the Citizen	MED POL	Pollution Monitoring and Assessment Programme — Mediterranean Region
IRIN	Integrated Regional Information Networks	MEFT	Ministry of Environment and Forestry of Turkey
ISO	International Organisation for Standardization	MFA	material flow accounting
ISS	Central Public Health Institute, Italy	mg	milligram
ISSCAAP	International Standard Statistical Classification of Aquatic Animals and Plants	MIMAM	Ministry of Environment of Spain
ITOPF	International Tanker Owners Pollution Federation	MIO-ECSDE	Mediterranean Information Office for Environment, Culture and Sustainable Development
IUCN	International Union for Nature Conservation	mm	millimetre
IWMI	International Water Management Institute	MNP	The Netherlands Environmental Assessment Agency
JAMA	Japan Automobile Manufacturers Association	MODIS	Moderate Resolution Imaging Spectroradiometer
JI	Joint Implementation	MOP	Meeting of the Parties
JRC	Joint Research Centre (European Commission)	MOSUS	Modelling opportunities and limits for restructuring Europe towards sustainability
		MS	Member State
		MSC-East	Meteorological Synthesizing Centre-East
		MSD	Marine Strategy Directive
		MTRF	maximum feasible technical reduction
		N ₂ O	nitrous oxide

NAI	net annual increment	pH	hydrogen ion concentration
NAO	North Atlantic Oscillation	PHARE	EU Pre-accession assistance programme
NASA	National Aeronautics and Space Administration	PM	particulate matter
NATO	North Atlantic Treaty Organization	POPs	persistent organic pollutants
NC	National Communication	ppm	parts per million
NEAP	National Environmental Action Plan	PPP	purchasing power parity
NEC	National Emission Ceilings	PRTR	Pollutant Release and Transfer Register
NEHAP	National Environment and Health Action Plan	psu	practical salinity units
NERI	National Environmental Research Institute, Denmark	PVC	polyvinyl chloride
ng	nanogram	R&D	Research and Development
NGO	Non-Governmental Organisation	RAC	Regional Activity Centre
NH ₃	ammonia	RAINS	Regional Air Pollution Information and Simulation model
NH ₄	ammonium	RAPEX	Rapid Alert System for non-food consumer products
NMVO	non-methane volatile organic compound	RASFF	Rapid Alert Systems for Food and Feed
NO ₂	nitrogen dioxide	RCEP	Royal Commission on Environmental Pollution
NO _x	nitrogen oxides	REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
NOAA	National Oceanic & Atmospheric Administration	REC	Regional Environmental Centre
NOBANIS	North European and Baltic Network on Invasive Alien Species	REReP	Regional Environmental Reconstruction Programme
NRC	National Reference Centre	RIVM	National Institute for Public Health and the Environment, the Netherlands
NSIDC	National Snow and Ice Data Centre	RLNP	Research Laboratory of Nature Protection
NSR	Northern Sea Route	RMP	refrigeration management plan
NUTS	Nomenclature of territorial units in the EU	RPG	regional priority goals
O ₂	oxygen	SACs	Special Areas of Conservation
O ₃	ozone	SAHFOS	Sir Alister Hardy Foundation for Ocean Sciences
OECD	Organisation for Economic Cooperation and Development	SAICM	Strategic Approach to International Chemicals Management
OSCE	Organisation for Security and Co-operation in Europe	SASI	Social and Spatial Inequalities Research
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic	SAUP	Sea Around Us Project
P	phosphorus	SCALE	Science, Children, Awareness, EU Legislation and Continuous Evaluation
PAH	polycyclic aromatic hydrocarbon	SCIs	Sites of Community Interest
Pb	lead	SCP	sustainable consumption and production
PCA	Priority Conservation Area	SD	sustainable development
PCB	polychlorinated biphenyl	SDSs	safety data sheets
PEBLDS	Pan-European Biological and Landscape Diversity Strategy	SDT	Sustainable Development of Tourism
PEEN	Pan-European Ecological Network	SEA	Strategic Environmental Assessment
PEEREA	Protocol on Energy Efficiency and Related Environmental Aspects	SeaWiFS	Sea-viewing Wide Field-of-view Sensor
PFCs	perfluorocarbons	SEBI	Streamlining European Biodiversity Indicators
PFOA	perfluorooctanoic acid	SEE	South-eastern Europe
PFOS	perfluorooctane sulfonic acid	SEEA	Serbian Energy Efficiency Agency
PGM	platinum group metals	SEIS	Shared Environmental Information System for Europe

SF ₆	sulphur hexafluoride	UNCLOS	United Nations Convention on the Law of the Sea
SI	sufficiency index	UNDP	United Nations Development Programme
SIAM	SIDS Initial Assessment Meeting	UNECE	United Nations Economic Commission for Europe
SIDS	screening information data set	UNEP	United Nations Environment Programme
SMMR	Nimbus-7 Scanning Multichannel Microwave Radiometer	UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
SO ₂	sulphur dioxide	UNESCO	United Nations Educational, Scientific and Cultural Organisation
SO _x	sulphur oxides	UNFCCC	United Nations Framework Convention on Climate Change
SOE	State of Environment	UNHCR	United Nations High Commissioner for Refugees
SOER	The European environment — State and outlook	UNICEF	United Nations Children's Fund
SOER-RF	State of the Environment Report — Russian Federation	UNSD	United Nations Statistics Division
SOVEUR	Mapping of Soil and Terrain Vulnerability in Central and Eastern Europe	UNWTO	United Nations World Tourism Organisation
SPAs	Special Protection Areas	USA	United States of America
SPECA	Special Programme for the Economies of Central Asia	USD	United States dollar
SSM/I	Special Sensor Microwave/Imager	USSR	Union of Soviet Socialist Republics
SST	sea surface temperature	UV	ultraviolet radiation
ST-EP	Sustainable Tourism — Eliminating Poverty	UWWT	Urban Waste Water Treatment
SUTOUR	Supporting tourism enterprises for eco-labelling and environmental management	VAT	value added tax
SUV	sport utility vehicle	VOC	volatile organic compound
t	tonne	WAIS	West Antarctic Ice Sheet
T&T	Travel & Tourism	WB	World Bank
TAC	total allowable catch	WBCSD	World Business Council for Sustainable Development
TACIS	EU assistance programme Technical Assistance to the Commonwealth of Independent States	WCE	Western and Central Europe
TBT	tributyltin	WCI	World Coal Institute
TEAP	Technology and Economic Assessment Panel	WCMC	World Conservation Monitoring Centre
TEC	total energy consumption	WEEE	waste electric and electronic equipment
THE PEP	Transport, Health and Environment Pan-European Programme	WEI	water exploitation index
TMR	total material requirement	WFD	Water Framework Directive
toe	tonnes of oil equivalent	WG	working group
TOFP	tropospheric ozone forming potentials	WGMS	World Glacier Monitoring Service
TPES	total primary energy supply	Wh	watt hour
TREMOVE	Policy assessment model to study the effects of different transport and environment policies on the emissions of the transport sector	WHO	World Health Organization
TSA	Tourism Satellite Accounts	WMO	World Meteorological Organization
TSP	total suspended particles	WSSD	World Summit on Sustainable Development
UBA	Federal Environment Agency (Austria and Germany)	WTO	World Trade Organization
UN	United Nations	WTTC	World Travel and Tourism Council
UNCCD	United Nations Convention to Combat Desertification	WWF	World Wildlife Fund for Nature
		y/yr	year
		µg	microgram

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Foreword

More than 16 years have passed since the first meeting of Europe's environment ministers at Dobris Castle in June 1991. Since then Europe has changed enormously, as has its environment. In this, the fourth assessment report, we underline the changes that have occurred in the environment and socio-economic context to help explain many of the environmental trends that have been observed. We identify successes and improvements but also register old legacies that need further effort such as, in particular, air pollution, water issues and contaminated sites. New threats, which challenge piecemeal solutions and call for integrated strategic measures at European and global levels, are described such as persistent chemicals in the environment, biodiversity loss, sustainable production and consumption and climate change. And a new overview is given of the state of European marine areas and inland seas.

The current assessment makes a number of things clear — first, the type of challenges that we face, and second, the barriers to progress.

We can recognise three types of challenge distinguished by the manner and difficulty of their control and management. First, there are those issues such as air and water pollution where, by and large, we know how to solve them and what implementation action is required. However, while progress has been made, problems of this type still persist largely due to the difficulties with working out in practice and at local level how to implement the known solutions. Second, there are the more complex challenges, such as biodiversity loss and river basin management. Here progress is also being made, but because of the strong cross-border, inter-regional and international cooperation required to deal with them, and the need for a diversity of inter-linked actions, the progress is often not fast enough to keep pace with changes. Thirdly, there are the issues such as climate change and current patterns of production and consumption which are particularly complex to deal with, and progress is slow, since they necessitate changes now without immediate and obvious benefits. However, action is needed since these issues have the potential to seriously limit future options for meeting needs sustainably thereby posing significant threats to our health, environment and livelihoods and those of

future generations. These issues require long-term, integrated cross-sectoral measures to be taken that need to be underpinned by strategic international agreements which encourage diverse, robust and innovative technologies and adaptive management practices.

Ministers have designated the Belgrade conference to be a 'conference of delivery'. So how can more progress be made to solve the 'simple' challenges or quicker and more effective action be taken to deal with the more complex issues of the second or third types. And what is the place of pan-European cooperation to deal with these issues?

We need to strengthen the will to act. We need a good understanding of the problems, of their nature and distribution across societies and generations, and of the costs and impacts of action and inaction. This requires analysis, assessment, communication and explanation to help those who need to act. This report is part of that process.

We need to strengthen the capacity to act. On its own, understanding is not sufficient for action to be taken. We need to enable actions by public administrations, businesses and individual consumers and households. A diversity of actions appropriate to local circumstances needs to be encouraged. An enabling legal framework can help unleash the necessary investment and innovation to do this, but greater attention also needs to be given to implementation — that is, understanding better how to do things. To facilitate this and build up the capacity to act, information is needed on good practice, ecoinnovation and new environmentally friendly technologies, as well as an overarching commitment to capacity building, especially to training and education.

Four pan-European environment assessments have been published since the Environment for Europe process began. But we still need an information and knowledge system to support action to protect the environment across the region. The EECCA core set of indicators is a good step, but a lot still needs to be done. Future assessment activity needs to be accompanied by a commitment to build a shared environmental information system for all the countries and regions of Europe.

The 32 member countries of the EEA are already starting to build such a system. Similar steps are also being taken by the countries around the Mediterranean. Across Europe there are also examples of cooperation around common environmental and ecological areas, such as inland seas, transboundary river basins or mountains. To complete the picture, and to make existing cooperative arrangements more effective, we need to join up such activities so that knowledge can be shared, learning increased and experiences and good practice exchanged. This is not only a European challenge but a global one that requires the involvement and participation of civil society.

A number of other developments are currently converging which help us to understand, with new clarity, the meaning and benefits of the 'Environment for Europe' process: demographic and economic transformations across Europe, the enlargement of the EU, increased cooperation between the EU and its neighbours and between neighbours of neighbours, the rising challenge of climate change, energy security, water and the increased awareness of the importance of ecosystem services and sustainable consumption and production patterns. If not tackled correctly and in time, these environmental issues combined will not only seriously damage our health, but may also undermine the very security on which our societies are built. Emerging economic and social instabilities combined with environmental

issues are likely to lead to asymmetric threats to security which cannot be resolved within the traditional domains of security policy. Tackling these requires partnerships to deal explicitly with the environmental concerns and the necessary associated transformations. We need to focus on sustainability which promotes cooperation and partnerships.

In the years since the start of the Environment for Europe process we have learnt much about the meaning, benefits and significance of pan-European and global cooperation on the environment, and have begun to act accordingly. The evidence and insights which this fourth assessment offers will, I hope, help to strengthen the resolve for continued environmental cooperation and partnerships in the future.

Finally, let me thank all the individuals, organisations and countries who have collaborated with us on this project, sharing their data and ideas, and providing their valuable expertise and insights. The fruit of this pan-European cooperation, is the Belgrade report, for which we are very grateful.

Jacqueline McGlade

Executive Director

