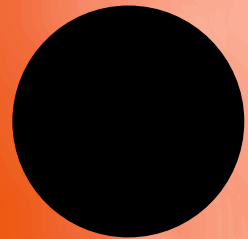




# Environmental Performance Reviews

ACHIEVEMENTS  
IN OECD COUNTRIES

ENVIRONMENT



OECD

© OECD, 2001.

© Software: 1987-1996, Acrobat is a trademark of ADOBE.

All rights reserved. OECD grants you the right to use one copy of this Program for your personal use only. Unauthorised reproduction, lending, hiring, transmission or distribution of any data or software is prohibited. You must treat the Program and associated materials and any elements thereof like any other copyrighted material.

All requests should be made to:

Head of Publications Service,  
OECD Publications Service,  
2, rue André-Pascal,  
75775 Paris Cedex 16, France.

# Environmental Performance Reviews

## ACHIEVEMENTS IN OECD COUNTRIES



ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

## ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

Pursuant to Article 1 of the Convention signed in Paris on 14th December 1960, and which came into force on 30th September 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed:

- to achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;
- to contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and
- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

The original Member countries of the OECD are Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The following countries became Members subsequently through accession at the dates indicated hereafter: Japan (28th April 1964), Finland (28th January 1969), Australia (7th June 1971), New Zealand (29th May 1973), Mexico (18th May 1994), the Czech Republic (21st December 1995), Hungary (7th May 1996), Poland (22nd November 1996), Korea (12th December 1996) and the Slovak Republic (14th December 2000). The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention).

*Publié en français sous le titre :*  
PROGRÈS DANS LES PAYS DE L'OCDE

© OECD 2001

Permission to reproduce a portion of this work for non-commercial purposes or classroom use should be obtained through the Centre français d'exploitation du droit de copie (CFC), 20, rue des Grands-Augustins, 75006 Paris, France, Tel. (33-1) 44 07 47 70, Fax (33-1) 46 34 67 19, for every country except the United States. In the United States permission should be obtained through the Copyright Clearance Center, Customer Service, (508)750-8400, 222 Rosewood Drive, Danvers, MA 01923 USA, or CCC Online: [www.copyright.com](http://www.copyright.com). All other applications for permission to reproduce or translate all or part of this book should be made to OECD Publications, 2, rue André-Pascal, 75775 Paris Cedex 16, France.

## FOREWORD

The principal aim of the OECD's environmental performance reviews is to help *Member countries improve their individual and collective performances in environmental management*. The primary goals for this programme are:

- to help *individual governments* assess progress by establishing baseline conditions, trends, policy commitments, institutional arrangements and routine capabilities for carrying out national evaluations;
- to promote environmental improvements and a continuous policy *dialogue among Member countries*, through a peer review process and by the transfer of information on policies, approaches and experiences of reviewed countries; and
- to stimulate *greater accountability* from Member countries' governments towards public opinion within developed countries and beyond.

Programme efforts are directed at *promoting sustainable development*, with emphasis on developments in domestic and international environmental policy, as well as on the integration of economic, social and environmental decision-making.

Environmental performance is assessed with regard to the degree of achievement of *domestic objectives and international commitments*. Such objectives and commitments may be broad aims, specific qualitative goals, precise quantitative targets or a commitment to a set of measures to be taken. Assessment of environmental performance is also placed within the context of historical environmental records, the present state of the environment, the physical endowment of the country in natural resources, its economic conditions and demographic trends.

The present report summarises lessons learned from the 29 reviews already completed for all OECD member countries. It was reviewed by the Working Party on Environmental Performance. The executive summary of the report was approved by the Working Party. The OECD has started a second cycle of reviews.

Joke Waller-Hunter  
Director, Environment Directorate

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	9
1. Progress in the 1990s.....	10
Effective environmental policies.....	10
Integration of environmental concerns in sectoral policies.....	10
Strengthening international co-operation .....	11
2. Towards sustainable development.....	11
Fostering integration of government policies.....	11
A greater role for market forces .....	13
Meeting international commitments.....	13
Improving the cost-effectiveness, openness and accountability of environmental policies .....	14
<b>1. INTRODUCTION</b> .....	17
1. The OECD Programme of Environmental Performance Reviews.....	17
2. Meeting International and Domestic Commitments .....	18
3. Recognising a Wide Diversity of Conditions in Countries .....	19
<b>2. INTERNATIONAL COMMITMENTS</b> .....	21
1. Establishing Overall Principles and Commitments.....	21
Progress to date .....	21
Further progress to be made .....	23
2. Dealing with Regional Issues .....	25
Progress to date .....	25
Further progress to be made .....	28
3. Addressing Global Issues .....	29
Progress to date .....	29
Further progress to be made .....	30
<b>3. ENVIRONMENTAL MANAGEMENT</b> .....	33
1. Managing Water Resources .....	33
Progress to date .....	33
Further progress to be made .....	34
2. Managing Air .....	36
Progress to date .....	36
Further progress to be made .....	37

3. Managing Waste and Contaminated Sites .....	40
Progress to date .....	40
Further progress to be made .....	42
4. Conserving Nature.....	43
Progress to date .....	43
Further progress to be made .....	45
5. Increasing the Cost-effectiveness of Environmental Policies .....	46
Environmental expenditure .....	47
Environmental effectiveness of regulations .....	48
Towards more cost-effective mixes of regulations and other instruments .....	48
<b>4. INTEGRATING ENVIRONMENTAL CONCERNS IN ECONOMIC AND SECTORAL DECISIONS.....</b>	<b>53</b>
1. Towards Sustainable Development .....	54
Progress to date .....	54
Further progress to be made .....	57
2. Fostering Stronger Institutional Integration .....	59
Progress to date .....	59
Further progress to be made .....	60
3. Fostering Stronger Market Integration: Use of Economic Instruments .....	63
Progress to date .....	63
Further progress to be made .....	64
4. Expanding the Use of Societal Instruments .....	67
Progress to date .....	67
Further progress to be made .....	69
<b>ANNEXES</b>	
I.A Selected environmental data.....	72
I.B Selected economic data .....	74
I.C Selected social data .....	76
II.A Selected multilateral agreements (worldwide) .....	78
II.B Selected multilateral agreements (regional) .....	84
III. Selected environmental indicators and trends .....	93
IV. Executive Summary of Second Cycle Work Plan.....	117
V. Main Publications (1993-2000).....	119
VI. Environmental Performance Reviews (1993-2000) .....	121
VII. Country responses to OECD Environmental Performance Reviews (1993-2000) .....	123

## LIST OF FIGURES, TABLES AND INSETS

### Figures and Indicators

#### INTERNATIONAL CO-OPERATION

Multilateral environmental agreements .....	95
Regional issues: acidification .....	96
Global issues: climate change .....	97
Global issues: ozone layer .....	98
Official development assistance .....	99

#### POLLUTION CONTROL AND NATURE CONSERVATION

Water management: Water withdrawn .....	100
Water management: Waste water treatment .....	101
Air management: Emissions of SO <sub>x</sub> and NO <sub>x</sub> .....	102
Air management: SO <sub>2</sub> and NO <sub>2</sub> concentrations.....	103
Waste management: Municipal waste generation .....	104
Waste management: Recycling rate.....	105
Nature conservation: Major protected areas .....	106
Pollution abatement and control expenditure .....	107

#### SECTORAL INTEGRATION

Industry .....	108
Energy .....	109
Transport.....	110
Agriculture.....	111
Forestry.....	112
Fisheries.....	113

### Tables

I.A Selected environmental data.....	72
I.B Selected economic data .....	74
I.C Selected social data .....	76
II.A Selected multilateral agreements (worldwide) .....	78
II.B Selected multilateral agreements (regional) .....	84

### Insets

Denmark	Environmental Aid to Developing Countries and Countries in Transition .....	24
---------	--	----



Norway	Combating Acid Rain .....	27
Portugal	Environmental Convergence within the EU .....	27
Hungary	Environmental Convergence with the EU .....	28
Australia	Ozone Depleting Substances .....	31
Austria	Controlling CO <sub>2</sub> Emissions.....	31
Belgium	Pricing Drinking Water .....	34
Sweden	Air Pollution Taxes and Charges .....	38
Luxembourg	Recovery and Recycling of Problem Waste .....	41
Iceland	Transferable Fishing Quotas .....	44
United Kingdom	Protecting the National Heritage .....	44
Spain	Managing Protected Areas.....	44
Mexico	Environmental Reform .....	49
Netherlands	Partnership with Industry.....	49
Poland	Pollution Charges and Fines .....	50
Japan	Decoupling Air Emissions from GDP .....	55
Turkey	National Environmental Planning.....	55
Canada	Greening of Government .....	56
Czech republic	Environmental Transition .....	56
Germany	Environmental Progress in the New Länder.....	57
Italy	Energy Pricing and Intensity .....	60
Switzerland	Agri-environmental Payments .....	61
Korea	Integrating Environmental Concerns in Transport Policies.....	61
Greece	Towards Environmentally Sustainable Tourism .....	62
France	Green Taxation.....	65
United States	SO <sub>2</sub> Emissions Trading .....	65
New Zealand	Protection of Environmental Values of the Indigenous Population .....	68
Finland	Eco-certification of Sustainable Forest Management.....	68
Ireland	Environmental Information Centre.....	69

## EXECUTIVE SUMMARY

Further to a decision of the Environment Policy Committee, at its 1991 meeting at ministerial level, the OECD launched a programme of Environmental Performance Reviews. Since then, the environmental performance of all 29 Member countries has been reviewed and a second cycle of reviews has recently been started. In addition, three non-member countries have been reviewed in co-operation with the UN-ECE. This programme is also based on environmental information, and indicators on the state of the environment, assembled for all Member countries. Despite the wide *diversity of economic, social, environmental and political conditions among Member countries*, a number of broad conclusions can be drawn concerning progress in environmental management and the steps towards sustainable development made in these countries in the 1990s.

Environmental policies carried out in the 1980s and 1990s have clearly contributed to *improving the state of the environment* in OECD countries. Moreover, these policies have not in themselves posed significant economic difficulties in Member countries, implying total expenditures in the order of 1 to 2% of GDP. In particular, they have not created significant distortions in international trade or had detrimental effects on employment. On the contrary, environmental policies have often provided positive incentives for economic restructuring and technological innovation.

*To meet national and international environmental commitments*, however, it will be imperative to strengthen *integration* of environmental, economic and social concerns in policy design and implementation in the near future, especially in the energy, transport and agriculture sectors, to apply market-based mechanisms, and to provide *price signals* that reflect social and environmental costs and are not biased by environmentally damaging subsidies. *Environmental policies* will need adjustment towards increased emphasis on pollution prevention, and on implementation and enforcement. Openness, accountability and access to information will need to be improved, and stakeholder participation should be further encouraged. In addition, *international co-operation* should be increased even further.

## 1. Progress in the 1990s

### *Effective environmental policies*

In most Member countries, the environmental progress made in the 1980s was consolidated and further enhanced during the 1990s. Emissions of *acidifying substances* to air, particularly those of SO<sub>x</sub>, have been reduced significantly. Emissions and concentrations of a few major air pollutants such as SO<sub>2</sub>, CO and lead have declined because of strengthened standards and enforcement applied to major stationary sources and vehicles. Economic restructuring (dematerialisation) and changes in energy mix have further contributed to decoupling releases of air pollutants from economic growth.

The most pressing pollution problems arising in regard to surface *waters* have been tackled, mainly through construction of waste water treatment facilities, regulation of discharges from large point sources, better implementation of existing legislation, water taxation and integrated water management. Progress has been made on the issues of hazardous *waste* and municipal waste, with a number of innovative programmes being established for prevention, collection and reuse/recycling of waste. In the area of *nature conservation*, most Member countries have made progress in protecting threatened species by establishing protected habitats, encouraging changes in land use practices, and adopting new legislation to protect biodiversity.

Despite efforts made during the 1990s, problems remain in areas such as eutrophication of surface water and groundwater pollution by nitrates and pesticides. Other problematic areas are emissions of NO<sub>x</sub> and small particulates and ground-level ozone concentration. The potential pollution reduction gains from regulating large point sources of *air and water pollution* are, or will soon be (with some exceptions), practically exhausted or greatly reduced. A change of approach is needed to deal effectively with small-scale and *diffuse sources* (e.g. small businesses, service industries, transportation, agriculture, households/consumers, end of life products), and this is an area of increasing emphasis in some Member countries. Increased generation of *waste* combined with the NIMBY syndrome is a source of difficulties. Management of *biodiversity*, particularly outside protected areas and for all species (not just those that are hunted or threatened), has not proven an easy task. Adopting an ecosystem approach to nature conservation remains a challenge.

### *Integration of environmental concerns in sectoral policies*

A number of countries have adopted *national plans* at interministerial level for environmental management, or more broadly for promoting sustainable development. Because of economic pressure or lack of sufficient societal and policy support,

however, progress in implementing them has been limited. Over the last 20 years, manufacturing industry as a whole, and the chemical industry in particular, have shown that integration of environmental and industrial policies can be carried out successfully without endangering competitiveness or employment. Other economic sectors have also begun taking greater account of environmental requirements, but not yet to the extent of significantly modifying their overall impacts on the environment. As a result, *little progress has been made* in areas where effective implementation depends on significant changes or reforms in economic or sectoral policies. The sectors with the greatest environmental impact at present are *energy, transport, agriculture and, in some countries, industry*. The experience of several countries, in particular those which joined the OECD relatively recently, proves that environmental convergence can be achieved without jeopardising economic development and social cohesion.

### *Strengthening international co-operation*

In international co-operation, important progress has been made by giving effect to a range of international agreements – global, regional and bilateral – and to other commitments made, for example, through ministerial declarations. Notable achievements include reductions in emissions of *ozone-depleting substances*, abatement of *SO<sub>x</sub> emissions*, severe restriction of dumping of waste at sea, and protection of some *species* (e.g. cetaceans, migratory birds). Transboundary movements of hazardous waste are strictly controlled, and the abuses of the past in this regard have been eliminated. Emissions of pollutants to regional seas, such as the North Sea and the Baltic, have been reduced and emissions of toxic substances, especially to many international lakes and rivers, greatly restricted. International co-operation at the bilateral level has progressed considerably, and regional co-operation has grown under a variety of new agreements. However, substantial efforts are still needed to achieve full implementation of the numerous commitments made at international level, e.g. concerning air pollution or climate change, and not all environment related problems have proven equally amenable to international solutions.

## **2. Towards sustainable development**

### *Fostering integration of government policies*

Meeting environmental commitments to ensure the well-being of present and future generations will necessitate much stronger *integration of sectoral and environmental policies* than has been achieved so far by Member countries, as well as wider

adoption of well targeted policy objectives and policies aimed at achieving specified improvements to the environment. Progress requires macroeconomic and sectoral policies that fully take into account the economic, social and environmental dimensions and that incorporate environmental requirements from the outset. To make full use of dynamic forces in the economy and society, Member countries should draw up *long-term strategies* to meet the challenges of the next decade, *clarify environmental goals*, and *set targets* and timetables for actions to be undertaken in relation to the environment. This approach requires close dialogue between relevant ministries, leading to more structured integration of government activities. Other stakeholders, industry and the general public must be fully engaged.

*Energy, transport and agriculture policies* will need to be modified to avoid unsustainable patterns of development and to better take account of environmental constraints. Ever-growing *use of fossil fuels* cannot continue if Member countries are to meet their commitments and, more important, if health risks and the risks associated with climate change are to be mitigated. Many OECD countries have not succeeded in meeting their own commitments to stabilise CO<sub>2</sub> emissions between 1990 and 2000; the likelihood that a number of Member countries will not meet the Kyoto commitments concerning GHG emissions by 2008-12 is a source of concern and requires urgent action. Further, in most Member countries, increases in *vehicle use* will result in additional fuel consumption and road-building and related damage to health and nature. Reducing support to *agriculture* should be accompanied by well targeted agri-environmental measures to prevent negative environmental effects. Overuse of natural resources (e.g. exhaustion of water resources, depletion of green spaces, fish stocks and old growth forests) must also be controlled.

Stronger co-operation among the *various levels of government* must be pursued. Monitoring the environmental performance of subnational authorities, especially when they have significant autonomy in carrying out their environmental policies, would help adequately maintain a level playing field, through informing citizens about the state of their environment and promoting a democratic debate on environment with full participation of all stakeholders.

Progress towards sustainable development will require significant changes in *production and consumption patterns*. These can be promoted by expanding the use of approaches such as life cycle analysis of products and extended producer responsibility. Governments can show the way to more sustainable policies by "*greening their own operations*" without creating trade distortions. This would entail not only assessing the environmental implications of policy decisions, but also reducing the environmental impacts of government activities and promoting use of "green" products by public authorities. More effort will be needed to raise consumer

awareness of the environmental pressures that result from greater use of vehicles, growth in tourism, higher consumption of water resources, increased waste generation, and urban sprawl.

### *A greater role for market forces*

Meeting environmental commitments demands strategies aimed at ensuring *sustainable development in the context of market-based economies*. This implies that greater use will be made of the market through *removal of distortions caused by externalities* or subsidies that affect the environment adversely. To combat environmental degradation and overuse of natural resources, it is essential to provide the *right price signals*, to promote internalisation of externalities by applying the *polluter-pays and user-pays principles* and introducing economic instruments, and to progressively remove subsidies that have negative effects on the environment. Fiscal and environmental policies should become mutually supportive. Wider use of *economic instruments* and other societal instruments, such as education and consumer information, will help mobilise social and economic sectors to reach new, ambitious environmental goals cost-effectively, while reducing demand for goods and services that cause environmental degradation. Several Member countries have begun to make increased use of environment related taxes, sometimes in combination with the lowering of other taxes or charges (aiming at a “double dividend”). Such instruments can also help finance environmental protection activities. The private sector should, in this context, be given sufficient lead time to adapt to new environmental requirements, to seek cost-effective approaches, and to develop *innovations in the technology* it uses and the products and services it delivers. Strengthened environmental policies may lead to price increases for certain natural resources which are essential for life. Appropriate allowances should be introduced to ensure that *low income groups* do not suffer disproportionately from new environmental policies, and that they, too, experience an improvement in their living conditions.

### *Meeting international commitments*

Much more progress is also necessary in addressing transfrontier, regional and global problems. Globalisation of the economy, of trade and of environmental issues means that linkages among the activities and interests of nations are tightening, and that avoiding conflicts and optimising benefits will require more solidarity among nations and within each nation. As for the major challenges, the need to mitigate *climate change* has not yet been adequately faced and provision of *environmental aid and technical assistance* to less developed countries is falling short of what is required. It is now at a level well below the ODA target of 0.7% of GNP adopted at Rio. Member countries, with their economic resources, could do much more than

they are doing at present to solve global environmental problems (for which they bear a large degree of responsibility), for example by meeting their commitments to provide further financial assistance to developing countries. They should also continue to support Central and Eastern European countries in their actions to protect the environment and to adopt new environmental policies. International co-operation can be strengthened in a number of areas without major new expenditures: in particular, environmental capacity building initiatives in developing countries (e.g. cleaner-technology centres) could be further promoted, international environmental law could be further developed, and many responsibility and liability issues could be addressed more open-mindedly. Similarly, further progress could be made towards reconciling trade and environmental policies and ensuring that foreign direct investment meets environmental requirements.

Member countries should also strengthen their co-operation on *regional issues* in order to define joint strategies and common policies that are at least as effective as those used to address domestic issues. Further progress is needed to protect the marine environment, especially against eutrophication and ship based pollution. Special efforts are needed in marine areas where fish stocks are threatened. Close integration and interdependence of the economies of regional groups of Member countries (e.g. with regard to the European Union, North America) is likely to lead to novel approaches in environmental co-operation, reflecting closer economic integration.

### *Improving the cost-effectiveness, openness and accountability of environmental policies*

Recently Member countries have intensified their search for more cost-effective approaches to address environmental issues. Several countries have moved, or are moving, from *process-oriented* to result-oriented *environmental policies*, and many countries have introduced a *mix of instruments* (regulatory, economic and societal) and are using voluntary approaches on a wider scale. Further emphasis should be given to preventive approaches and integrated pollution control, with *greater stress on area-based and ecosystem management* rather than uniform command and control approaches.

Difficult decisions that must be taken in coming years will need to be supported by well thought out, broad-based consultative and *awareness-raising activities*. To be successful, environmental strategies will require *openness* in decision-making as well as a high quality *monitoring and assessment* process. This will necessitate full access for all players to environmental information, more meaningful consultation with and participation by the public, better access to justice, and a continuing dialogue with stakeholders (e.g. industry, trade unions, non-governmental organisations, local communities).

The availability of reliable *environmental data and indicators* and of *concise information* should lead to a better democratic debate, and to greater accountability of public authorities and the various other actors. Improved *policy planning, monitoring and assessment* will require better databases and indicators, broader use of environmental impact assessments to evaluate programmes and policies, and cost-effectiveness and cost-benefit studies. Regarding the latter, work on the valuation of benefits will need to be increased to ensure that a proper balance is maintained, given the recent emphasis in some Member countries on quantifying the cost of environmental protection.

*Tracking progress* through the use of environmental data and indicators has already proven its value. It will be even more important in the future, in order to gauge the results obtained by implementing environmental policies, to identify shortcomings that may arise at all government levels, and to monitor more closely the implementation of environmental policies by stakeholders. Member countries that concur with the value of assessing their *environmental performance* could promote the use of the same approach at subnational levels, especially in those countries with a federal system.



# 1

## INTRODUCTION

### 1. The OECD Programme of Environmental Performance Reviews

The Environmental Performance Reviews programme was initiated by OECD Environment Ministers in 1991. The importance of the programme was subsequently reinforced by the OECD Council and the Heads of States and Governments of the G-7 (July 1991).

The principal aim of the reviews is to help Member countries improve their individual and collective performance in environmental management. *Environmental performance* is interpreted to encompass international and domestic environmental commitments and objectives, covering the hierarchy of intentions, actions and results.

In carrying out “*peer*” reviews, the Working Party on Environmental Performance has adopted the *pressure-state-response model* of analysis. The *state* of the environment as a result of *pressures* from human activities, and of *responses* by governments (policies), enterprises and households, is evaluated. Three broad areas are examined for each country:

- *environmental management* in the fields of pollution control and nature conservation;
- *sustainable development* and integration of environmental concerns in other policies;
- *international* environmental commitments (Annex II).

The synthesis presented in this report draws on:

- the 29 *country reviews* published for the 29 Member countries;\*

---

\* These were carried out between 1993 and 2000. Reviews of Belarus, Bulgaria and the Russian Federation were also carried out by OECD in co-operation with the UN-ECE.

- environmental *data* for all Member countries (which OECD continually acquires and periodically publishes);
- *environmental indicators* developed by OECD.

## 2. Meeting International and Domestic Commitments

The environmental policies adopted by Member countries over the last 25 years have shown a steady evolution. Initially, policies were focused on cleaning up existing pollution (*curative policies*) and trying to reduce pollution from point sources at the point of discharge (i.e. end-of-pipe measures). Later, management strategies moved in the direction of modifying production processes (*preventive policies*) so as to minimise the amount of pollution being generated in the first place (i.e. cleaner production). While much still remains to be done to eliminate long-standing environmental problems in OECD countries, and to “stay the course” with regard to many earlier management strategies, the *sustainable development* perspective adopted at the 1992 Rio Conference stimulated a further move towards *integrative policies* focusing on pollution prevention, as well as integration of environmental concerns in economic and sectoral decisions and international co-operation.

Domestic and international environmental issues have come to the forefront of the political agenda, receiving high priority in the attention of the public, governments and enterprises. This has led to an *unprecedented range of international and domestic commitments*, which imply:

- increased *environmental expenditure* and, as an indispensable corollary, increased and innovative efforts towards cost-effectiveness in achieving commitments;
- increased efforts to *integrate environmental policies and other government policies*, and to integrate initiatives from all levels of government with those of enterprises and citizens;
- increased and more effective *international co-operation*.

Environment Ministers and their administrations thus have seen their *political, economic and administrative roles significantly increased* in importance within government structures. This development has been paralleled by a greening of international institutions and of many public authorities. In the 1990s, sustainable development became a government concern common among OECD countries. Now, however, following this active phase of environmental commitment, environmental administrations have to continue implementing policies under domestic and

international conditions often characterised by: short-term time horizons; underpricing of a number of natural resources; and concerns over budgets and cumulated public deficits, social issues, structural economic changes, and increased globalisation and international economic interdependencies.

### 3. Recognising a Wide Diversity of Conditions in Countries

Although OECD countries share a commitment to democratic ideals, pluralistic institutions and market-oriented economies, they exhibit a *wide diversity* of physical, economic, social, cultural and environmental conditions that need to be taken into account when evaluating their environmental performance. For example, among OECD countries there are marked differences in:

- *demographic conditions*: population growth in the 1990s ranged between –3% and +18%;
- *economic conditions*: some economies are among the most “developed”, while others are in a *process of convergence* (for instance, in the context of the North American Free Trade Agreement or of the European Union); the latter represent one-third of the OECD population;
- *density of pressures* from economic activities and population;
- *endowment in natural resources* (water, land, energy, forest, agricultural, fish and mining resources);
- *environmental institutions*: there are widely differing degrees of federalism and decentralisation concerning environmental policy definition and implementation;
- the environmental *administrative culture*: mature versus young, co-operative versus confrontational, result-oriented versus process-driven.

In the 1990s, five countries acceded to OECD (Mexico, Korea, the Czech Republic, Hungary and Poland). By the end of the 1990s, ten Member countries (with a total population of 330 million) had GDP per capita well below the OECD average and faced issues of environmental convergence in parallel to those of economic and social convergence.

Nevertheless, it is possible to draw certain important lessons from the collective experience of OECD countries in addressing environmental problems over two and a half decades – particularly during the 1990s – based on the first cycle of 29 OECD Environmental Performance Reviews.

# 2

## INTERNATIONAL COMMITMENTS

### 1. Establishing Overall Principles and Commitments

Most environmental issues have had an international dimension in the world of the 1990s. Some issues are global in nature, affecting the global commons. They involve the removal of limited natural resources, or problems that present a *threat to the whole planet*. Some issues only affect a region, or one or more neighbouring countries. Member countries and the European Union have consistently taken a lead in identifying global and regional environmental issues, in proposing solutions, and in providing technical and financial support to address these issues. As Member countries are to a large extent at the origin of these issues, and are in a good position to bring about adequate remedies, they have recognised their *special responsibilities* and have promoted and adopted many international legal acts outlining how they intend to meet these responsibilities (e.g. concerning export of environmentally sound technologies, export of hazardous processes, products and waste, and environmental impact assessment of activities in less developed countries carried out with assistance from Member countries). Addressing a global environmental problem often requires countries to ration the use of a finite resource hitherto available without limitation, and to act at an early stage on the basis of incomplete scientific information rather than at a later stage under the pressure of circumstances. The intrinsic difficulties of international co-operation have been overcome in a number of international agreements, but there is room for further improvement, especially in cases where some countries do not bear an equitable share of the total burden.

#### *Progress to date*

In the last decade, Member countries gradually implemented regional and world-wide environmental protection decisions taken in the 1980s and 1990s, and began to explore new types of international co-operation. During this period, five new countries joined the OECD and increased the diversity of approaches and socio-economic

conditions of its membership. Countries have *ratified and implemented numerous conventions*, such as those concerning the Law of the Sea, transboundary movements of hazardous waste, long-distance transboundary air pollution and protection of the ozone layer, biodiversity, climate change, desertification, and preparedness to deal with industrial accidents and emergencies at sea. They have also adopted disarmament agreements concerning weapons with environmental impacts (e.g. chemical and nuclear weapons). Nuclear testing by OECD countries has finally been stopped. Offices with direct responsibilities relating to international environmental co-operation are having to deal with an ever-increasing number of international agreements at bilateral, regional and global levels, even as preparatory work continues on new agreements, some with significant economic implications (Annex II).

International declarations and agreements are becoming *increasingly specific*. They contain both strategies and detailed procedures, as well as *quantified objectives* to be achieved by set dates or even standards with which signatories must comply. International co-operation, particularly within the framework of the *European Union* or the European Economic Area, has led many Member countries to adopt increasingly stringent and precise domestic measures. Decisions taken at the international level have often led participating countries to carry out costly initiatives to protect their environment and the environment beyond their borders.

Member countries have been the driving force behind the continuing development of *international environmental law*. General principles adopted in the context of ministerial declarations have been incorporated in a number of international agreements at the regional and global levels. The *polluter-pays principle*, initially developed within OECD, has become recognised worldwide, while the *precautionary principle*, initially developed in the North Sea context, has taken on increased importance in fields involving hazardous substances. Principles concerning public information, public participation in decisions relating to the environment, and the preparation of environmental impact assessments for major projects have become *legal norms* in most Member countries on both the domestic and international levels. A major convention in this area was adopted in Aarhus in 1998. In regard to *liability for environmental damage*, progress was achieved with the adoption of a convention on ships carrying hazardous and noxious substances; other initiatives have not yet been successful. A new legal regime for international rivers was adopted in 1997, and legal rules for obtaining prior informed consent before exporting hazardous substances were adopted in 1998.

Among the most important results of the 1992 *UN Conference on Environment and Development* in Rio de Janeiro are: the international recognition given to the concept of *sustainable development*, the progressive implementation in Member countries of many chapters of Agenda 21, the development of local Agenda 21

initiatives, and awareness of the changes that need to be made to modify production and consumption patterns. The UN Commission on Sustainable Development has been successfully launched and is playing a growing role in fostering international initiatives. Sustainable development has been introduced as a goal in national laws and in the EU Treaty. OECD has developed a cross-directorate programme on sustainable development and adopted a revised environment section in its guidelines for multinational enterprises.

The interrelationship between environmental policies and *international trade* policies has been the topic of extended analysis and discussions. Unilateral measures in favour of the environment are considered acceptable only to the extent that they are compatible with international trade law. International environmental conventions that authorise measures aimed at restricting certain aspects of trade so as to promote environmental goals have been broadened and strengthened.

The 1990s have seen a new concept emerge: the *common but differentiated responsibilities* of developed and developing countries, based on their contributions to the present state of the environment and their environmental protection capacities. This concept has been implemented in the areas of climate change, biodiversity and protection of the ozone layer. The precise targets set in the Kyoto Protocol imply that OECD countries must take significant measures which are so differentiated, in order to reach satisfactory burden sharing. Among the priorities of *development aid* is environmental protection, which can account for 10 to 20% of total aid by Member countries. Similarly, world and regional development banks are giving higher priority to environment in their overall development portfolios. While environmental aid has grown in recent years, this growth has generally been at the expense of other types of aid since total development aid has declined. The concept of providing *new and additional resources* was supported by the creation of the Global Environment Facility. However, in most aid programmes this concept continues to have a marginal role. Many Member countries have launched additional technical assistance and financial aid programmes to contribute to environmental protection in Central and Eastern Europe. GEF has received additional funding and provided financial means to help protect the global environment in four areas: biodiversity, climate change, international waters and ozone.

### *Further progress to be made*

The increased level of international co-operation in the 1990s led to many declarations and general agreements. *Actual progress towards the goals* adopted in these instruments and at UNCED is very dependent on adopting and enforcing national legislation, financing monitoring networks and infrastructure, improving integration of

environmental and other policies, and reinforcing government structures for environmental management. OECD countries have all agreed to subject their environmental policies to international scrutiny through a peer review process implemented by the OECD Working Party on Environmental Performance. In many cases, implementation of international agreements has not been as rapid as foreseen; efforts should be increased if the expectations raised in Rio are to be fulfilled before RIO + 10.

### **DENMARK: Environmental Aid to Developing Countries and Countries in Transition**

Denmark provides the highest level of official development assistance (ODA) among OECD countries in terms of percentage of GNP (1% in 1999). Contrary to many other OECD countries, Denmark did not decrease its level of aid, which was already at 1% in 1992. The Government's policy is to maintain this ODA level and possibly increase it. As shown by opinion polls, the high level of development assistance receives wide support by the Danish population. In addition, Denmark is providing assistance to Central and Eastern European countries and is allocating 0.1% of its GNP for this purpose.

Approximately 20% of bilateral ODA goes to environment related activities. Other environmental assistance includes activities related to the global environment and to Central and Eastern European countries. Denmark is one of the largest contributors to GEF in relative terms. In 1993, it established the Environmental and Disaster Relief Facility, which in 1998 received funding of 0.25% of GDP (half for environmental activities in Central and Eastern European countries and in developing countries). Denmark's multilateral aid has a strong sustainable development component. All development assistance projects are subject to an environmental assessment on the basis of guidelines provided by the Danish aid agency, DANIDA.

The global environmental consequences of *economic growth* in less developed countries have not yet been fully taken into account by Member countries, especially in the areas of climate change or production of ozone depleting substances (Annex III). A number of significant issues concerning *environment and trade* are still unresolved. Additional *environmental aid* could be provided to the developing world to enable it to meet global challenges and to develop in a sustainable way. Development aid provided by OECD countries has fallen to a DAC average of 0.24% of GNP, i.e. far below the target of 0.7% of GNP agreed in Rio (Annex III). More generally, international environmental solidarity on "spaceship earth" has not kept pace with the economic globalisation of the planet.

***General international issues: major policy directions and challenges***

- pursuing efforts with a view to ratification and implementation of *international agreements* to protect the environment;
- providing the *necessary means* at the domestic level to follow through on commitments made at the international level;
- continuing to support *local Agenda 21* activities, in order to move towards sustainable development;
- developing and implementing international *compliance control* mechanisms for international agreements;
- reviewing the quantity and quality of *environmental aid*, to enhance environmental protection in developing countries and provide them with means to facilitate implementation of international agreements where relevant resources are lacking;
- continuing to develop *international environmental law* so as to enhance environmental protection in all countries, prevent and solve environmental disputes between states, and provide redress for environmental damage arising in an international context.

**2. Dealing with Regional Issues*****Progress to date***

Throughout OECD, noteworthy reductions in transboundary air pollution have been recorded over the last 20 years. SO<sub>x</sub> emissions have been considerably reduced in Europe, leading to a decrease in acid precipitation in some areas. New agreements on *transboundary air pollution* were adopted in the 1990s in Europe and North America to reduce acid precipitation and air pollution even further. The number of regulated substances has been increased and new targets are very demanding. Concerning emissions of NO<sub>x</sub>, the results during the 1990s were more modest (Annex III).

On the political level, real progress has been made following meetings of *Ministers for the Environment* at regional high level conferences (on the North Sea, the Baltic Sea, the Mediterranean, the Rhine, etc.) or ministerial level meetings of, for example, the Council of the European Union, the North American Commission for Environmental Co-operation, the Asia-Pacific Economic co-operation and the South Pacific Forum. Ministers have decided on important goals, plans and strategies at



such meetings. For instance, the very positive results achieved in combating pollution by pesticides and heavy metals, as well as point source emissions, have made it possible to reduce pollution of *regional seas* such as the North Sea and the Baltic. Great strides have been made in construction of secondary and tertiary waste water treatment facilities and the gradual cessation of the practice of releasing untreated discharges to coastal waters. Regional co-operation involving Member and non-member countries has been launched for the Arctic, central Europe, the Danube, the Black Sea, the Pacific, etc. and will probably grow in coming years. co-operation among countries bordering the Mediterranean has been strengthened.

Positive steps have been taken towards abating *pollution of international rivers and lakes*. The first major multilateral convention in this regard has been adopted and come into force. Specific agreements have been reached on such sensitive topics as pollution of the Rhine, the Meuse, the Scheldt and the Danube. Quantified goals and action plans have been decided upon at the political level, and follow-up programmes have been established and implemented. European Union directives have helped harmonise emission control in EU countries, as well as in many European countries associated with the EU or expecting to become EU members. On the basis of progress already made, it appears that many of the goals set for international rivers will probably be reached, albeit somewhat belatedly in certain cases. Alpine countries have ratified a framework convention on the protection of the Alps and adopted a series of protocols.

Compensation for damage caused by radioactive pollution, or by pollution from maritime oil transport accidents, has been improved in a number of countries and new conventions have been adopted. EU countries have provided significant resources to increase environmental protection in areas which were not fully equipped (cohesion countries, the new Länder in Germany). Aid to Central and Eastern European countries and countries of the Mediterranean region, which has been considerable, has been used partly to reduce transfrontier pollution. International programmes overseen by EBRD and the EU (PHARE, TACIS, INTERREG) have played a significant role in transition countries. The adoption of the Lugano Convention on *third party liability* for environmental damage is an important step forward regarding compensation for environmental damage in a domestic or international context. Progress towards ratification is dependent on a long-awaited breakthrough in EU-wide discussions in this area.

## **NORWAY: Combating Acid Rain**

Acidification, the most serious problem for freshwater ecosystems in Norway, has caused greater depletion of biological diversity in fresh water than any other single factor. It is estimated that 93% of acid deposition in Norway is caused by pollutants originating in neighbouring countries (e.g. the UK, Germany and Russia). Norway has been active in shaping international agreements to reduce the causes of the pollution (i.e. SO<sub>x</sub> and NO<sub>x</sub> emissions), while making significant efforts to reduce its own domestic emissions. Norwegian emissions of SO<sub>2</sub> decreased by 78% from 1980 to 1997, more than was needed to achieve the goals set in the Helsinki Protocol (30% reduction from 1980 to 1993) and the Oslo Protocol (an emission ceiling of 34 kilotonnes per year). The success could partly be attributed to the country's system of levies applying to the sulphur content of oil products. The rates have been increased gradually.

Concerning NO<sub>x</sub>, Norway has achieved the goal of the Sofia Protocol (to stabilise NO<sub>x</sub> emissions at the 1987 level by 1994), but not the more ambitious one of the Sofia Declaration (-30% by 1994). A new Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone was adopted in November 1999, within the framework of the UN Economic Commission for Europe (ECE) Convention on Long-range Transboundary Air Pollution. According to this protocol, Norway's annual emissions of SO<sub>2</sub> shall from 2010 not exceed 22 kilotonnes. Similarly, annual emissions of NO<sub>x</sub> shall not exceed 156 kilotonnes.

## **PORTUGAL: Environmental Convergence within the EU**

As a result of its economic performance, Portugal was eligible to join the European Economic and Monetary Union (EMU) effective 1 January 1999. This followed years of economic structural changes accompanying rapid real growth: markets were liberalised, an extensive privatisation programme was initiated, restructuring became widespread, and key infrastructure was put in place with support from various EU funds. Net EU funding to Portugal equalled close to 3% of GDP yearly in the period 1996-2000. Cohesion funding accounted for EUR 2.9 billion over the 1994-99 period, nearly half of which was allocated for environmental activities. This allowed the Portuguese Government to undertake necessary environmental projects without compromising the strict budgetary restraints demanded by monetary union. Portugal is already assured that it will receive additional significant EU financing for the period 2000-2006, which will be channelled into less developed regions.

### **HUNGARY: Environmental Convergence with the EU**

With the 1994 European Agreement, Hungary started approximation of its legislation with that of the EU. By 1998, 60 to 65% of Hungarian environmental laws already conformed with EU legislation. The 1998 to 2002 Government Programme has introduced a further legislative harmonisation programme, with the aim of achieving complete approximation by 2002 and preparing for EU accession. Although air pollutant emissions and pollution loads to water have decreased significantly due to the fall in industrial production in the early 1990s and investment in pollution abatement control, concerning several issues the road towards environmental convergence with other European OECD countries will be a long one. With regard to environmental investment and management, much remains to be done. The National Environmental Programme (NEP) estimates that Hungary will need to spend EUR 5 billion over the period 1997 to 2002 to satisfy the requirements of international environmental conventions and national programmes. It is also estimated that additional expenditure of EUR 10 to 15 billion would be needed to comply with EU environmental legislation, representing an effort of 1% of present GDP over 20 to 30 years, including over EUR 4 billion to implement the urban waste water directive alone.

#### *Further progress to be made*

Economic growth, increased traffic and energy use, intensification of agriculture, and increased urbanisation and growth in consumption may all lead to *greater pressures on the domestic and global environment*. Some of these pressures also generate significant *spillover* into other countries, which could be alleviated through closer co-operation.

International agreements, once they are finally reached, usually take time to be implemented or leave ample room for further discussion and *delay in taking action*. The slowness of this process is a source of concern, as preventive policies need time to make their effects on the environment felt. Furthermore, a few Member countries have failed to support international co-operation by not paying their contributions when requested, not providing adequate information or data, or not acting on decisions they had approved.

A 30% decrease in  $NO_x$  emissions by 1998, as agreed in Sofia by 12 Member countries, has not been achieved, mainly because of the increase in vehicle numbers, use and unit power. *Nutrient discharges* from diffuse sources to certain seas, such as the North Sea and the Baltic, have not decreased within prescribed deadlines. Many countries have accepted new responsibilities for preventing transfrontier pollution,

but few have yet agreed to ratify the Lugano Convention on *third party liability*, as if strict liability accepted at national level was still too progressive a concept to be implemented in a regional framework.

***Regional issues: major policy directions and challenges***

- focusing on areas where results and forecasts do not fully correspond to commitments, particularly with regard to stabilising or reducing *NO<sub>x</sub> and nitrate* emissions;
- pursuing bilateral, trilateral and regional co-operation to solve environmental problems in *border regions*, including those relating to transport and hazardous industrial installations, and those arising in international water basins and regional seas;
- strengthening domestic measures to meet targets for the period 2000-12 concerning *air and water pollution*.

### **3. Addressing Global Issues**

***Progress to date***

The most striking progress has been achieved with regard to substances affecting the *ozone layer*. The targets set have been reached earlier than originally called for, and new and more stringent targets have been established. In some countries, effective measures have been taken to reduce CFC emissions from existing installations. However, ozone depletion over Antarctica and the Arctic is still growing and there is evidence that illegal trade in CFCs involving Member countries is taking place, undermining current efforts to shift to less harmful substances (Annex III). Attention has been paid to new ozone depleting substances, targets have been made more demanding, and measures have been taken in relation to existing CFCs.

The international community has taken up the issue of *climate change*. In 1992 consensus was reached on the need to limit global emissions of CO<sub>2</sub> and other greenhouse gases, as well as the need for Member countries to stabilise and ultimately reduce future emissions. In Kyoto, OECD countries agreed to specific targets for GHG emissions. They were able to share the burden equitably among Member countries, taking into account domestic issues. However, CO<sub>2</sub> emissions are still growing in a number of Member countries which ought to reduce these emissions (Annex III).

Strict controls over movements of *hazardous waste* among Member countries have been established on the basis of agreements at OECD and EU levels and under

the Basel Convention. Special measures have been taken to prohibit export of hazardous waste for disposal in non-member countries; the only such exports are now those of waste destined for recovery operations, shipped with the agreement of the importing country. Further restrictions on such trade have been implemented. Illegal traffic of hazardous waste involving OECD countries has decreased.

Concerning protection of the marine environment, the Law of the Sea and oil pollution preparedness, response and co-operation conventions have entered into force and implementing measures are being taken in many OECD countries. Surveillance of ships through port state control, and of traffic in straits, is helping to reduce the number of shipping accidents. Nevertheless, serious oil spills still occur, demonstrating that preventive and control measures are not yet adequate. Bans on discharging radioactive or industrial waste to the sea or incinerating it at sea have succeeded in reducing *marine pollution*. A global programme to reduce land-based pollution of the sea has been launched.

Protection of *biodiversity* and of endangered species has progressed thanks to the creation of more effective supervisory mechanisms in the framework of existing conventions (CITES, Ramsar, etc.) and the adoption of a general global convention on biodiversity, as well of regional agreements. The number and extent of areas protected under various international regimes have increased in most OECD countries. National plans and strategies concerning biological diversity were developed in the 1990s.

The level of protection of *certain natural resources in the marine environment* has increased. Depletion of stocks of some fish species has led to the creation of better management instruments and more rigorous policies. Bans on the use of driftnets and on whaling are signs of greater awareness that species might be adversely affected. A whale sanctuary in Antarctic waters was recently created. An agreement to ensure Antarctica's total protection has been adopted.

Many Member countries have launched special activities to *help developing countries* in their efforts to protect the environment, providing training, technological know-how, experts, financial assistance and assistance in building capacity to deal with environmental issues.

### ***Further progress to be made***

At global level, a few OECD countries lag behind in deciding to adopt those conventions ratified by most other Member countries. Significant problems remain in relation to *implementation of international agreements*, partly because many signatories, especially countries at lower levels of economic development, do not have the financial and technological resources and institutional infrastructure to

### **AUSTRALIA: Ozone Depleting Substances**

Australia is very concerned about the growth of the hole in the ozone layer over Antarctica, and with the health effects of increased exposure to ultraviolet rays. It has rapidly reduced consumption of CFCs and halons to zero, ahead of the international commitment dates.

The import, export and manufacture of methyl chloroform, carbon tetrachloride and HBFCs have been prohibited. HCFC imports are limited to half the amount allowed under the Montreal Protocol. Considerable efforts are being made to reduce methyl bromide use in 2001 to 25% of the 1991 level. By the end of 1995, Australia had decommissioned non-essential halon fire protection systems, recovering the halon.

Industry has set up a reclaim and recycle system for CFCs, funded by a voluntary levy. The Government established an Ozone Protection Trust Fund in 1995 to administer the Ozone Protection Act, with fees paid by importers of HCFCs and methyl bromide. As a result of all measures taken, CFCs have become scarce and their price has risen rapidly. They are now too valuable to be lost through illegal venting.

### **AUSTRIA: Controlling CO<sub>2</sub> Emissions**

Per unit of GDP, Austrian CO<sub>2</sub> emissions from energy use are 35% lower than the OECD average. Emissions have been fairly stable since about 1980, the result of: i) widespread use of renewable energy resources, especially biofuels for space heating; ii) strong implementation of energy conservation measures in industry and households; iii) a relatively environmentally friendly modal structure in transport, with 42% of freight going by rail and about 20% of passengers travelling by rail, bus or coach. These results have been achieved mainly through a combination of regulations and financial support. Projections show that these measures will need to be strengthened and supplemented if Austria is to remain on target to meet its own objective of achieving a 20% reduction compared with the 1988 level by 2005, as well as its commitment (Kyoto Protocol and EU burden sharing agreement) to achieve a 13% GHG reduction compared with the 1990 level by 2008-12.

comply with the obligations without assistance from Member countries. In addition, a few Member countries are progressing slowly on global issues since they consider that such progress will provide them with little direct benefit. Without greater commitment by all parties, and adequate transfers of financial and technological means, many international obligations and goals will not be met.

In relation to *climate change*, results achieved so far are below expectations, as measures aimed at reducing greenhouse gas emissions have not yet been fully implemented in a few countries. Due to over-reliance on voluntary agreements, lack

of economic incentives and relatively low energy prices in the 1990s, it is unlikely that total greenhouse gas emissions from Member countries in 2000 will be below their 1990 level. There is a need for all partners and all countries to implement a more ambitious programme of activities to avoid the risk of detrimental climate change, especially regarding emissions from the transport sector. In particular, any decline in nuclear power production needs to be compensated by growth in renewable energy (wind, bio-gas, solar, etc.) Strengthening energy conservation measures may require use of properly designed energy taxes. More determined efforts are needed to enable all OECD countries to meet their commitments under the Kyoto Protocol.

Protection of the *marine environment* will require new efforts and increased co-ordination among many different administrations to further abate land-based pollution and avoid oil spills. Management of some fish stocks has not been successful, leading to declining catches and disruption of the fishing industry. Research on fish stock decline has not yet elucidated the roles of all contributing factors. Implementation of internationally agreed bans to protect the marine resources of the high seas or Antarctica may be delayed in some countries where agreed measures affect the fishing industry, limit access to valuable resources and remove options for economic development. This is likely to be one of the major challenges, and areas of potential conflict, in years ahead.

There are a number of specific areas in which little or no progress has occurred so far at international level. In particular, the development of states' *international responsibilities/liabilities* has not progressed since the Stockholm (1972) or Rio Conferences, and issues of *technology transfer* to developing countries have not been sufficiently addressed.

### ***Global issues: major policy directions and challenges***

- strengthening current efforts to better address *climate change issues*, including implementation of national strategies concerning greenhouse gases, to meet targets for CO<sub>2</sub> and other greenhouse gas emission reductions;
- developing *economic and other instruments* to support regulatory actions aimed at controlling greenhouse gas emissions, specifically emissions from the transport sector;
- strengthening measures to protect the *marine environment* from land-based pollution and from oil tankers, and to prevent overfishing in international waters;
- supporting efforts to implement agreements on *biodiversity* and protection of endangered species.

# 3

## ENVIRONMENTAL MANAGEMENT

### 1. Managing Water Resources

#### *Progress to date*

In the 1990s, further progress was made in *reducing point discharges* of pollutants to surface waters from *industry* and from *urban areas*. In over half the OECD countries, problems related to oxygen-demanding substances and bacterial water quality are now largely under control. Upgrading of municipal waste water treatment plants to secondary level is in advanced stages, and the planning and implementation of programmes for tertiary treatment (mainly removal of nutrients) are increasingly carried out where required (Annex III). About ten countries are still completing sewerage networks or installation of the first generation of municipal waste water treatment plants. Larger industrial enterprises in a number of Member countries are now equipped with modern technology to remove most oxygen-demanding substances, heavy metals and persistent toxic contaminants from effluent. Progress has also been made by some countries in controlling smaller industrial discharges. Still, continuing reliance on end-of-pipe technology means that the underlying causes of many discharges remain.

While a number of Member countries updated their water legislation in the late 1980s and early 1990s, there has been increasing emphasis in recent years on *improving the implementation of environmental laws and regulations already in place*. Several countries have strengthened enforcement practices and enhanced transparency through facilitating greater public access to information about municipal and industrial effluent discharges and ambient water quality. Water permits are being incorporated in integrated environmental permits, providing a better mechanism for resolving cross-media effects and promoting pollution prevention. A number of OECD countries have made progress towards water pricing that better reflects the marginal social costs of service provision. Increasing emphasis has been given to



economic objectives for water and sewerage operators, as reflected by an increased role for the private sector, mostly through concessions (the public sector retaining ownership). There is growing acceptance of the need for full cost recovery in the provision of household, industrial and agricultural water services, based on the user-pays principle. The spread of full cost recovery principles has been accompanied by reductions in total subsidies and in cross-subsidies between household and industrial user groups. Innovative policies to address social equity issues and the affordability of water services have also been developed.

### **BELGIUM: Pricing Drinking Water**

Belgium has the highest intensity of use of water resources (42.5% of available resources) among OECD countries. Water resources available per inhabitant are small (1 600 m<sup>3</sup> per year). Both the Flemish and Walloon Regions have established a charge on groundwater abstraction. In Flanders, water pricing for households consists of i) a small fixed charge, ii) a free allocation of 15 m<sup>3</sup> per person per year, and iii) proportional charging to cover additional water supply and waste water expenses. Brussels is providing an initial quantity of water at reduced price. The Walloon Region has increased its water prices and is creating a solidarity fund among water users to pay the water bills of poor households.

Water prices in Belgium are now among the highest in any Member country. The significant increase in water charges during the 1990s will enable Belgium to improve its network of waste water treatment plants considerably. Special measures have been taken to alleviate related social problems for a number of households.

The 1990s also saw further evolution towards a *more integrated approach to water management*. This trend included water quantity and quality management at watershed or river basin level, greater consideration of interactions between urban and rural activities and water quality, and greater recognition of the need for rivers and lakes (and their beds and banks) to support aquatic life, as well as to meet human health and recreation criteria.

### ***Further progress to be made***

Despite continuing reductions of point discharges, much remains to be done in most Member countries before statutory or other water quality objectives are met. *Diffuse pollution* is the *major challenge in water management* today. The *agricultural sector* is a main source of diffuse pollution by nutrients (phosphates, ammonia,

nitrate), metals (cadmium, copper, zinc) and micropollutants (pesticides). Diffuse pollution also reaches waterways through direct or indirect atmospheric deposition (rainfall). Agricultural water pricing is not widespread. There is a clear need to increase agricultural water charges, but only a few countries have yet taken decisive measures aimed at doing so. Several countries have taken steps towards reducing water input subsidies, capping water abstractions, or promoting involvement of water user associations in retailing water supplies. However, public authorities often build and finance water works and irrigation projects from the general budget, particularly in countries with large irrigated areas.

Although water quality monitoring has developed, information on aquatic ecosystems is not routinely collected, reflecting the focus of river management on water quantity and quality. To achieve ecological objectives, a broader approach is needed (including consideration of habitat factors such as light, bank and hydraulic conditions) aimed at halting the gradual decline in the health of surface water ecosystems. Many *groundwater* resources are under threat from both diffuse and point sources, and this threat is growing. The main concern is the increasing contamination of vital aquifers used to supply drinking water by nitrates from fertiliser use, as well as problems related to groundwater salinisation due to over-abstraction and low recharge rates. Most Member countries need to find more effective ways to protect groundwater. The quality of *coastal waters* also still suffers from outflows of pollutants from rivers, estuaries and coastal waste water outfalls. Clear objectives have generally not been established for coastal management, or for estuaries and groundwater.

Across the OECD, only 59% of the population is connected to municipal waste water treatment plants. There is potential to increase this figure, but the small-scale treatment plants increasingly being installed in dispersed settlements are a viable alternative to connecting outlying communities to large municipal installations. All Member countries are faced with *considerable expenditure for water supply and waste water infrastructure*: e.g. replacement of lead water supply pipes; improvement of water purification to treat bacteria and viruses or to remove nitrates; renewal of sewerage networks often almost a century old; upgrading of first generation waste water treatment stations; and provision for secondary and tertiary treatment to remove phosphorus and nitrogen compounds. Innovative technical solutions should be sought to minimise this expected expenditure, while use of appropriate charging systems should be expanded to reduce demand as well as for financing purposes. Where sewerage service costs have risen, this has led to increased self-treatment and effluent re-use by industry and has had limited impacts on the processes used. There is a need for industry to develop integrated pollution prevention and control technology. The problem of treatment and safe disposal of increasing quantities of *sewage sludge* has been solved in only a few countries.

Most countries still face at least seasonal or local *water quantity problems*, such as seasonal droughts, shrinking groundwater reserves or lowering of groundwater tables. Furthermore, supplying safe drinking water free of bacteria, viruses, lead or nitrates remains a challenge in many Member countries. *Flooding* still causes avoidable damage where land use and building controls are not implemented or are inadequately enforced.

***Water: major policy directions and challenges***

- implementing *appropriate charges* for households, industry and agriculture, in line with the user-pays and polluter-pays principles, in order to:
  - promote water conservation;
  - reduce water pollution from point and diffuse sources;
  - cover operational and maintenance costs of water supply and waste water services;
  - finance necessary investments in water supply and waste water treatment infrastructure;
- eliminating *cross-subsidies* between user groups;
- *ensuring access* to water services by the poor;
- designing and introducing lower-cost innovative *waste water treatment techniques*;
- introducing *cleaner production methods*, e.g. through integrated permitting that stresses pollution prevention and greater use of voluntary agreements with specific industry branches to meet specified reductions in pollutant discharges;
- adopting and *implementing whole-basin approaches* to water quantity and quality management, and ensuring that these are integrated with sectoral and land use policies.

## 2. Managing Air

***Progress to date***

*Emissions* of SO<sub>x</sub>, lead and carbon monoxide continued to decline in the 1990s. Decoupling of economic growth from emissions of conventional air pollutants has been observed (albeit not equally strongly in all countries), especially for SO<sub>2</sub>.

*Ambient air quality*, in terms of SO<sub>2</sub>, particulate matter and CO, slowly continued to improve in many Member countries in the 1990s; concentrations of lead declined considerably as a result of unleaded gasoline's increasing market share (Annex III).

These achievements result from pollution control measures, economic changes (e.g. shifting from industry to services, economic contraction in economies in transition) and energy changes (e.g. switching to cleaner fuels, conservation measures). Improvement of *regulatory systems* in several Member countries, including more stringent emission standards (e.g. for large combustion installations), closing of most polluting and obsolete plants (e.g. in the Black Triangle and other black spots), and improved monitoring and enforcement procedures, have contributed to these achievements.

*Hazardous air pollution* became of greater concern in Member countries in the 1990s. Some countries have improved monitoring for hazardous pollutants and introduced programmes for a number of substances. An increasing number of countries have introduced and publicised inventories of toxic releases at industrial sites, so as to evaluate and monitor emissions and encourage industry to take actions. Some countries have recognised possibilities for preventing releases of hazardous air pollutants through changes in products and industrial processes, e.g. cleaner motor vehicles and solvent-free products.

*Energy policies* in Member countries have paid more attention to environmental issues, prompted by concerns about global warming and the need to respond to commitments. Progress with regard to energy efficiency, energy mixes (e.g. use of natural gas to replace other, more polluting fossil fuels, and increased use of renewable energy) and the first steps towards environmentally conscious energy taxation are to be noted. A variety of specific measures have been introduced, including voluntary agreements with utilities, more stringent heating insulation standards, and use of combined heat and power plants and district heating systems. Standards for *vehicle emissions* have been strengthened in many countries, contributing to a decrease in VOCs and NO<sub>x</sub> emissions from individual vehicles.

### ***Further progress to be made***

*Emissions of greenhouse gases* are calling for increased attention and action, especially because many uncertainties about their negative effects on climate change have been eliminated or reduced. CO<sub>2</sub> emissions continued to increase in most countries throughout the 1990s, despite gains in energy efficiency. This growth in emissions is due to increased use of fossil fuels in fixed and mobile power sources and by households, while there is only limited use of non-fossil sources of energy

### SWEDEN: Air Pollution Taxes and Charges

In 1991 Sweden introduced a tax on the sulphur content of fuel and a charge on NO<sub>x</sub> emissions from large combustion plants (those producing over 50 GWh per year and with more than 10 MW capacity). There is also a tax on NO<sub>x</sub> and hydrocarbon emissions from domestic airlines' planes. The sulphur tax of SKr 30 000 per tonne is double the marginal abatement cost of SKr 15 000 per tonne, and hence is very effective. Part is refunded to industry (SKr 30/kg of sulphur extracted or preserved during production). Tax on sulphur has mainly resulted in reduced sulphur levels in oil, but also in more efficient operation of desulphurisation plants. It is estimated that the tax is responsible for around a 30% reduction in sulphur emissions from 1989 to 1995. The NO<sub>x</sub> charge, which covers plants accounting for 4% of Sweden's total NO<sub>x</sub> emissions, has helped lower emissions. It is revenue neutral. The revenue is given back to polluters according to their energy production efficiency. This regime is being extended: the initial 50 GWh limit has been reduced to 25 GWh. The NO<sub>x</sub> charge is estimated to have almost halved NO<sub>x</sub> emissions from installations that are subject to charges.

such as biomass, hydropower, nuclear power and wind. Limiting OECD CO<sub>2</sub> emissions would lead to other, indirect (i.e. ancillary) benefits in addition to those associated directly with climate change. Emissions of methane, especially in countries with a large agricultural sector, continue to be significant.

In the 1990s *energy intensity* did not improve in most countries. Use of economic instruments in the energy sector is still fairly limited. Careful consideration should be given to reducing direct subsidies and cross-subsidisation in the energy sector, and to electricity pricing. Electricity generation by *nuclear plants* has helped reduce CO<sub>2</sub> emissions from energy production. Concerns associated with radioactive waste disposal and nuclear plant safety, however, have continued to prevent this option from being fully exploited.

*Vehicle traffic* has been growing and is expected to continue to grow; the increase in the number of vehicles has often offset the benefits of air pollution reductions achieved through use of new, cleaner vehicles, which are slowly replacing older ones. There are successful examples of restricting vehicle use in city centres, but restriction of vehicle traffic in wider areas remains a challenge in all countries. Progress needs to be made towards inclusion of all transport costs, including environmental damage, in the price of transport services.

*Agriculture* is an important contributor to air pollution and emissions of greenhouse gases in several countries, especially with regard to ammonia and methane. Environmentally sensitive management practices need to be expanded.

*NO<sub>x</sub> emissions* have not been reduced in a number of OECD countries. Most member countries have not met their declared targets, mainly because of road traffic growth. VOCs emissions decreased in the 1990s in many countries, but not enough to attain related targets. Many countries need to strengthen measures to reduce emissions so as to meet both domestic targets and international commitments, especially for NO<sub>x</sub> and VOCs (Annex III). *Greater use of economic instruments, and other approaches such as promotion of cleaner production and voluntary agreements*, is required in order to attain these targets.

*Local air pollution problems* remain, for instance in industrial areas and urban areas where air quality standards continue not to be met. In the short term, acute *ground level ozone* related pollution episodes in urban areas will have to be addressed more effectively; long-term solutions will depend on the success of policies aimed at integrating environmental concerns with those involving transport (especially road freight transport), energy, land use planning, etc. More attention should be paid to *human health risks* from air pollution, in particular from toxic substances. Emissions of fine particulates, especially from diesel engines, have become of greater concern due to suspected human health effects. Comprehensive policies to monitor, assess and control *hazardous air pollution* need to be developed in coming years.

*Noise* is often considered by urban populations to be a major nuisance. It has severe impacts on quality of life and health. While there are many sources, transport may be the one that is expanding most rapidly (in particular, the noise of two-wheeled and heavy-duty motor vehicles, and of airplanes in the vicinity of airports). Among actions to be taken is the adoption of more stringent standards, both for ambient noise levels and for technologies or products such as those associated with motor vehicles and industrial equipment. Land use initiatives by local governments to mitigate noise impacts should be an essential part of policy.

The effects of atmospheric deposition on ecosystems in the form of *acidification* and *eutrophication* show great variation among regions, as they depend on the degree of loading and on the sensitivity of the affected area. These phenomena remain a focus for concern in a number of Member countries and in discussions on long-range, transboundary air pollution.

### ***Air: major policy directions and challenges***

- improving *energy efficiency* and developing the use of *cleaner fuels*, through a mix of instruments including extended reliance on economic instruments (e.g. taxes, charges, emission trading in the framework of the Kyoto Protocol);
- developing efforts to support *implementation and enforcement of regulations*, while improving the efficiency of the regulatory framework and devoting more attention to prevention;
- developing *cost-effective strategies to reduce emissions* of conventional pollutants by using various policy instruments;
- addressing *human health issues* by i) strengthening measures concerned with *local air pollution problems* in urban areas and ii) developing cost-effective programmes to reduce *hazardous air pollution*;
- strengthening *vehicle emission* measures through i) more stringent emission standards, especially for heavy-duty diesel vehicles, and better inspection and maintenance programmes, and ii) development of policies to limit private vehicle traffic volumes and promote public transport in urban areas;
- better controlling air emissions from *agriculture* (e.g. ammonia, methane, particulates) through use of environmentally conscious agricultural practices;
- giving greater attention to regulations, economic instruments and voluntary programmes aimed at stabilising emissions of *greenhouse gases*, and promoting full application of measures with no net costs (“win-win” strategies).

## **3. Managing Waste and Contaminated Sites**

### ***Progress to date***

Member countries gave increased attention to waste problems in the 1990s, shifting strategies from simple collection and disposal to a *waste management* approach with an emphasis on preventing waste generation, on recycling (including reuse and energy recovery) of waste generated, and on moving further towards life cycle management of products and extended producer responsibility.

*Recycling* improved markedly in the 1990s. Programmes introduced have included separate collection of household waste, use of economic incentives, and voluntary actions. Recycling rates for paper/cardboard and glass have improved in most countries

(Annex III). However, only a few countries have succeeded in reducing the quantity of solid waste to be disposed of by increasing recycling. Some countries have introduced the concept of extended producer responsibility with regard to waste collection and/or recycling, such as of used packaging, batteries and tyres.

Landfill is still the major disposal option, but incineration is used extensively in some countries. Standards for *landfilling and incineration* have been strengthened in a number of countries. Composting biodegradable waste has become an option in some countries, reducing the volume of waste sent to final disposal.

Control of *hazardous waste management* has been improved, though the level of progress differs widely among countries. Measures taken include: wider and clearer definitions of hazardous waste, reporting requirements for hazardous waste generation, tracking systems for hazardous waste transfers, permits for hazardous waste transport and disposal, and construction of incinerators for hazardous waste disposal. Hazardous waste contained in municipal waste has become a concern, with some countries introducing separate management for this category. Major steps have been taken to ensure proper control of *transboundary movements of hazardous waste*.

### **LUXEMBOURG: Recovery and Recycling of Problem Waste**

Separate collection of problem waste in Luxembourg has taken place since 1985 under the SDK programme, which has ISO 14001 certification and aims at maximising collection and recycling rates for problem waste. It is managed by the Environment Administration, in conjunction with municipalities and the Luxembourg Trades Chamber.

For households, the SDK programme addresses waste collection in a variety of ways: door-to-door collection, use of mobile containers at selected locations, at-home collection on request, and special operations run by non-profit groups for specific waste flows. This is supplemented by advertising campaigns (TV, radio, the written press), regular information dissemination (flyers, brochures, Internet) and awareness raising activities for children. The collection rate is reaching 66%. After sorting and conditioning, most of this waste is exported for treatment and recycling. Related costs are entirely government-funded.

For small enterprises, the SDK programme is based on voluntary membership, coexisting with other collection and treatment programmes. Enterprises receive information and practical advice on minimising and managing non-household waste, and mobile collection is available on request. The Environment Administration awards quality labels to firms managing their waste in line with the SDK concept. While firms bear the cost of collecting and processing problem waste, the government handles information and advisory services.



### *Further progress to be made*

Waste problems remain major challenges. A number of OECD countries adopted comprehensive municipal waste management legislation only in the second half of the 1990s. Trends in municipal waste generation are not on the decrease. They have even increased in most countries for which data are available (Annex III). Increased affluence, associated with economic growth and changes in consumption patterns, tends to generate higher rates of waste generation per capita. In coming years, waste management will need to be further developed and implemented: the waste hierarchy principle should increasingly be translated into substantive programmes for waste minimisation, with clear and measurable targets. *Stronger efforts to reduce waste generation* will be needed. Prices of consumer goods, and of waste management services, should internalise all costs of waste management and of related environmental effects.

Concerning *pollution control* related to waste disposal, many regulations are beginning to be implemented. Much effort is needed to ensure compliance. In most countries, treatment and disposal facilities that meet modern pollution control criteria do not have sufficient capacity, while public resistance to new waste facilities has been growing. Hazardous substances used in various products present risks of pollution.

Attention should be paid to *cost-effectiveness* in designing measures, as strengthened waste management policies place an increasing cost burden on production and consumption activities. Greater cost-effectiveness can be achieved by better connecting waste minimisation policies and life cycle management policies for products.

*Contaminated sites* have become a major issue in Member countries, and not only in those experiencing rapid economic transition. Even in countries which have started the clean-up phase, completion of clean-up programmes will take decades and entail significant resources. In coming years, most Member countries will need to establish clear liability frameworks and financing mechanisms. Attention should be paid to developing cost-effective strategies to reduce risks to human health and the environment, e.g. when establishing clean-up criteria and selecting sites and clean-up technologies. Complete clean-up of contaminated sites would require considerable resources over extended periods; it will be necessary to establish priorities according to health and environmental risks, comparing contaminated site clean-up benefits with those of other pollution control programmes.

***Waste: major policy directions and challenges***

- fully implementing and enforcing *regulations on hazardous waste* management, including controls on imports and exports;
- *strengthening measures for waste minimisation, especially for prevention of waste generation*, through co-ordination with relevant programmes concerning cleaner technology, life cycle management of products and extended producer responsibility;
- increasing use of *economic instruments* to promote prevention and recycling (including waste disposal fees, product charges and deposit-refund systems) and of other instruments, such as voluntary agreements, information and education;
- *ensuring availability of necessary waste treatment and disposal capacity* for hazardous and other waste, with better planning and full public involvement;
- ensuring that clean-up of *contaminated sites* is progressing in a cost-effective way.

**4. Conserving Nature*****Progress to date***

The extent and number of protected areas continued to grow in many Member countries in the 1990s. Greater emphasis has been given to including areas representative of all major *ecosystems*. In OECD as a whole, the amount of land protected now amounts to about 10% of the total. A few threatened or endangered species have begun to recover and/or extended their habitats as a result of reintroduction, recovery programmes or reduced pollution pressure.

In a number of countries, comprehensive national nature conservation legislation and policies have been adopted. Important progress has been made in defining or promoting the objectives of maintaining healthy life-support systems and making agriculture, forestry and fishing practices more environmentally sensitive. Implementation of *international agreements on nature protection* has continued to progress, with emphasis on endangered species and protection of their habitats. Member countries have begun to address *biodiversity issues* in a more comprehensive way (e.g. biodiversity strategies).

Most OECD countries have adapted forest legislation to include biodiversity conservation, largely as an outgrowth of the 1992 UN Conference on Environment and Development and, in particular, the agreement that all countries should implement sustainable forest management (“Statement of Principles on Forests”).

### **ICELAND: Transferable Fishing Quotas**

Fishing in Icelandic waters is regulated by the Ministry of Fisheries on the basis of scientific assessments of fish stocks. For each of the main fish species, the Ministry sets a total allowable catch (TAC), split on a percentage basis among all vessels authorised to catch that species. Individual fishing quotas (ITQs) are tradable from vessel to vessel. Inspectors supervise landings and fishing operators. All administrative costs of this system are borne by the fishing industry. Subsidies to fisheries have been removed. This system has enabled good management of most fish species. In the case of cod, the TAC was set above the value recommended for sustainable yields. Difficulties were therefore encountered with by-catches and discards of young fish. In 1995, the TAC for cod had to be reduced to allow the stock to recover (“cod catch rule”), leading to substantial improvement in the direction of sustainable biological management of Icelandic cod stocks. Similar mechanisms apply to a number of other species and fish stocks.

### **UNITED KINGDOM: Protecting the National Heritage**

Voluntary organisations play a key role in heritage and nature conservation activities in the United Kingdom. One of these organisations, the National Trust, was established by an Act of Parliament which granted special privileges allowing the Trust to exempt land in its care from the normal processes of development. The Trust’s aim is to protect, and preserve for the nation, lands and buildings of beauty or historical interest; it acquires scenic areas for preservation in their natural state, protecting indigenous plants and animals. The Trust has 2.6 million members and owns about 1% of UK land in the form of 26 National Nature Reserves and 466 Sites of Special Scientific Interest. In 1997, 35 000 volunteers contributed a total of 2 million hours of maintenance work. The combination of special legal status with private money and effort has made the National Trust a very effective instrument for nature conservation.

### **SPAIN: Managing Protected Areas**

Spain encompasses a large part of Europe’s biological diversity in terms of habitats and species. Considerable investments have been made in sophisticated planning and decision-making tools, and in a state-of-the-art database for natural resource management and monitoring. The proportion of Spanish territory benefiting from some form of protection has grown significantly over the last decade. Management of parks and protected areas has been given increased resources to protect nature and promote recreational, educational and scientific uses. As a result, the number of visitors in protected areas has grown rapidly, making it necessary to undertake tourism impact studies so as to adapt management plans. To encourage nature conservation measures on private land, some autonomous regions have developed innovative approaches such as the use of economic instruments. In Catalonia, owners of forests in special protection areas can receive subsidies if they manage their forests according to conservation principles.

Progress has been made on eco-certification of sustainable forest management, and payments to “compensate” forest owners for income loss resulting from biodiversity protection activities have been introduced in a number of Member countries.

*Environmental and nature conservation associations* have played an active role, stepping up their activities with regard to acquiring and managing sensitive areas and protecting species. Some associations have initiated innovative agreements directly with stakeholders (e.g. forest companies), without government intervention.

### *Further progress to be made*

While the total extent of protected areas has increased, some ecosystems (e.g. marine areas) need to be better represented. The *degree of protection* of protected land areas is often low; thus growing pressures from visitors, or from economic activities such as agriculture, within protected areas make it difficult to fully safeguard the natural resources involved. Financial and staff resources are often inadequate to enable proactive management of protected areas. Visitors could be required to pay a fee for access to protected areas, where such a fee is not already in effect. Corresponding revenues could be used to better manage these areas, including through improved tourist facilities.

Notwithstanding many success stories, the number of species listed as threatened or endangered has continued to grow in most Member countries. *Recovery programmes* have tended to focus on a limited number of species, rather than being guided by a coherent biodiversity strategy. Plant species in particular have suffered from this approach. In terms of quality, forests are generally still deteriorating. Habitat protection clearly needs to be strengthened in all Member countries.

*Pollution pressures*, such as acidification, eutrophication and contamination by heavy metals and other persistent chemicals, continue to affect nature inside and outside protected areas. *Fragmentation of natural areas* by roads and other types of development is a major obstacle to recovery of some wild species; it also puts pressure on others not currently endangered. The development of protected areas connected by ecological corridors is therefore necessary.

In most Member countries, *responsibility for nature conservation* is still distributed among different administrations at national or regional levels. Conservation management is often separated from management of pollution control, making it difficult to set national priorities and fund protection measures accordingly, or to integrate nature and other policies (e.g. for water management, agriculture, forestry). In addition, landscape policies have proven difficult to implement because of a lack of integration with land use policies.

The state of *fish stocks* remains a major concern for many Member countries and for the international community at large. Substantial improvements have been made towards sustainable biological management of fish stocks, with the total allowable catch more in line with scientific advice. A few countries now have experience with the use of transferable fishing quotas. Fishery management systems could be further improved and extended to all important commercial stocks. This would require further research and knowledge concerning pressures on stocks, stock responses, and the social effects of proposed policies.

### ***Nature: major policy directions and challenges***

- implementing *national nature conservation and biodiversity strategies*, to better co-ordinate the actions of responsible authorities at all levels;
- strengthening the integration of *nature conservation, pollution control and sectoral policies* (e.g. agriculture, forestry, fisheries, tourism);
- setting aside a significant share of the national territory as protected, including ecological corridors and areas representative of *all major ecosystem types*, terrestrial as well as marine;
- pursuing *renaturalisation efforts* with regard to inland aquatic ecosystems (e.g. rivers and lakes);
- strengthening of nature conservation efforts outside protected areas and implementation of *landscape protection policies*;
- improving administrative structures and *funding schemes* for nature conservation;
- establishing and implementing effective management regimes for important commercial species in coastal and marine *fisheries*.

## **5. Increasing the Cost-effectiveness of Environmental Policies**

Getting *more economic thinking into environmental policies* has increasingly been seen as necessary to increase the cost-effectiveness of environmental policies, and to carry out more demanding environmental policies without necessarily requiring any growth in financial resources. A corollary issue, which has been at the heart of the OECD Environmental Performance Review programme and is now receiving the

attention of Member countries' environmental policy-makers, is: Are governments reaping maximum benefits from the substantial resources devoted to environmental management? The move towards better integration of environmental concerns in economic and sectoral decision-making began to produce further gains in environmental effectiveness and economic efficiency in the 1990s, and to contribute to the pursuit of sustainable development in various economic sectors over the longer term (Chapter 4).

### *Environmental expenditure*

Total “*pollution abatement and control expenditure*” by public and private sectors in most Member countries (where such data are available) has increased since the 1980s, in line with the implementation of stronger pollution prevention policies. Public expenditure on water has been very significant, and expenditure on waste is growing rapidly. Pollution abatement and control expenditure in the 1990s generally amounted to 1 to 2% of GDP. “*Environmental expenditure*” is greater than that on pollution abatement and control, as it includes water supply, nature conservation, landscape protection, and possibly the promotion of environmentally sound management of natural resources (e.g. in agriculture, forestry), urban and rural amenities, etc. In a number of Member countries, there remains a lack of clear information on how much is spent on environmental protection, by whom and for what purposes (Annex III).

There is no evidence that the growth of environmental expenditure in Member countries will have created either serious macroeconomic problems or significant distortions in *competition or international trade* during the 1990s.

At the same time, eco-industries have grown and environment-related jobs have become a significant element in employment policies. The world market for environment related industry has been estimated by the OECD to be in the order of USD 200 billion; this sector has grown faster than GDP. Investment expenditure for pollution abatement and control is estimated at 2 to 4% of total investment by the manufacturing sector in OECD countries. Employment in the environmental equipment and service industry in Member countries has reached about 2 million people and total employment in environment related activities exceeds 6 million. Such figures are likely to grow, since much remains to be done in terms of further *environmental investment* (e.g. for water infrastructure and waste disposal infrastructure) and further environmental improvements (e.g. at contaminated sites). Analysis of the overall “macro” effect of environmental policies on employment shows that these policies have not been “job destroyers”, nor have they had a major net positive effect on job creation in the OECD overall.

*At enterprise level, recent environmental expenditure has been smaller than forecasted.* In most cases, it represents at most a few percentage points of turnover and has generally been less than 10% of investment. Greater expenditure was made in the past because of the need to adapt polluting equipment to new environmental requirements. Very few firms have had to close for environmental reasons. Firms now face new challenges, however. Most are meeting them by adopting cleaner technology and modifying their processes, products and services. Studies consistently indicate that, when firms have *time to adapt*, they very often develop approaches that are more economical than those initially envisaged. Thus it is essential to provide clear indications of future environmental requirements, and to give ample notice of changes in environmental standards.

### *Environmental effectiveness of regulations*

Since the 1970s, regulatory measures have been used extensively, and effectively, to achieve a basic level of environmental quality. This level has been reached progressively, mainly by abating pollution from *point sources* and by adopting appropriate prevention and control mechanisms for *chemicals and hazardous products*. During the 1990s, significant improvements were achieved in *monitoring, enforcement and compliance*. However, there is great variation among Member countries in the *overall environmental effectiveness of environmental policies*. Further, regulatory approaches, while effective, have not always delivered results at least cost (i.e. have not always been efficient).

Much often remains to be done to streamline environmental legislation, promote *pollution prevention*, and *integrate pollution control procedures* across different environmental media (e.g. through “one-stop shop” arrangements to simplify permitting procedures concerning environmental obligations of industrial plants). Similarly, there are opportunities to improve *environmental management* at firm level (e.g. improved operation of waste water treatment plants, improved environmental management within small and medium-sized industrial plants, more cost-effective clean-up of contaminated sites).

### *Towards more cost-effective mixes of regulations and other instruments*

There is a greater recognition that if future environmental challenges are to be met cost-effectively, regulatory command and control approaches will need to emphasise pollution prevention, be made more flexible, and be used in conjunction with other policy instruments to a greater extent than at present. This awareness stems from: i) the need to respond to, and take advantage of, rapid technological change;

### **MEXICO: Environmental Reform**

In the 1990s, Mexico carried out a wide-ranging structural reform of its economy. It signed the North American Free Trade Agreement (NAFTA) and joined OECD. The resulting changes provide the broad context for concurrent fundamental reforms in environmental policies, and in environmental management, to reduce pollution and foster sustainable use of natural resources. These reforms include: a single ministry overseeing the environment and nature protection, as well as management of water, soil, forest and fishery resources; extended use of economic instruments, with due regard to equity and poverty issues; an environmental regulatory reform instituting integrated permitting, simplifying administrative procedures, strengthening enforcement procedures, and furthering decentralisation and devolutions; and promotion of environmental democracy, guaranteeing the right to know and encouraging public participation. Considerable and sustained efforts to implement these reforms will be essential to reverse the severe environmental degradation confronting Mexico.

### **NETHERLANDS: Partnership with Industry**

In the 1990s, Dutch industry played an active part in environmental protection. As part of national environmental planning, environmental objectives were turned into specific requirements for individual sectors and industrial branches (e.g. refining, chemicals, basic metals, construction). Environmental authorities entered into discussion with industry representatives to supplement regulatory and economic instruments with voluntary agreements (covenants) to help achieve these objectives. Covenants often started as gentlemen's agreements with uncertain status and enforceability. Now they are generally standardised and formalised. A code covers procedural arrangements (especially information to the public) and the content of agreements (e.g. objectives, requirements, period of validity, consultation, monitoring, settlement of disputes). Covenants' legal status is generally that of an agreement under private law. If need be, authorities can turn to civil courts for enforcement. Environmental covenants have been signed for various products, waste management, emissions and energy savings.

ii) potential savings in pollution abatement costs arising from a shift towards cleaner technologies; iii) the growth of expenditures on environmental protection at national level and at firm level; iv) the need to reduce current budget deficits and public debt; and v) concern about the competitiveness of enterprises operating in the international market. The following changes have been emerging.



First, countries are moving beyond uniform country-wide approaches, whether based on *emission standards* or *best available technology*, as these approaches disregard differences in pollution abatement costs among enterprises and in loading levels, as well as differences in the assimilative capacities of the environment. To a greater or lesser degree, countries are enhancing emission controls with ambient quality standards, complementing uniform requirements for individual plants with overall targets for entire industrial sectors, and refining country-wide regulations with rules and objectives for specific sites, ecosystems or river basins.

Second, regulatory instruments, which will undoubtedly need to remain at the core of environmental policies, are being *supplemented with a range of economic instruments* (e.g. charges, taxes, tradable permits, deposit-refund schemes, non-compliance fees, performance bonds, liability payments, subsidies for environmental protection) and a *range of societal instruments* (e.g. voluntary agreements, environmental auditing, public consultation and participation, environmental information, and environmental education and training) to solve environmental issues in a more cost-effective way.

Third, *partnerships with diverse stakeholders* (e.g. industrial firms, environmental NGOs, local governments and communities), together with *goal setting* and *performance-oriented accountability*, help delegate decision-making concerning the most cost-effective responses, with innovative strategies and further progress often resulting. In a growing number of countries, environmental policies are now designed to achieve both qualitative and quantitative goals and targets. *Goal-oriented* policies have, in many cases, promoted greater *accountability* and more *result-oriented* actions.

### **POLAND: Pollution Charges and Fines**

Poland's pollution charges increased steadily in real terms between 1990 and 1994 and stabilized thereafter. They are now at levels high enough (USD 83 per tonne of SO<sub>2</sub> and NO<sub>x</sub> in 1999) to provide incentives for polluters to make marginal improvements in their compliance with environmental requirements. The core instruments ensuring environmental compliance remain administrative measures and fines for non-compliance. Environmental charges are the primary instruments used to raise significant revenues earmarked for environmental expenditure (mainly investments). Since 1995, about USD one-half billion has been collected annually in public environmental funds, although this amount is slowly decreasing (USD 452 million in 1998), mainly due to improved environmental performance by polluters. The average collection rate for regular charges was between 70% and 80% throughout the 1990s (e.g. 78% in 1998).

New approaches need to be supported by *economic analysis*, evaluating the cost of environmental protection measures and assessing their benefits in terms of *reduced environmental risks and damage*. To achieve environmental improvement at least cost, these approaches will require substantial involvement by public authorities, as well as sophisticated legal and regulatory instruments.

***Cost-effectiveness: major policy directions and challenges***

- *implementing environmental policies*, with special attention to *enforcement and compliance*, streamlining of legislation and permitting procedures, and investments needed for environmental infrastructure;
- expanding the use of preventive policies and *integrated pollution control* responses;
- supplementing the command and control approach with *wider and innovative approaches* (e.g. economic and societal instruments);
- using *economic analysis* to support the definition, implementation and assessment of environmental policies;
- producing better estimates of current and future *environmental expenditure*;
- keeping the *economic consequences of environmental policies* under review, including impacts on competitiveness, employment and trade.

# 4

## INTEGRATING ENVIRONMENTAL CONCERNS IN ECONOMIC AND SECTORAL DECISIONS

In the context of the Environmental Performance Review programme, as well as in other analyses, the OECD has systematically studied the *integration of environmental concerns in economic policies* in general, as well as in several industries and economic sectors (including agriculture, forestry, fisheries, the chemical industry, energy, transport and tourism). The overall conclusion is that while *progress towards policy integration* has been observed, overall integration efforts need to be intensified. This area is very complex and involves many factors: levels of development, degree of environmental pressure, institutional settings, market incentives and societal awareness. It is clear that *integration is difficult to bring about* due to a long-standing lack of institutional co-ordination. Some administrative departments are not yet used to co-operating with other departments. Environmental administrations are often understaffed, and often do not have responsibility for defining and enforcing all pertinent regulations or for carrying out the procedures required to pursue economic and environmental policy integration successfully. In many instances, economic and sectoral policy incentives are not yet promoting sustainable development patterns and practices. Some even run counter to environmental objectives.

Nevertheless, in most Member countries, it has been quite clear that not only can economic and environmental objectives be concurrently pursued without substantial negative effects in either area, but that *economic growth and environmental improvements have been achieved at the same time*. Ministries of the Environment and other ministries have found that in many cases they can undertake actions with mutual benefits, i.e. with results which are good for the environment and for economic and social progress (“win-win” situations). It is evident that such actions are imperative if progress with regard to environmental protection, economic growth and social cohesion is to be sustained.

## 1. Towards Sustainable Development

### *Progress to date*

Many Member countries have achieved *decoupling* of economic growth from the flow of several major conventional air and water pollutants over the past 15 years, often through a combination of changes in economic patterns, changes in energy intensity and mix, technological innovation and environmental policies (Annex III). However, economic forces and structural changes in a number of sectors – transport being a leading example – are tightly linked to environmental conditions and trends and can thus enhance or counteract the benefits of environmental policies and technological progress. The *integration of environmental concerns in sectoral decision-making* is a key to improving environmental performance and moving towards *sustainable development*, as well as to cost-effectiveness in responses to environmental challenges. It cannot be limited to the development or improvement of a few technologies, but will require a more holistic approach including *greater use of economic and societal instruments* and of physical planning.

Economic growth in Member countries has accompanied and promoted changes towards less polluting *production patterns*, greater emphasis on advanced technology and services, and less emphasis on production in the primary and secondary sectors (a trend sometimes identified as “dematerialisation”); it has also stimulated research and development and technical innovation. Use of *cleaner technologies* and changes in industrial processes have supported this trend. As a result of major economic and energy changes, some OECD economies have achieved strong decoupling: resource use and pollution have decreased in absolute terms, while the overall economy has grown. Other Member countries with strong economic growth have experienced only weak decoupling with regard to some environmental pressures, which have continued to increase although at a lower rate than GDP.

In the 1990s, most Member countries adopted *national strategic plans concerning environment and sustainable development*. While varying in scope and strength, they have important common characteristics: a medium-term perspective, interministerial sharing of environmental responsibilities, partnerships with an array of social actors, the setting of environmental goals, and accountability by governments. These strategic environmental plans are indicative, comprehensive, action-oriented and based on some innovative analytical work. Sectoral environmental plans (e.g. for energy, transport) have also emerged, as well as *goal and target setting* in selected environmental areas, often associated with international commitments. The process of elaborating, and the influence of, national strategic environmental plans have proven useful in stimulating interministerial or multipartner co-operation on environmental issues. Within local

communities, integrated development concepts, land use plans and other mechanisms of physical planning can have a profound effect on the kind of environment that will be passed on to future generations.

A number of Member countries have launched initiatives to improve the environmental sensitivity and impact of government operations. Under the heading of the *greening of government operations*, they set the pace for greening of the economy through stimulating greater environmental awareness in government operations and

### **JAPAN: Decoupling Air Emissions from GDP**

Japan achieved an 82% decrease in SO<sub>x</sub> and a 22% decrease in NO<sub>x</sub> emissions between 1970 and 1992, while the increase in GDP was 140%. It generates the lowest levels of SO<sub>x</sub> and NO<sub>x</sub> per unit of GDP and per capita of any OECD country. Strict environmental regulations, significant energy conservation efforts and structural changes in the economy have contributed to emission reductions. Efforts to reduce SO<sub>x</sub> and NO<sub>x</sub> emissions to solve health-related problems started when it was realised that air pollution in a number of areas had reached unacceptable levels in the 1960s. Emission regulations for stationary sources and motor vehicles have been the basic instruments used, and they are among the strictest requirements in the world. Emissions from stationary sources have been reduced through improvement and alteration of fuels, as well as intensive use of desulphurisation (now accounting for 2 200 units) and denitrification (1 200 units). Emission standards that require the use of catalytic converters were introduced as early as 1978: more than 99% of cars in use met this requirement in 1995.

### **TURKEY: National Environmental Planning**

Based on a number of strategic development options, and the goal of bringing its living standards closer to those of other OECD countries, Turkey benefits from extended analytic, integration and planning efforts by the State Planning Organisation and by much of the national administration. Sustainable development was adopted as a central concept in the period 1991-96, and protection and improvement of the environment is a major objective for the period 1996-2000. The 1998 National Environmental Action Plan is a leading example of national environmental planning, given its high quality and comprehensive analysis, establishment of orientations and objectives, and action-oriented proposals. Programming of public investment by the SPO, and the more recent use of EIA for project evaluation, are major tools serving institutional integration. However, assessment of sectoral investments by SPO does not yet sufficiently consider their environmental impacts.

## **CANADA: Greening of Government**

In 1995, the Government of Canada approved a co-ordinated approach to the greening of government operations. Measures to conserve energy and water, reduce solid waste, improve vehicle management and encourage the purchase of environmentally sensitive products have been put in place. Amendments to the Auditor General Act created the Commissioner for the Environment and Sustainable Development, in the Office of the Auditor General, and required Ministers to table in Parliament Sustainable Development Strategies that outline their departments' objectives and plans for action to further sustainable development. Twenty-eight departments tabled their first strategies in 1997. These strategies were based on the guidelines provided in the government's Guide to Green Government, signed by all Ministers in 1995. The Commissioner assesses how well departments are doing in moving forward on sustainable development by reviewing progress in meeting their goals and targets and implementing their action plans. The strategies will be updated at least every three years, and will encourage consolidation of departmental environmental responsibilities. Under this programme Environment Canada has already achieved more than a 75% solid waste reduction and a 30% decrease in electricity use.

## **CZECH REPUBLIC: Environmental Transition**

Until the early 1990s, parts of the Czech Republic (e.g. Northern Bohemia and Northern Moravia) were among the most polluted "black spots" in Europe. Important structural changes have since taken place (e.g. privatisation, market liberalisation, foreign trade restructuring). Decline in industrial output, the closing of some plants, the modernisation of others, and significant environmental efforts (including pollution abatement and control expenditure representing 2% of GDP) have led to environmental improvements. In the 1990s, SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub> emissions dropped respectively by more than 50%, 40% and 20%. Overall, the rate of decrease in air and water pollution has been greater than that of the fall in industrial production, and industry is complying with the polluter-pays principle (e.g. environmental investment, charges paid to the State Environmental Fund). The Ministries of the Environment and of Industry and Trade are promoting good housekeeping practices and environmental management in companies. Access to international markets, and the prospect of EU membership, are further incentives for industry to bring its environmental performance up to western European standards. In the context of privatisation, arrangements have been made to deal with past environmental damage. There is, however, a considerable backlog of polluted industrial sites.

introducing environmental considerations into government policies. Such efforts have usually received cabinet level support and then been adopted by departments for their own procurement and housekeeping practices. Ministries and other bodies are being required to improve energy savings and reduce waste generation. Government operations and decisions are no longer exempt from environmental impact assessment, but need to be in line with general rules of environmental protection.

### *Further progress to be made*

The decoupling of economic growth and environmental pressures, where this has been observed, is often the result of policies that were nevertheless not explicitly aimed at environmental protection. Such *positive side effects cannot be expected to continue* automatically. Institutional changes and economic incentives can be introduced to reconcile economic growth with environmental improvements. Positive synergies should be identified and promoted.

Measures aimed at altering *consumption patterns*, from more to less polluting, are being discussed in many countries. While the results achieved so far are limited, there is a growing perception that economic mechanisms are needed to encourage changes in behaviour to avoid further deterioration of environmental quality. However, reluctance to introduce higher charges or prices for water, waste water, waste or energy use has been overcome in only a few countries.

### **GERMANY: Environmental Progress in the New Länder**

Since German unification, convergence towards equivalent economic, social and environmental living conditions in all parts of the country has become a top policy priority. The new Länder (30% of Germany's territory, 20% of the national population, 10% of GDP, 5% of exports, 30% of the unemployed) made significant environmental progress in the 1990s. SO<sub>2</sub> and CO<sub>2</sub> emissions dropped by more than 80% and 50% respectively, as a result of the closing down of polluting industries, shifts in energy mix, and investments in pollution control. The quality of the Elbe has improved due to economic contraction and massive investments in industrial and municipal waste water treatment. Rehabilitation of contaminated sites and abandoned industrial sites (open cast lignite mines or military sites) is progressing, using advanced technology and processes. Successful integrated local and regional development has often built on nature and landscape assets, as 50% of Germany's national parks and biosphere reserves are in the new Länder. However, the cost-effectiveness of investment and management has become a major concern, and the new Länder's performance with respect to pollutants (except those from transport) does not match that of western Germany.

As a result of increased wealth and changes in household formation, there is a strong trend in most Member countries towards *greater use of many natural resources*, increased consumption of goods and space, worsening congestion and more urban sprawl. Although car and truck engines generally consume less fuel and emit less pollution per unit, vehicles are becoming more numerous (and often more powerful) and are used more extensively, thus generating more pollution. Road freight transport has increased faster than GDP (Annex III). Although urban amenities are being improved and car-free zones established in some cities, *traffic congestion* affects a growing number of urban areas. *Tourism is growing very rapidly*, putting strong pressure on protected natural areas and other sensitive areas (e.g. coastal and mountainous). Municipal *waste* is generated in increasing quantities (Annex III).

There is much progress still to be made with regard to *analysis of the economic implications* of strategic environmental decisions (e.g. expenditures needed for pollution abatement and control, economic benefits of environmental actions in terms of employment or trade) and plans. In turn, economic development plans, programmes and projects need to be screened more systematically for their environmental implications. Little progress has been achieved so far in developing “green” accounting systems that take due account of resource depletion. Furthermore, there has been only a slow evolution of environment related *financing and funding mechanisms*, e.g. shifting burdens from taxpayers to resource users and polluters, as well as exploring innovative forms of funding, including public-private partnerships.

### ***Environmentally sound economic development: major policy directions and challenges***

- developing *national plans* for environmental management and sustainable development, with co-operation among different ministries and relevant stakeholders;
- improving *environmental awareness* in *government operations* and reducing their environmental impacts;
- promoting local sustainable *development initiatives* (e.g. local Agenda 21);
- supporting use of cleaner technologies, and ensuring that related concerns are addressed at an early stage of the development of sectoral policies, in order to promote changes in *production patterns*;
- reviewing potential changes in *consumption patterns*, from more to less polluting;
- promoting more *sustainable use of natural resources* (e.g. in agriculture, fisheries, forestry).



## 2. Fostering Stronger Institutional Integration

Sustainable development emerged as an explicit aim in the late 1980s and early 1990s, requiring more integration of environmental concerns in economic and sectoral policies, as well as *strong interministerial co-operation and possibly arbitration*. This applies to various levels of decision-making: *strategic development* options, *national planning* efforts (including environmental planning), *sectoral programme* definition and implementation, *budgeting* and *project design* (e.g. environmental impact assessment).

### *Progress to date*

Concerning *sectoral policies*, recognition of environmental concerns progressed in the 1990s. Action plans and strategies have been developed in a number of countries, and joint action by ministries is increasingly common. In *transport* policies (relating to vehicles, infrastructure, and their use) and in *energy* policies, many actions to integrate environmental concerns have been taken; however, they are clearly insufficient to address adequately the problems created by ever-increasing traffic or energy use. In *agriculture* policies, there is greater awareness of the need to change agricultural practices when they negatively affect the environment. In the areas of *development assistance, forestry and fisheries*, however, *such recognition has generally been translated into policies more recently*. Awareness of the need to integrate environmental concerns in *fiscal and trade policies* is even more recent, although some encouraging progress has been achieved over the past few years (Annex III).

The mechanism for *environmental impact assessments* has been developed extensively. It is now used in most Member countries to assess both public and private projects likely to have negative effects on the environment, and to integrate environmental concerns at an early stage in project design (e.g. that of infrastructure). This approach is being extended to strategic assessments of sectoral plans, programmes and policies in a few countries.

Co-operation among the *national, state/regional and local levels* of government has improved regarding environmental policies. The balance between a uniform, country-wide level playing field with respect to environmental regulations, and more decentralised and varied environmental policies, has evolved in both centralised and federal countries. Local governments have taken environmental concerns into greater account in their decision-making, particularly in urban areas.

Improving awareness of environmental problems, and selecting appropriate environmental protection measures, require close partnership of all parties concerned in drawing up action plans to be implemented, with shared responsibilities. Public authorities have accepted the fact that command and control and investment-driven approaches can be complemented by *extensive dialogue, joint action and involvement of social partners* (e.g. confederations of industry, employers' organisations, trade unions, chambers of commerce and industry) and NGOs (e.g. indigenous peoples' organisations, environmental NGOs, women's associations, consumer unions, mayors' associations). Many joint bodies and even some environmental institutes have been created by social partners and the authorities to carry out activities benefiting the environment. Operation of round tables and multi-partner meetings is not easy, but it has produced useful results in a number of Member countries, the main result being the effort to make every citizen and firm conscious of greater responsibility for protecting the environment.

### *Further progress to be made*

The results achieved to date through greater institutional integration among national ministries and administrations consist mostly of better planning and regulation of polluting activities, and avoidance of the most obvious environmental damage. *Environmental aspects often receive little attention at the strategic level, and are*

## **ITALY: Energy Pricing and Intensity**

Energy intensity in Italy (energy use per unit of GDP, expressed in terms of purchasing power parities) has been the lowest among OECD countries since the early 1990s. This reflects the lasting and effective implementation of energy policies that emphasise the development and use of energy-efficient technology, and the use of a mix of instruments. High energy taxes and prices, principally aimed at revenue raising, have been effective in reducing energy intensity with regard to firms and households. As a result of high fuel taxes, Italian fuel prices are significantly higher than those in most other European countries. Initially motivated by high energy prices during the 1970s and early 1980s, the industrial sector has played an important role in the reduction of energy intensity, both directly by developing and introducing efficient new technologies, and indirectly by producing energy-saving products.

## **SWITZERLAND: Agri-environmental Payments**

Switzerland undertook a far-reaching reform of agricultural policy in 1992 to address new challenges at the international level with regard to agricultural trade and the growing environmental concerns of Swiss public opinion. This reform resulted in a significant increase in direct payments and the gradual reduction of all administered prices for farmers. Two new types of direct payments were introduced: complementary direct payments (or direct income support) and direct payments for ecological services in the public interest. The importance of direct payments for ecological services has been growing steadily since they were introduced in 1993. Their basic purpose is to promote methods of production that are particularly sound for the environment and for animal welfare.

The second step in agricultural reform (Agricultural Policy 2002), introduced with the new Agriculture Act adopted by Parliament in April 1998, has made the minimum ecological conditions farmers must meet in order to be eligible for direct payments more stringent. The level set in integrated production systems now becomes the standard requirement for all farmers.

## **KOREA: Integrating Environmental Concerns in Transport Policies**

Gradual tightening of the technical regulations for vehicles has resulted in a fleet that meets relatively low emission standards and, by 2000, will meet standards comparable to those of Japan and the United States. Stringency of inspection regulations guarantees that vehicles in use perform well environmentally. Fuel quality has been improved significantly with lower-sulphur diesel fuel and generalised use of unleaded gasoline. An extensive fleet of LNG taxis is in use, and cars powered by unconventional fuels are being developed. An innovative programme to introduce lower-emission vehicles using alternative fuels is expected to result in a gradually increasing share for these vehicles after 2000.

Some economic instruments are being applied to discourage the use of private cars. As Seoul faces serious traffic congestion and air pollution problems, much of which are due to motor vehicle exhaust emissions, it has policies aimed at promoting public transport and discouraging private car use. Public transport prices are subsidised, subway and other public transport infrastructure is being extended, and management of the whole public transport system, in particular buses, is being improved. The aim is to increase the capacity of the urban transport system (subway and bus) from 30% of trips to 50% in 2003. In the suburbs, use of bicycles is being promoted.

### **GREECE: Towards Environmentally Sustainable Tourism**

Tourism in Greece (6% of GDP, 15% of national exports) is based on its exceptional natural and cultural assets. Recent tourism policy seeks to protect these assets and, particularly, to promote energy and water conservation in the tourism sector. EIA is widely used to assess tourism infrastructure projects. Tourism operations' licenses often include conditions relating to environmental management. Waste water treatment capacity and waste management have improved in major tourist areas. A number of hotels have voluntarily adopted environmental management systems, and NGOs have launched some sustainable tourism initiatives in coastal and rural areas.

The traditional Greek marketing focus on price-competitive, quantitative tourism has resulted in large increases in the number of tourists. Efforts are being made to promote qualitative over quantitative tourism, and to better distribute pressures from tourism over time and space. Meanwhile, heavy use of subsidies and, in some cases, inefficient land use regulation may lead to oversupply of tourism infrastructure. These factors appear to have contributed to the geographic and temporal concentration of tourism activities and related environmental pressures. Enforcement of building codes and zoning in this sector is weak but improving. Integration of environmental concerns in tourism policy remains a challenge in terms of conserving nature, and water and energy resources, as well as more effectively minimising solid waste, waste water, congestion and noise. Important bottom-up local initiatives are emerging and are producing positive results, particularly on smaller islands.

considered only at the latter planning stages of projects, while the environmental implications of *new sectoral policies* are not always recognised. Very few countries assess the environmental implications of their annual budgets.

At regional and local levels, it would be useful to increase the use of regional planning, *land use planning* and physical planning to achieve environmental goals. It would often be useful as well to develop further mechanisms for co-operation between territorial authorities, and for monitoring the *environmental performance of countries' main territorial units*.

***Institutional integration: major policy directions and challenges***

- establishing appropriate *institutional structures* and mechanisms to promote the integration of environmental and other policies at strategic, planning, programme, budgeting and project levels;
- integration of environmental concerns, more systematically and more thoroughly, in *sectoral policies* such as those concerned with energy, transport and agriculture;
- encouraging all government operations to take *environmental goals* more fully into account and to develop long-term and short-term targets for all priority environmental issues;
- promoting the concept of *environmental performance* and improving methods of tracking environmental progress (e.g. better environmental data, environmental indicators, environmental reporting) at national and subnational levels.

**3. Fostering Stronger Market Integration: Use of Economic Instruments*****Progress to date***

The first cycle of reviews indicate that all Member governments have *achieved satisfactory results with the use of regulatory instruments* to improve environmental protection. Improvements to the traditional command and control approach have been introduced through integrated permitting systems and other examples of an overall multimedia approach. The command and control approach is now being supplemented with other instruments. It is generally accepted that certain limitations inherent in regulatory measures can be overcome by employing a mix of instruments, i.e. a wider use of economic instruments, voluntary agreements, etc.

The Environmental Performance Reviews have also shown that governments believe in the need to give a *greater role to the market* in environmental policy, and to apply the *polluter-pays and user-pays principles* more fully. In addition, many OECD governments recognise the importance of moving towards *full internalisation of environmental costs* while acknowledging the economic and political difficulties of achieving this goal. Policy responses being considered and introduced include: wide application of the polluter-pays and user-pays principles, creation of pollution charges and natural resource fees, taxes on the use of environmental goods, and removal of subsidies for pollution prevention and control. These increase the cost initially borne by polluters, induce more cost-effective pollution prevention measures, reduce the burden on the public budget, and promote a move towards production and consumption of less

polluting goods. As a result, taxpayer and central government expenses are gradually being shifted to private firms and households that pollute or use natural resources.

Progress has been achieved in some countries with the introduction of more *economic instruments* (e.g. charges, fees and taxes earmarked for environmental purposes, deposit-refund systems). Economic instruments such as transferable fishing quotas are being used in a few countries and have achieved good results where total fishing quotas were not too high. Tradable emission rights have been used successfully to reduce SO<sub>2</sub> emissions and are being tried in other areas. New instruments have been introduced that combine economic and regulatory instruments (e.g. new systems for the reduction of packaging waste, extended producer responsibility) or involve voluntary agreements (e.g. eco-label programmes). Environmental funds have been set up in a number of countries as a flexible mechanism to finance expensive long-term environmental plans and to collect various charges, compliance fees, fines and external support (aid).

The Environmental Performance Reviews have also demonstrated that governments are making efforts to *reduce general subsidies in a number of economic sectors*, such as energy, transport and agriculture, while taking social considerations into account. Such subsidies tend to distort production and consumption patterns; in addition, they may have detrimental effects on the environment by stimulating over-use of environmental goods or resources or producing greater environmental damage, such as land erosion, groundwater exhaustion or pollution, and traffic congestion and air pollution. Nevertheless, certain subsidies (e.g. for public transport, cleaner technology and waste water treatment) can have beneficial consequences for the environment. Green taxes have been introduced to protect the environment by discouraging pollution, and to promote other government policies by providing necessary funding (e.g. for reducing the cost of labour). In other cases, the tax revenues are recycled to the group of industries being charged or to the citizens. Combining economic incentives for the protection of the environment with financing of socially desirable activities is receiving greater support.

### ***Further progress to be made***

*Subsidies are provided by many countries in several economic sectors* (e.g. transport, energy, agriculture, fisheries, forestry) to promote economic and social goals other than environmental and economic efficiency. Decreasing or removing environmentally damaging subsidies should bring double dividends in many cases: less public spending and less environmental damage. Similarly, a shift from tax on labour towards a tax on natural resources use and pollution would help protect the environment while stimulating employment. The effect of these measures may be marginal in wealthy countries, but could be very significant in less affluent Member countries.

### **FRANCE: Green Taxation**

In 1999, France brought a series of existing pollution charges together into a single new tax called the TGAP (taxe générale sur les activités polluantes – general tax on polluting activities), managed by the Ministry of Finance. TGAP includes taxes on domestic and industrial waste, air pollution, aircraft noise and used oil. These taxes are proportionate to the quantity of the pollutants in question and are presently earmarked for ADEME (Agence pour les déchets et la maîtrise de l'énergie).

In 2000, new taxes were introduced on phosphates, pesticides and gravel. These are earmarked for financing social security. Further green taxes are foreseen in 2001, for instance on nitrates, radioactive and thermal water pollution, and flood-causing infrastructure. The principle of setting the tax rate in line with the amount of financing needed for certain pollution control activities has been abandoned in favour of higher taxes, with a view to financing various governmental initiatives through taxes on polluting activities (a “win-win” strategy). Discussion has started on changing long-standing water abstraction and pollution charges into taxes and creating a new green tax on energy.

### **UNITED STATES: SO<sub>2</sub> Emissions Trading**

The SO<sub>2</sub> allowance trading system in the United States, the first attempt to use tradable permits on a very large scale, was established under the 1990 Clean Air Act Amendments. An allowance authorises a utility or plant to emit 1 ton (0.9 tonne) of SO<sub>2</sub> during a specified year. The Act employs a two-phase tightening approach. Phase 1 began in 1995 and affected 445 units in mainly coal-burning electric utility plants. Phase 2, beginning in 2000, tightens the annual emissions limits imposed on these large, higher-emitting plants and also sets restrictions on smaller, cleaner plants fired by coal, oil and gas; it deals with over 2 000 units. Some additional allowances are available from reserves of the Environmental Protection Agency. During Phase 2, a nation-wide cap of 8.95 million tons a year of SO<sub>2</sub> emissions will be maintained. Allowances may be bought, sold, traded or banked for future use by utilities or any interested party. From the beginning of the system through the first half of 2000, over 10 500 transfers involving 93 million allowances were reported. Approximately 53 million of these allowances (61%) were transferred within organisations, and the remaining 40 million (39%) were transferred between organisations, showing the development of a healthy allowance market. The trading system is expected to reduce the cost of compliance to industry by 25 to 50%.

In addition, there remain many examples of *users who do not pay, individually, the full cost* of the services they receive. For instance, households consuming drinking water do not pay the cost of drinking water provision and waste water treatment, and therefore overuse a resource that is under strain. National governments

advocate the user-pays principle, but local authorities do not necessarily follow national policies. Water pollution control and waste water infrastructures are still supported with public money, reducing the amount charged to users. Irrigation water is provided at highly subsidised rates and is abstracted without restraint, sometimes causing river beds or aquifers to dry up. Similar examples of environmentally harmful price distortions are found in relation to transport and energy, leading to excessive use of the goods and services being subsidised and greater environmental damage.

Full implementation of the polluter-pays and user-pays principles is often very desirable from an environmental and economic point of view. However, decreasing subsidisation could have severe *social implications* (e.g. resources which had been freely available might become unaffordable for some population groups in Member countries). Greater attention needs to be given to the social effects of environmental policies, and special measures to make these policies more socially acceptable should be considered.

There remain serious theoretical and practical *difficulties in fully internalising environmental damage costs*, and in organising full compensation for victims of serious environmental damage. The public and industry favour, in principle, charging polluters. However, considerable work needs to be done to increase their sensitivity to and acceptance of the fact that they must bear the costs of the environmental goods they use, as well as the fact that increasing the prices of natural resources will help make it possible to preserve these resources for current and future generations.

### ***Market integration: major policy directions and challenges***

- applying the *polluter-pays principle* and *user-pays principle* more consistently;
- eliminating, as far as possible, *subsidies* that have detrimental effects on the environment;
- making greater use of *economic instruments* to promote cost-effectiveness, and to guide producer and consumer behaviour;
- considering shifting the tax burden from labour to *natural resources use and pollution*;
- introducing special measures to cope with *social problems* arising from the removal of subsidies on natural resources use;
- developing *tradable permit* systems for emissions and for resources use at national and regional levels.



## 4. Expanding the Use of Societal Instruments

### *Progress to date*

In the 1990s, *voluntary agreements* between central, regional or local governments and industrial sectors or specific industries, particularly in areas such as CFCs, detergents, asbestos, tyre disposal, packaging and recycling, increased in number and diversity. Complementing regulatory and economic instruments, such agreements can provide flexible ways to achieve agreed targets. For these agreements to be successful, there is a need to publicise the particular agreement, to monitor its implementation, and to plan to incorporate additional measures in case commitments are not met. At the level of the firm, *environmental auditing* is being practised on a growing scale and helps give management better knowledge of the environmental impact of firms' activities. In a few countries, municipalities have also carried out eco-audits of their activities and entered into voluntary agreements with the central government to reach environmental goals.

Typical of environmental management in most Member countries over the past three decades has been the degree of public participation in environment related decision-making. *Consultation of the public* is a critical step whenever decisions need to be taken by public authorities on concrete projects (e.g. those involving plant licensing or environmental impact assessment). This generally leads to better integration of policies, and to more effective enforcement of environmental policies. Public consultation has developed considerably and now takes place in almost all Member countries. In a growing number of countries, public consultation is used to improve the formulation of new policies, laws and regulations. Public participation requires appropriate environmental information. Such information can be provided by public authorities, the media, NGOs and lobbying groups. In addition, industries are increasingly reporting the results of their environmental initiatives and implementing environmental management systems (such as EMAS or ISO 14001). Great progress has been made in *ensuring access* to all *environmental data* held by public authorities, which has become a legal obligation in all OECD countries. Environmental information for consumers is also provided through logos and *eco-labelling*, now used in most Member countries.

To support environmental protection, identify risks, foster appropriate decisions and seek cost-effective strategies, Member countries have promoted research in environmental science and technology and allocated a significant part of their *research and development* budgets to this purpose. In so doing, they have led the international community to examine environmental risks (e.g. concerning toxics, the ozone layer, climate change). Further development of scientific and technical information is essential to meet future challenges, and to avoid making decisions based on preconceived and often inadequate positions.

### **NEW ZEALAND: Protection of Environmental Values of the Indigenous Population**

New Zealand is one of the OECD countries which has given special recognition to the environmental values of its indigenous population in environmental laws and policies. Under the 1975 Treaty of Waitangi Act, a special tribunal hears claims from Maori individuals or groups who feel that Crown practices prejudice their rights, in particular concerning management of natural resources, forestry and fisheries. Under the 1991 Resource Management Act, there is an obligation to consider the principles of the 1840 Treaty of Waitangi and to apply the Maori principle of guardianship (i.e. "each generation has the responsibility to exercise good stewardship and pass the treasure on in at least as good condition as when it was received").

Courts have recognised water as part of the treasure possessions protected under the Waitangi Treaty. Under law, all decision-makers must recognise and provide for the close relationship of the Maori people with their ancestral lands, waters and other special places. This can have significant effects on resource exploitation, especially since the Maori strongly object to water pollution. Regional and district councils routinely consult with Iwi (Maori communities), but the communities' views often constitute only one of many voices in the consultation. The UN Convention on Biodiversity, to which New Zealand is a party, also obliges parties to respect the practices of indigenous communities.

### **FINLAND: Eco-certification of Sustainable Forest Management**

Finland has played a very active role in developing eco-certification of sustainable forest management in Europe. Implementation of the resolutions from the Ministerial Conference on the Protection of Forests in Europe held in Helsinki in 1993 (Helsinki process) led to the adoption of the Pan European Forest Certification Scheme (PEFC) in 2000. The sustainability (performance) of forest management is to be certified against a set of predetermined criteria and indicators (standards), as is the case with the North American based certification scheme, the Forest Stewardship Council (FSC). Eco-certification has several advantages: it guarantees that the wood certified comes from sustainably managed forests, through a chain-of-custody procedure; it promotes the use of wood as a renewable and sustainable material; and, under some conditions, the certified wood can be sold at a higher price. However, eco-certification should not be used as a non-tariff barrier, should remain voluntary (ensuring compatibility with WTO rules) and should not prevent the import of non-certified wood.

## **IRELAND: Environmental Information Centre**

In 1990, Ireland set up a national environmental information centre (ENFO) to provide easy public access to wide-ranging information on all aspects of the environment and sustainable development. ENFO, centrally located in Dublin, receives about 55 000 visitors annually. It furnishes a variety of free services and products to different audiences and all age groups. Exhibition areas are available to any environmental organisation that requests them. The reference library contains a very large number of titles, including environmental impact assessments, IPC licences issued by the Environmental Protection Agency, and documents published by the Department of the Environment and Local Government. In the 1990s, 120 information leaflets were produced, widely distributed (1 million in ten years) and made available on the ENFO Internet site. Great emphasis is placed on environmental education for children. Teachers' resource packs support environmental projects in schools, and there are environmental videos and a children's corner. During its first ten years, ENFO has proven a very successful one-stop-shop for all environmental information.

### *Further progress to be made*

In a number of Member countries, schools and universities have incorporated *environmental education* in their curricula and attention is given to environmental training and materials for teachers. However, much progress remains to be made in these areas, as well as in vocational education, continuing education and on-the-job environmental training.

Collection of environmental information and reporting on the state of the environment are now widespread among Member countries, and second-generation environmental data that are more responsive to policy needs and public information are under development in most countries. However, *expanded efforts are needed to better track environmental progress*. This will involve: *filling environmental data gaps* with regard to specific environmental problems and, more generally, the economic dimensions of environmental performance (e.g. environmental expenditure, employment and trade considerations, environmental damage); developing and using *environmental indicators* to monitor progress towards policy goals and targets, and to measure the effectiveness of pollution prevention efforts; improving *public understanding*, based on facts and scientific knowledge and on meaningful public participation; publishing *periodic reports* on the state of the environment; and ensuring effective implementation of public access to environmental information.

***Societal instruments: major policy directions and challenges***

- further improving environmental information and *public access* to this information;
- increasing the transparency of environmental decision-making by improving *consultation, public participation* and access to environmental data;
- promoting *partnership approaches* through round tables and voluntary agreements;
- providing *better information to consumers*, including better pricing of key services, to promote changes in consumption patterns;
- continuing to fund and promote *science and technology efforts* with regard to environmental issues.

# ANNEXES

I.A Selected environmental data

I.B Selected economic data

I.C Selected social data

II.A Selected multilateral agreements (worldwide)

II.B Selected multilateral agreements (regional)

III. Selected environmental indicators and trends

IV. Executive summary of second cycle work plan

V. Main publications (1993-2000)

VI. Environmental Performance Reviews (1993-2000) – Special chapters

VII. Country responses to OECD Environmental Performance Reviews (1993-2000)

## ANNEX I.A: SELECTED ENVIRONMENTAL DATA (1)

	CAN	MEX	USA	JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	
<b>LAND</b>													
Total area (1000 km <sup>2</sup> )	9971	1958	9364	378	99	7713	270	84	31	79	43	338	
Major protected areas (% of total area)	2	9.6	8.2	21.2	6.8	6.9	7.7	23.5	29.2	2.8	16.2	32.0	8.4
Nitrogenous fertiliser use (t/km <sup>2</sup> of arable land)		4.1	4.4	6.2	11.5	23.1	1.7	37.3	7.6	18.8	6.8	12.3	7.1
Pesticide use (t/km <sup>2</sup> of arable land)		0.07	0.13	0.21	1.50	1.29	0.23	0.85	0.25	0.92	0.12	0.15	-
<b>FOREST</b>													
Forest area (% of land area)		45.3	33.4	32.6	66.8	65.2	19.4	29.5	47.6	22.2	34.1	10.5	75.5
Use of forest resources (harvest/growth)		0.4	0.2	0.6	0.3	0.1	..	0.6	0.6	0.9	0.7	0.6	0.8
Tropical wood imports (USD/cap.)	3	0.8	0.1	1.6	18.4	11.1	4.6	2.6	0.2	12.3	0.1	4.4	1.9
<b>THREATENED SPECIES</b>													
Mammals (% of species known)		19.2	33.2	10.5	7.7	17.0	14.9	15.2	35.4	31.6	33.3	24.0	11.9
Birds (% of species known)		10.8	16.9	7.2	8.3	15.0	6.4	25.3	37.0	27.5	66.1	10.6	6.7
Fish (% of species known)		6.4	5.7	2.4	11.1	1.3	0.4	0.8	65.5	54.3	29.2	18.2	11.9
<b>WATER</b>													
Water withdrawal (% of gross annual availability)		1.7	17.4	19.9	20.8	35.6	4.3	0.6	2.7	42.5	15.6	15.7	2.2
Public waste water treatment (% of population served)		78	22	71	55	53	..	80	75	27	59	87	77
Fish catches (% of world catches)		1.0	1.6	5.4	6.3	2.4	0.2	0.6	-	-	-	2.0	0.2
<b>AIR</b>													
Emissions of sulphur oxides (kg/cap.)		89.7	24.4	69.3	7.2	32.9	100.6	12.3	7.1	23.6	68.0	20.7	19.5
(kg/1000 USD GDP)	4	3.7	3.3	2.3	0.3	2.3	4.7	0.7	0.3	1.1	5.3	0.9	1.0
% change (1990-1998)		-19	..	-14	..	-7	-3	3	-37	-25	-63	-50	-61
Emissions of nitrogen oxides (kg/cap.)		67.8	17.2	80.2	11.3	27.6	118.3	45.9	21.3	32.8	41.1	46.9	50.5
(kg/1000 USD GDP)	4	2.9	2.3	2.7	0.5	1.9	5.5	2.7	1.0	1.5	3.2	2.0	2.5
% change (1990-1998)		-5	..	-	..	36	-4	23	-12	-3	-43	-12	-13
Emissions of carbon dioxide (t./cap.)	5	15.9	3.7	20.5	9.3	9.2	16.5	8.8	7.9	12.0	11.7	11.8	12.5
(t./1000 USD GDP)	4	0.66	0.50	0.68	0.38	0.62	0.74	0.51	0.36	0.53	0.91	0.49	0.61
% change (1990-1997)		12	14	12	10	81	16	31	8	12	-15	18	18
<b>WASTE GENERATED</b>													
Industrial waste (kg/1000 USD GDP)	4, 6	..	50	..	49	56	107	29	65	62	292	22	119
Municipal waste (kg/cap.)	7	500	310	720	400	400	690	350	510	480	310	560	410
Nuclear waste (t./Mtoe of TPES)	8	6.5	0.1	0.9	1.8	2.3	-	-	-	2.8	1.0	-	2.2
<b>PAC EXPENDITURE (% of GDP)</b>	9	1.1	0.8	1.6	1.6	1.7	0.8	..	1.7	0.9	2.0	0.9	1.1

.. not available. - nil or negligible. x data included under Belgium.

UKD:

1) Data refer to the latest available year. They include provisional figures and Secretariat estimates.

Partial totals are underlined. Varying definitions can limit comparability across countries.

2) Data refer to IUCN categories I to VI; AUS, HUN, LUX, TUR: national data

3) Total imports of cork and wood from non-OECD tropical countries.

4) GDP at 1995 prices and purchasing power parities.

Source: OECD Environmental Data, Compendium 1999.

## OECD EPR / SECOND CYCLE

FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	ESP	SWE	CHE	TUR	UKD*	OECD*
549	357	132	93	103	70	301	3	42	324	313	92	506	450	41	779	245	34728
10.1	26.9	2.6	9.1	9.5	0.9	7.3	6.5	11.6	24.2	9.4	6.6	8.4	8.1	18.0	3.8	20.4	12.6
13.4	14.8	7.8	5.4	8.9	43.2	8.4	x	37.7	12.3	6.1	4.0	5.4	7.3	12.8	4.3	19.5	6.4
0.59	0.29	0.29	0.14	..	0.25	0.78	x	1.06	0.08	0.07	0.43	0.18	0.06	0.37	0.13	0.58	0.25
31.4	30.1	22.8	18.9	1.3	8.8	23.3	34.4	9.2	39.2	29.7	37.9	32.3	73.5	31.7	26.9	10.5	33.8
0.7	0.4	0.6	0.6	-	0.6	0.3	0.5	0.6	0.4	0.6	0.8	0.5	0.7	0.5	0.4	0.7	0.6
7.1	2.0	3.4	0.1	4.0	10.1	6.6	x	17.3	4.5	0.2	19.9	6.2	2.0	0.5	0.9	3.3	5.1
20.2	36.7	37.9	71.1	-	6.5	32.2	51.6	15.6	5.9	15.5	17.3	21.2	18.2	34.2	22.2	22.2	..
14.3	29.2	13.0	18.8	13.3	21.8	24.7	50.0	27.1	6.3	16.6	13.7	14.1	8.6	42.6	6.7	6.8	..
6.6	68.2	24.3	32.1	-	33.3	..	27.9	82.1	-	27.1	18.6	29.4	12.7	44.7	9.9	11.1	..
23.9	24.4	12.1	5.0	0.1	2.6	32.2	3.4	4.9	0.7	18.7	11.9	36.8	1.5	4.9	15.2	14.6	11.8
77	89	45	22	16	61	61	88	97	67	47	21	48	93	94	12	88	59
0.6	0.3	0.2	-	2.4	0.3	0.4	-	0.5	3.1	0.4	0.2	1.2	0.4	-	0.5	1.0	30.9
16.2	15.8	48.3	64.7	32.1	48.7	23.1	8.4	8.0	6.9	61.3	36.2	49.1	10.3	4.6	29.8	34.5	39.2
0.8	0.7	3.6	6.7	1.3	2.2	1.2	0.2	0.4	0.3	8.3	2.7	3.2	0.5	0.2	4.8	1.8	2.0
-24	-76	-	-35	6	-3	..	-76	-38	-42	-26	..	..	-33	-24	..	-46	-24
29.1	21.7	35.2	19.4	105.6	33.9	30.9	39.6	28.5	50.6	29.9	37.6	31.7	38.1	18.2	14.5	35.0	40.6
1.4	1.0	2.6	2.0	4.3	1.5	1.5	1.1	1.3	2.0	4.1	2.8	2.1	1.9	0.7	2.3	1.9	2.0
-10	-34	8	-17	9	6	..	-27	-23	2	-10	..	..	-13	-22	37	-25	-5
6.2	10.8	7.7	5.7	8.9	10.3	7.4	20.5	11.8	7.8	9.1	5.2	6.5	6.0	6.3	2.9	9.4	11.2
0.29	0.50	0.57	0.59	0.36	0.49	0.36	0.57	0.53	0.31	1.15	0.37	0.40	0.29	0.24	0.47	0.48	0.55
-4	-10	12	-14	8	13	4	-21	14	15	-	25	18	-	1	35	-5	9
84	38	47	72	1	66	19	136	26	27	73	3	24	86	8	87	53	71
590	460	370	490	650	560	460	590	560	630	320	380	390	360	600	330	480	500
4.6	1.3	-	3.2	-	-	-	-	0.2	-	..	-	0.9	4.5	2.4	-	3.7	1.6
1.4	1.5	0.8	0.7	..	0.6	0.9	..	1.8	1.2	1.1	0.7	0.8	1.2	1.6	..	1.0	..

pesticides and threatened species: Great Britain; water withdrawal and public waste water treatment: England and Wales.

5) CO<sub>2</sub> from energy use only; international marine bunkers are excluded.

6) Waste from manufacturing industries.

7) NZL: household waste only.

8) Waste from spent fuel arising in nuclear power plants, in tonnes of heavy metal, per million tonnes of oil equivalent of total primary energy supply.

9) Household expenditure excluded; HUN, POL: investments only.

## ANNEX I.B: SELECTED ECONOMIC DATA (1)

	CAN	MEX	USA	JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN
<b>GROSS DOMESTIC PRODUCT</b>												
GDP, 1999 (billion USD at 1995 prices and PPPs)	769	755	8681	3005	703	449	66	186	240	129	132	115
% change (1990-1999)	23.2	27.8	32.3	12.8	64.8	36.3	21.7	21.1	17.8	-9.8	25.3	17.4
per capita, 1999 (1000 USD/cap.)	25.2	7.7	32.0	23.7	15.0	23.6	17.5	23.0	23.5	12.5	24.8	22.2
Exports, 1999 (% of GDP)	43.2	31.8	10.8	10.2	44.6	18.4	30.3	43.8	74.1	61.0	35.2	38.1
<b>INDUSTRY</b> 2												
Value added in industry (% of GDP)	27	26	26	37	43	26	26	30	28	37	24	30
Industrial production: % change (1990-1998)	23.0	34.0	32.7	-4.8	59.7	17.1	15.1	25.0	9.4	-24.2	26.5	42.2
<b>AGRICULTURE</b> 3												
Value added in agriculture (% of GDP)	2	6	2	2	6	3	7	1	1	4	4	4
Agricultural production: % change (1990-1999)	26.2	23.9	18.2	-8.3	-1.4	20.0	18.2	5.8	9.3	..	3.7	-14.4
Livestock population, 1999 (million head of sheep eq.)	102	266	795	56	29	289	101	18	30	16	25	9
<b>ENERGY</b> 4												
Total supply, 1998 (Mtoe)	234	148	2182	510	163	105	17	29	58	41	21	33
% change (1990-1998)	12.1	19.0	13.3	16.3	78.7	20.5	21.3	12.3	20.5	-13.4	13.8	16.1
Energy intensity, 1998 (toe/1000 USD GDP)	0.32	0.20	0.26	0.17	0.25	0.24	0.27	0.16	0.25	0.32	0.16	0.30
% change (1990-1998)	-5.7	-3.7	-11.1	4.5	18.2	-8.2	2.3	-5.2	4.2	-4.5	-8.0	2.6
Structure of energy supply, 1998 (%)	4											
Solid fuels	16.5	10.0	27.1	18.0	21.6	48.1	10.9	22.3	15.7	52.5	33.7	35.5
Oil	34.7	62.3	39.9	51.1	56.2	33.6	38.4	43.4	42.2	20.2	45.2	32.9
Gas	28.9	21.3	22.8	11.7	7.6	16.9	24.2	23.3	21.4	18.6	19.9	10.2
Nuclear	7.9	1.6	8.5	17.0	14.3	-	-	-	20.7	8.3	-	17.4
Hydro, etc.	12.1	4.7	1.8	2.2	0.2	1.4	26.5	11.1	0.1	0.4	1.2	4.0
<b>ROAD TRANSPORT</b> 5												
Road traffic volumes per capita, 1998 (1000 veh.-km/cap.)	9.2	0.6	15.7	6.1	1.6	10.0	7.9	7.5	8.3	3.0	8.3	8.7
Road vehicle stock, 1998 (10 000 vehicles)	1804	1389	21443	7082	1047	1126	216	471	499	377	219	231
% change (1990-1998)	9.0	40.6	13.6	25.4	208.4	15.2	16.9	27.6	17.1	45.5	15.7	4.4
per capita (veh./100 inh.)	60	15	80	56	23	60	58	58	49	37	41	45

.. not available. - nil or negligible. x data included under Belgium.

- 1) Data may include provisional figures and Secretariat estimates. Partial totals are underlined.
- 2) Value added: includes mining and quarrying, manufacturing, gas, electricity and water and construction; production: excludes construction.

Source: OECD Environmental Data, Compendium 1999.



## OECD EPR / SECOND CYCLE

FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	ESP	SWE	CHE	TUR	UKD	OECD
1306	1842	151	107	7	91	1203	17	374	114	330	152	681	192	190	400	1198	23585
14.9	17.0	20.6	2.5	28.0	76.5	11.6	58.8	26.7	34.6	36.8	24.9	22.4	12.6	5.1	35.4	19.5	24.2
22.1	22.4	14.4	10.6	26.6	24.3	20.9	38.9	23.7	25.6	8.5	15.2	17.3	21.6	26.6	6.1	20.2	21.3
25.4	28.6	18.1	51.7	34.6	82.1	25.1	114.0	60.5	38.9	24.5	30.9	27.2	43.3	40.8	23.1	25.4	20.9
26	29	20	32	22	39	31	21	27	32	39	35	32	27	..	31	28	29
8.3	5.1	7.9	16.6	..	128.2	10.9	11.9	16.7	37.8	45.3	13.1	15.4	32.4	12.6	55.0	9.6	17.2
2	1	12	7	9	5	3	1	3	2	8	4	3	2	..	14	2	3
5.2	-6.8	9.6	-21.7	-7.3	6.4	10.0	x	-5.8	-6.0	-12.4	-4.7	3.9	-7.8	-5.3	11.6	0.3	..
165	128	21	14	1	56	71	x	47	10	64	18	93	14	12	118	131	2698
256	345	27	25	3	13	168	3	74	25	96	22	113	52	27	73	233	5097
12.3	-3.2	22.3	-11.3	25.3	26.6	9.5	-7.1	11.7	18.4	-3.6	33.1	24.5	9.9	6.4	38.1	9.3	13.4
0.20	0.19	0.18	0.25	0.38	0.16	0.14	0.21	0.21	0.22	0.30	0.15	0.17	0.28	0.14	0.18	0.20	0.22
0.2	-16.1	4.8	-10.2	3.7	-22.1	-0.9	-38.5	-9.2	-11.6	-27.1	9.8	5.5	1.4	2.6	-0.3	-6.9	-6.1
10.8	25.5	36.8	17.8	2.6	23.3	8.2	5.2	13.4	9.3	71.0	19.4	18.6	19.9	5.9	40.1	18.4	23.9
35.5	40.6	58.8	28.9	31.2	54.9	56.9	72.3	37.5	34.0	18.9	72.0	54.7	30.5	49.8	42.0	35.9	41.9
12.8	21.1	2.7	38.8	-	21.2	31.1	22.2	47.6	17.1	9.8	3.2	10.3	1.3	8.7	12.4	34.2	20.6
38.8	12.2	-	14.4	-	-	-	-	1.4	-	-	-	13.7	36.2	24.9	-	11.3	10.9
2.1	0.5	1.7	0.1	66.2	0.7	3.8	0.4	0.1	39.5	0.2	5.5	2.7	12.1	10.7	5.5	0.2	2.8
8.3	7.3	5.6	2.7	6.5	8.1	8.6	9.0	6.9	7.0	3.3	5.5	4.1	8.2	7.1	0.8	7.7	7.9
3230	4427	365	273	16	138	3433	28	732	221	1055	425	1927	415	367	516	2997	56468
13.5	18.7	44.8	24.3	17.8	45.3	12.3	33.6	27.7	13.9	64.9	93.4	33.4	5.6	11.2	118.5	14.0	20.1
55	54	35	27	58	37	60	66	47	50	27	43	49	47	52	8	51	51

3) Agriculture, forestry, hunting, fishery, etc.

4) Breakdown excludes electricity trade.

5) Refers to motor vehicles with four or more wheels, except for Japan and Italy, which include three-wheeled goods vehicles.

## ANNEX I.C: SELECTED SOCIAL DATA (1)

	CAN	MEX	USA	JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN
<b>POPULATION</b>												
Total population, 1999 (100 000 inh.)	305	975	2713	1267	469	190	38	81	102	103	53	52
% change (1990-1999)	9.9	18.1	8.6	2.5	9.3	11.2	12.4	4.9	2.6	-0.7	3.6	3.6
Population density, 1999 (inh./km <sup>2</sup> )	3.1	49.8	29.0	335.4	471.8	2.5	14.0	96.5	335.0	130.4	123.5	15.3
Ageing index, 1998 (over 64/under 15)	62.4	14.9	53.6	107.6	29.9	58.2	51.4	90.4	91.3	79.3	82.5	79.1
<b>HEALTH</b>												
Women life expectancy at birth, 1998 (years)	81.4	77.3	79.4	84.0	78.1	81.5	80.4	80.9	81.1	78.1	78.6	80.8
Infant mortality, 1998 (deaths /1 000 live births)	5.5	15.8	7.2	3.6	7.7	5.0	6.8	4.9	6.0	5.2	4.7	4.2
Expenditure, 1998 (% of GDP)	9.5	4.7	13.7	7.6	5.0	8.5	8.1	8.3	8.8	7.6	8.3	6.9
<b>INCOME AND POVERTY</b>												
GDP per capita, 1999 (1000 USD/cap.)	25.2	7.7	32.0	23.7	15.0	23.6	17.5	23.0	23.5	12.5	24.8	22.2
Poverty (% pop. < 50% median income)	10.3	21.9	17.1	8.1	..	9.3	..	7.4	7.8	..	5.0	4.9
Inequality (Gini levels)	2	28.5	52.6	34.4	26.0	..	30.5	25.6	23.8	27.2	..	21.7
Minimum to median wages, 1997	3	39.6	..	38.1	30.8	24.4	x	45.6	x	50.4	21.2	x
<b>EMPLOYMENT</b>												
Unemployment rate, 1999 (% of total labour force)	7.6	2.5	4.2	4.7	6.3	7.2	6.8	5.3	9.0	8.8	5.5	10.2
Labour force participation rate, 1999 (% 15-64 year-olds)	76.9	56.8	78.0	78.1	64.2	74.4	65.3	77.5	63.7	80.4	80.5	74.0
Employment in agriculture, 1998 (%)	4	3.7	19.4	2.7	5.3	12.2	4.8	8.5	6.6	2.4	5.5	3.6
<b>EDUCATION</b>												
Education, 1998 (% 25-64 year-olds)	5	79.7	21.2	86.5	79.9	65.4	56.0	72.7	73.3	56.7	85.3	78.4
Expenditure, 1997 (% of GDP)	6	6.5	5.5	6.9	4.8	7.4	5.6	..	6.5	5.2	5.2	6.8
<b>OFFICIAL DEVELOPMENT ASSISTANCE</b>												
ODA, 1999 (% of GNP)	7	0.28	..	0.10	0.35	..	0.26	0.27	0.26	0.30	..	1.00
ODA, 1999 (USD/cap.)	56	..	34	121	..	52	35	65	74	..	324	78

.. not available. - nil or negligible. x not applicable.

1) Data may include provisional figures and Secretariat estimates. Partial totals are underlined.

2) Ranging from 0 (equal) to 100 (inequal) income distribution; figures relate to total disposable income (including all incomes, taxes and benefits) for the entire population.

3) Minimum wage as a percentage of median earnings including overtime pay and bonuses.

Source: OECD Environmental Data, Compendium 1999.

## OECD EPR / SECOND CYCLE

FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	ESP	SWE	CHE	TUR	UKD	OECD
591	822	105	101	3	37	577	4	158	44	387	100	394	89	71	659	594	11086
4.2	3.6	4.4	-2.8	8.3	6.6	1.7	12.3	5.6	4.8	1.5	1.3	1.5	3.7	6.4	17.3	3.2	6.8
107.6	230.2	79.8	108.3	2.7	53.1	191.5	167.0	380.0	13.7	123.8	108.7	77.9	19.7	172.9	84.6	242.7	31.9
82.6	107.1	95.2	83.3	49.0	50.4	106.6	76.1	73.0	79.3	56.8	90.3	105.2	93.3	86.0	16.8	81.7	60.5
82.2	80.5	80.5	75.2	81.5	78.5	81.6	80.0	80.7	81.3	77.3	78.8	82.4	81.9	82.5	71.3	79.7	..
4.7	4.7	6.7	8.9	2.6	6.2	6.2	5.0	5.2	4.0	9.5	6.0	5.0	3.6	4.8	36.3	5.7	..
9.6	10.5	8.3	6.8	8.4	6.1	8.4	5.9	8.6	8.9	6.3	7.8	7.1	8.4	10.4	4.0	7.0	..
22.1	22.4	14.4	10.6	26.6	24.3	20.9	38.9	23.7	25.6	8.5	15.2	17.3	21.6	26.6	6.1	20.2	21.3
7.5	9.4	13.9	7.3	..	11.0	14.2	..	6.3	8.0	..	..	..	6.4	..	16.2	10.9	..
27.8	28.2	33.6	28.3	..	32.4	34.5	..	25.5	..	..	..	..	23.0	..	49.1	31.2	..
57.4	x	..	37.4	x	x	x	..	49.4	x	44.6	..	32.4	x	x	..	x	..
11.1	9.0	10.7	7.1	1.9	5.5	11.5	2.9	3.2	3.2	12.0	4.4	15.9	5.6	2.7	7.3	5.9	6.6
68.0	71.1	61.9	58.4	77.5	68.1	59.3	63.3	65.5	81.2	68.6	70.6	63.9	75.9	81.3	55.7	75.6	71.0
4.4	2.8	17.7	7.6	8.6	9.1	6.6	2.3	3.3	4.7	19.2	13.6	8.0	2.6	4.6	42.3	1.7	7.8
60.7	83.8	44.1	63.3	54.8	51.3	41.0	..	64.3	83.0	54.3	20.1	32.9	76.1	81.5	17.7	60.2	<u>61.2</u>
6.3	5.7	4.9	5.2	5.7	5.0	4.8	..	4.7	..	..	5.8	5.7	6.9	6.0	..	..	<u>5.8</u>
0.38	0.26	0.21	..	..	0.31	0.15	0.64	0.79	0.91	..	0.25	0.23	0.70	0.35	..	0.23	0.24
93	67	25	..	..	65	30	266	199	308	..	27	34	184	136	..	55	67

4) Civil employment in agriculture, forestry and fishing.

5) Upper secondary or higher education; OECD: average of rates.

6) Public and private expenditure on educational institutions; OECD: average of rates.

7) Official Development Assistance by Member countries of the OECD Development Assistance Committee.

**ANNEX II.A: SELECTED MULTILATERAL AGREEMENTS (WORLDWIDE)**

Y = in force S = signed R = ratified D = denounced

		CAN	MEX	USA		
1946	Washington	Conv. - Regulation of whaling	Y	D	R	R
1956	Washington	Protocol	Y	R	R	R
1949	Geneva	Conv. - Road traffic	Y	R		R
1954	London	Conv. - Prevention of pollution of the sea by oil	Y	R	R	R
1971	London	Amendments to convention (protection of the Great Barrier Reef)		R		
1957	Brussels	Conv. - Limitation of the liability of owners of sea-going ships	Y	S		
1979	Brussels	Protocol	Y			
1958	Geneva	Conv. - Fishing and conservation of the living resources of the high seas	Y	S	R	R
1960	Geneva	Conv. - Protection of workers against ionising radiations (ILO 115)	Y		R	
1962	Brussels	Conv. - Liability of operators of nuclear ships				
1963	Vienna	Conv. - Civil liability for nuclear damage	Y		R	
1988	Vienna	Joint protocol relating to the application of the Vienna Convention and the Paris Convention	Y			
1997	Vienna	Protocol to amend the Vienna convention				
1963	Moscow	Treaty - Banning nuclear weapon tests in the atmosphere, in outer space and under water	Y	R	R	R
1964	Copenhagen	Conv. - International council for the exploration of the sea	Y	R		R
1970	Copenhagen	Protocol	Y	R		R
1969	Brussels	Conv. - Intervention on the high seas in cases of oil pollution casualties (INTERVENTION)	Y		R	R
1973	London	Protocol (pollution by substances other than oil)	Y		R	R
1969	Brussels	Conv. - Civil liability for oil pollution damage (CLC)	Y	R	D	S
1976	London	Protocol	Y	R	R	
1992	London	Protocol	Y	R	R	
1995	Rome	Code of conduct on responsible fishing				
1970	Bern	Conv. - Transport of goods by rail (CIM)	Y			
1971	Brussels	Conv. - International fund for compensation for oil pollution damage (FUND)	Y	R	D	S
1976	London	Protocol	Y	R	R	
1992	London	Protocol	Y	R	R	
1971	Brussels	Conv. - Civil liability in maritime carriage of nuclear material	Y			
1971	London, Moscow, Washington	Conv. - Prohib. emplacement of nuclear and mass destruct. weapons on sea-bed, ocean floor and subsoil	Y	R	R	R
1971	Ramsar	Conv. - Wetlands of international importance especially as waterfowl habitat	Y	R	R	R
1982	Paris	Protocol	Y	R	R	R
1987	Regina	Regina amendment	Y	R	R	
1971	Geneva	Conv. - Protection against hazards of poisoning arising from benzene (ILO 136)	Y			
1972	London, Mexico, Moscow, Washington	Conv. - Prevention of marine pollution by dumping of wastes and other matter (LC)	Y	R	R	R
1978		Amendments to Annexes (incineration at sea)	Y	R	R	R
1978		Amendments to convention (settlement of disputes)		R		R
1980		Amendments to Annexes (list of substances)	Y	R	R	R
1996	London	Protocol to the Conv. - Prevention of marine poll. by dumping of wastes and other matter				S
1972	Geneva	Conv. - Protection of new varieties of plants (revised)	Y	R	R	R
1978	Geneva	Amendments	Y	R	R	R
1991	Geneva	Amendments	Y			R
1972	Geneva	Conv. - Safe container (CSC)	Y	R	R	R
1972	London, Moscow, Washington	Conv. - International liability for damage caused by space objects	Y	R	R	R
1972	Paris	Conv. - Protection of the world cultural and natural heritage	Y	R	R	R

OECD EPR / SECOND CYCLE

Y = in force S = signed R = ratified D = denounced

JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	ESP	SWE	CHE	TUR	UKD	EU
R	R	R	R	R			R	R	R	R			D	R	R		R	R			R	R	R		R	
R	R	R	R				R		R	R			R	R			R	R			R	R	R		R	
R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	S	R	R	
R	R	R	R	R	R		R	R	R	R	R		R	R	R		R	R	R	R	R	R	R		R	
		R	R				R	R	R	R	R				R			R			R	R		R	R	
D		D		D		D	D	D	D				R		S	R	D	D	R	R	R	D	R	D	D	
		R		R			S		S							R			R	R	R		R	D	D	
		R	S	R		R	R	R	R				S	S		R			R	R	R	R	R	R	R	
R				R	R	R	R	R	R	R	R	R			R		R	R	R	R	R	R	R	R	R	
				S					S					S		R			R							
					S	R	R	R	S	S	S	R			R		R	R	R	S	S	R	S	S	S	
					S						S				S				S							
R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	
				R		R	R	R	R			R	R			R	R	R	R	R	R	R		R	R	
				R		R	R	R	R	R			R	R			R	R	R	R	R	R		R	R	
R	S	R	R	R		R	R	R	R	R	S			R	R	R		R	R	R	R	R	R	R	R	
		R	S	R		R	R	R	R					R	R		R	R	R	R	R	R	R	R	R	
D	D	D	R		R		D	D	D	D	D		R	D	R	R	D	D	R	R	D	D	D	D	D	
R	R	R			R		R	R	R	R	R		R	D	R	R	R	R	R	R	R	R	R	R	D	
R	R	R	R		R		R	R	R	R	R		R	R			R	R	S		R	R	R	R		
				R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	
D	D	D	R		R		D	D	D	D	D		R	D	R		D	D	R	R	D	D	D	D	D	
R		R			R		R	R	R	R	R		R	D	R		R	R	R	R	R	R		D	D	
R	R	R	R		R		R	R	R	R	R		R	R			R	R	S		R	R		R	R	
				R		R	R	R	R	R				R	R	R	R	R	R	S	R	R		R	R	
R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	
R	R	R	R		R		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
R				R		R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
R	R	R	R		R		R	R	R	R	R		R	R			R	R	R	R	R	R	R	R	R	
R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
		S	S		S		R	S		R			S			S	S			R	S	S		R	R	
R		R	R	R	R	R	R	R	R	R		R		R	R		R	R	R	R	R	R	R	R	R	
R		R	R	R		R	R	R	R	R		R		R	R		R	R	R	R	R	R	R	R	R	
R		R				R			R							R					R				R	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S	S	R	
R	R	R	R	R	R		R	R	R	R	R	R	S	R	R	R	R	S	R		R	R	R		R	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	

**ANNEX II.A: SELECTED MULTILATERAL AGREEMENTS (WORLDWIDE) (cont.)**

Y = in force S = signed R = ratified D = denounced

		CAN	MEX	USA
1973 Washington	Conv. - International trade in endangered species of wild fauna and flora (CITES)	Y	R	R
1974 Geneva	Conv. - Prev. and control of occup. hazards caused by carcinog. subst. and agents (ILO 139)	Y		
1976 London	Conv. - Limitation of liability for maritime claims (LLMC)	Y	R	
1996 London	Amendment to convention	S		
1977 Geneva	Conv. - Protection of workers against occupational hazards in the working environment due to air pollution, noise and vibration (ILO 148)	Y		
1978 London	Protocol - Prevention of pollution from ships (MARPOL PROT)	Y	R	R
1978 London	Annex III	Y		R
1978 London	Annex IV			
1978 London	Annex V	Y	R	R
1997 London	Annex VI			
1979 Bonn	Conv. - Conservation of migratory species of wild animals	Y		
1991 London	Agreem. - Conservation of bats in Europe	Y		
1992 New York	Agreem. - Conservation of small cetaceans of the Baltic and the North Seas (ASCOBANS)	Y		
1996 Monaco	Agreem. - Conservation of cetaceans of the Black Sea, Mediterranean Sea			
1996 The Hague	Agreem. - Conservation of African-Eurasian migratory waterbirds			
1982 Montego Bay	Conv. - Law of the sea	Y	S	R
1994 New York	Agreem. - relating to the implementation of part XI of the convention	Y	S	S
1995 New York	Agreem. - Implementation of the provisions of the convention relating to the conservation and management of straddling fish stocks and highly migratory fish stock:		R	R
1983 Geneva	Agreem. - Tropical timber	Y	R	R
1994 New York	Revised agreem. - Tropical timber	Y	R	R
1985 Vienna	Conv. - Protection of the ozone layer	Y	R	R
1987 Montreal	Protocol (substances that deplete the ozone layer)	Y	R	R
1990 London	Amendment to protocol	Y	R	R
1992 Copenhagen	Amendment to protocol	Y	R	R
1997 Montreal	Amendment to protocol	Y	R	
1986 Vienna	Conv. - Early notification of a nuclear accident	Y	R	R
1986 Vienna	Conv. - Assistance in the case of a nuclear accident or radiological emergency	Y	S	R
1989 Basel	Conv. - Control of transboundary movements of hazardous wastes and their disposal	Y	R	S
1995 Geneva	Amendment			
1999 Basel	Prot. - Liability and compensation for damage			

**OECD EPR / SECOND CYCLE**

Y = in force S = signed R = ratified D = denounced

JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	ESP	SWE	CHE	TUR	UKD	EU	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	R	
R		R	R		R	R	R	R	R	R		R	R	R	R			R	R	R		R	R	R	R	R	
							S	S	S	S							S	S				S			S		
					R	R	R	R	R	R		R			R			R		R	R	R	R			R	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R				R	R	R	R	R	R	R	R	R			R	R			R	R	R	R	R	R		R	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
																		S				S					
		R			R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	R	R	R	R	R	R
					S	R	R		S	R		R		R		R	R	R		S		R				R	R
					S		R		S	R							R					R				R	S
					S				S	S		S			S					S	S			S		S	
R	R	R	R	R	R	R	S	R	R	R	R	S	R	R	R	S	R	R	R	R	R	R	R	S		R	R
R	R	R	R	R	R	R	S	R	R	R	R		R	R	R	S	R	R	R	R	R	R	R	S		R	R
S	S	S	S	S	S		S	S	S	S	S		R	S	S	S	S	R			S	S	S		S	S	
R	R	R	R	R	R		R	R	R	R	R			R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R		R	R	R		R	R	R	R	R			R	R	R		R		R	R	R	R	R		R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R				R	R	R	R				R						R	R				
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	S	R	R	R	R	R	S	R	R		R	S	R	S	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
				R		R	R	R								R		R		R	R	R	R			R	R
																S							S				

**ANNEX II.A: SELECTED MULTILATERAL AGREEMENTS (WORLDWIDE) (cont.)**

Y = in force S = signed R = ratified D = denounced

		CAN	MEX	USA
1989 London	Conv. - Salvage	Y	R	R R
1990 Geneva	Conv. - Safety in the use of chemicals at work (ILO 170)	Y		R
1990 London	Conv. - Oil pollution preparedness, response and co-operation (OPRC)	Y	R	R R
1992 Rio de Janeiro	Conv. - Biological diversity	Y	R	R S
2000 Montreal	Prot. - Biosafety			S
1992 New York	Conv. - Framework convention on climate change	Y	R	R R
1997 Kyoto	Protocol		S	S S
1993 Paris	Conv. - Prohibition of the development, production, stockpiling and use of chemical weapons and their destruction	Y	R	R S
1993 Geneva	Conv. - Prevention of major industrial accidents (ILO 174)	Y		
1993	Agreem. - Promote compliance with international conservation and management measures by fishing vessels on the high seas		R	R R
1994 Vienna	Conv. - Nuclear safety	Y	R	R R
1994 Paris	Conv. - Combat desertification in those countries experiencing serious drought and/or desertification, particularly in Africa	Y	R	R S
1996 London	Conv. - Liability and compensation for damage in connection with the carriage of hazardous and noxious substances by sea		S	
1997 Vienna	Conv. - Supplementary compensation for nuclear damage			S
1997 Vienna	Conv. - Joint convention on the safety of spent fuel management and on the safety of radioactive waste management		R	S
1997 New York	Conv. - Law of the non-navigational uses of international watercourses			
1998 Rotterdam	Conv. - Prior informed consent procedure for hazardous chemicals and pesticides (PIC)			S

Source: IUCN; OECD.



**OECD EPR / SECOND CYCLE**

Y = in force S = signed R = ratified D = denounced

JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	ESP	SWE	CHE	TUR	UKD	EU		
		R					R	S		S	R			R	R		R	R	S		S	R	R		R			
																			R				R					
R		R					R	R	R	R	R		R	R	R		R	R	S		R	R	R			R		
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
	S		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S	S	S			S	S	S	S	S	S	S	S	S	S	S		S	S	
R	S	R	R	R	R	R	R	R	R	R	R	R	S	R	R	S	R	R	R	R	R	R	R	R	S	S		
					S												R					R						
																		R				R					R	
R	R	R		R	R	R	R	R	R	R	R	R	S	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
R	R	S		R	R		R	R	R	R	R	R	R	R	R	R	R	R		R	R	R	R	R	R	R	R	
							S	S		S							S	S				S				S		
		S			S										S													
	S	S		S	S	R	R	S	S	R	S	R		S	S	S	S	R	S		R	R	S			S		
								R		S		R				S	S	R		S		R						
S	S	S	S	S	S	S	S	S	S	S	S	S		S	S	S	S	S	S	S	S	S	S	S	S	S	S	

**ANNEX II.B: SELECTED MULTILATERAL AGREEMENTS (REGIONAL)**

Y = in force S = signed R = ratified D = denounced

			CAN	MEX	USA
1885 Berlin	Treaty - Regulation of Salmon Fishery in the Rhine River Basin	Y			
1920	Treaty - Spitsberg	Y			
1933 London	Conv. - Preservation of fauna and flora in their natural state	Y			
1940 Washington	Conv. - Nature protection and wild life preservation in the Western Hemisphere	Y		R	R
1946 London	Conv. - Regulation of the meshes of fishing nets and the size limits of fish	Y			
1958 Dublin	Amendments	Y			
1960 London	Amendments	Y			
1961 Copenhagen	Amendments	Y			
1962 Hamburg	Amendments	Y			
1963 London	Amendments	Y			
1949 Washington	Conv. - Establishment of an inter-American tropical tuna commission	Y	D	D	R
1950 Brussels	Agreem. - Prior consultation concerning setting up near the border of permanent storage of explosive substances	Y			
1950 Paris	Conv. - Protection of birds	Y			
1950 Brussels	Protocole to establish a tripartite standing committee on polluted waters	Y			
1952 Tokyo	Conv. - High seas fisheries of the North Pacific Ocean	Y	R		R
1978 Tokyo	Protocol	Y	R		R
1992 Moscow	Conv. - Conservation of anadromous stocks (North Pacific Ocean)	Y	R		S
1956 Rome	Agreem. - Plant protection for the Asia and Pacific region	Y			
1957 Washington	Conv. - Conservation of North Pacific fur seals	Y	R		R
1969 Washington	Extension		R		R
1957 Geneva	Agreem. - International carriage of dangerous goods by road (ADR)	Y			
1975 New York	Protocol	Y			
1958 Geneva	Agreem. - Adoption of uniform conditions of approval and reciprocal recognition of approval for motor vehicle equipments and parts	Y			
1958 Bucharest	Conv. - Fishing in the waters of the Danube	Y			
1959 Washington	Treaty - Antarctic	Y	R		R
1991 Madrid	Protocol to the Antarctic treaty (environmental protection)	Y	S		R
1960 Paris	Conv. - Third party liability in the field of nuclear energy	Y			
1963 Brussels	Supplementary convention	Y			
1964 Paris	Additional protocol to the convention	Y			
1964 Paris	Additional protocol to the supplementary convention	Y			
1982 Brussels	Protocol amending the convention	Y			
1982 Brussels	Protocol amending the supplementary convention	Y			
1988 Vienna	Joint protocol relating to the application of the Vienna Convention and the Paris Convention	Y			
1960 Steckborn	Agreem. - Protection of Lake Constance against pollution	Y			
1966 Bern	Regulation (water withdrawal)	Y			
1961 Paris	Prot. - Constitution of an int'l commission for the protection of the Mosel against pollution	Y			
1990 Brussels	Complementary protocol (int'l commi. for the protection of Mosel and Sarre)	Y			
1992 Maria Laach	2d compl.prot. (to int'l commi. protec. of Mosel and Sarre, and to first compl. prot.)	Y			
1962 Stockholm	Agreem. - Protection of the salmon in the Baltic Sea	Y			
1972 Stockholm	Protocol	Y			



**ANNEX II.B: SELECTED MULTILATERAL AGREEMENTS (REGIONAL) (cont.)**

Y = in force S = signed R = ratified D = denounced

		CAN	MEX	USA
1963 Bern	Agreem. - International commission for the protection of the Rhine against pollution	Y		
1976 Bonn	Supplementary agreement	Y		
1976 Bonn	Conv. - Protection of the Rhine against chemical pollution	Y		
1976 Bonn	Conv. - Protection of the Rhine from pollution by chlorides (modified by exchanges of letters)	Y		
1991 Brussels	Protocol	Y		
1999 Bern	Conv. - Protection of the Rhine			
1964 Brussels	Agreem. - Measures for the conservation of Antarctic Fauna and Flora	Y		R
1964 London	Conv. - Fisheries	Y		
1966 Rio de Janeiro	Conv. - International convention for the conservation of Atlantic tunas (ICCAT)	Y	R	R
1967 Mexico	Treaty - Prohibition of nuclear weapons in Latin America			R
1967 London	Conv. - Conduct of fishing operations in the North Atlantic	Y	S	S
1968 Strasbourg	Agreem. - Restriction of the use of certain detergents in washing and cleaning products	Y		
1983 Strasbourg	Protocol	Y		
1968 Paris	Conv. - Protection of animals during international transport	Y		
1979 Strasbourg	Protocol	Y		
1969 London	Conv. - Protection of the archaeological heritage	Y		
1969 Rome	Conv. - Conservation of the living resources of the Southeast Atlantic	Y		
1970 Brussels	Conv. - Benelux convention on the hunting and protection of birds	Y		
1972 Oslo	Conv. - Prevention of marine pollution by dumping from ships and aircraft	Y		
1983	Protocol	Y		
1972 London	Conv. - Conservation of Antarctic seals	Y	R	R
1973 Oslo	Agreem. - Conservation of polar bears	Y	R	R
1973 Gdansk	Conv. - Fishing and conservation of the living resources in the Baltic Sea and the Belts	Y		
1982 Warsaw	Amendments	Y		
1974 Stockholm	Conv. - Nordic environmental protection	Y		
1974 Paris	Conv. - Prevention of marine pollution from land-based sources	Y		
1986 Paris	Protocol	Y		
1992 Paris	Conv. - Protection of North-East Atlantic marine env. (replace Oslo-1972 and Paris-1974)	Y		
1974 Helsinki	Conv. - Protection of the marine environment of the Baltic Sea area	Y		
1992 Helsinki	Conv. - Protection of the marine environment of the Baltic Sea area (amendment)			
1976 Barcelona	Conv. - Protection of the Mediterranean Sea against pollution	Y		
1976 Barcelona	Protocol (dumping from ships and aircraft)	Y		
1995 Barcelona	Protocol (dumping from ships and aircraft or incineration at sea)			
1976 Barcelona	Protocol (pollution by oil and other harmful substances in cases of emergency)	Y		
1980 Athens	Protocol (pollution from land-based sources)	Y		
1996 Syracuse	Protocol (pollution from land-based sources and activities)			
1982 Geneva	Protocol (specially protected areas)	Y		
1996 Monaco	Protocol (specially protected areas and biological diversity)			
1994 Madrid	Protocol (pollution from exploitation of continental shelf, seabed and subsoil)			
1996 Izmir	Protocol (pollution by transboundary movements of hazardous wastes and their disposal)			
1995 Barcelona	Amendment to convention			
1976 Apia	Conv. - Conservation of nature in the South Pacific	Y		
1978 Ottawa	Conv. - Future multilateral co-operation in the Northwest Atlantic fisheries (NAFO)	Y	R	
1979 Bern	Conv. - Conservation of European wildlife and natural habitats	Y		

OECD EPR / SECOND CYCLE

Y = in force S = signed R = ratified D = denounced

JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	ESP	SWE	CHE	TUR	UKD	EU
								R	R						R	R							R			R
								R	R						R	R							R			R
								R	R						R	R							R			R
								R	R						R	R							R			
								S	S						S	S							S			S
R		R	R		R			R						R			R	R								R
					R		R	R	R				R	R	S	R		R	R	R	R	R				R
R	R							R													R	R				
					R		R	R	R			R	S	R			R	R	S	R	R	R				R
					R		R	R	R					R	R	R	R					R		R		R
					R		R	R	R					R	R	R	R					R		R		R
					R		R	R	R					R	R	R	R					R		R		R
					R		R	R	R					R	R	R	R					R		R		R
					R		R	R	R					R	R	R	R					R		R		R
D	R				D			R	R										R	R	R					
					R											R	R									
					R		R	R	R				R	R			R	R				R		R		R
					R		R	R	R				R	R			R	R				R		R		R
R		R	S		R			R	R					R			R	R								R
							R										R									
							D	R		D									R				R			R
							D	R		D									R				R			R
							R	R											R				R			
					R		R		R	R			R	R		S	R	R			R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R			R	R		R	R				R	R	R			R
					R		R		R	R																

**ANNEX II.B: SELECTED MULTILATERAL AGREEMENTS (REGIONAL) (cont.)**

Y = in force S = signed R = ratified D = denounced

		CAN	MEX	USA
1979 Geneva	Conv. - Long-range transboundary air pollution	Y	R	R
1984 Geneva	Protocol (financing of EMEP)	Y	R	R
1985 Helsinki	Protocol (reduction of sulphur emissions or their transboundary fluxes by at least 30%)	Y	R	
1988 Sofia	Protocol (control of emissions of nitrogen oxides or their transboundary fluxes)	Y	R	R
1991 Geneva	Protocol (control of emissions of volatile organic compounds or their transboundary fluxes)	Y	S	S
1994 Oslo	Protocol (further reduction of sulphur emissions)	Y	R	
1998 Aarhus	Protocol (heavy metals)		R	S
1998 Aarhus	Protocol (persistent organic pollutants)		R	S
1999 Gothenburg	Protocol (abate acidification, eutrophication and ground-level ozone)		S	S
1979 Honiara	Conv. - South Pacific Forum Fisheries Agency	Y		
1980 Madrid	Conv. - Transfrontier co-operation between territorial communities or authorities	Y		
1995 Strasbourg	Additional protocol	Y		
1998 Strasbourg	Second protocol			
1980 Canberra	Conv. - Conservation of Antarctic marine living resources	Y	R	R
1980 Bern	Conv. - International carriage of dangerous goods by train (COTIF)			
1980 London	Conv. - Multilateral co-operation in North-East Atlantic fisheries	Y		
1982 Brussels	Conv. - Benelux convention on nature conservation and landscape protection	Y		
1982 Paris	Memorandum of understanding on port state control	Y	R	
1982 Reykjavik	Conv. - Conservation of salmon in the North Atlantic Ocean	Y	R	R
1983 Bonn	Agreem. - Co-operation in dealing with poll. of the North Sea by oil and other harmful subst.	Y		
1989 Bonn	Amendment	Y		
1983 Cartagena	Conv. - Protection and development of the marine environment of the wider Caribbean region	Y	R	R
1983 Cartagena	Protocol (oil spills)	Y	R	R
1990 Kingston	Protocol (specially protected areas and wildlife)		S	S
1985 Nairobi	Conv. - Protection, management and development of the marine and coastal environment of the Eastern African region	Y		
1985 Nairobi	Protocol (protected areas and wild fauna and flora in the Eastern African region)			
1985 Nairobi	Protocol (co-operation in combating marine pollution in cases of emergency in the Eastern African region)			
1985 Rarotonga	Conv. - South Pacific nuclear free zone treaty	Y		S
1986 Noumea	Conv. - Protection of the natural resources and environment of the South Pacific region	Y		R
1986 Noumea	Protocol (prevention of pollution by dumping)	Y		R
1986 Noumea	Protocol (co-operation in combating pollution emergencies)	Y		R
1993 Apia	Agreem. - South Pacific Regional Environment Programme (SPREP)			S
1987 Port Moresby	Treaty - South Pacific fisheries			R
1988	Agreem. - Conservation of wetlands and their migratory birds		R	R
1989 Stockholm	Agreem. - Transboundary co-operation with a view to preventing or limiting harmful effects for human beings, property or the environment in the event of accident:	Y		
1989	Agreem. - Co-operation in environmental protection			
1989 Geneva	Conv. - Civil liability for damage caused during carriage of dangerous goods by road, rail, and inland navigation vessels (CRTD)			
1989 Wellington	Conv. - Prohibition of fishing with long driftnets in the South Pacific	Y		R
1990 Noumea	Protocol	Y		R
1990 Noumea	Protocol	Y	S	
1990 Lisbon	Agreem. - Co-op. for the protection of the coasts and waters of the North-East Atlantic			



**ANNEX II.B: SELECTED MULTILATERAL AGREEMENTS (REGIONAL) (cont.)**

Y = in force S = signed R = ratified D = denounced

		CAN	MEX	USA
1990	Conv. - establishing a marine scientific organization for the North Pacific Region (PICES)	Y	R	R
1991 Espoo	Conv. - Environmental impact assessment in a transboundary context	Y	R	S
1991 Salzburg	Conv. - Protection of Alps	Y		
1994 Chambery	Prot. - Nature protection and landscape conservation			
1994 Chambery	Prot. - Town and Country Planning and Sustainable Development			
1994 Chambery	Prot. - Mountain agriculture			
1996 Brdo	Prot. - Mountain forests			
1996 Brdo	Prot. - Tourism			
1992 Helsinki	Conv. - Transboundary effects of industrial accidents	S		S
1992 Bucharest	Conv. - Protection of the Black Sea against pollution	Y		
1992 Bucharest	Protocol (combating pollution by oil and other harmful substances in emergency situation)	Y		
1992 Bucharest	Protocol (protection of the Black Sea marine environment against pollution from dumping)			
1992 Bucharest	Protocol (protection of the Black Sea marine env. against poll. from land based sources)			
1992 Viña del Mar	Memorandum of understanding on port state control in Latin America		R	
1992 Nuuk	Agreem. - Co-op. on research, conservation and manag <sup>e</sup> of marine mammals in the N. Atlantic			
1992 Helsinki	Conv. - Protection and use of transboundary water courses and international lakes	Y		
1999 London	Prot. - Water and health			
1992 La Valette	European Conv. - Protection of the archaeological heritage (revised)	Y		
1992 Vienna	Agreem. - Forecast, prevention and mitigation of natural and technological disasters			
1992 Honiara	Treaty - Cooperation in fisheries surveillance and law enforcement in the South Pacific region			
1993 Lugano	Conv. - Civil liability for damage resulting from activities dangerous to the environment			
1993	North American agreement on environmental co-operation	Y	R	R
1993 Copenhagen	Agreem. - Co-op. in the prevention of marine poll. from oil and other dangerous chemicals	Y		
1993 Tokyo	Memorandum of understanding on port state control in the Asia-Pacific region		R	
1993 Canberra	Conv. - Conservation of Southern Pacific bluefin tuna	Y		
1993	Agreem. - Establishment of the Indian Ocean Tuna Commission	Y		
1994 Lisbon	Treaty - Energy Charter	Y		
1994 Lisbon	Protocol (energy efficiency and related environmental aspects)	Y		
1994 Sofia	Conv. - Co-operation for the protection and sust. use of the Danube river			
1994 Charleville-Mézières	Agreem.-Protection of the Meuse	Y		
1994 Charleville-Mézières	Agreem.-Protection of the Scheldt	Y		
1990 Magdeburg	Agreem.-International commission for the protection of the Elbe river			
1994 Washington	Conv. - Conservation and management of pollock resources in the Central Bering Sea			S
1995 Port Moresby	Conv. - Regional convention on hazardous and radioactive wastes (Waigani Convention)			
1996	Agreem. - Transfrontier co-operation with Saarlorlux-Rhineland-Palatinate regions			
1996 Karlsruhe	Agreem. - Transfrontier co-operation	Y		
1996	Memorandum of understanding to establish trilateral committee for wildlife, plants and ecosystem management		R	R
1996	Agreem. - Exchange of immissions data in the Black Triangle			
1996 Strasbourg	Conv. - Disposal of waste and waste water generated from navigation on the Rhine			
1996 Wroclaw	Agreem.-International commission for the protection of the Oder river against pollution			
1998 Aarhus	Conv. - Access to env <sup>3</sup> information and public participation in env <sup>3</sup> decision-making			
1998 Strasbourg	Conv. - Protection of the environment through criminal law			
2000 Florence	Conv. - European lanscape convention			

Source: IUCN; OECD.



**OECD EPR / SECOND CYCLE**

Y = in force S = signed R = ratified D = denounced

JPN	KOR	AUS	NZL	AUT	BEL	CZE	DNK	FIN	FRA	DEU	GRC	HUN	ISL	IRL	ITA	LUX	NLD	NOR	POL	PRT	ESP	SWE	CHE	TUR	UKD	EU	
R																											
				R	R	S	R	R	S	S	R	R	S	S	R	R	R	R	R	R	R	R	R	R		R	R
				R					R	R					R									R			R
									S	S					S									S			S
									S	S					S									S			S
									S	S					S									S			S
									S	S					S									S			S
									S	S					S									S			S
									S	S					S									S			S
				R	S		S	S	S	R	R	R			S	R	S	R	S	S	R	S	R	R		S	R
																											R
																											R
																											R
													S						S								
				R	R	R	R	R	R	R	R	R			R	R	R	R	R	R	R	R	R	R		S	R
				S	S	S	S	S	S	S	S	S	S		S	S	S	S	S	S	S	S	S	S		S	
					S	S	R	R	S	S	R		R	S	S	S	R	R	R	S	R	R	S		S	S	
	S											S			S				S								
	R							S			S		S		S	S	S			S							
							R	R					R					R					R				
R		R	R																								
R		R	R																								
R	R	R																									R
S		S		R	R	R	R	R	R	R	R	R	S	R	R	R	R	S	S	R	R	R	R	R	S	R	R
S		S		R	R	R	R	R	R	R	R	R	S	R	R	R	R	S	S	R	R	R	R	R	S	R	R
				S						S		R															
				R					R									R									
				R					R									R									
							R			R																	R
S	S																		S								
		S	S																								
					S					S	S																
					S					S	S							S									
										S	S																
					S					S																	S
				S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
				S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
				S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S

## **Annex III**

# **SELECTED ENVIRONMENTAL INDICATORS AND TRENDS**

### **INTERNATIONAL CO-OPERATION**

- Multilateral environmental agreements
- Regional issues: acidification
- Global issues: climate change
- Global issues: ozone layer
- Official development assistance

### **POLLUTION CONTROL AND NATURE CONSERVATION**

- Water management
- Air management
- Waste management
- Nature conservation
- Pollution abatement and control expenditure

### **SECTORAL INTEGRATION**

- Industry
- Energy
- Transport
- Agriculture
- Forestry
- Fisheries

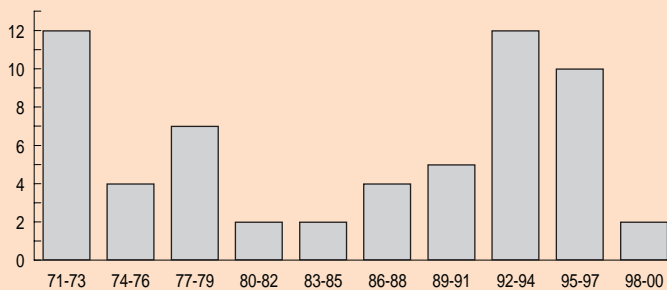
### **TECHNICAL NOTES**

### Multilateral environmental agreements

Over the last 30 years, OECD countries have signed many worldwide and regional conventions aiming at environmental protection. Activity was particularly high around the time of the Stockholm Conference in 1972 and UNCED in 1992. Implementing these agreements, however, remains a source of concern. Some ratifications have been postponed and preventive policies need time before having effects on the environment.

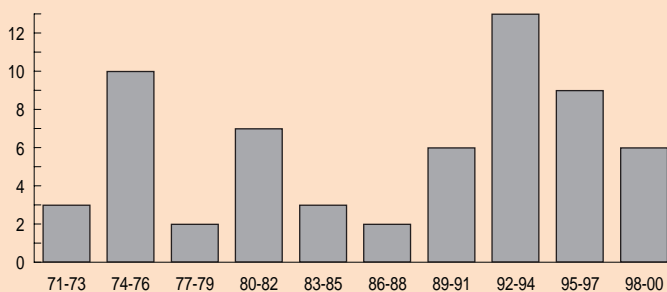
#### Worldwide agreements

Number of new agreements in each period



#### Regional European agreements

Number of new agreements in each period

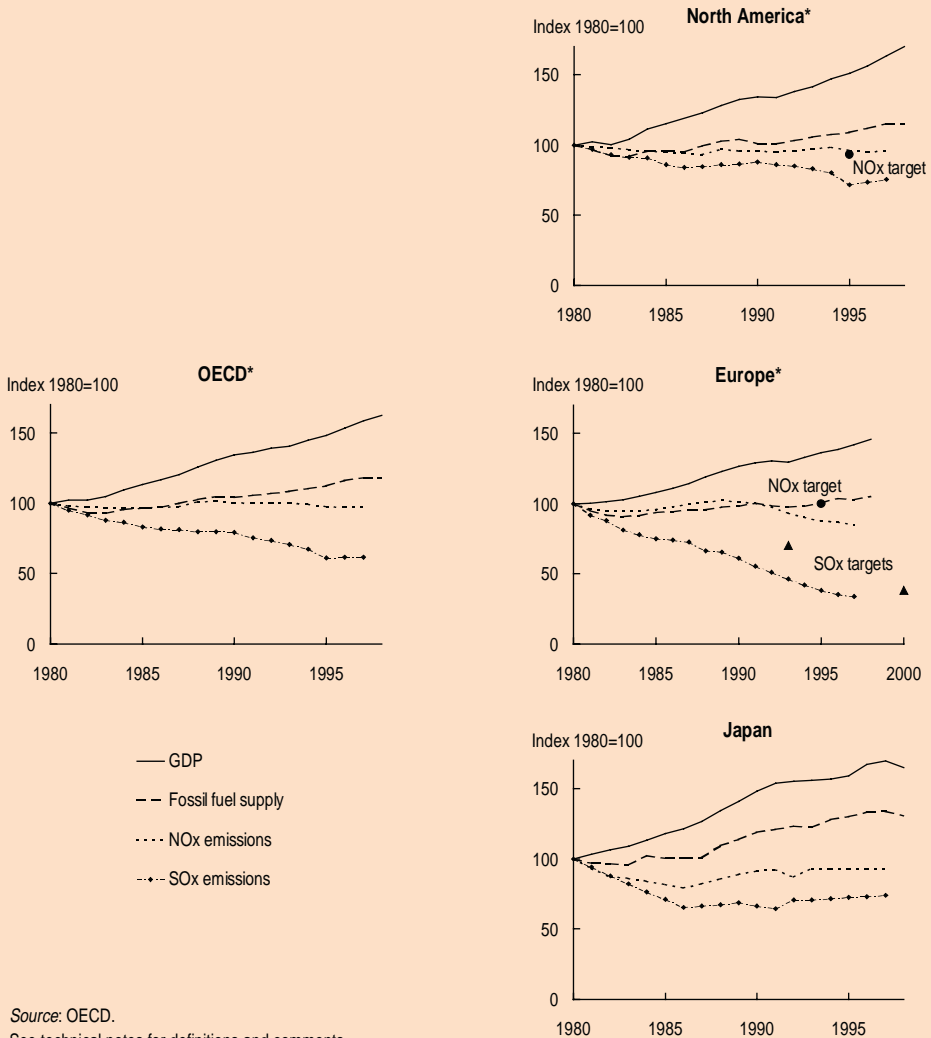


Source: OECD.

See technical notes for definitions and comments.

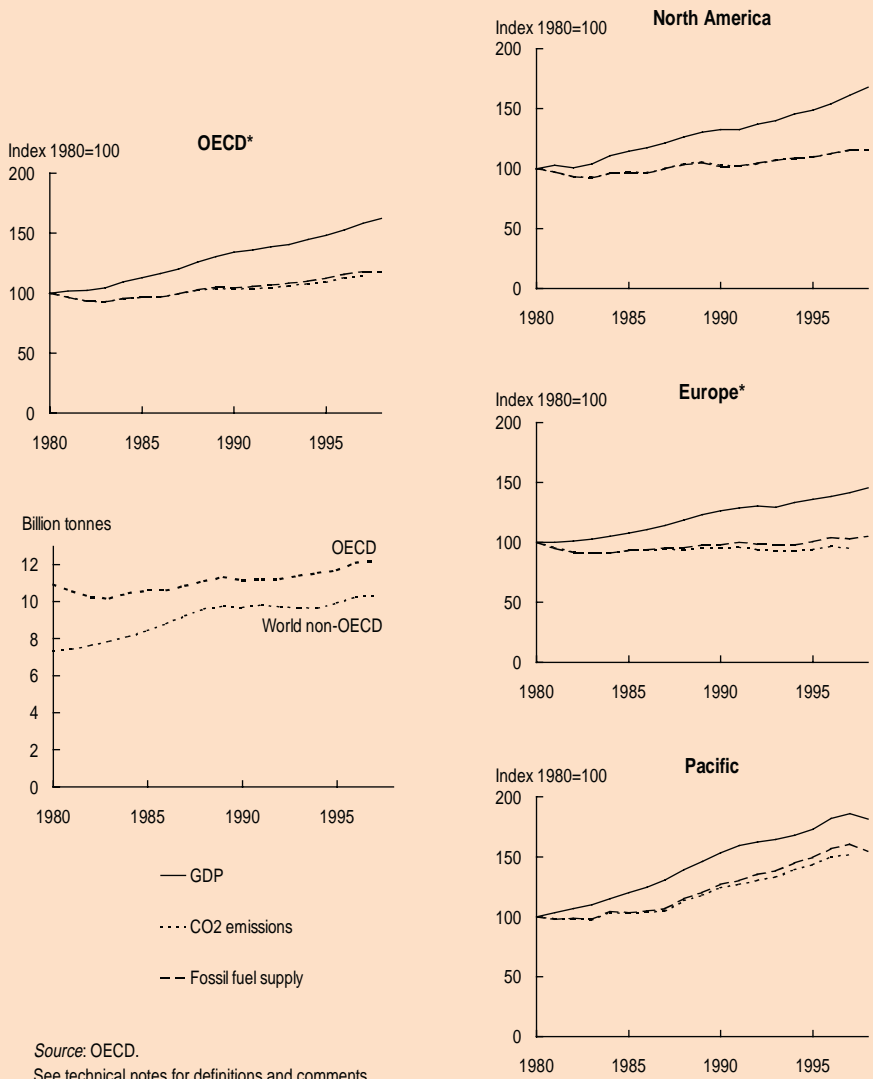
**Regional issues: acidification**

Over the past 20 years, emissions of acidifying substances and related transboundary air pollution have been considerably reduced throughout OECD. SOx emissions have decreased significantly in Europe and have been successfully decoupled from fossil fuel use and economic growth. European countries' early commitments to reduce SOx emissions have been achieved, and new agreements have been adopted in Europe and North America to reduce acid precipitation even further. NOx emissions have been stabilised or slightly reduced more recently, with differences among and within regions. In some European OECD countries, the commitment to stabilise NOx emissions by the end of 1994 to their 1987 levels, as agreed in the Sofia Protocol, has not been met.



### Global issues: climate change

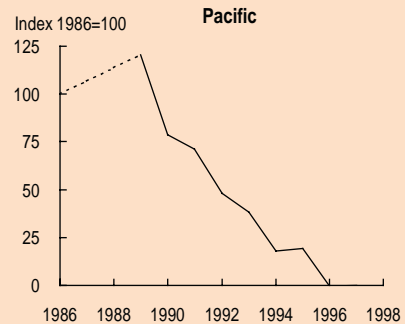
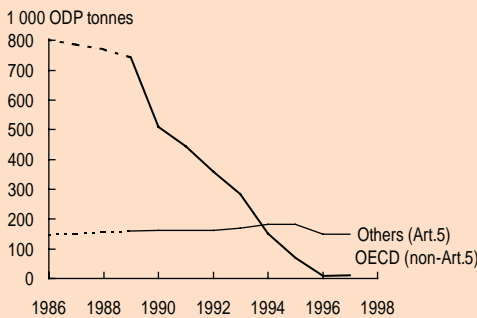
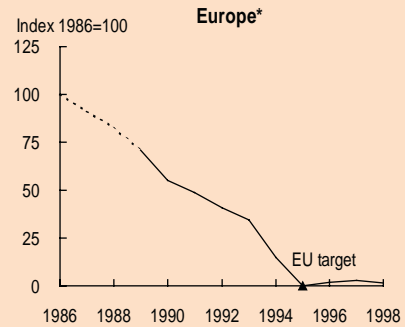
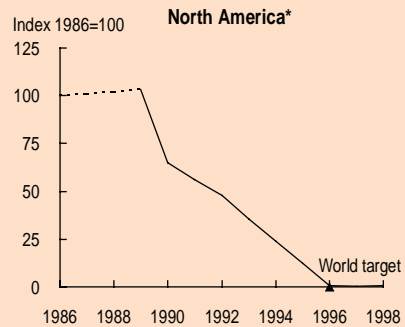
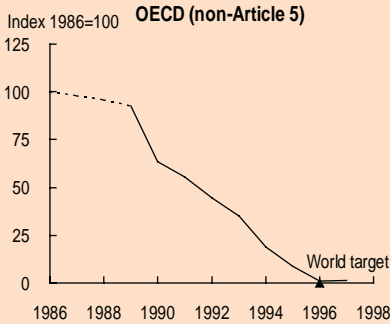
At the 1992 UN Conference on Environment and Development in Rio, the international community took up the issue of climate change and a consensus was reached on the need to limit global emissions of CO<sub>2</sub> and other greenhouse gases. This goal was reinforced in 1997 in the Kyoto Protocol relating to six greenhouse gases. However, CO<sub>2</sub> emissions are still growing in many countries, and most countries have not succeeded in meeting their own national commitments.



### Global issues: ozone layer

The issue of ozone layer depletion was taken up in 1985 under the Convention for the Protection of the Ozone Layer, followed by the Montreal Protocol and its London and Copenhagen Amendments. Countries' commitments have led to remarkable achievements, and CFC production and consumption have decreased considerably. The targets set have been reached earlier than originally called for, and new and more stringent targets have been adopted. However, use and release of CFCs remain a concern. Ozone depletion over Antarctica and over the Arctic remain a source of concern, notably because of the long time lag between the release of ozone depleting substances and their arrival in the stratosphere.

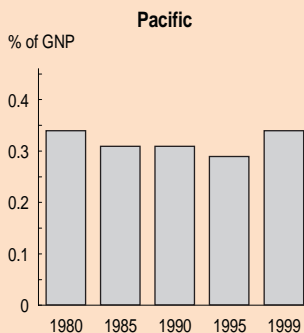
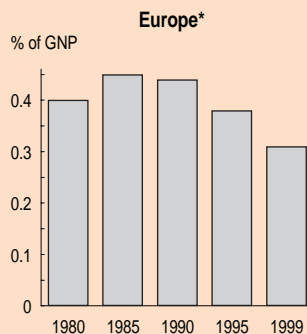
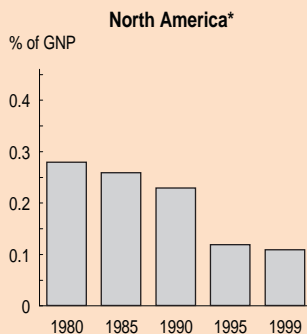
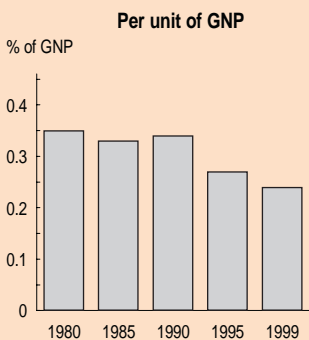
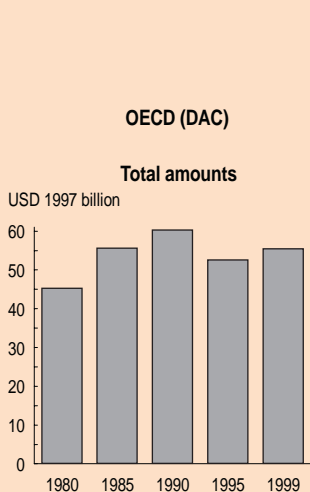
#### CFC Consumption



Source: OECD.  
See technical notes for definitions and comments.

### Official development assistance

During the 1990s, total development assistance fell in most OECD countries. Expressed as a percentage of GNP, assistance has been decreasing since 1990 and is now at the lowest level since 1980, much below the target agreed in Rio (0.7 per cent of GDP). While environmental aid has generally grown, and accounts for about 10 to 20 per cent of total aid, this growth has been at the expense of other types of aid. To improve environmental protection in developing countries, and to provide them with means to facilitate the implementation of international agreements, the quantity and quality of environmental aid would need to be reviewed and strengthened.

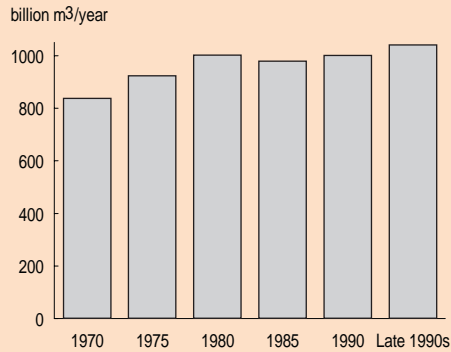


Source: OECD.  
See technical notes for definitions and comments.

## Water management

Most countries still face at least seasonal or local water quantity problems. In more arid regions, freshwater resources may at times be limited to the extent that demand for water can be met only by going beyond sustainable use in terms of quantity and possibly of quality. Furthermore, supplying permanently safe drinking water to the full population remains a challenge in most OECD countries.

### Water withdrawn, OECD

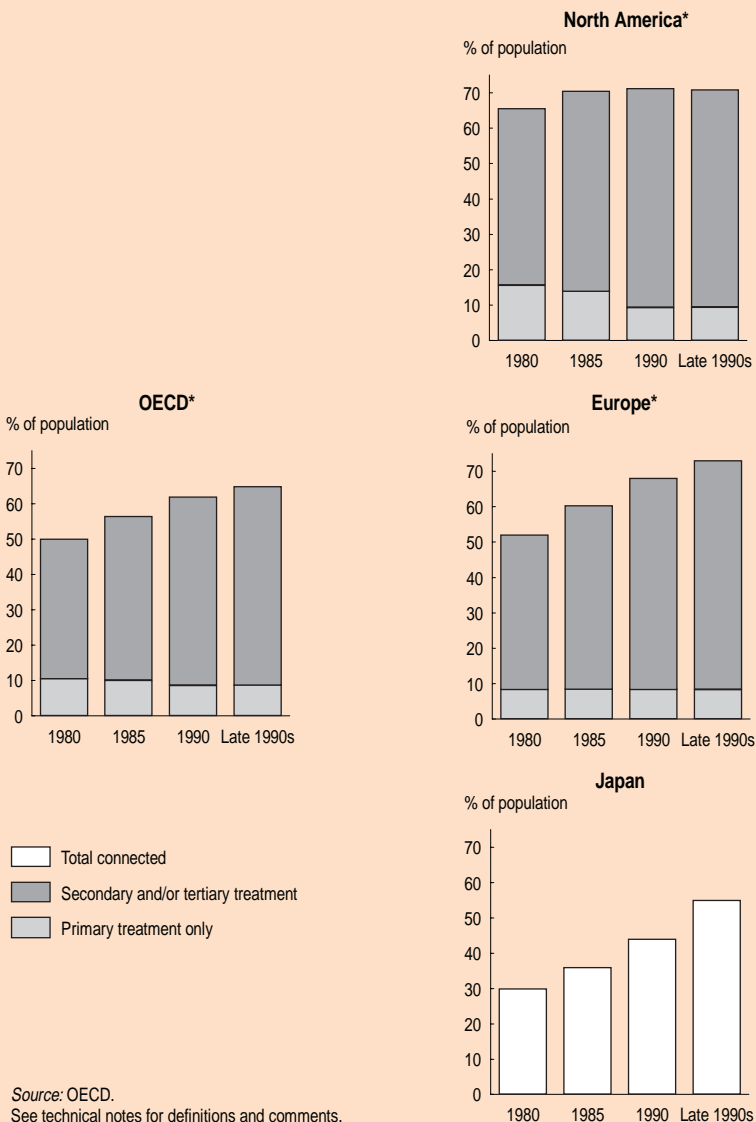


Source: OECD.  
See technical notes for definitions and comments.



Significant progress has been made in reducing water pollution from point discharges through installation of appropriate waste water treatment plants. Across OECD, about 60 per cent of the population is connected to municipal waste water treatment. The level of equipment varies greatly: in most countries, existing installations provide mostly secondary treatment and tertiary treatment is increasingly carried out; other countries are still completing sewerage networks or the installation of first generation treatment plants.

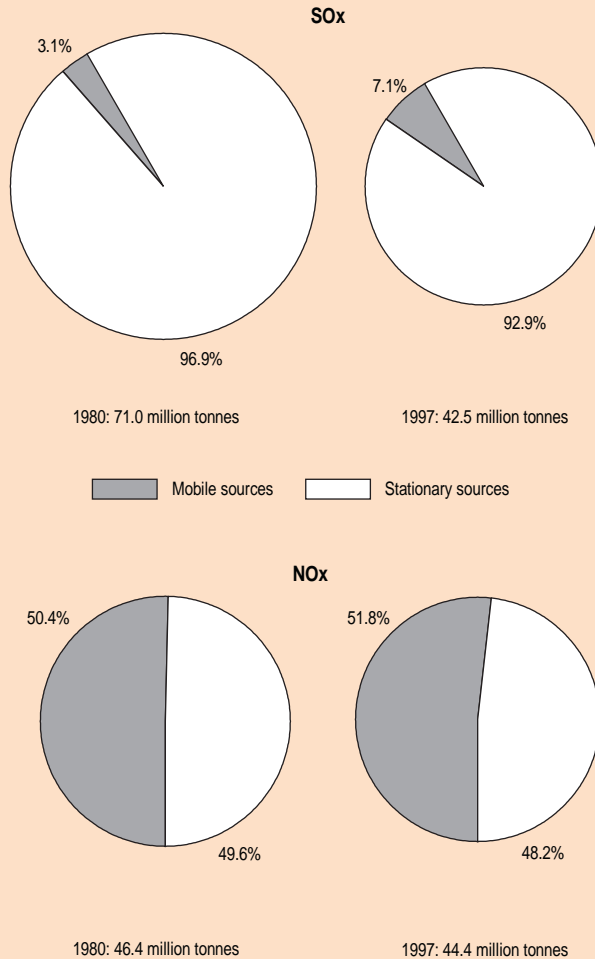
Waste water treatment



### Air management

Since the 1980s, progress has been made in reducing SO<sub>x</sub> emissions. This is the combined benefit of countries' efforts to control large-scale stationary emission sources and of structural changes in energy demand and economic activity. NO<sub>x</sub> emissions have not been reduced as significantly, due to the steady increase in road traffic and fossil energy use.

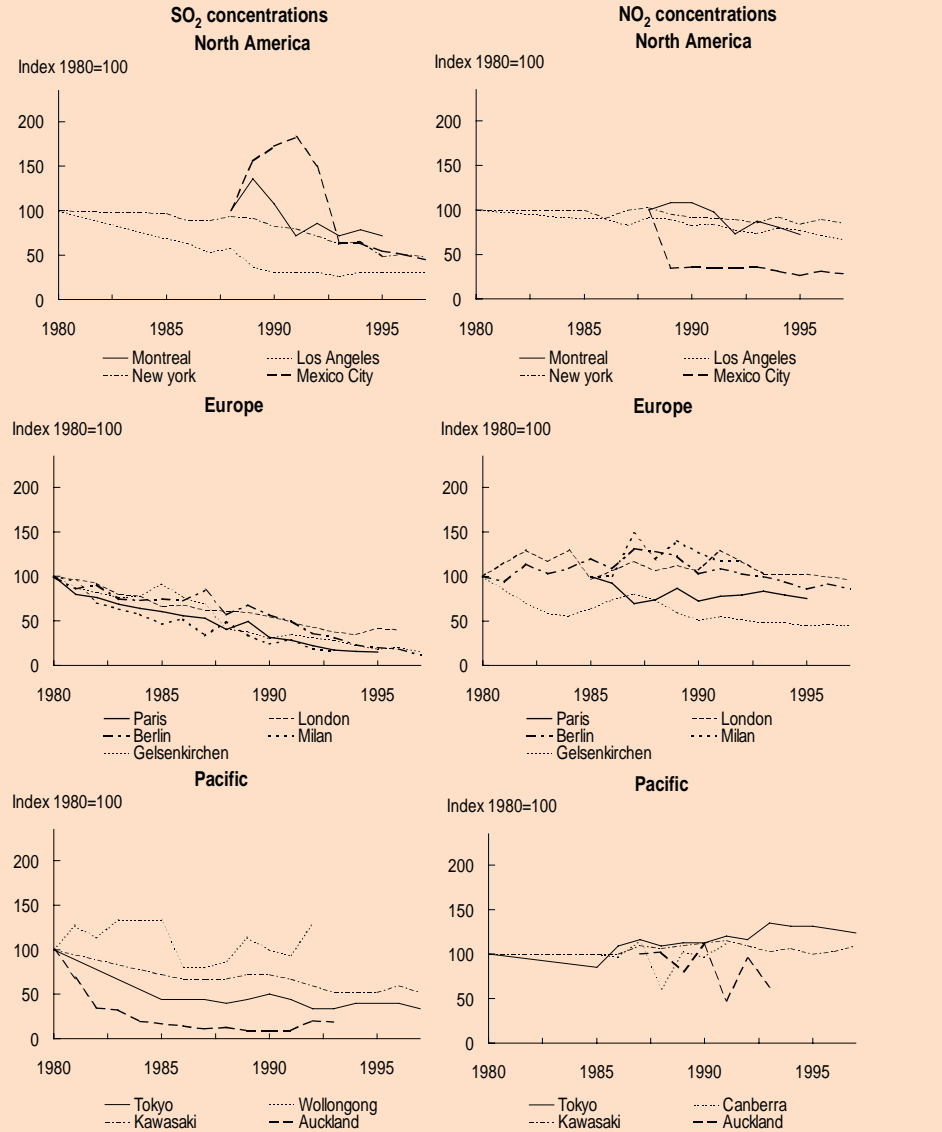
#### Emissions of SO<sub>x</sub> and NO<sub>x</sub>, OECD



Source: OECD.

See technical notes for definitions and comments.

Urban air quality (e.g. SO<sub>2</sub>, particulates, CO concentrations) slowly continued to improve in the 1990s. However, acute ground-level ozone pollution episodes and concentrations of NO<sub>2</sub>, toxic air pollutants and fine particulates as well as related health effects, are causes of growing concern. This is largely due to the continuing concentration of pollution sources, and increasing use of motor vehicles in urban areas.



Source: OECD.  
See technical notes for definitions and comments.

## Waste management

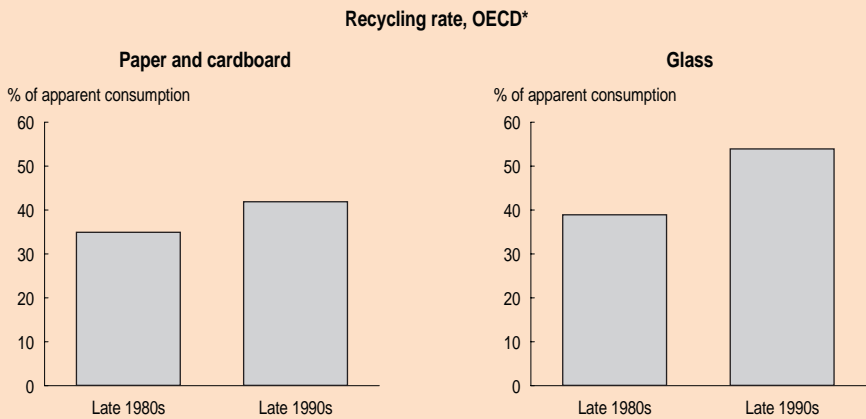
Amounts of municipal waste generated have been increasing over the past 20 years, with lower growth rates during the 1990s. Waste quantities are largely influenced by the level and structure of private consumption. Despite considerable progress in waste recovery and recycling, mastering waste problems remains a major challenge, with increasing costs per tonne of waste properly managed.

### Municipal waste generation



Source: OECD.  
See technical notes for definitions and comments.

Waste management issues are at the centre of many countries' environmental concerns. Increasingly, efforts are aimed at waste minimisation, which can be achieved through waste prevention, recycling and recovery, and, more broadly, better integration of environmental concerns in consumption and production patterns. In the 1990s, recycling markedly improved. Recycling rates for paper and glass increased in most OECD countries.

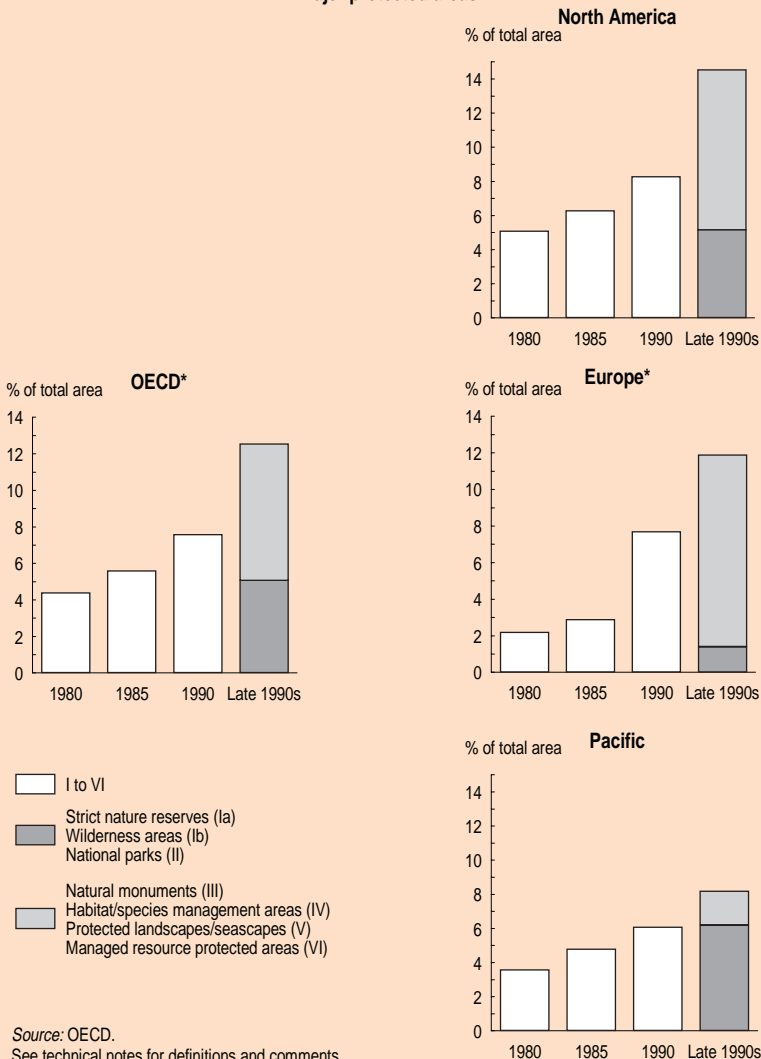


Source: OECD.  
See technical notes for definitions and comments.

### Nature conservation

The extend and number of protected areas have been growing in many OECD countries since 1980, and a greater effort has been made to ensure protection of all representative ecosystems. For the whole OECD, the area now protected amounts to about 13 per cent of the territory. The composition of protected areas, however, varies greatly among Member countries. Actual protection levels and related trends remain difficult to evaluate, as they concern not only the extent of protected sites but also the effectiveness of management and the achievement of protection objectives. Serious efforts still need to be made to strengthen the actual degree of protection.

#### Major protected areas

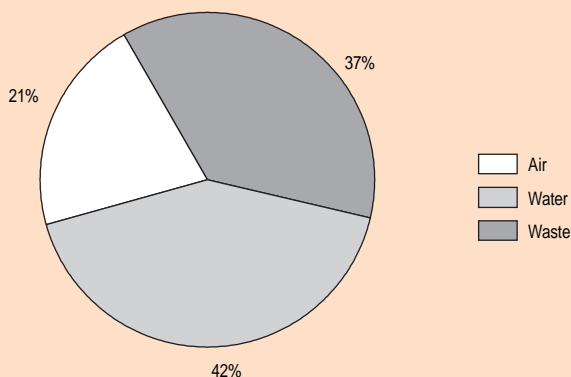


### Pollution abatement and control expenditure

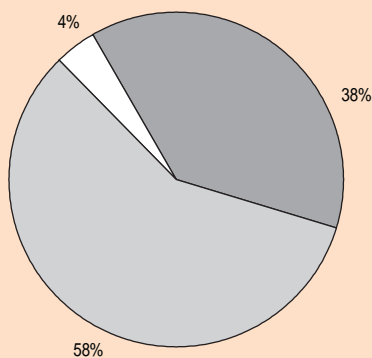
Since the 1980s, total pollution abatement and control (PAC) expenditure by the public and private sectors has grown somewhat more than GDP, consistent with the implementation of stronger pollution prevention and control policies. PAC expenditure in the 1990s generally amounts to 1 to 2 per cent of GDP. Public PAC expenditure on water has been very significant, and expenditure on waste is growing rapidly. PAC expenditure data are not available for all Member countries, however, and efforts need to be made to accurately estimate environmental expenditure throughout the OECD and to better evaluate the cost-effectiveness of environmental policies. The figures below are based on information from 14 OECD countries, representing more than 70 per cent of total GDP in the OECD.

#### PAC expenditure, late 1990s

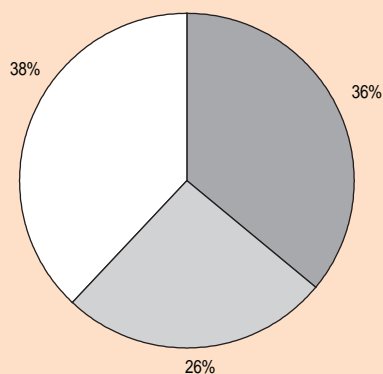
##### Total expenditure



##### Public expenditure



##### Private expenditure



Source: OECD.  
See technical notes for definitions and comments.

## Industry

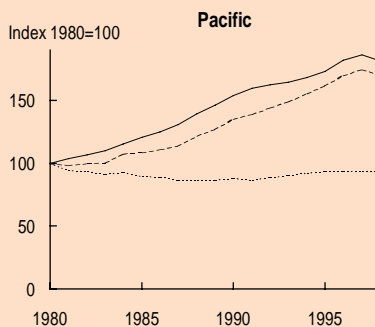
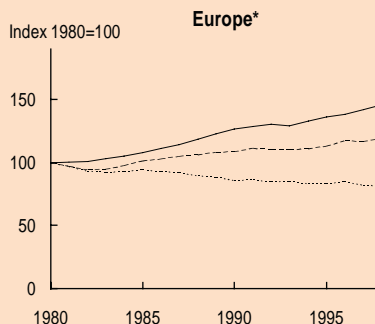
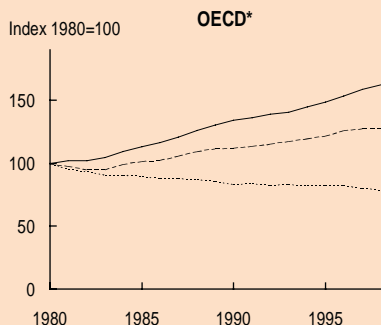
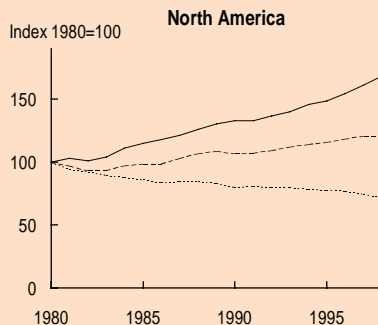
The level and structure of industrial production are important determinants of economic activity and the ways it affects the environment. Although overall industrial production has increased in line with GDP, structural change in industry, the regulation of large point sources and the modernisation of plant and equipment associated with cleaner processes have led to significant progress in reducing industry's relative contribution to air and water pollution.





### Energy

During the 1980s, energy intensity generally decreased in the OECD as a consequence of structural changes in the economy and energy conservation measures. From the mid 1980s to the late 1990s, progress has been slow due to lower oil prices. Results achieved to date are insufficient and the environmental implications of increasing energy use are a major concern in most OECD countries.

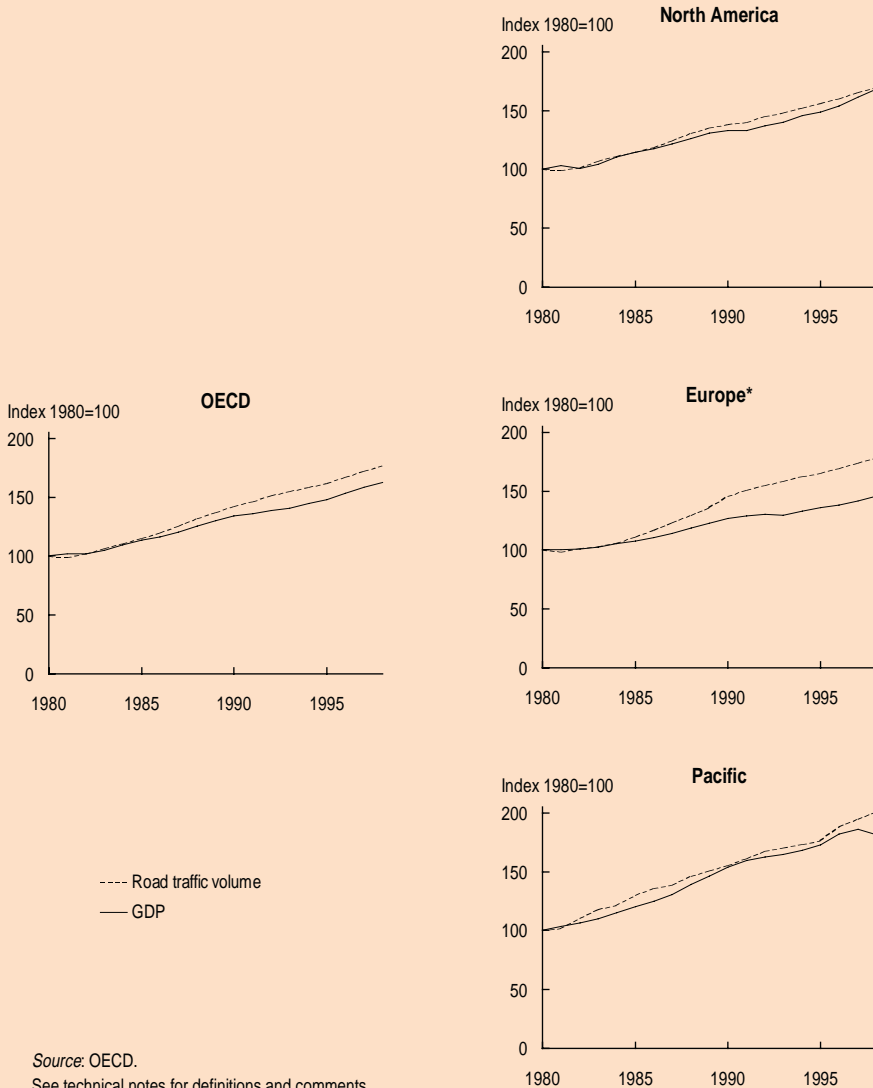


— GDP  
 - - - Energy supply  
 ····· Energy intensity

Source: OECD.  
 See technical notes for definitions and comments.

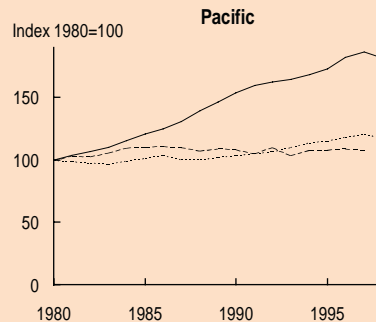
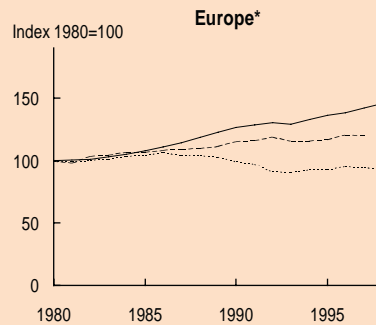
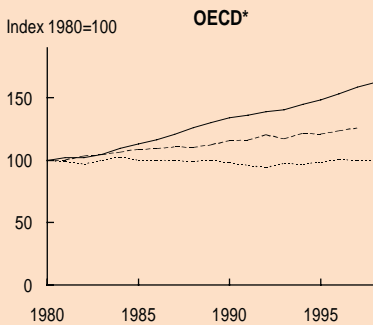
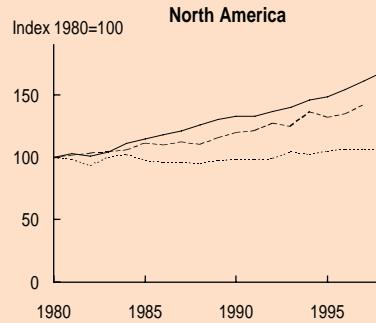
## Transport

Over the last 20 years, countries' efforts to introduce cleaner vehicles have been largely offset by the growth of vehicle stocks and the rapid increase in their use. The transport sector's relative contribution to air pollution has increased over this period. As road traffic for both passenger and freight transport is expected to increase further in a number of OECD countries, actions are needed to integrate environmental concerns in decision-making with regard to the transport sector.



### Agriculture

Nitrogen is one of the main plant nutrients responsible for eutrophication and related effects on water quality and biodiversity. While major point sources of nitrogen are now under better control in most OECD countries, diffuse pollution is a major challenge. Agricultural run-off due to excessive use of fertilisers and intensive stock farming also raises concerns. Member countries are generally aware of the need to change agricultural practices to better protect the environment, but much needs to be done to integrate environmental considerations more systematically in agricultural policies and to correct the negative effects of intensification of agriculture.



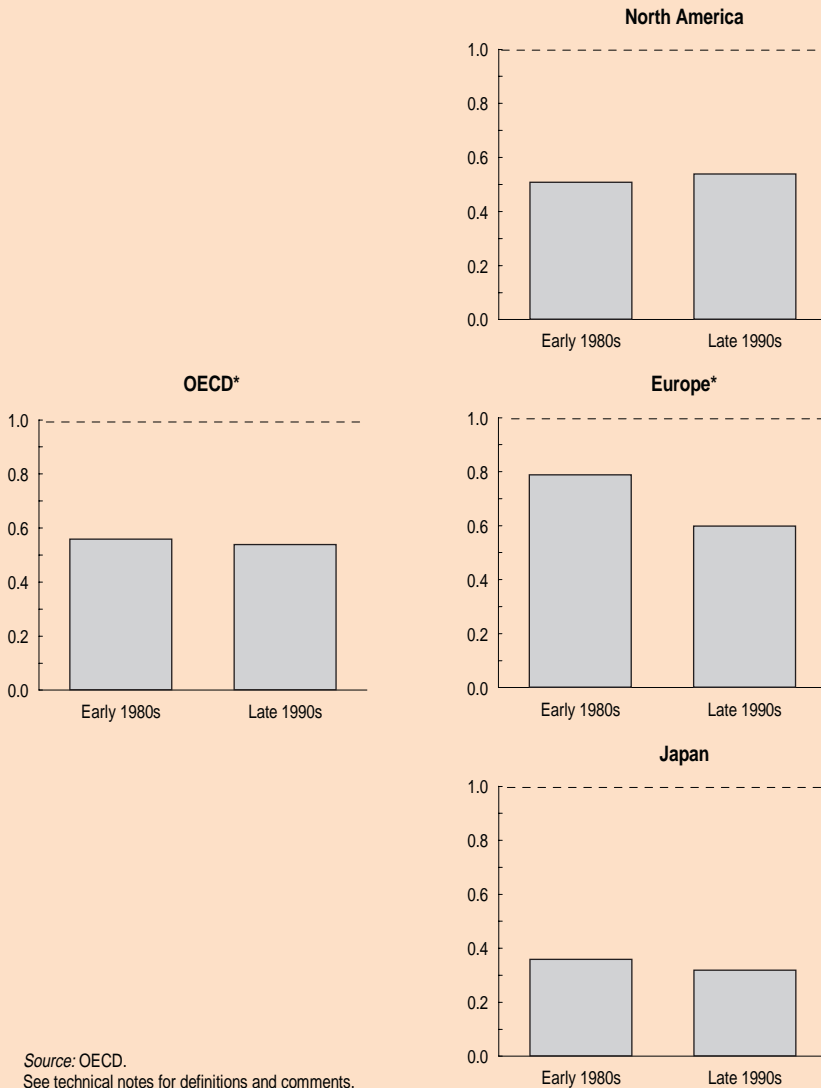
— GDP  
 - - - Final agricultural output  
 ..... Nitrogen from fertilisers and livestock

Source: OECD.  
 See technical notes for definitions and comments.

## Forestry

The condition of forests, as providers of wood and biodiversity and as carbon sinks, has received considerable attention. The potential translation of environmental concerns into differentiated market demands for goods produced through sustainable or unsustainable forestry has stimulated the integration of better environmental practices in forestry policies. Forest stocks are increasing in many OECD countries. To achieve sustainability, however, forest management will also have to strive to preserve forest ecosystems and biodiversity. Overexploitation of forest resources remains an issue worldwide.

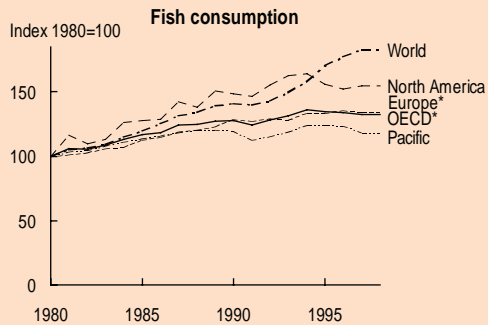
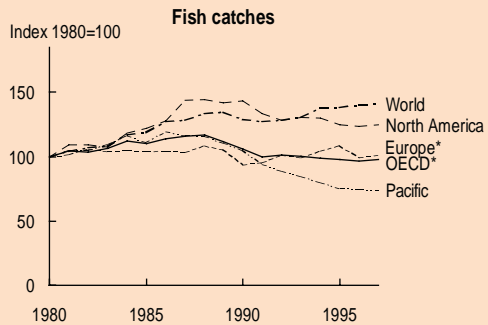
### Use of forest resources



Source: OECD.  
See technical notes for definitions and comments.

## Fisheries

In the last few years, the state of fish stocks has re-emerged as a major concern for several OECD countries and worldwide. Many of the more valuable stocks are overfished, and the steady trend towards increased global fish landings is achieved partly through exploitation of new and/or less valuable species. Fishery management using total allowable catches, quotas and aquaculture has not always succeeded in achieving sustainable use of fish resources.



Source: OECD.

See technical notes for definitions and comments.

---

## TECHNICAL NOTES

### Geographical coverage – Country aggregates

OECD: 29 Member countries: all European Member countries of the OECD – i.e. countries of the European Union plus Czech Republic, Hungary, Iceland, Norway, Poland, Switzerland and Turkey – plus Canada, Mexico, United States, Japan, Korea, Australia and New Zealand.

OECD:\* Partial total.

North America: Canada, Mexico and United States.

North America:\* Canada and United States.

Europe:\* All countries of the European Union, i.e. Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

Pacific: Japan, Korea, Australia and New Zealand.

Data presented in this annex are based on available data on September 1st 2000.

- *Population*: Data source: OECD. Data refer to resident population – i.e. all nationals present in or temporarily absent from a country – and aliens permanently settled in the country.
- *Gross Domestic Product (GDP)*: Data source: OECD. Data are expressed at 1995 prices and purchasing power parities. OECD trend 1980 = 100: data exclude Czech Republic, Hungary and Poland. Germany in OECD and Europe\* trends 1980 = 100: data refer to western Germany only.

### MULTILATERAL ENVIRONMENTAL AGREEMENTS

Data source: UNECE, Council of Europe, ILO, OECD, IUCN, IMO, UN, UNEP.

- Data refer to major multilateral agreements concerning the environment. Included are conventions, treaties or agreements on global and regional air pollution, regional water pollution, marine pollution, fauna and flora and radioactive pollution. Only multilateral agreements signed or ratified by at least three OECD countries are included.

### REGIONAL ISSUES – ACIDIFICATION

Data source: OECD.

- Data refer to anthropogenic emissions of SO<sub>x</sub> and NO<sub>x</sub> expressed as SO<sub>2</sub> and NO<sub>2</sub>. OECD\* trends 1980 = 100: data exclude Czech Republic, Hungary and Poland.
- SO<sub>x</sub> and NO<sub>x</sub> targets refer to commitment under the Helsinki, Oslo and Sofia protocols to the Convention on Long-range transboundary air pollution.

### OFFICIAL DEVELOPMENT ASSISTANCE

Data source: OECD (DAC).

- Data refer to loans (except military loans), grants and technical co-operation by the public sector to developing countries. Data cover OECD Development Assistance Committee (DAC) Member countries except Greece.

### WATER MANAGEMENT

#### Water withdrawn

Data source: OECD.

- Data refer to gross freshwater withdrawals, i.e. total water withdrawal without deducting water that is reinserted into the natural environment after use.

## GLOBAL ISSUES

### Climate change

Data source: IEA-OECD.

- *CO<sub>2</sub> emissions*: data refer to gross CO<sub>2</sub> emissions from energy use, which account for 70 to 90 per cent of total anthropogenic CO<sub>2</sub> emissions. They are OECD estimates based on recommended IPCC emission factors and on IEA-OECD data for total primary energy supply broken down for each of the commercial fossil fuel categories. Calculations include fossil fuel combustion and flaring of natural gas. Oil held in international marine bunkers is excluded. OECD\* trends 1980 = 100: data exclude Czech Republic, Hungary and Poland.

Further details on calculation methods and conversion factors used can be found in "IPCC guidelines for National Greenhouse Gas Inventories – Vol. III", OECD, IEA, UNEP, WHO, 1995.

### Ozone layer

Data source: Montreal Protocol Secretariat.

- *CFC consumption*: data refer to the consumption of CFCs controlled by the Montreal Protocol and are limited to the category AI (i.e. CFC-11, CFC-12, CFC-113, CFC-114 and CFC-115). Targets apply to industrialized countries only (data for OECD regions do not include Mexico, Korea and Turkey).

## WASTE MANAGEMENT

### Municipal waste generation

Data source: OECD.

- Municipal waste is waste collected by municipalities or on their order. It includes waste originating from households, commercial activities, office buildings, institutions, and small businesses that dispose of waste at the same facilities used for waste collected by municipalities. Waste collected separately for recovery operations is included. OECD\* estimates excluding Korea, Czech Republic, Hungary and Poland.

### Recycling rate

Data source: OECD, FEVE.

- Data represent non-weighted average recycling rates for the OECD. Averages for 26 countries (Paper and cardboard) and 23 countries (Glass).
- Waste recycling is defined as reuse of material in production processes that diverts it from the waste stream. Recycling within industrial plants and the reuse of material as fuel are excluded.
- The recycling rate is the ratio of the quantity collected for recycling to apparent consumption (domestic production + imports – exports).

### Waste water treatment

Data source: OECD.

- Data refer to the percentage of national population connected to public sewage treatment plants. OECD\* estimates based on 23 countries.
- Population connected to primary treatment only: primary treatment → physical and mechanical processes which result in decanted effluents and separate sludge.
- Population connected to secondary and/or tertiary treatment: secondary treatment → biological treatment technologies, i.e. processes which employ anaerobic or aerobic micro-organisms; tertiary treatment → advanced treatment technologies, i.e. chemical processes.

## AIR MANAGEMENT

Emissions of SO<sub>x</sub> and NO<sub>x</sub>

Data source: OECD.

- Data refer to anthropogenic emissions of SO<sub>x</sub> and NO<sub>x</sub> expressed as SO<sub>2</sub> and NO<sub>2</sub>.
- Mobile sources are road traffic and other mobile sources. Stationary sources are power stations, industrial processes, industrial and domestic fuel combustion and miscellaneous stationary sources.

SO<sub>2</sub> concentrations, NO<sub>2</sub> concentrations

Data source: OECD.

- Data based on composite averages of annual mean concentrations (except NO<sub>2</sub> in Milan which refers to annual 98th percentile of average hourly concentrations).

## ENERGY

Data source: IEA-OECD.

- *Energy intensity*: data refer to total primary energy supply per unit of GDP expressed as tonnes of oil equivalent per USD 1 000. OECD\* data exclude Czech Republic, Hungary and Poland.

## TRANSPORT

Data source: OECD, IRF, national statistical yearbooks.

- *Road traffic*: data refer to the total traffic volume of road vehicles (passenger cars and goods vehicles) expressed in vehicle-kilometres.

## NATURE CONSERVATION

### Major protected areas

Data source: IUCN, OECD.

- Data refer to IUCN management categories I-VI. National classifications may differ.
- IUCN management categories are as follows: Ia. Strict nature reserves, Ib. Wilderness areas, II. National parks, III. Natural monuments, IV. Habitat/species management areas, V. Protected landscapes/ seascapes (excluding the Great Barrier Reef Marine Park), VI. Managed resource protected areas.
- The expansion of the list of protected areas reflects not only an increase in protected areas since the early 1980s, but also improvements in data availability and data treatment. This should be borne in mind when interpreting the trend data. OECD:\* data exclude Korea, Czech Republic, Hungary and Poland (except late 1990s).

## POLLUTION ABATEMENT AND CONTROL EXPENDITURE

Data source: OECD.

- Pollution abatement and control (PAC) expenditure is the flow of investment and current expenditure that is directly aimed at PAC activities, and that is incurred by the public sector and the business sector. Expenditure by private households is excluded here.
- PAC activities: purposeful activities aimed directly at the prevention, reduction and elimination of pollution or nuisances arising from production processes or from the consumption of goods and services. Natural resource management and activities are excluded.

## INDUSTRY

Data source: OECD.

- *Industrial production*: data refer to total industrial production expressed as volume indices. Total industry comprises SIC (Rev. 3) major divisions 2 (mining and quarrying), 3 (manufacturing industries) and 4 (gas, electricity and water). OECD:\* data on industrial production exclude Mexico, Korea, Czech Republic, Hungary, Iceland and Poland.

## AGRICULTURE

Data sources: FAO, IFA, OECD, UN-ECE.

- *Nitrogen from fertilisers and livestock*: data refer to the nitrogen content of commercial fertilisers (based on apparent consumption statistics) and to nitrogen from livestock (based on livestock numbers and UN-ECE conversion factors).
- *Final agricultural output*: data refer to value of agricultural products which, free of intra-consumption, are produced during the accounting period and, before processing, are available for export and/or consumption. Activities covered are crops and crop products, and animal and animal products, from agriculture and hunting. Data are based on values expressed in billion USD at 1990 prices and purchasing power parities. OECD:\* data exclude Mexico, Korea, Czech Republic, Hungary, Iceland and Poland.

## FORESTRY

Data source: OECD.

- Use of forest resources: data refer to annual harvest/productive capacity (both expressed in m<sup>3</sup>). Productive capacity is measured through annual growth. OECD:\* data exclude Korea, and Iceland.
- Data refer to commercial forests only and exclude forest depletion due to natural losses.

## FISHERIES

Data source: FAO.

- *Fish catches*: data include nominal catches of freshwater fish, marine fish, diadromous fish, crustaceans and molluscs. Nominal catches refer to landings converted to a live weight basis. Data include mainly catches from commercial subsistence fishing, but may also include certain amounts from recreational fishing when available. OECD:\* data exclude Czech Republic.
- *Fish consumption*: data refer to the total food supply (= production – non-food use + imports – exports + stocks variations) of fish and seafood. OECD:\* data exclude Czech Republic.



## Annex IV

### EXECUTIVE SUMMARY OF SECOND CYCLE WORK PLAN

The principal objective of the review programme is to help Member countries to *improve their individual and collective performances in environmental management with the goal of achieving sustainable development*. Based on the overall assessment of the first cycle of reviews and the changes considered necessary for the second cycle, the *basic guidelines adopted by the WPEP and EPOC* for the second cycle of reviews\* are:

#### **Orientations**

- the second cycle will respond to the changing *policy context and demands after 2000* (e.g. *Shared Goals* of the OECD 1998 meeting of Environment Ministers, *OECD Sustainable Development Initiative*, proposed *OECD Environment Strategy* for the next decade);
- the second cycle will build on the baseline and *recommendations* set for each country during the first cycle;
- the *performance* orientation (with respect to national objectives and international commitments, with review of the challenges accepted, and with focus on results achieved) will be strengthened.

#### **Contents**

- *environmental issues*, such as air, water, waste and nature management, will continue to be covered, with more input from the reviewed country to assess progress made since the first review;
- *sustainable development issues* will be covered, with a focus on the integration of environmental concerns within economic and social policies, including sectoral ones;
- the monitoring of performance with regard to *international commitments* (including within OECD) will be strengthened;
- reviews will be selective in their emphasis and coverage of *sectors and issues* with highest relevance to the sustainable development of the country; reviews will include *forward looking* aspects of performance.

\* As endorsed by the WPEP and EPOC in November 1998.

## Methodology

- both increased *standardisation* (methodology, report outline, use of indicators, inter alia to increase international comparability) and more *country-tailored* features (recognition of different contexts, speciality chapters, specific indicators) will be needed;
- the existing core set of *environmental indicators* will be further developed and more use will be made of indicators, in the review reports wherever feasible.

## Process and Products

- the *peer review* approach and pressure will be maintained as a strong point of the programme through WPEP examination meetings;
- contributions by both the reviewed country's officials and other *stakeholders* (business, farmers, NGOs, independent experts, local government) to the review process will be increased;
- ways to *shorten the cycle of reviews* will be systematically investigated;
- *co-ordination with other OECD reviews* (e.g. economic surveys, energy reviews) will be strengthened, particularly in the context of the OECD Sustainable Development Initiative;
- co-operation with the *UN-ECE review programme* will continue and reviews of a few non-member countries may also be conducted;
- efforts will be made to stimulate *greater accountability* from Member country governments and to increase the *influence* of the review products with stakeholders.

As a result, Environmental Performance Reviews of the second cycle are planned to have a substantive environmental focus reflecting concerns with sustainable development in an era of globalisation, a strengthened approach of performance and peer review, more streamlined approach and format, and a reinforced influence.

## Annex V

### MAIN PUBLICATIONS (1993-2000)

#### OECD Environmental Performance Reviews

Germany	1993	English, French, German
Iceland	1993	English, French, Icelandic
Portugal	1993	English, French
Norway	1993	English, French
Japan	1994	English, French, Japanese
Italy	1994	English, French, Italian
United Kingdom	1994	English, French
Netherlands	1995	English, French
Poland*	1995	English, French, Polish, Russian
Austria	1995	English, French, German
Canada	1995	English, French
United States	1996	English, French, Spanish
Bulgaria*	1996	English, French, Bulgarian, Russian
New Zealand	1996	English, French
Sweden	1996	English, French
France	1997	English, French
Spain	1997	English, French, Spanish
Korea	1997	English, French, Korean
Finland	1997	English, French
Belarus*	1997	English, French, Russian
Mexico	1998	English, French, Spanish
Australia	1998	English, French
Switzerland	1998	English, French, German
Belgium	1998	English, French
Turkey	1999	English, French, Turkish
Russian Federation*	1999	English, French, Russian
Denmark	1999	English, French, Danish
Czech Republic	1999	English, French, Czech

\* In co-operation with UN-ECE.

Greece	2000	English, French, Greek
Hungary	2000	English, French, Hungarian
Ireland	2000	English, French
Luxembourg	2000	English, French

#### OTHER MAIN PUBLICATIONS

Environmental Performance in OECD Countries: Progress in the 1990s	1996
Monograph “OECD Pollution Abatement and Control Expenditure Data”	1996
Monograph “OECD Environmental Performance Reviews: A practical introduction”	1997
Towards Sustainable Development: Environment Indicators	1998
Water Management in OECD Countries	1998
OECD Environmental Data, Compendium 1999	1999
OECD Environmental Indicators Series; Indicators for the integration of environmental concerns into transport policies	1999
OECD Environmental Indicators Series; Indicators to measure progress towards sustainable consumption patterns	1999
OECD, Paris, Seminar “Social and Environment Interface” – Proceedings	2000
OECD, Athens, Seminar “Public Access to Environmental Information” – Proceedings	2000
OECD, Rome, Conference “Towards sustainable development” – Proceedings	2000
OECD, Beijing, Seminar “Environmental Monitoring” – Proceedings	2000

#### FORTHCOMING

Germany	2001	English, French, German
Iceland	2001	English, French
Portugal	2001	English, French
Norway	2001	English, French
Japan	2002	English, French, Japanese
Slovakia	2002	English, French, Slovak
OECD Environmental Data, Compendium	2001	
OECD Environmental Indicators	2001	

**Annex VI****ENVIRONMENTAL PERFORMANCE REVIEWS (1993-2000)****SPECIAL CHAPTERS\***

Australia	Biodiversity, Waste, Mining
Austria	Waste, Energy, Tourism
Belgium	Waste, Chemical Industry, Nature, Forests
Canada	Ecosystems, Waste, Energy, Forests
Czech Republic	Industry, Nature, Waste
Denmark	Waste, Agriculture, Nature and Forests
Finland	Waste, Nature, Forestry
France	Nature, Waste, Transport, Coastal Areas
Germany	Waste, New Länder, Energy, Transport, Chemical Industry
Greece	Tourism, Urban and Coastal Management
Hungary	Waste, Nature, Transport
Iceland	Marine Resources, Terrestrial Resources, Nature
Ireland	Waste, Transport
Italy	Nature, Waste, Transport, Energy
Japan	Waste, Nature, Transport, Urban Amenities, Climate Change
Korea	Waste, Nature, Transport
Luxembourg	Waste, Nature, Energy
Mexico	Biodiversity, Institutional, Energy
Netherlands	Waste, Nature, Transport, Agriculture
New Zealand	Waste, Nature, Agriculture
Norway	Nature, Energy, International Air Pollution Issues
Poland**	Waste, Nature, Industry, Energy
Portugal	Land and Soil, Energy and Transport, Environmental Information and Education
Spain	Nature, Waste, Transport

\* Reviews have included standard chapters (context, air, water, economics, international) and special chapters.

---

Sweden	Nature, Waste, Agriculture
Switzerland	Waste, Agriculture, Nature and Forests
Turkey	Nature, Tourism
United Kingdom	Waste, Nature, Energy, Chemical Industry
United States	Ecosystems, Waste, Transport, Chemical Industry
Belarus**	Waste, Effects of Chernobyl Accident, Agriculture
Bulgaria**	Waste, Nature, Industry
Russian Federation**	Waste, Nature, Industry

---

\*\* In co-operation with UN-ECE.

## Annex VII

### COUNTRY RESPONSES\* TO OECD ENVIRONMENTAL PERFORMANCE REVIEWS (1993-2000)

Germany	1993	<ul style="list-style-type: none"> <li>• Press Conference by Minister Töpfer (Bonn, July 1993)</li> <li>• Publication of report in German</li> </ul>
Iceland	1993	<ul style="list-style-type: none"> <li>• Press Conference by Minister Skarphedinsson (Reykjavik, July 1993)</li> <li>• Publication of report in Icelandic</li> </ul>
Portugal	1993	<ul style="list-style-type: none"> <li>• Press Conference by Minister Gouveia (Lisbon, November 1993)</li> <li>• Publication of conclusions in Portuguese</li> </ul>
Norway	1993	<ul style="list-style-type: none"> <li>• Press Conference by Minister Berntsen (Oslo, November 1993)</li> <li>• Presentation of Review to Parliament</li> <li>• Publication of conclusions in Norwegian</li> </ul>
Japan	1994	<ul style="list-style-type: none"> <li>• Press Conference by GEP Chairman on Conclusions (Tokyo, November 1993)</li> <li>• Parts of Review treated in Japanese State of the Environment Report</li> <li>• Publication of report in Japanese</li> </ul>
Italy	1994	<ul style="list-style-type: none"> <li>• Press Conference (Rome, November 1994)</li> <li>• Transmission to Parliamentary Environment Commission (March 1995)</li> <li>• Presentation for high-level decision makers by Minister Baratta (Rome, June 1995)</li> <li>• Follow-up government response</li> <li>• Publication of report in Italian</li> </ul>

\* Initiatives by reviewed countries following the publication of their Review.

United Kingdom	1994	<ul style="list-style-type: none"> <li>• Press release</li> <li>• Follow-up government response (May 1995)</li> </ul>
Netherlands	1995	<ul style="list-style-type: none"> <li>• Press Conference by Minister de Boer (The Hague, February 1995)</li> <li>• Presentation of Review to Cabinet and Parliament</li> <li>• Seminar for high-level decision makers and other stakeholders</li> <li>• Advice from Council for the Environment in response to the Review (July 1995)</li> <li>• Follow-up government response</li> </ul>
Poland**	1995	<ul style="list-style-type: none"> <li>• Presentation of Review to Cabinet</li> <li>• Presentation of Review to Parliament</li> <li>• Publication of report in Polish</li> </ul>
Austria	1995	<ul style="list-style-type: none"> <li>• Press Conference by Minister Bartenstein and Secretary of State Ederer (Vienna, September 1995)</li> <li>• Publication of report in German</li> </ul>
Canada	1995	<ul style="list-style-type: none"> <li>• Press release</li> <li>• Presentation of Review to Cabinet Members</li> <li>• Presentation to Parliament Members</li> </ul>
United States	1996	<ul style="list-style-type: none"> <li>• Press release</li> <li>• Publication of report in Spanish</li> </ul>
Bulgaria**	1996	<ul style="list-style-type: none"> <li>• Press release</li> <li>• Publication of report in Bulgarian and in Russian</li> </ul>
New Zealand	1996	<ul style="list-style-type: none"> <li>• Press Conference by Minister Hon. Simon Upton (Wellington, November)</li> <li>• Government response to OECD report (December 1996)</li> </ul>
Sweden	1996	<ul style="list-style-type: none"> <li>• Press Conference by Under-Secretary of State Mr. Lönnroth (Stockholm, October 1996)</li> <li>• Seminar</li> <li>• Follow-up government response to Parliament (April 1997)</li> <li>• Publication of conclusions in Swedish</li> </ul>
France	1997	<ul style="list-style-type: none"> <li>• Press Conference by Minister Lepage on Conclusions (Paris, November 1996)</li> <li>• Follow-up government response (April 2000)</li> </ul>



Spain	1997	<ul style="list-style-type: none"> <li>• Press Conference by Minister Tocino (Madrid, July 1997)</li> <li>• Publication of report in Spanish</li> </ul>
Korea	1997	<ul style="list-style-type: none"> <li>• Press release on Conclusions (April 1997) and on Report (September 1997)</li> <li>• Press statement by Vice Minister Chung</li> <li>• Publication of report in Korean</li> </ul>
Finland	1997	<ul style="list-style-type: none"> <li>• Press Conference by Minister Haavisto (Helsinki, October 1997)</li> <li>• Seminars</li> <li>• Follow-up government response (September 1999)</li> </ul>
Belarus**	1996	<ul style="list-style-type: none"> <li>• Seminar (August 1998)</li> <li>• Publication of report in Russian</li> </ul>
Mexico	1998	<ul style="list-style-type: none"> <li>• Press Conference by Minister Carabias and OECD Secretary General (Mexico City, February 1998)</li> <li>• Seminars</li> <li>• Follow-up government response (September 1999)</li> <li>• Publication of report in Spanish</li> </ul>
Australia	1998	<ul style="list-style-type: none"> <li>• Press statement by Minister Hill (Canberra, April 1997)</li> <li>• Report tabled to Parliament</li> <li>• Follow-up review by ANZECC</li> </ul>
Switzerland	1998	<ul style="list-style-type: none"> <li>• Press Conference by Director General Roch (Bern, October 1998)</li> <li>• Seminars</li> <li>• Review by Senate Committee (Spring 1999)</li> <li>• Publication of report in German and conclusions in Italian</li> </ul>
Belgium	1998	<ul style="list-style-type: none"> <li>• Press Conference by Minister Peeters (Brussels, October 1998)</li> <li>• Seminars</li> <li>• Publication of conclusions in Dutch</li> </ul>
Czech Republic	1999	<ul style="list-style-type: none"> <li>• Press Conference by Vice-Minister Petruela (Prague, April 1999)</li> <li>• Seminars</li> <li>• Publication of report in Czech</li> </ul>

Denmark	1999	<ul style="list-style-type: none"> <li>• Press Conference by Minister Auken (Copenhagen, April 1999)</li> <li>• Follow-up government response (September 1999)</li> <li>• Publication of conclusions in Danish</li> </ul>
Turkey	1999	<ul style="list-style-type: none"> <li>• Press Conference by Minister Aytekin (Ankara, October 1999)</li> <li>• Seminars</li> <li>• Publication of report in Turkish</li> </ul>
Russia**	1999	<ul style="list-style-type: none"> <li>• Press Conference by Minister Danilov-Danilian (Moscow, December 1999)</li> <li>• Seminar</li> <li>• Publication of report in Russian</li> </ul>
Greece	2000	<ul style="list-style-type: none"> <li>• Press Conference by Minister Laliotis, and by Vice Ministers Koliopanos and Efthimiopoulos (Athens, December 1999 and September 2000)</li> <li>• Publication of report in Greek</li> </ul>
Hungary	2000	<ul style="list-style-type: none"> <li>• Press Conference by Minister Pepo (Budapest, March 2000)</li> <li>• Review by several Committees and Councils</li> <li>• Publication of report in Hungarian</li> </ul>
Ireland	2000	<ul style="list-style-type: none"> <li>• Seminar (Dublin, November 2000)</li> <li>• Press Conference by Minister Dempsey (Dublin, November 2000)</li> </ul>
Luxembourg	2000	<ul style="list-style-type: none"> <li>• Press Conference by Secretary of State Berger (Luxembourg, December 2000)</li> </ul>

---

\*\* Carried out in co-operation with the UN-ECE.

OECD PUBLICATIONS, 2, rue André-Pascal, 75775 PARIS CEDEX 16  
PRINTED IN FRANCE  
(97 2001 05 1 P) ISBN 92-64-18294-2 – No. 51751 2001