Measuring progress towards a more sustainable Europe

Proposed indicators for sustainable development

Data 1980–99

EUROPEAN COMMISSION

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THEME 8
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8

Foreword

The term 'sustainable development' was popularised in the 1987 Brundtland Report published by the World Commission on Environment and Development. The United Nations Conference on Environment and Development ('Rio Conference') of 1992 set out to draw up strategies and measures to halt and reverse unsustainable degradation and to promote environmentally and socially sustainable practices. Amongst the texts signed at the conference were the 'Rio Declaration' and Agenda 21 which set out the actions that need to be taken over the coming decades to achieve the objectives of sustainable development. Sustainable development objectives are becoming articulated in EU policy with particular progress on the integration of environmental issues into mainstream policies. However, there is still some way to go in achieving the full integration necessary for sustainable development.

In the shorter term, the challenge of sustainable development is to understand and achieve the most appropriate balance between securing people's material aspirations, ensuring a cohesive and inclusive society and respecting environmental constraints. In the longer term, the challenge is to fully integrate economic, social and environmental objectives within the necessary institutional structures capable of delivering these objectives. This in turn requires the integration of decision making and the abolition of traditional divisions between policy areas.

In order for sustainable development policies to be formulated and implemented in the EU, it is necessary that progress in moving to more sustainable development is measured. The measurement of sustainable development is therefore of critical importance. It is however, extremely difficult, because it requires a view on what is meant, in practice, by sustainable development; a view that, in the context of measurement at the international level, has to be shared by different countries. In other words, the international measurement of sustainable development requires cross-country agreement on the, at least core, issues that determine whether progress is being made towards sustainable development. There are also technical questions relating to the use and harmonisation of data and the definition of particular variables that need to be answered in putting forward a set of indicators that, collectively, measure progress towards sustainable development.

The need for measurement becomes more important as new strategies for promoting sustainable development are advanced. A new spur to the measurement and reporting of sustainable development at the EU level comes with the proposals for a new long-term strategy for sustainable development to be presented by the European Commission at the Gothenburg Council. Monitoring and review will be an integral element of the Strategy. The indicator set reported here should make an important contribution to this task.

Until now, no agreement has been reached at international level on one common indicator set for measuring sustainable development. The international community is making a concerted effort to agree and trial an appropriate information system for sustainable development, and to implement the collection and dissemination of specified data. The UN Commission on Sustainable Development (UNCSD) is leading this process supported by the EU Member States and the Commission. Eurostat has produced a set of sustainable development indicators (SDI) adapted to the situation in the EU, based on the recent UNCSD proposals for a sustainable development indicator core set. The results of this work are presented in this publication. This follows earlier work by Eurostat in collaboration with some Member States to test the first SDI list suggested by UNCSD in Agenda 21 and published in 1997.

We hope that this report will make a positive contribution to the task of measuring sustainable development at an international level, serving as an international reference set, and helping to inform the indicator development process at UN and international level.

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Acknowledgements

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Introduction

Measuring Progress Towards a More Sustainable Europe

It is now widely recognised that improving the quality of life for current and future generations is not just about increasing material wealth, but also requires continuous improvements to be made in social cohesion and environmental protection and management. Progress towards sustainable development cannot be measured only in terms of GDP. The economy, society and the environment are all one, and assessing progress requires reference to a broader set of indicators.

The development of this broader set of sustainable development indicators (SDI) is timely, given the increasing pressure to integrate economic, social and environmental policy goals within policy areas, at different sectoral and spatial levels. For example, strategies to better integrate policies in the transport sector have given rise to the new Transport and Environment Reporting Mechanism, whilst the implementation of the new round of Structural Fund Programmes has seen sustainability criteria added to the evaluation criteria for funding. The demand for more integrated statistical information is, in small part, met by the SDI work described below. Measuring progress towards a more sustainable Europe requires a data set that is capable of both measurement and comparative analysis. As such, the intention of this publication is not to provide an assessment of this progress but rather, it is envisaged that the indicator set described here should make a valuable contribution to this task. In the medium term, such indicators may be used to inform sustainable development policies and strategies.

1. The indicator selection process at United Nations' level and Eurostat's statistical contribution

Methods for measuring progress towards sustainable development are still being developed. The learning process requires the co-ordinated efforts of international organisations, in consultation with member countries. Eurostat has co-operated with the United Nations Department for Economic and Social Affairs (UNDESA), to support the indicator development work within the process of the United Nations Commission for Sustainable Development (UNCSD). Eurostat's contribution has focused on the statistical issues involved (data assessment, methodological and technical work).

1.1 The first Eurostat compilation of Sustainable Development Indicators

In 1996 the UNCSD proposed a list of 134 indicators [a], defined by reference to the principles and policy guidance provided by Agenda 21, to be tested in selected countries. Underpinning the definition of indicators was the driving force - pressure - state (DPS) model that has been adopted by Eurostat and the EEA since the 1990s. In 1997 Eurostat, as a contribution to the UN official international testing phase, produced a pilot study *Indicators of Sustainable Development* [b], based on the UN list. In November 1998 Eurostat also hosted a meeting with the European countries which were testing the UN list of indicators, to review progress and present results.

1.2 Support for UNCSD work for the further development and technical improvement of indicators

Eurostat has also supported the UNCSD by contributing to the methodological improvement of the indicator list. For example, in 1999 and 2000 Eurostat, as the lead organisation, prepared the methodological sheets for four new indicators, selected in the context of the newly defined 'Consumption and Production Patterns' theme. These relate to transport ('Number of road vehicles'), ('Passenger transport by mode'), energy ('Energy prices') and water use ('Intensity of use of water').

Further co-operation with the UN on methodological issues is foreseen. The precise themes of work will be defined according to the UNCSD implementation programme and the specific priorities and needs at EU level.

1.3 Recent changes in the indicator selection criteria at UN level

The testing phase has been conducted for three years, and involved 22 countries around the world.

As a result of the international testing phase, the UNDESA - supported by an ad-hoc expert group - opted for a revision of the indicator list, initially discussed in a country-level meeting held in December 1999. The overall framework and structure of the SDI set have been changed, resulting in a reduced but more policy-oriented set of selected indicators.

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[a] Indicators of Sustainable Development Framework and Methodologies, United Nations New York, August 1996, ISBN 92-1-104470-7

[b] Indicators of Sustainable Development - A pilot Study following the methodology of the United Nations Commission on Sustainable Development, European Communities, Luxembourg, 1997, ISBN 92-827-9827-5

2. Comparison between the UNCSD 2000 core indicators and the criteria used by Eurostat for the indicator selection process

This publication draws upon and extends the recently revised UN list of 59 core SDI. This up-dated compilation of SDI supports the UNCSD institutional process of assessing, testing and consolidating a common approach to the measurement of sustainable development. At the same time, this statistical analysis represents a synthetic review of available information in the European Union on sustainability-related issues and themes.

A key task in this work has been a detailed review of the UNCSD 2000 core list, carried out internally at Eurostat.

This review considered:

- the availability, comparability, and uniformity of all indicator-related data for the EU-15 countries and six Accession Countries (the so-called 'Luxembourg 6');

- the areas where no practical indicator is available and hence where further analysis and/or methodological work is needed; and

- the extent to which the final selection of published indicators has extended or reduced the UNCSD core list.

The indicator selection has been based as much as possible on the following criteria:

- the availability of data at EU level (mainly from Eurostat sources, but also from other relevant international organisations and data providers, e.g. OECD, WHO, EEA),

- the availability of relevant work at European level on pressure and sectoral indicators (integration indicators); and

- the availability of indicators that complement the present UNCSD core list by relating to important EU areas not well covered by Agenda 21 (the basis of the UNCSD core list).

As far as possible, the selected indicators have been organised along the same thematic lines and have used the same definitions as those proposed by UNCSD. In order to maintain consistency with the UNCSD SDI core list and to avoid omitting important themes, some indicators with limited time-series coverage have been included in the publication (mainly from the social sphere, for example: population below poverty line, crime, income inequality). These indicators demonstrate the need for more and better information on certain issues.

Some specific complements have been added to the UNCSD core SDI list in order to include important EU issues that would otherwise be neglected (mainly in the social and the macro-economic sphere) and to describe, as thoroughly as possible, the current barriers and responses to the challenges of sustainable development. Two of the UNCSD SDI sub-themes of sustainable development (desertification under the environmental dimension and international co-operation under the institutional dimension) have been omitted because of their limited relevance to the EU. Table 1 below summarises (and quantifies) the comparative analysis of the final Eurostat selection of SDI and the UNCSD core list [c], providing summary results of the UNCSD 2000 core SDI list evaluation process conducted by Eurostat. The table reads as follows:

Unchanged indicators have directly been drawn from the UNCSD core list using the same definition. **Modified** indicators have been slightly adapted to the EU context resulting in small differences in definition (e.g. Nutritional status of children modified to Nutritional status of population). **Changed** indicators result from more substantial differences in definitions than in the case of 'modified indicators' (e.g. Access to primary health care facilities changed to National Health Expenditure). Added indicators represent additional indicators selected by Eurostat that are not part of the UNCSD core list. Omitted indicators were part of the UNCSD core list but have not been compiled within this publication.

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[c] See also Table 2 for a qualitative comparison

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Table 1: Quantitative summary comparison of the Eurostat selection and the UNCSD 2000 core list

Dimension	Number of Selected SDI compared to the UNCSD Core List	Interlinkages with the UNCSD 2000 Core SDI List: Evaluation status *(number)*				
	Eurostat Selection	UNCSD 2000 core list	Unchanged	Modified	Changed	Added	Omitted
Social	22	20	8	6	4	4	2
Environmental	16	19	9	2	5	0	3
Economic	21	14	10	4	0	7 [1]	0
Institutional	4 + MS contributions	6	2	1	1 + (MS contributions)	0	1
Total	63	59	29	13	10 + (MS)	11	6

1) four indicators are environment-oriented

In summary, Table 1 shows that about 50 per cent of the indicators selected by Eurostat (29 indicators) are similar to those in the UN core list. 20 per cent of the final Eurostat selection (13 modified) are comparable to their UN counterparts in terms of definitions. As a result, more than 66 per cent of the selected indicators (i.e. 42 indicators out of 63) are comparable to those in the UNCSD core list. Moreover, eleven indicators were added by Eurostat to complement the EU sustainable development picture. Differences in definitions, additions and omissions of indicators mainly arise because of:

• the lack of comparable data and/or definitions for the EU (and Accession Countries) and the subsequent need to modify the definition of the indicator to describe the same phenomenon. In many cases, modified indicators are very close to the corresponding UNCSD indicator;

• the lack of relevance of certain UNCSD indicators in the EU context (e.g. share of population with access to safe drinking water, contraceptive prevalence rate) or of the lack of statistical information corresponding to the UN definition at EU level (e.g. omission of desertification under the environmental dimension); and

• the need to cover policy issues of major importance within the EU, which are not sufficiently represented in the UNCSD indicators (e.g. migration, social security, inflation, environmental expenditure). To this end, one sub-theme (Environmental Protection Expenditure) has been added to the 'Consumption and Production Patterns' theme within the Economic Dimension to allow the inclusion of an additional indicator on environmental protection expenditure (see Table 2 and Annex to the introduction).

The major part of these additional Eurostat indicators were included in the previous broader UN indicator list linked to Agenda 21 ('Blue Book'). The idea behind this further indicative selection was also to some extent to reflect emerging views on the important issues in the context of new EU strategies for sustainable development, in particular in the social and macro-economic spheres.

In order to help readers distinguish between indicators on the UNCSD core list of 59 indicators and the selected indicators, the following graphics have been used to indicate where definitions have either been altered from the UNCSD definitions or where the indicator is new:

UN 59 indicators   Additional EU-suitable indicators

3. Contents of this report

This report contains 63 indicator sheets. To guide readers on how the selected indicators fit into the organisational hierarchy developed by the UNCSD, each sheet contains a diagram providing an overview of the Dimensions, Themes and Sub-themes of the UNCSD Indicators of Sustainable Development. A complete overview of the themes and sub-themes of each UNCSD dimension is presented in an annex to the Introduction.

These same headings are used in the header text of each indicator to allow readers to locate their position within the indicator tree. For each indicator a statistical presentation (table and graphs) and a synthetic descriptive analysis is provided. The aim has been to provide the reader, through the use of tables and graphs, with as much complementary information as possible. Therefore, the table(s) and the graph(s) for one indicator will often show different aspects of the concerned issue. Concerning the policy relevance of each selected indicator, specific references are made to the Agenda 21 principles, to the major EU polices and/or programmes and to related targets when already defined and quantified. A brief evaluation of the data presented is also provided, alongside an overall assessment of the available statistical information for the issue.

Whenever data are available, time series data are presented covering the European Union Member States (EU-15), the five Central and Eastern European countries plus Cyprus ('Luxembourg 6' and referred to as Accession Countries throughout this publication), the European Free Trade Association (EFTA) Members (Eceland, Liechtenstein, Norway and Swtzerland) and, for economic indicators and some relevant social and environmental indicators, the US and Japan. For a limited number of social indicators, some African or Asian data are also presented.

The measurement and general assessment of the progress towards more sustainable patterns is provided only by each individual indicator and in the contextual policy framework identified by the UN. An inter-dimensional, integrated policy assessment of sustainable development indicators is not presented in this report for two main reasons: 1) it goes beyond the scope of a statistical analysis and 2) an exhaustive analytical framework establishing relationships/links among and between indicators has not yet been identified or agreed internationally.

A brief report on the experiences and ongoing programmes of the EU Member States - Austria, Belgium, Finland, France and Germany- which took part in the UN testing phase is also included in the publication. Additional information on current projects for sustainable development at international level is also included.

The Table 2 below lists the 63 Eurostat sustainable development indicators, according to the themes and sub-themes for each dimension. It provides a useful comparison with the UNCSD core list indicators and presents the final evaluation status of each selected indicator (see last column).

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Table 2: Comparison between the selected indicators and the UN core list

UN THEME	SUBTHEME	EUROSTAT INDICATOR		UN INDICATOR	EVALUATION
SOCIAL DIMENSION					
EQUITY	Poverty	SOC 1	Population living below poverty line	% of population living below poverty line	Unchanged
		SOC 2	Measures of income inequality	Gini index of income inequality	Unchanged
		SOC 3	Unemployment rate	Unemployment rate	Unchanged
		SOC 4	Youth unemployment rate	-	Added
		SOC 5	Social benefits per capita	-	Added
	Gender equality	SOC 6	Female to male wage ratio	Average of female wage to male wage	Unchanged
	Child welfare	SOC 7	Child welfare	% of children under age 1 living outside their own home	Changed
HEALTH	Nutrition status	SOC 8	Nutritional status of population	Nutritional status of children	Modified
	Illness	SOC 9	Mortality due to selected key illnesses	Mortality and mortality due to selected key illnesses	Changed
	Mortality	SOC 10	Infant Mortality	Mortality rate unde 5 years old	Modified
		SOC 11	Life expectancy at birth	Life expectancy at birth	Unchanged
	Sanitation	SOC 12	Population connected to sanitation system	% population with adequate sewage disposal facilities	Modified
	Healthcare delivery	SOC 13	National health expenditure	% Population with access to primary health care facilities	Changed
		SOC 14	Immunisation against childhood diseases	Immunisation against infectious childhood diseases	Unchanged
EDUCATION	Education level	SOC 15	Levels of educational attainment	Secondary or Primary School completion ratio	Modified
	Literacy	SOC 16	Low qualification levels	Adult literacy rate	Modified
HOUSING	Living conditions	SOC 17	Number of rooms per capita	Floor area per person	Modified
		SOC 18	Household composition	-	Added
SECURITY	Crime	SOC 19	Reported crimes	No. of Reported crimes per 1000 population	Unchanged
POPULATION	Population change	SOC 20	Population growth rate	Population growth rate	Unchanged
		SOC 21	Population density	Population of urban formal and informal settlements	Changed
		SOC 22	Net migration rate	-	Added

ENVIRONMENTAL DIMENSION					
UN THEME	**SUBTHEME**	**EUROSTAT INDICATOR**		**UN INDICATOR**	**EVALUATION**
ATMOSPHERE	Climate change	ENV 1	Per capita emissions of greenhouse gases	Emissions of greenhouse gases	Unchanged
	Ozone layer depletion	ENV 2	Consumption of ozone depleting substances	Consumption of ozon depleting substances	Unchanged
	Air quality	ENV 3	Air pollutants in urban areas	Ambient concentration of pollutants in urban areas	Unchanged
LAND	Agriculture	ENV 4	Agricultural area and organic farming	Arable and permanent crop area	Changed
		ENV 5	Nitrogen balances	Use of fertilisers	Modified
		ENV 6	Use of agricultural pesticides	Use of agricultural pesticides	Unchanged
	Forests	ENV 7	Total forest area	Total forest area	Unchanged
		ENV 8	Wood harvesting ratio	Wood Harvesting Intensity	Unchanged
	Urbanisation	ENV 9	Growth of built-up area	Area of urban formal and informal settlements	Changed
OCEAN, SEA AND COASTS	Coastal zone	ENV 10	Eutrophication of coasts and marine waters	Algae concentratio in coastal waters	Changed
	Fisheries	ENV 11	Fish catches by selected over exploited species	Annual catch by major species	Changed
FRESH WATER	Water quantity	ENV 12	Intensity of water use	Annual withdrawal of ground and surface water as % of total available water	Unchanged
	Water quality	ENV 13	BOD concentration in selected rivers	BOD concentration in water bodies	Unchanged
		ENV 14	Quality of bathing water	Concentration of faecal coliform in freshwater	Modified
BIODIVERSITY	Ecosystem	ENV 15	Protected area as a % of total area	Protected area as a % of total area	Unchanged
	Species	ENV 16	Number of threatened species	Abundance of selected key species	Changed

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ECONOMIC DIMENSION				
UN THEME	**SUBTHEME**	**EUROSTAT INDICATOR**		**UN INDICATOR**	**EVALUATION**
ECONOMIC STRUCTURE	Economic performance	ECON 1	Per capita GDP	GNP per capita	Modified
		ECON 2	Investment share in GDP	Investment share in GNP	Modified
		ECON 3	Value added by main sector	-	Added
		ECON 4	Inflation rate	-	Added
	Trade	ECON 5	Net current account	Balance of trade in goods and services	Unchanged
		ECON 6	EU and international markets	-	Added
	Financial status	ECON 7	Public debt	Debt/GNP	Modified
		ECON 8	Aid to developing countries	Total ODA given or received as % of GNP	Unchanged
CONSUMPTION AND PRODUCTION PATTERNS	Material consumption	ECON 9	Material Consumption	Intensity of Material Use	Unchanged
	Energy use	ECON 10	Per capita Gross inland energy consumption	Annual energy consumption per capita	Unchanged
		ECON 11	Renewable energy sources	Share of consumption of renewable resources	Unchanged
		ECON 12	Intensity of energy use	Intensity of energy use	Unchanged
	Waste generation and management	ECON 13	Generation and disposal of municipal waste	Generation of industrial and municipal solid waste	Modified
		ECON 14	Generation of industrial waste	-	Added
		ECON 15	Generation and disposal of hazardous waste	Generation of hazardous waste	Unchanged
		ECON 16	Generation and disposal of radioactive waste	Generation of radioactive waste	Unchanged
		ECON 17	Recycling of waste: paper and glass	Waste Recycling and Reuse	Unchanged
		ECON 18	Waste treatment and disposal facilities	-	Added
	Transportation	ECON 19	Passenger transport by mode	Distanced travelled per capita per mode of transport	Unchanged
		ECON 20	Freight transport by mode	-	Added
	Environmental Protection	ECON 21	Environmental protection expenditures	-	Added

INSTITUTIONAL DIMENSION				
UN THEME	**SUBTHEME**	**EUROSTAT INDICATOR**		**UN INDICATOR**	**EVALUATION**
INSTITUTIONAL FRAMEWORK	Member States contributions on national SDI experiences (Annex to Institutional Dimension)		National Sustainable Developmen	Changed
INSTITUTIONAL CAPACITY	Information access	INST 1	Internet access	Number of radios or internet accounts per 1000 inhabitants	Modified
	Communication infrastructure	INST 2	Communication infrastructure	Main telephone lines and cell phones per 1000 inhabitants	Unchanged
	Science and Technology	INST 3	Expenditure on research and development	Expenditure on research and development as a % of GDP	Unchanged
	Natural disaster preparedness and response	INST 4	Risks to human and natural capital	Economic and human loss due to natural disasters	Changed

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4. Data Quality and Relevance

This publication presents the best, readily available, data that has already been standardised across the countries covered. These data were drawn mainly from Eurostat official statistics as collected from the EU Member States. In addition, for some indicators, data has been sourced from a number of international organisations such as the OECD, The European Environment Agency, the International Atomic Energy Authority, the World Conservation Monitoring Centre, the World Health Organisation and the UN Food and Agriculture Organisation.

The quality of the data varies in terms of its statistical reliability. In some cases, for example where proxies have had to be used for UNCSD indicators, the indicator and related data may still be under development. In some cases there are more significant concerns over the reliability of the indicator.

Three types of icons are provided to advise the reader of the quality of the indicator in terms of the indicator's statistical reliability and consistency. The following system of coding is used on each fiche to caution readers.

Good quality, comparability and relevance

Data relevant, but still under development

Caution is advised in using the data. Relevance or quality is questionable

5. Further Information and Cross-references

Eurostat and other international statistical agencies have produced specific indicator lists and policy documents that might be of interest to the general reader. Cross-referencing to specific sets of published indicators is presented at the end of each sheet.

Readers are informed of whether the selected indicator (or a close analogue) appears within other key international and EU relevant indicator lists, by the bold initials/reference in the banner at the bottom of the last page of each fiche. Examples, taken from actual indicator sheets, of the relevant cross-referencing for the Social, Environmental Economic and Institutional Dimensions with appropriate cross-referencing are given below as guidance. Colour highlighting indicates the presence of the considered indicator in the referenced indicator sets.

Cross-referencing of Social Indicators

SOC16: Low Qualification Levels

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

- *'The Social Situation in the European Union 2000 and 2001 **(EU KEY SOCIAL)**,* EU Commission Employment and Social Affairs Directorate General / Eurostat, 2000 and 2001;

- *'Towards Sustainable Development - Indicators to Measure Progress: Proceedings of the OECD Rome Conference 15-17 December 1999'*, OECD, 2000 including the initial list of OECD social indicators **(OECD SOC)**;

- *'Towards more Sustainable Household Consumption Patterns - Indicators to Measure Progress'*, presenting a set of Sustainable Household Consumption indicators, OECD, 1999 **(OECD Hous)**;

- **The UN Agenda 21** Indicator List

- For three social indicators only: the European Union list of Structural Indicators **(EU-Structural)**.

Cross-referencing of Environment Indicators

ENV3: Air Pollutants in Urban Areas

	EPI		EE

- *'EU Environmental Headline Indicators' (HI)* EU-Commission Environment Directorate General/Eurostat/EEA, 2001 (forthcoming, 2001);

- *'Towards Environmental Pressure Indicators' (EPI)*, EU-Commission Environment Directorate General/ Eurostat, 1999, ISBN 92-828-4978-3;

- *'Environmental Pressure Indicators' (EPI)*, EU-Commission Environment Directorate General/ Eurostat, 2001 edition

- OECD Indicators Sets and related publications: Core set of Environmental Indicators *(OECD-CORE ENV)*, Agro-environmental Indicators set *(OECD-Agri)*.

Cross-referencing of Economic Indicators

ECON4: Inflation Rate

OECD-Econ	OECD EN	OECD TR	EU-STRUCTURAL

The OECD indicators sets below are referenced to as follows:

- Main macro-economic Indicators Set *(OECD- Econ)*;

- Transport-Environment Indicators *(OECD-Tr)* from *'Indicators for the Integration of environmental concerns into transport policies';* OECD, 1993 and 1999;

- Energy-Environment Indicators, *(OECD-En)*, from *'Indicators for the integration of environmental concerns into energy policies'*, OECD, 1993 and 2000;

- Sustainable Household Consumption Indicators, *(OECD Hous)* from *'Towards more sustainable household consumption patterns - Indicators to measure progress'*, OECD, 1999;

- Official Development Assistance Indicators *(OECD-Oda)*;

Other cross-referenced lists include:

- EU Indicator Set for Energy and the Environment *(EE)*, from *'Integration- Indicators for energy'*, Eurostat 2000 and 2001;

- *'Transport and Environment: Reporting Mechanisms for the European Union' (TERM)*, 2000, EU-Commission Energy and Transport Directorate General/Eurostat, ISBN 92-828-9330-8; *'OECD Statistical Compendium'*, 2000 Edition;

- The European Union list of Structural Indicators *(EU-Structural)*.

Cross-referencing of Institutional Indicators

INST1: Internet Access

EU STRUCTURAL	OECD Hous.	UN AGENDA 21

- The European Union list of Structural Indicators *(EU-Structural)*.

- *'Towards more sustainable household consumption patterns - Indicators to measure progress'*, presenting a set of Sustainable Household Consumption indicators, OECD, 1999 *(OECD Hous)*;

- *The UN Agenda 21* Indicator List

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Annex

Overview Table

UNCSD SUSTAINABLE DEVELOPMENT DIMENSIONS BY THEME AND SUB-THEME

OVERVIEW OF UNCSD SUSTAINABLE DEVELOPMENT DIMENSIONS, BY THEME AND SUB-THEME

UNCSD THEMES	UNCSD SUB THEMES OF SUSTAINABLE DEVELOPMENT					
SOCIAL DIMENSION	Equity	Poverty	Gender	Child Welfare			
	Health	Nutritional status	Illness	Mortality	Sanitation	Drinking Water	Healthcare delivery
	Education	Education level	Literacy				
	Housing	Living conditions					
	Security	Crime					
	Population	Population change					
ENVIRONMENTAL DIMENSION	Atmosphere	Climate change	Ozone depletion	Air quality			
	Land	Agriculture	Forestry	Desertification	Urbanisation		
	Ocean seas & coasts	Coastal zones	Fisheries				
	Freshwater	Water quantity	Water quality				
	Biodiversity	Ecosystems	Species				
ECONOMIC DIMENSION	Economic structure	Economic performance	Trade	Financial status			
	Consumption and production	Material consumption	Energy use	Waste generation & management	Transportation	Environmental protection	
INSTITUTIONAL DIMENSION	Institutional framework	Strategic implementation of SD	International cooperation				
	Institutional capacity	Information access	Communication infrastructure	Science & technology	Natural disaster preparedness & response		

Key: sub-themes highlighted in gray are not covered by the Eurostat indicator selection.
Sub-themes highlighted in blue have been added by the Eurostat for the purpose of this publication.

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SOCIAL DIMENSION

Definition

The social dimension of sustainable development reflects the need to address the welfare of citizens while allowing sustainable economic growth and protection of the environment. Social welfare, in terms of sustainable development, relates to both the economic and physical well being of the population by improving access to education, health, housing, etc. Social exclusion should be reduced to a minimum with all groups of people participating in the society in which they live. The social dimension of the UN 2000 sustainable development indicators presented in this publication deals with the following 6 broad themes:

- Equity
- Health
- Education
- Housing
- Security
- Population

These themes are then divided into sub-themes, each dealing with one specific aspect of the social issue. Equity can be linked to poverty, gender inequality and child welfare. Health encompasses nutrition, illness, mortality, sanitation, health care. Education is addressed in two ways: attainment and low qualifications. Living conditions and crime are two components of the well being of citizens.

Additional Eurostat indicators

Although most of the UN core indicators were kept with some relevant modifications in the definition (*e.g. nutritional status of population (SOC8) instead of children, national health expenditure (SOC13) instead of access to primary health care facilities, children living with one parent (SOC6) instead of children under age 15 living outside their own home*), some social indicators have been added in order to show structural, relevant patterns in EU societies;, they give information, for example, on household structure, social welfare and migration phenomena. These indicators are listed below, according to the themes and sub-themes they tackle.

SOC4: Youth Unemployment and *SOC5: Social Benefits per Capita* - These two indicators measure the level of participation and the welfare of youth in society, society's response to unemployment, and the implications of ageing populations on social security programmes (social benefits include health, pensions, old age benefits and unemployment benefits). The EU relevance lies in the importance of youth unemployment in the EU; low qualification levels and the economic situation of the household in which young people live are factors contributing to youth unemployment. Social benefits are a long-term response indicator to the problems of equity, in particular with high levels of unemployment and the growing importance of older citizens in the labour force.

SOC18: Living Conditions: Household Composition - The current trend toward smaller households - including single-parent families - affects the welfare of households (income, housing, etc.) and the well-being of dependent children. This is a key issue in European countries.

SOC22: Net Migration - Net migration within the EU and outside the EU is one of the crucial social factors that determine population changes, in particular in societies where high fertility rates and an ageing population are issues. In the EU context of free movement of persons, and workers in particular, and in the context of enlargement, this issue cannot be ignored if progress towards sustainability is to be measured.

Indicators omitted from the UN list

Access to safe drinking water and *contraceptive prevalence rate* - Both these indicators refer to health conditions which do not apply in the context of sustainable development within the EU.

SOC1 Population living below the poverty line

Definition

Eurostat defines this indicator as the share of the total population subsisting with an annual equivalised (i.e. divided by its 'equivalent size') income after social transfers below 60% of the national median equivalised annual income[a] (i.e. an arbitrary threshold referred to as the 'poverty line'). Income levels below the poverty line are referred to in the EU as 'low income'. In order to take into account differences in household size and composition in the comparison of income levels, the household income is 'equivalised', using the modified OECD equivalence scale, that gives different weights to each person in the household (e.g. adults, persons aged 14 and children under 14).

Indicator relevance

Poverty is both a cause and a consequence of unsustainable societies. It can be measured both in terms of population affected and in terms of 'poverty gap', which gives the difference between the actual income and the poverty line. The present indicator identifies the population in income poverty but does not show how severe this poverty is. Social transfers are important factors to alleviate poverty and are included in the data. Agenda 21 calls for the eradication of poverty in its chapter 'Combating Poverty', taken up by the 1995 Copenhagen World Summit's Programme of Action. The programme of action goes beyond poverty eradication to include combating social exclusion.

At EU level, combating exclusion and relative poverty is enshrined in the Amsterdam Treaty provisions relating to EU social policy (Art. 136 and Art.137.1). Following the 2000 European Councils in Lisbon and Feira where Member States put the fight against poverty and social exclusion at the centre of discussions on the modernisation of the European social model, an EU strategy for inclusion was adopted at the 2000 EU Nice summit (see Social Policy Agenda COM (2000) 379 Final). Four main objectives were defined for this strategy: to facilitate participation in employment and access by all to the resources, rights, goods and services; to prevent the risks of exclusion; to help the most vulnerable; to mobilise all relevant bodies. EU-level support actions include programmes under the European Regional Development Fund and the European Social Fund's Horizon, NOW and Integra schemes.

Links to other indicators

Poverty provides a useful cross-comparison with the measures of income inequality (SOC2) and is linked to the health indicators (SOC8/9/10/11/13), as well as to the indicators of household composition (SOC18), child welfare (SOC7), educational attainment (SOC15/16) and unemployment (SOC3/4).

Population below the poverty line, EU, 1996

(% of total population)

EU	B [2]	DK	D	EL	E	F	IRL	I	L	NL	A	P [2]	S	UK
17	*17*	11	16	21	18	16	18	19	12	12	13	22	14	19

(National Poverty Lines -median annual income in national currency)

BEF	DKK	DEM	GRD	ESP	FRF	IEP	ITL	LUF	NLG	ATS	PTE	SEK	GBP
318 640	76 960	16 513	1 024 000	613 899	52 191	3 771	8 802 [1]	463 848	15 535	117 600	117 600	:	4 969

Source: Eurostat, European Community Household Panel. S - 1997 Living Conditions Survey. EU figure excludes Finland

1) *National poverty line data in thousands Lire.*
2) *Belgian data are still provisional and are currently being revised due to inconsistencies found in the codification of some income components.*

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a) Median income is the income level which divides the population into two numerically equal groups: 50% of the population earn less and 50% earn more

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Population living below the poverty line, EU, 1996

(% of total population)
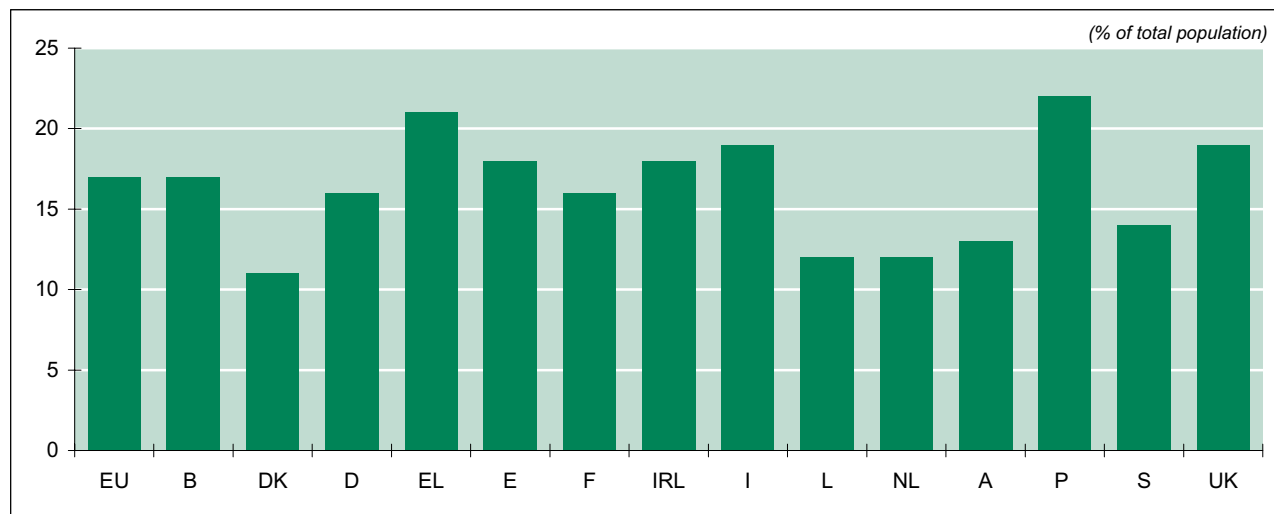
Source: Eurostat, European Community Household Panel. S - 1997 Living Conditions Survey. EU figure excludes Finland. B - provisional figures

Evaluation

In 1996, some 61 million people (17% of all EU citizens) were living under the poverty line. The proportion of 'poor' people was relatively high in Greece and Portugal (over 20% of total population) and lowest in Denmark (11%), Luxembourg (12%), the Netherlands (12%) and Austria (13%). The proportion of 'poor people' in the total population was close to the EU average in Germany and France (16%), Belgium (17%), Spain and Ireland (18%).

Data assessment

Data from the European Community Household Panel (ECHP) are only currently provided for 1995 and 1996. No data are available for Finland due to comparability problems. Some figures are given for Sweden from the 1997 National Living Conditions Survey. Co-operation with Accession Countries in the area of poverty will start in the course of 2001. Data availability for these countries will depend on national statistics and the level of comparability with EU data.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	EU STRUCTURAL	OECD SOC	UN AGENDA 21

Further reading: 'The Social Situation in the European Union 2001' European Commission (DG Employment and Social Affairs)/Eurostat, 2001; Statistics in Focus (Population and social conditions): 'Persistent income poverty and social exclusion in the EU' No.13/2000; 'Income poverty in the EU: Children, Gender and poverty gaps', No.12/2000.

SOCIAL EQUITY

Poverty

Definition

The Gini Index measures inequality in terms of individual (per capita), net-monetary income distribution (after allowing for taxes and social security transfers). It varies from zero (no inequality) to 100 (total inequality). The 80/20 Share ratio is another measure of income distribution based on quintiles of income distribution, ranking individual income into 5 'income groups' of equal size, each containing 20% of the total population living in one country (known as 'quintiles'). The share ratio compares the income available to the richest 20% of the population to the poorest 20%: the higher the ratio, the wider the gap between the most (top 20% quintile) and least well-off (bottom 20% quintile). This inequality measure is perhaps easier to grasp than the Gini coefficient as it shows the gap between the richest and the poorest.

Purchasing Power Parities (PPP) convert every national monetary unit into a common reference unit, the purchasing power standard (PPS): every unit can buy the same amount of consumer goods and services across the Member States in a given year.

Indicator relevance

The Gini Index gives an overall indication of the individual income inequality that exists within a country. Income distribution embodies the cross-country economic and social values as well as different cultural attitudes. Therefore inequality variations are normally perceived on a long-term basis. The Gini index is a state indicator for the equality component of sustainable development, and related to the Agenda 21 objective of combating poverty. The aim of raising the standard of living, promoting quality of life and strengthening economic and social exclusion is promoted in the Treaty of Amsterdam, Articles 2 and 3. The EU Social Policy Agenda (COM (2000) 379 final) adopted at the EU Summit in Nice in 2000 states that 'social transfers covering pensions and social security do not only contribute to balance and re-distribute incomes throughout lifetimes and across social groups, but also support better quality in employment, with consequent economic benefits'. Its main objective is to 'prevent and eradicate poverty and exclusion and to promote the integration and participation of all into economic and social life'.

Links to other indicators

Income inequality is related to the indicators of GDP per capita (ECON 1), gender equality of wages (SOC 6), poverty (SOC 1), child welfare (SOC 7) and social benefits (SOC 5).

Gini and 80/20 share ratio, EU and AC-6, 1996

(%)

	EU	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
Gini	31	28	23	28	34	33	29	33	33	28	29	26	37	24	:	33
80/20	5.2	4.4	2.9	4.7	6.2	5.9	4.5	5.6	6.0	4.5	4.7	4.0	6.8	3.2	3.7	5.6

Source: Eurostat, European Community Household Panel (ECHP). S - 1997 Living conditions survey. EU figure excludes Finland and Sweden

	CY	CZ	EE	HU	PL	SI
Gini	:	25	35 [1]	31	33	27 [1]
80/20	:	:	:	:	:	:

Source: World Bank Development Report 2000/2001

1) 1995 data instead of 1996.

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Gini index and median income, EU, 1996
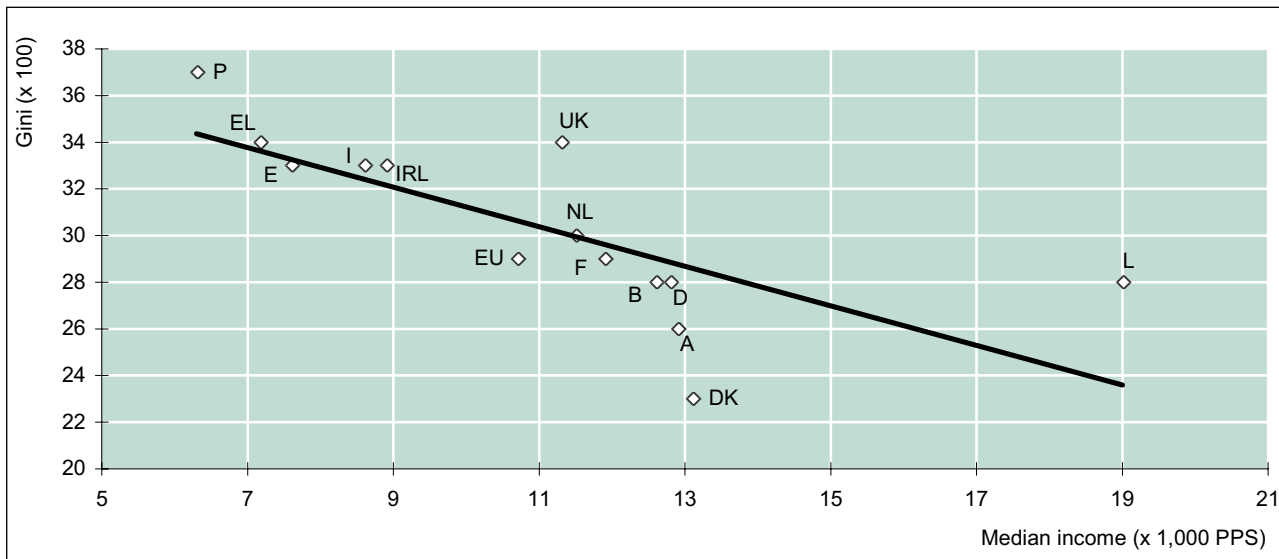
Source: Eurostat, ECHP, 1996. EU figure excludes Finland and Sweden. The straight line represents the 'best fit' line between the points on the graph, i.e. the most suitable linear relation between inequality of income and median income. It shows a negative correlation coefficient between the two

Evaluation

In 1996, the average Gini Index for income distribution inequality across the EU-15 was approximately 31%. The highest degree of income inequality is observed in Portugal (at 37%), followed by Spain, the UK, Italy and Ireland (all with 33% inequality). Denmark has the lowest level of inequality (23%). In the EU, the most well-off quintile receive 5 times more total income than the least. The gap between the two top and bottom groups is the widest in Southern Member States Portugal (6.8 times more), Greece (6.2) and Italy (6) while the smallest gap is found in Denmark and Finland (3). The graph above shows a link between income inequality and income level. Member States with relatively high income inequality (Portugal, Greece, Spain, Italy and Ireland with Gini indexes above 32%) have a relatively low median income (below 9 000 PPS and below the EU-15 average median income). Conversely, income inequality is relatively lower in France, Belgium, Germany, Austria and Denmark (Gini below 30%), where median income is above EU-13 average of 10 700 PPS. In the UK, income inequality is relatively high (Gini of 33%) despite median income levels above the EU-15 average. Luxembourg is characterised by high medium income (19 000 PPS) and income inequality level close to the EU-15 average. In Accession Countries, the highest inequality level was observed in Estonia in 1995. In 1996, the Czech Republic had the relatively lowest income inequality levels.

Data assessment

Data from the European Community Household Panel (ECHP) are currently only available for 1995 and 1996. Some data are available for Sweden from the 1997 Living Conditions Survey. Co-operation with Accession Countries in the area of poverty will start in the course of 2001. Data availability for these countries will depend on availability of national data and comparability with EU data. The Gini index dataset for Accession Countries presented above comes from the World Bank and is not fully comparable with EU figures.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	EU STRUCTURAL	OECD SOC	UN AGENDA 21

Further reading: 'The Social Situation in the European Union 2001' European Commission (DG Employment and Social Affairs)/Eurostat, 2001; Statistics in Focus (Population and Social Conditions): 'Social benefits and their redistributive effect in the EU', No 9/2000, Eurostat; 'Selected Indicators from the 1995 wave', European Community Household Panel', Eurostat, 1999. *See SOC1 for other EU references*.

'World Bank Development Report', World Bank, 2000/2001.

SOC3 Unemployment Rate

Definition

The unemployment rate is calculated as being the ratio of unemployed persons to the active population; the active population includes persons with jobs and unemployed persons. Eurostat uses the ILO criteria which define unemployed persons as all of those aged 15 or over who are in the following situation: (a) without work in a given week; (b) have taken steps during the four previous weeks to find work; and (c) are available for the next two weeks to take up employment. The long-term unemployment rate is defined as the share of the labour force that has been jobless for at least 12 months.

Indicator relevance

Unemployment is a key driving force indicator for Agenda 21 'Combating Poverty' chapter, primarily linked to low education levels. It is one of the main poverty causes in the EU - affecting youth and women in particular, but also the highly qualified. At EU level, the commitment to lowering unemployment on a lasting basis is cemented in the 2000 Employment Guidelines. Full employment is an overarching objective of the EU's employment and social policy (see Council decision (2001/63/EC)). The European employment strategy commits the Member States to reach the strategic goal of '*making the Union the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion' (Lisbon EU Council, March 2000).* The achievement of these objectives requires simultaneous efforts by the Community and the Member States; it requires the implementation of an effective, well-balanced and mutually supportive policy mix, based on macroeconomic policy, structural reforms that promote adaptable and flexible labour markets, innovation and competitiveness, and an active welfare state that encourages the development, participation, inclusion and solidarity of human resources. Member States are asked to develop a comprehensive partnership with the social partners to implement, monitor and follow-up the Employment Strategy.

Links to other indicators

This indicator is linked to the indicators of youth unemployment (SOC4) and more generally, poverty (SOC1), social benefits (SOC5), child welfare (SOC7) and education (SOC15/16).

Unemployment rate

(% of active population)

	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
EU-15	:	:	8.2	9.2	10.7	11.1	10.7	10.8	10.6	9.9	9.2
B	10.4	6.7	*6.6*	7.2	8.8	10	9.9	9.7	9.4	9.5	9.1
DK	7.2	7.7	*8.4*	*9.2*	10.2	8.2	7.2	6.8	5.6	5.2	5.2
D	:	:	5.6	6.6	7.8	8.4	8.2	8.9	9.9	9.4	8.8
EL	7.0	6.4	*7.0*	7.9	8.6	8.9	9.2	9.6	9.8	10.7	11.7
E	21.6	16.2	16.4	18.4	22.7	24.1	22.9	22.2	20.8	18.8	15.9
F	10.2	9.0	9.5	10.4	11.7	12.3	11.7	12.4	12.3	11.8	11.3
IRL	16.8	13.4	14.7	15.4	15.6	14.3	12.3	11.7	9.9	7.6	5.7
I	8.3	9.0	*8.6*	8.8	10.2	11.1	11.6	11.7	11.7	11.8	11.3
L	2.9	1.7	1.7	2.1	2.6	3.2	2.9	3.0	2.7	2.7	2.3
NL	8.3	6.2	5.8	5.6	6.5	7.1	6.9	6.3	5.2	4	3.3
A	:	:	:	:	4.0	3.8	3.9	4.3	4.4	4.5	3.8
P	9.2	4.8	4.2	4.3	5.7	6.9	7.3	7.3	6.8	5.2	4.5
FIN	:	3.2	6.6	11.7	16.3	16.6	15.4	14.6	12.7	11.4	10.2
S	2.9	1.7	3.1	5.6	9.1	9.4	8.8	9.6	9.9	8.3	7.2
UK	11.5	7.0	8.8	10	10.5	9.6	8.7	8.2	7.0	6.3	6.1
CY	:	:	3.0	1.8	2.7	2.7	2.6	3.1	3.4	3.4	3.6
CZ	:	:	:	:	:	4.3	4	3.9	4.8	6.5	8.8
EE	:	:	:	:	:	7.6	9.7	10.0	9.7	9.9	11.0
HU	:	:	:	:	:	10.7	10.2	9.9	8.7	7.8	6.9
PL	:	:	:	:	:	14.4	13.3	12.3	11.2	10.6	10.4
SI	:	:	:	:	:	9.0	7.4	7.3	7.4	7.9	:
J	:	3.2	6.6	11.7	16.3	3.8	3.9	4.3	4.4	4.5	3.8
USA	:	1.7	3.1	5.6	9.1	6.9	7.3	7.3	6.8	5.2	4.5

Source: Eurostat; Labour Force Survey Results. EU figures have been calculated for the populations of all countries that are now Member States. Figures for 1991 and 1992 exclude Austria

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Unemployment rates, EU-15 and selected countries, 1994-1999

(% of active population)
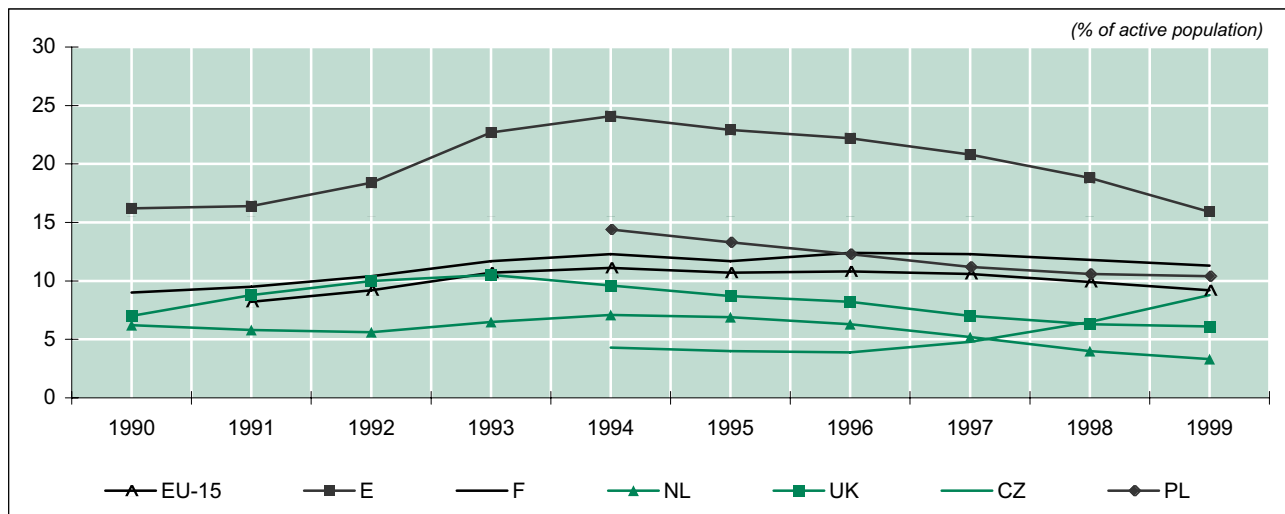
Source: Eurostat, Labour Force Survey. EU figures have been calculated for the populations of all countries that are now Member States. Figures for 1991 and 1992 exclude Austria

SOCIAL EQUITY

Poverty

Evaluation

In 1999, 9.2% of the EU labour force were unemployed compared with 4.5% and 3.8% in the US and Japan respectively. Unemployment in the EU has gone through four broad phases over the last twenty years: growth from 1983 until 1986; slight decline between 1986 and 1990; renewed growth from 1990 and 1995 and then a steady decrease from 1995 to 1999. The EU-15 average belies the fact that in this latest period a number of Member States have experienced a marked decline in unemployment. Between 1995 and 1998, Ireland's and Spain's unemployment rate decreased by 6.6 and 7 percentage points, respectively. There are some differences in levels of unemployment across Member States. The unemployment rate decreased and remained under 5% in 1999 in Luxembourg, the Netherlands, Austria and Portugal. Since 1985, unemployment has more than doubled in Sweden (from 2.9% to 7.2% in 1999) and Finland (from 3.2% in 1990 to 10.2% in 1999). Since 1994, unemployment rates decreased in some Accession Countries, such as Hungary (-3.8 points) and Poland (-4 points). Unemployment increased in the Czech Republic (+4.5 points), Estonia (+3.4 points) and Cyprus (+0.9 points)). In 1999 unemployment levels were under the EU-15 average of 9.2% for most Accession Countries, expect for Poland and Estonia, where the rates were 10.4% and 11% respectively. These trends have been mirrored in the development of long-term unemployment which remains around 5% of the workforce in the EU over the 1994-1999 period. In 1999, 4.3% of the EU workforce had been jobless for at least one year, compared with 5.4% in 1999. Spain (9.4%) and Italy (7.1%) are still the most affected by long term unemployment.

Data assessment

Eurostat's unemployment rates are comparable estimates based on the European Labour Force Survey. Accession Country data are drawn from national Labour Force Surveys and should therefore be comparable.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	EU STRUCTURAL	OECD SOC	UN AGENDA 21

Further reading: 'The Employment in Europe Report, 2000', European Commission, DG Employment and Social Affairs, 2000; 'The Social Situation in the European Union 2001', European Commission (DG Employment and Social Affairs) /Eurostat, 2001; Statistics in Focus (Population and Social Conditions):'Labour Force Survey Principal Results 1999', No.5/2000, Eurostat.

SOCIAL EQUITY

Poverty

Definition

The youth unemployment rate is the ratio of unemployed persons aged 15-24 to the active population of the same age (labour force). For the age-group 15-24, the unemployed are counted as long-term unemployed if they have been jobless for at least six months (for the age-group 25 and over, the threshold is twelve months or more). Data on the long-term unemployed are also presented in relation to the total number of unemployed people.

Indicator relevance

Youth unemployment is a crucial indicator for a sustainable European society given the difficulties encountered by young people when entering the labour market after completing their education. These difficulties are both a consequence of the job market situation and the education/employment mechanisms, particularly related to the provision of (vocational) training and the lack of educational attainment among the youth population. The 2000 Employment Guidelines promote Member States' action towards providing young unemployed people with training, retraining, work practice, a job or other measures before reaching six months of unemployment (Guideline 1). Vocational training is a key priority to ensure employability and flexibility of employment. There are EU-funded programmes, such as the Leonardo Programme, which support the improvement of vocational training institutions throughout the EU.

Links to other indicators

This EU relevant indicator is linked to the indicators of unemployment rate (SOC3), low qualification levels (SOC16) and post compulsory education (SOC15) indicators.

Youth unemployment and long-term unemployment rates

	Youth Unemployment (% of active youth population)						Long-Term Unemployment (% of labour force)		(% unemployed)
	1994	1995	1996	1997	1998	1999	1994	1999	1999
EU	22.0	21.5	21.9	21.1	19.5	17.9	13.9	9.4	53
B	24.2	23.9	23.2	23.1	23.2	24.9	15	13.4	59
DK	11.1	10.6	10.6	8.4	8.0	9.8	3.3	1.6	16
D	8.8	8.8	10.0	10.8	9.9	9.2	4.4	4.3	52
EL	27.7	28.5	31.0	30.8	30.1	31.6	20.3	23	73
E	45.1	42.5	41.9	38.9	35.4	29.5	32.1	17.5	59
F	29.2	27.5	29.1	29.2	26.5	24.2	13.8	9.6	36
IRL	23.0	19.5	18.2	15.4	11.3	8.3	16.1	:	:
I	32.3	33.7	34.0	33.8	33.8	32.7	25.7	25.4	78
L	7.3	7.4	8.5	8.1	7.1	6.8	:	:	:
NL	11.5	12.1	11.7	9.5	8.0	7.2	6.3	3.9	82
A	5.7	5.5	6.2	6.7	6.4	5.1	:	1.9	31
P	15.0	16.6	16.8	15.1	10.6	9.0	5.9	4.8	54
FIN	34.0	29.7	28.0	25.2	23.5	21.4	:	3.5	13
S	22.0	19.1	20.5	20.6	16.6	13.6	:	4.4	27
UK	17.0	15.9	15.5	14.2	13.6	13.0	9	4	32
IS	11.5	11.0	8.4	7.7	6.0	4.4	:	:	:
NO	12.8	11.8	12.4	10.9	9.5	9.5	:	:	:
CH	6.0	5.5	4.7	6.0	5.8	5.6	:	:	:
CY	2.6	2.4	2.7	2.7	3.0	3.0	:	:	:
CZ	8.7	7.8	7.2	8.6	12.4	:	:	:	:
EE	11.6	14.1	16.0	14.4	15.7	:	:	:	:
HU	19.4	18.6	18.0	15.9	13.5	:	:	:	:
PL	32.5	31.2	28.5	24.8	23.2	:	:	:	:
SI	22.2	18.8	18.8	17.6	18.3	:	:	:	:
J	12.5	12.1	12.0	11.3	10.4	9.2	:	:	:
USA	5.5	6.1	6.7	6.7	7.7	9.9	:	:	:

Source: Eurostat, Labour Force Survey. 1994 EU long-term rate includes only the reporting countries

eurostat

Long-term youth unemployment rates (6 months or more) EU, 1994-1999
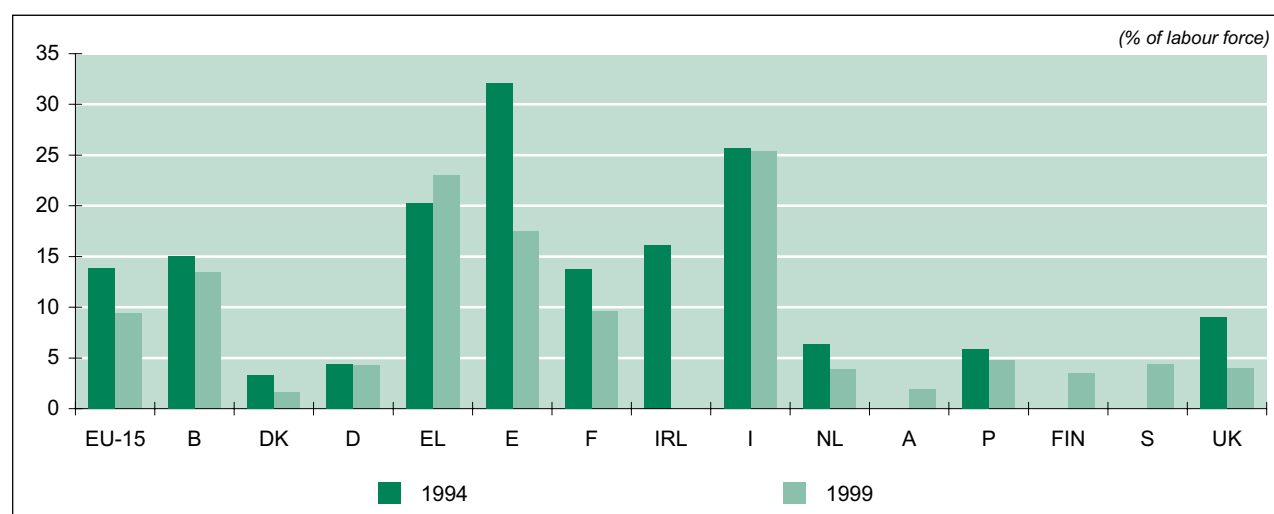
Source: Eurostat, Labour Force Survey. 1994 EU figure excludes Luxembourg, Austria, Finland and Sweden. 1999 EU figure excludes Ireland and Luxembourg. IRL - 1997 data instead of 1994

SOCIAL EQUITY

Poverty

Evaluation

In 1999, 17.9% of the EU active youth population (around 4 million young people) were unemployed; 9.4% were unemployed for more than 6 months. Although youth unemployment decreased by 4 percentage points between 1994 and 1999, it remained around 21-22% until 1997, with a sharper decrease between 1998 and 1999 (-1.6 points). Member States such as Spain (-15 points), Ireland (-15 points) and Finland (-13 points) experienced the most significant reductions between 1994 and 1999. Rates remained constant over the same period of around 24% and 33% for Belgium and Italy, while there has been a 2 point increase in Greece. The long-term unemployment rate for young people (six months or more) stood at 9.4% in 1999, a considerable reduction from the 1994 peak of almost 14%. Young people in Greece, Spain and Italy are more affected by long-term unemployment (17-25% of the labour force) as indeed are people aged 25 and over in these three countries. Over the period 1994-1999, the proportion of young unemployed persons without work for at least 6 months fell: in 1999, 53% of young unemployed persons were without a job for six months or more compared with around 64% in 1994. In Greece, Italy and the Netherlands, this applies to more than 70% of the young unemployed in 1999 compared with around 27-36% in France, Austria, Sweden and the United Kingdom and only 13-16% in Denmark and Finland.

Of the Accession Countries, the youth unemployment rate is highest in Poland, Slovenia and Hungary. It is currently becoming important in the Czech Republic and Estonia, where rates increased between 1994 and 1998 (by 3.7 and 4.1 points respectively). However, youth unemployment rates were below the EU average in 1998, except in Poland, where 23.2% of the youth population was unemployed. Significant reductions have been achieved between 1994 and 1998 in Poland (-9.3 points), Hungary (-5.9 points) and Slovenia (-3.9 points) respectively.

Data assessment

The Labour Force Survey produces comparable International labour Office (ILO) youth unemployment rates both for the EU and the Accession Countries.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'Youth in the European Union, from Education to Working Life', 1997, Eurostat. See SOC3 for other relevant references.

eurostat

SOC5 Social benefits per capita

Definition

Social protection encompasses all interventions from public or private bodies intended to relieve households and individuals of the burden of a defined set of risks or needs, provided that there is neither a simultaneous reciprocal nor an individual arrangement involved. The risks or needs that may give rise to social protection are classified by convention under eight 'social protection functions': Sickness/Health care, Disability, Old age, Survivors, Family/Children, Unemployment, Housing and Social exclusion not elsewhere classified. Social protection benefits via the fiscal system and insurance policies taken out on the private initiative of individuals or households are excluded.

Indicator relevance

The level of social benefits offered to households or individuals gives some indication as to the level of social protection applied in each country. Broadly, the disparities between the countries reflect differences in the social protection systems, demographic changes, unemployment levels, and other social, institutional and economic factors.

The Treaty of Amsterdam (Art.2) urges the Community to promote a high level of social protection. The EU Social Policy Agenda (COM (2000) 379 final) has as an objective *'to modernise and improve social protection to respond to the transformation to the knowledge economy, change in social and family structures and build on the role of social protection as a productive factor.'* (Section 4.2.1.1). This is in line with the Lisbon European Council of March 2000 which recalled the great importance of the role of social protection systems in the achievement of its overall strategic objective. It sets out the objective that the European social model, with its developed systems of social protection, must underpin the transformation to the knowledge economy. Furthermore, these systems need to be adapted as part of an active welfare state to ensure that work pays, to secure their long-term sustainability in the face of an ageing population, to promote social inclusion and gender equality, and to provide quality health services.

Links to other indicators

This indicator is linked to the indicators of poverty and income inequality (SOC1/2), and more widely, unemployment (SOC3), child welfare (SOC7) and household structure (SOC18).

Per capita social benefits expenditure, 1990=100

(at constant prices)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
EU-15	100	:	:	113	114	117	120	120	122
B	100	104	108	113	113	114	117	117	118
DK	100	105	108	114	123	123	122	121	122
D	100	95	103	104	106	110	114	113	114
EL	100	98	97	98	100	103	107	114	124
E	100	109	117	124	120	119	120	121	124
F	100	103	106	110	111	115	116	118	120
IRL	100	106	112	119	123	131	133	140	144
I	100	104	109	109	109	109	114	119	120
L	100	108	112	121	125	130	134	138	151
NL	100	101	103	103	102	103	102	102	102
A	100	104	107	110	115	117	118	118	121
P	100	114	130	143	153	156	167	175	189
FIN	100	109	116	117	120	120	122	122	120
S	:	:	:	109	108	106	106	107	110
UK	100	111	122	131	131	132	136	137	138
IS	100	105	103	104	106	110	113	118	127
NO	*100*	*106*	*110*	*113*	*114*	*114*	*119*	*122*	*127*
CH	100	106	113	119	120	122	127	133	135

Source: Eurostat, European System of integrated Social Protection Statistics (ESSPROS). EU figures are calculated for the populations of all countries that are now Member States but exclude Sweden for 1990. Data in italics are provisional

Measuring Progress Towards a More Sustainable Europe

eurostat

Unemployment benefits as a percentage of total social benefits

(unemployment benefits in % of total social benefits)
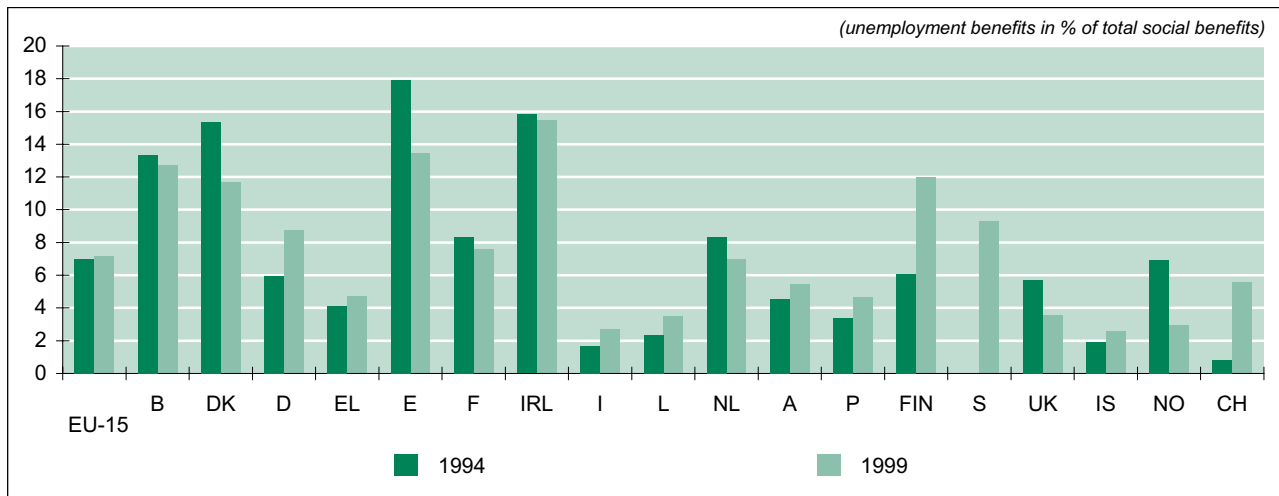
Source: Eurostat, ESSPROS. 1990 EU figures are calculated for the populations of all countries that are now Member States but exclude Sweden

Evaluation

Between 1990 and 1998, real-terms expenditure on social protection (i.e. in constant prices per head of population) grew by 22% in the EU, by 2% in the Netherlands, 10% in Sweden, 20-24% in Denmark, Spain, France, Italy and Austria to 44% in Ireland, 51% in Luxembourg and 89% in Portugal. Two phases can be identified. Between 1990 and 1993 expenditure in real terms increased by 4.3% annually in the EU-15. The rise was particularly marked in Portugal (13-16% per year) and the United Kingdom (9-11% per year). In contrast, the rate of increase during the period 1993-1998 was 1.4% per year for the EU as a whole. Greece, Ireland, Luxembourg, Portugal and the UK experienced growth rates well above the EU average. In virtually all other Member States, expenditure grew at a relatively slow rate in real terms over this period. In most Member States, old-age and survivors' benefits make up the largest item of social protection expenditure: EU-wide, they amounted to 46% of total benefits or 12.2% of GDP in 1998. Relatively, unemployment benefits represent 7% of social benefits. Inter-country differences concerning the share of unemployment-related benefits in total social benefits (next to old age and survivors, sickness health care and disability, family and children) are significant and reflect national labour market characteristics and social policies. In 1998, unemployment benefits represented about 3% of total benefits in Italy and the UK compared to 12% in Finland, 13.5% in Spain, and 15.5% in Ireland. Despite differences in absolute shares, the evolution of the relative share of unemployment benefits varied across countries between 1990 and 1998. Unemployment share fell by 58% in Norway, 38% in the UK, 25% in Spain and Denmark and 16% in the Netherlands whereas it doubled in Finland and increased by 60% in Italy and 50% in Luxembourg and Germany.

Data assessment

Social expenditures, receipts and benefits are collected according to the European System of Integrated Social Protection Statistics (ESSPROS). The 1981 (data from 1980 to 1994) and the 1996 methodological versions (data from 1990 onwards) are not fully comparable although data by function have been re-calculated on the basis of the new methodology for the period 1980 onwards. Extension of data collection on social protection expenditure and receipts to progressively cover the Accession Countries is underway.

Indicator's place in other EU/international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'The Social situation in the European Union 2001', European Commission (DG Employment and Social Affairs)/Eurostat, 2001;'European social statistics - Social protection: Expenditure and receipts 1980-1998', Eurostat, 2000; Statistics and Focus (Population and social conditions):'Social Protection in Europe' No.15/2000; 'Social benefits and their redistributive effect in the EU' No.9/2000 'ESSPROS Manual 1996', Eurostat, 1996.

Definition

The female to male wage ratio is the gross earnings of female workers divided by the gross earnings of male workers over the same period and economic activity (sectors)[a] to show female wages as a percentage of male wages. The sectors of the economy considered here are industry, financial intermediation, hotels and restaurants and computer and related activities. Industry and services (activities C_K of NACE Rev.1) include industry (C_F), wholesale and retail trade (G), hotels and restaurants (H), financial intermediation (J), and real estate (K).

Indicator relevance

This indicator presents an aspect of gender inequality on the labour market. Agenda 21's chapter on Combating Poverty highlights the importance of women's participation in society, and hence, their participation in the labour market to secure their own income. The principle of 'equal salary for equal work' is enshrined in the Treaty of Amsterdam and reinforced in the 2000 Employment Guidelines.

Links to other indicators

This indicator is linked to the indicators of unemployment (SOC3), child welfare (SOC7) households composition (SOC18) and education (SOC15/16).

Female to male wage ratio, selected sectors and countries, 1995-1998
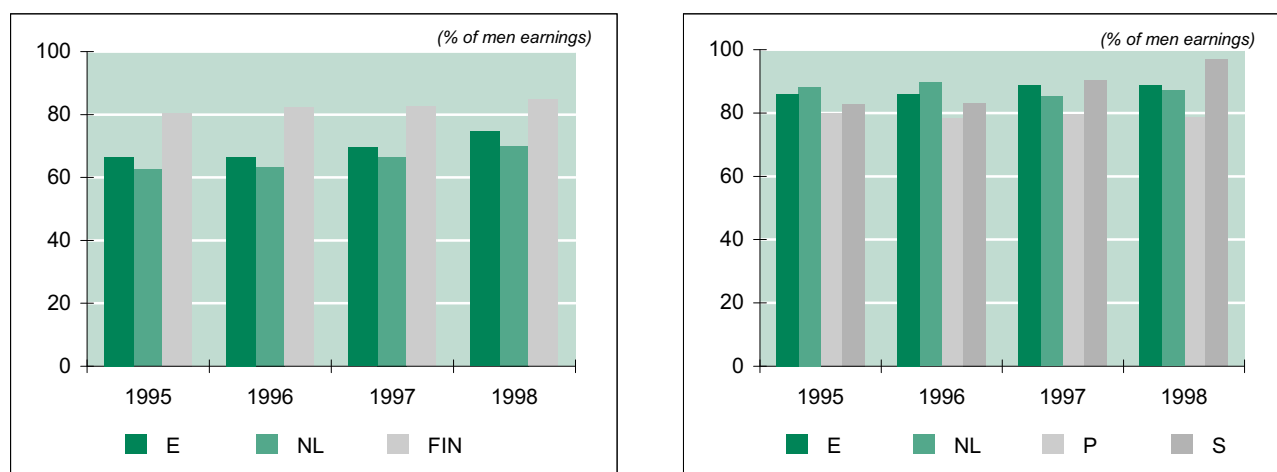
Source: Eurostat, Harmonised Statistics on Earnings. NL: all calculations are made using hourly earnings which include all employees (full-time and part-time). E - 1996 data instead of 1995

Evaluation

In the EU, women earn less than 80% of men's wages despite a slow trend in closing gaps in the industry and services sectors. In the industry sector, inequalities remained the highest in 1998 in Luxembourg and Austria (63-65%) and the smallest in Denmark and Sweden (95-92%). Between 1995 and 1998, financial service sector ratios remained stable in Belgium and Germany (78%), Austria (77%), Spain (72%), and the UK (54.4%) but fell in Greece and Sweden. A trend towards reduced inequalities was observed in the IT sector, where gaps reduced by 8 points in Spain, 7 points in the Netherlands and 4 points in Finland between 1995/6 and 1998: women earned from 70% to 85% of men's earnings in 1998. The hotel sector is characterised by large discrepancies across countries but the gap is closing in Spain (89%), France (83%) and Sweden, (97%). Between 1995-1999, women's earnings remained constant at 70-80% of men's earning in the industry and services sectors in Accession Countries, with the exception of Slovenia and Poland where the gap has closed from 85% to 88% and 77% to 82%.

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[a] Sectors are classified according to the statistical classification of economic activities (NACE)

Female to male wage ratio

(% of men's earnings)

		1995	**1996**	**1997**	**1998**	**1999**
B	Industry and services	67.3	68.3	68.8	69.2	:
	Financial intermediation	78.6	79.4	79.2	78.3	:
DK	Industry and services	:	81.9	82.4	81.6	:
	Financial intermediation	:	75.5	72.7	75.3	:
D	Industry and services	75.5	76.1	76.6	76.8	77.1
	Financial intermediation		77.0	77.8	78.0	:
EL	Industry and services	77.0	78.4	77.9	79.0	:
	Financial intermediation	84.4	83.0	79.3	73.0	:
E	Industry and services	72.4	72.9	74.3	76.2	:
	Financial intermediation	:	71.8	73.6	72.4	:
F	Industry and services	69.8	70.6	79.6	79.8	:
	Financial intermediation	73.0	72.5	67.7	67.9	:
IRL	Industry and services	72.9	73.1	73.5	73.3	:
	Financial intermediation	**72.3**	:	:	:	:
I	Industry and services	**80.6**	:	:	:	:
	Financial intermediation	**80.7**	:	:	:	:
L	Industry and services	63.4	63.1	64.2	64.7	65.4
	Financial intermediation	70.6	72.1	70.6	71.4	72.0
NL	Industry and services	70.6	72.0	72.0	72.4	:
	Financial intermediation	61.7	63.8	64.4	65.0	64.5
A	Industry and services	68.9	68.4	67.9	67.5	:
	Financial intermediation	78.5	78.3	77.8	77.0	:
P	Industry and services	73.1	70.4	72.7	71.7	:
	Financial intermediation			85.2	82.3	:
FIN	Industry and services	78.2	79.3	78.7	78.7	:
	Financial intermediation	60.9	61.5	61.3	:	:
S	Industry and services	85.0	83.3	82.7	82.4	:
	Financial intermediation	69.6	69.6	70.2	67.9	:
UK	Industry and services	71.7	72.1	72.6	72.4	:
	Financial intermediation	53.9	54.2	54.5	54.4	:
CY		69.5	70.0	70.2	68.7	69.3
CZ		:	75.8	:	:	:
EE	Industry and services	73.3	72.6	72.0	74.2	:
HU		80.3	79.0	77.6	81.4	81.3
PL		77.7	77.8	80.2	83.2	82.6
SI		85.0	85.4	86.9	88.9	:

Source: Eurostat, Harmonised Statistics of Earnings. I and IRL - Industry and services, Financial Intermediation: data from SES 1995 (in bold)

1) Industry and services: B - only non-manual workers for sections C_F + G + J + K of NACE Rev.1; D - NACE Rev.1 C_F+G+J; L - full time non-manual workers. S and UK - for the whole economy (NACE Rev.1 C_O) instead of C_K. EL, IRL, P - industry manual workers only.

2) CZ - Full-time employees, sections A _O of NACE Rev.1; EE - Hourly earnings, all activities. PL - Source: representative survey in September of 1995 to 1997 or as of October 1998-1999. SL - All activities; if only industry: 80.6 (1998).

Data assessment

EU earnings data come from two different sources: Community statistics on the structure of earnings (SES, 1995, next wave 2002) and the Harmonized Statistics on Earnings (annual data). Data availability for Belgium, Germany, Greece is limited to industry, wholesale and retail trade and banking. Data for Ireland cover only industry and no other data than the SES 1995 results are available for Italy.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	**EU STRUCTURAL**	**OECD SOC**	**UN AGENDA 21**

Further reading: 'The Employment in Europe Report 2000', European Commission (DG Employment and Social Affairs), 2000; 'The Social Situation in the European Union 2001', European Commission (DG Employment and Social Affairs)/ Eurostat, 2001; 'Women's Earnings in the EU, N. 6/1999, Eurostat; Statistics in Focus: 'Income poverty in the European Union: Children, gender and poverty gaps', No.12/2000. 'Low-wage employees in EU countries', No.11/2000.

SOCIAL EQUITY

Child welfare

Definition

A 'child' is defined as a person under 16 years of age. 'Dependent children' include all children aged up to 15 plus all those persons aged 16-24 who are economically inactive (mainly in education) and who are living with at least one of their parents. 'Low-income households' are households whose income is below the poverty line of their country, i.e. below 60% of the median national income.

Indicator relevance

The UN child welfare indicator is the percentage of children under age 15 living outside their own home, to which Agenda 21 makes no explicit reference. This UN indicator has a limited relevance for child well-being in the EU. A more EU-suitable indicator seems to be the percentage of dependent children living in single-parent families. An important link with income patterns can be verified, given that these children can be shown to be more likely to live in low-income households. A sustainable society is deemed to offer equal education opportunities, basic health care, and decent housing for all children - which is clearly dependent on each family income (despite the social benefits received, public education and health). However, this proxy cannot be fully satisfactory, insofar as child welfare cannot be entirely depicted by household income alone. True social concerns in both the EU and Accession Countries include orphans, children living in urban areas with high crime rates, teenagers on drugs, or physically/sexually abused children.

Links to other indicators

This indicator is linked to the indicators of poverty (SOC1), education attainments (SOC15/16), health care provision, housing (SOC17), and household structure (SOC18).

Dependent children living in single-parent families

(% of all dependent children)

	EU	B	DK	D	EL	E	F	IRL[1]	I	L	NL	A	P	FIN	S	UK
1983	8	7	:	:	4	:	9	5	6	7	8	:	:	:	:	11
1998	13	14	:	13	6	6	12	12	8	9	9	11	8	:	:	25

Source: Eurostat, Labour Force Survey. EU figures include only the reporting countries

1) 1997 data instead of 1998.

Persons living in low income households - 1996
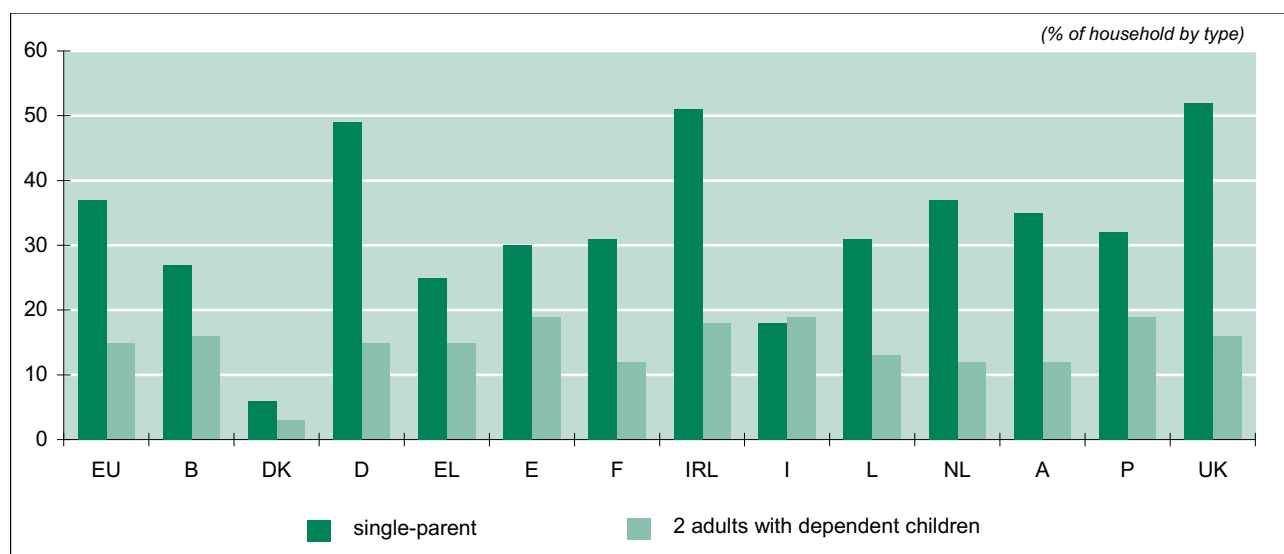
(% of household by type)

legend: single-parent | 2 adults with dependent children

Source: Eurostat, European Community Household Panel. EU figures exclude Finland and Sweden

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Percentage of children under 16 years of age living in low-income households, 1996
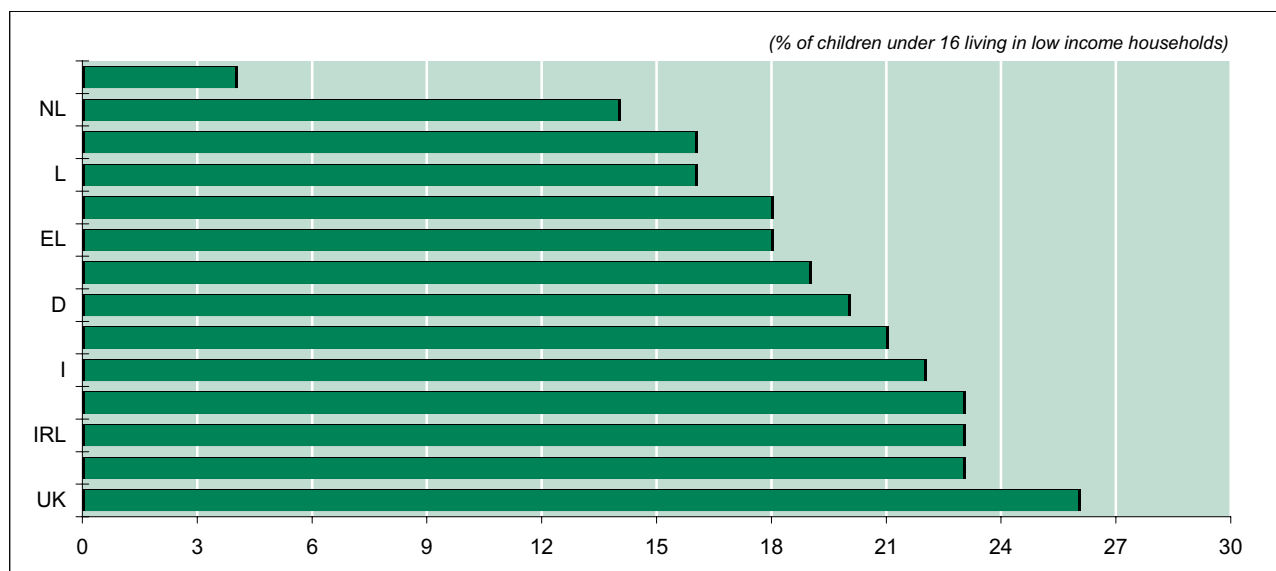
(% of children under 16 living in low income households)

Source: Eurostat, European Community Household Panel. EU figures exclude Finland and Sweden

Evaluation

The proportion of dependent children living in single-parent families - as opposed to traditional 'nuclear families' (a couple with children) - gradually increased in the EU, from 8% in 1983 to 13% in 1998. Member States experienced an upward trend to different degrees. From 1983 to 1998, the proportion doubled in Belgium (7% to 14%), and more than doubled in Ireland and the UK (11% to 25%). Austria, France, Germany and Ireland (11%-13%) experienced slower growth while the proportion remained constant in the Netherlands, Greece, Italy and Luxembourg. In Greece, Spain, Italy and Portugal, between 6% and 8% of children were living in single-parent families in 1998. In 1996, 21% of EU children aged less than 16 lived in low-income households. In the Member States, the proportion of children in low-income families ranges from 26% in the UK, 23% in Spain, Ireland and Portugal, 20% in Germany, to 4% in Denmark. The economic welfare of children living with one adult is likely to be lower than those living with two adults. For example, poverty seems more prevalent among 'single-parents with dependent children' than '2 adults with dependent children': 37% of the population living in single-parent households were under the poverty line in 1996. Conversely, nuclear families (2 adults with dependent children) are less frequently poor: 15% of EU citizens living in such households were considered as poor in 1996, ranging from 3% in Denmark to 19% in Spain and Portugal. About 50% of persons living in single-parent households in the UK, Ireland and Germany and one third of the persons living in such households in Belgium, France, Spain and Greece live under the poverty line. However, poverty affects only 6% of Danish persons in single-parent households.

Data assessment

Data from the European Community Household Panel (ECHP) is only currently available for 1995 and 1996. No data is available for Finland (comparability problems) nor Sweden which does not participate in the ECHP. However, from the fourth wave of the ECHP (1997 data) onwards, comparable national data for Sweden will be available. Co-operation with Accession Countries in the area of poverty will start in the course of 2001. Data availability for these countries will depend on national data and comparability with EU data.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'European Community Household Panel: Selected Indicators from the 1995 wave', Eurostat, 1999; 'The Social situation in the European Union 2001', European Commission (DG Employment and Social Affairs) / Eurostat, 2000; 'Living Conditions in Europe, Statistical Pocketbook', Eurostat, 2000.

SOC8 Nutritional status of population

Definition

The average number of calories consumed per day by an adult and the share of fat in the total energy available from food consumption describe the nutritional status of (adult) population. Individual caloric needs vary depending on age, sex and physical activity. The Body Mass Index (BMI) is an internationally acknowledged measure of a person's weight relative to his/her height that correlates fairly well with body fat content in adults. It is calculated as the ratio of weight (Kg) to the square of the height in metres. BMI ranges from less than 18 to over 30 (severely overweight). Overweight persons have a BMI of between 27 and 30.

Indicator relevance

Nutrition is a key determinant of health. In line with Agenda 21's chapter on human health, the UN indicator for child malnutrition is defined as the proportion of children aged less than 5 with acceptable 'weight and height for age': nutrition is closely linked to health status and access to adequate food supply, education levels and age. This EU-adapted indicator shows the nutrition patterns of adults, not specifically those of children. It is therefore a proxy, considering that parents may pass their nutrition habits to their children. In the EU, a focus on fat-rich diets seems relevant. The body fat content is thus a state indicator of bad eating habits measured through the BMI. Overweight or obesity implies an increased risk of developing heart diseases.

Links to other indicators

The indicator is linked to the indicator mortality rates from circulatory (heart) diseases (SOC 9).

Daily calorie consumption and energy from fat - adults, 1990-1998

	Daily Calorie Consumption (Kcal/Person/Day)			Energy from fat (% of Total energy available)		
	1990	1995	1998	1990	1995	1997
EU-15	3 372	3 373	3 437	38	39	39
B [1]	3 533	3 578	3 606	40	41	40
DK	3 153	3 319	3 433	38	37	35
D	3 315	3 394	3 402	38	38	38
EL	3 506	3 577	3 630	36	37	38
E	3 244	3 237	3 348	38	40	39
F	3 506	3 539	3 541	41	42	42
IRL	3 656	3 546	3 622	34	33	34
I	3 573	3 485	3 608	38	38	38
L	:	:	:	40	41	40
NL	3 282	3 198	3 282	39	41	39
A	3 496	3 548	3 531	40	40	41
P	3 505	3 615	3 691	32	32	32
FIN	3 146	3 068	3 180	36	37	37
S	2 974	3 092	3 114	37	38	38
UK	3 220	3 135	3 257	38	39	39
IS	3 056	3 110	3 222	37	35	35
NO	3 147	3 262	3 425	37	37	36
CH	3 345	3 249	3 222	41	41	40
CY	3 279	3 389	3 474	:	:	:
CZ	:	3 200	3 292	:	:	:
EE	:	2 765	3 058	:	:	:
HU	3 705	3 289	3 408	:	:	:
PL	3 343	3 304	3 351	:	:	:
SI	:	2 834	2 950	:	:	:

Source: Food and Agricultural Organization database (FAOSTAT) (calories) and World Health Organization Database (fat). 1990 EU figures are calculated for all countries that are now Member States

1) Data include Luxembourg.

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Percentage overweight[1] persons aged 15-24, by gender, EU-15, 1996

(% of male or female population aged (15-24)

Source: European Commission, Eurobarometer 44.3, 1996

1) I.e. 27<BMI<30.

Evaluation

The recommended dietary allowance (RDA) for most EU countries ranges from 2 900 Kcal in certain maximal cases (adult males) to 2 200 Kcal for women (adult female). These RDAs can, however, differ among individuals according to certain characteristics. In the case of average number of calories per person/day, all the EU countries (except Finland) consume on average more than 3 000 Kcal/day and the trend is not decreasing anywhere. A similar trend of unhealthy over-consumption can be observed in the fat intake that should not exceed (approximately) 30-33% of the total energy intake according to recommendations from some food administrations[a]. The recommended average is only consumed in Portugal, where only 32% of energy comes from fat.

In Germany, Greece, Spain, Ireland, Austria, Finland, Sweden and the UK the frequency of overweight males is higher than the EU averages. In Greece and the UK both sexes are similarly affected: 23% of young people aged 15-24 (both sexes) are overweight in Greece - 13% of males and 10% of females; in the UK 17% of the young population is overweight (7% of males and 9% of females). However, in most EU countries, young males are more often overweight than young females. The highest percentage of overweight males is found in Spain (10%) and Greece (13%) while there are more overweight females in the UK (9.5%) than in the rest of Europe. Only in Belgium, Denmark, France and Luxembourg, where frequency is under EU levels, are females equally affected by obesity.

Data assessment

The data on calories and fat intake presented above are produced by the United Nations Food and Agricultural Organisation (FAO) and the World Health Organization.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: Key Data on Health, Eurostat 2000; 'Health for All Database', World Health Organisation, Europe.

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a) e.g. International Union of Nutrition Sciences

SOC9 Mortality due to selected key illnesses

Definition

The standard death rate is the number of deaths per 100 000 males/females. Infectious and parasitic diseases include tuberculosis, meningococal infection, AIDS and viral hepatitis. Cancer includes all types of malignant neoplasms. Circulatory diseases include ischaemic heart and cerebrovascular diseases.

Indicator relevance

Agenda 21's chapter 'Protecting and Promoting Human Health' insists on the need to address basic human health. Death rates per type of illness are important in terms of the quality of the preventive health care system and delivery and immunization rates. AIDS and other infectious diseases (from water and food consumption) are not preventable and remain important causes of death in the EU. Despite high immunization rates in the EU, preventable infectious diseases have not been eradicated. Cancer and circulatory diseases are presented here to give information concerning specific situations and the success of prevention and treatment for the major causes of death in the EU. The EU's role in public health includes the promotion of health protection and disease prevention, especially in the case of cancer.

Links to other indicators

The indicator is linked to the indicators of national health expenditures (SOC 13), immunisation (SOC14) and life expectancy (SOC11).

Mortality rates per illness and gender

(per 100 000 population)

	Year	Cancer		Circulatory Diseases		Infectious Diseases	
		Male	Female	Male	Female	Male	Female
EU-15	1994	273	152	371	236	15	6
	1997	262	147	344	218	12	6
B	1994	:	:	351	221	:	:
	1997	:	:	:	:	:	:
DK	1994	288	213	409	242	12	5
	1997	275	207	374	221	:	:
D	1994	272	164	451	289	12	5
	1997	260	155	417	265	9	5
EL	1994	220	116	378	305	7	4
	1997	219	116	371	289	6	4
E	1994	268	123	292	206	30	11
	1997	267	119	280	192	22	9
F	1994	300	133	252	146	26	10
	1997	292	132	246	141	15	8
IRL	1994	260	182	480	292	7	4
	1997	257	174	465	279	:	:
I	1994	283	146	343	230	16	5
	1997	271	143	324	214	:	:
L	1994	271	154	383	238	13	7
	1997	228	149	327	210	5	3
NL	1994	331	186	444	278	13	7
	1997	282	166	332	192	10	6
A	1994	256	159	464	306	7	3
	1997	249	149	457	291	4	2
P	1994	234	126	421	301	23	7
	1997	247	127	396	290	33	9
FIN	1994	226	129	466	269	7	5
	1997	217	134	428	237	7	5
S	1994	196	142	390	222	7	4
	1997	196	145	380	219	:	:
UK	1994	264	176	415	245	7	4
	1997	249	172	379	228	7	4
IS	1994	189	172	369	209	4	4
	1997	:	:	:	:	:	:
NO	1994	235	158	389	219	7	5
	1997	235	163	377	210	:	:
CH	1994	243	:	305	188	20	8
	1997	231	:	300	185	:	:

Source: Eurostat, World Health Organization Data. B - 1993 instead of 1994. DK, IRL, I, S, NO, CH -1996 instead of 1997. EU figures include only the reporting countries. 1994 EU figure takes into account all current Member States

Evaluation

Female mortality is lower than male mortality for all diseases, though to a lesser extent for viral hepatitis. Differences in gender are sharpest for heart diseases, where the mortality rate for men is twice that for women. As regards cancer, differences become sharper depending on the type of cancer.

Circulatory diseases are the major cause of death for both sexes in the EU, causing 343 deaths per 100 000 men and 217 deaths per 100 000 women in 1997. Despite the overall decrease in mortality due to circulatory diseases between 1994 and 1998 (7% for men and 8% for women) in all Member States, mortality due to **ischaemic heart diseases** (precursor to most heart diseases) has increased significantly for both sexes in Greece, Spain and Switzerland (+4.8%, 2.9% and 6% for men respectively). Sharpest reductions in circulatory diseases death rates were observed in the Netherlands, followed by Luxembourg for both sexes with, respectively, 25% and 15% reductions in the number of deaths per 100 000 men. Progress is slower in countries where death rates are above EU average such as Denmark, Germany, Ireland, Austria and Sweden.

Cancer is the second major cause of death in the EU. In 1997, EU average death rates for men were 262.1 for men and 146.7 for female. Despite a 4% decrease for both sexes between 1994 and 1998, mirrored in many countries, cancer death rates have increased in Portugal for both sexes, in the Nordic countries (Finland, Sweden and Norway) for women, and have remained constant in Greece (219 and 116 for men and women respectively) and in Sweden for men (196). Again, the Netherlands have experienced the sharpest decrease for both men (-14.5%) and women (-10.4%).

At EU level, mortality due to **infectious diseases** has decreased by 19.6% over the period 1994-1997 for males, and has remained constant at around 6% for females. Despite high immunisation rates for most infectious childhood diseases (and prevention for AIDS), death rates have not declined to acceptable levels. In 1997, Portugal had the highest death rates for both sexes (32.8 per 100 000 men and 8.9 per 100 000 women), followed by Spain. Male mortality rates have been consistently reduced in France and Luxembourg since 1994 while they have increased in Portugal by around 40% and remained above the EU average in Spain. In countries where the mortality rate was already low in 1994, there has been a continuous decrease, such as in Austria (-37%), Greece (-10%), and the Netherlands (-17%).

Viral Hepatitis is not a major cause of death in the EU - despite a respective 40% and 100% increase in mortality for males and females respectively since 1994 - as death rates are less than 2 per 100 000 for both sexes. However, hepatitis C is becoming a concern, as it is an infectious disease without any vaccination available. Rates have remained stable in Austria, the Netherlands, Sweden, Norway and Switzerland, from virtually zero for both sexes in Norway to 0.3 per 100 000 men in Sweden and the Netherlands.

Data assessment

Standard Death Rates are well defined and harmonised worldwide since they are based on the WHO International Classification of Diseases. To allow full comparability across countries, Eurostat is working on improving the harmonisation of the death certificate (and the way it is filled in). Another important area of work concerns the so-called multiple causes of deaths (especially drugs, alcohol).

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'Key Data on Health 2000', Eurostat, 2000; 'Living Conditions in Europe, Statistical Pocketbook', Eurostat, 2000.

SOC10 Infant mortality

Definition

Eurostat defines the infant mortality rate (IMR) as the number of infants who die during the first year of life divided by the number of live births over the same period of time (per 1 000 live births). Developing country data is calculated by the UN as annual averages over a certain period of time, sometimes several years.

Indicator relevance

Infant mortality rate under one year of age - as used by Eurostat and Agenda 21 - monitors the quality and availability of perinatal health care, while the mortality rate under 5 years of age - as proposed by the new UN list - monitors the prevention system as a whole. The provision of basic health care for children is one fundamental requirement of Agenda 21 on 'Protecting and Promoting Human Health' especially in terms of nutrition and immunisation against preventable diseases (e.g. tuberculosis and measles). Infant mortality is often the result of unhealthy conditions at birth, including the presence of pneumonia, diarrhea, malaria and measles, as well as unsafe drinking water, and poor immunisation rates.

Links to other indicators

This indicator is linked to the indicators on GDP (ECON1), poverty (SOC1/2), health expenditures (SOC13) and immunisation.

Targets

The UN Programme for Action of the International Conference on Population and Development encouraged countries to achieve an IMR (aged less than 1) lower than 50‰ by 2005 and under 35‰ by 2015.

Infant mortality rates

(per 1000 live births)

	1960	1965	1970	1975	1980	1985	1990	1995	1998
EU-15	34.5	27.5	23.4	18.1	12.4	9.5	7.6	**5.6**	5.2
B	31.2	23.7	21.1	16.1	12.1	9.8	8.0	**6.1**	**5.6**
DK	21.5	18.7	14.2	10.4	8.4	7.9	7.5	5.1	4.7
Dᵃ	35.0	24.1	22.5	19.8	12.4	9.1	7.0	5.3	4.7
EL	40.1	34.3	29.6	24.0	17.9	14.1	9.7	8.1	6.7
E	43.7	37.8	28.1	18.9	12.3	8.9	7.6	5.5	5.7
F	27.5	22.0	18.2	13.8	10.0	8.3	7.3	4.9	**4.8**
IRL	29.3	25.2	19.5	17.5	11.1	8.8	8.2	6.3	**6.2**
I	43.9	36.0	29.6	21.2	14.6	10.5	8.2	6.2	**5.5**
L	31.5	24.0	24.9	14.8	11.5	9.0	7.3	5.5	5.0
NL	17.9	14.4	12.7	10.6	8.6	8.0	7.1	5.5	5.2
A	37.5	28.3	25.9	20.5	14.3	11.2	7.8	5.4	4.9
P	77.5	64.9	55.5	38.9	24.3	17.8	11.0	7.5	6.0
FIN	21.0	17.6	13.2	10.0	7.6	6.3	5.6	3.9	4.2
S	16.6	13.3	11.0	8.6	6.9	6.8	6.0	4.1	3.5
UK	22.5	19.7	18.5	12.4	12.1	9.3	7.9	6.2	5.7
IS	13.0	15.0	13.2	12.5	7.7	5.7	5.9	6.1	**5.5**
NO	18.9	16.8	12.7	11.1	8.1	8.5	7.0	4.0	3.9
EEA	34.4	27.4	23.3	18.0	12.4	9.5	7.4	5.6	5.2
CH	21.1	17.8	15.1	:	9.1	6.9	6.8	5.0	**4.8**
CY	:	32.0	26.0	:	12.0	12.0	11.0	8.5	6.1
CZ	20.0	23.7	20.2	19.4	16.9	12.5	10.8	7.7	5.2
EE	31.1	20.3	17.7	19.6	17.1	14.1	12.4	14.8	9.3
HU	47.6	38.8	35.9	65.1	23.2	20.4	14.8	10.7	9.7
PL	56.1	43.5	36.4	23.7	25.4	22.1	19.4	13.6	9.5
SI	35.1	29.6	24.5	43.0	15.3	13.0	8.4	5.5	5.2
Africa	161	:	:	:	:	:	:	:	100
South East Asia	:	:	:	:	:	:	:	:	46

Source: Eurostat - Demographic Statistics. Africa and Asia - UN Commissions for Africa and Asia. No retrospective series for Asia. Africa - 1960-1965 average. Bold data are estimates. EU figures are calculated for the populations of all countries that are now Member States. a) After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990

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Infant mortality, EU-15, South East Asia, Africa, 1960-1998
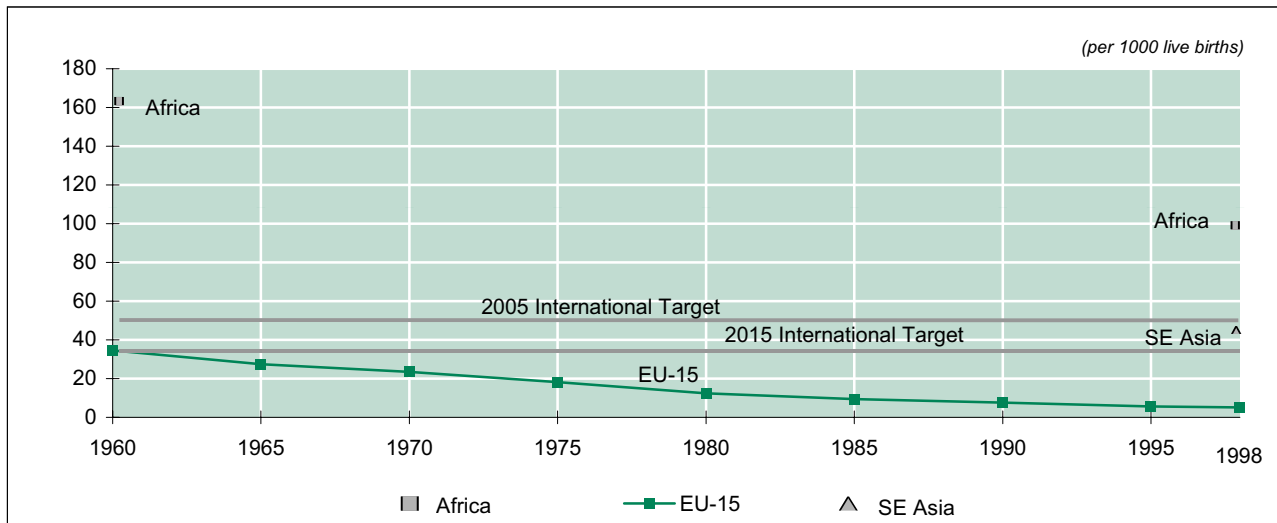
Source: Eurostat - Demographic Statistics. Africa and Asia - UN Commissions for Africa and Asia. No retrospective series for Asia. EU figures are calculated for the populations of all the countries that are now Member States

Evaluation

Infant mortality has decreased steadily across the EU from 35 deaths per thousand live births in 1960 to 5‰ in 1998. In all the EEA and Switzerland, infant mortality rates (IMR) were lower than 7‰ in 1998. In 1998, the lowest rates were achieved in Sweden (3.5‰) and Norway (3.9‰). In most Member States, gradual progress has been made between 1960 and 1998 and differences have virtually disappeared. Indeed, some countries had very low rates at the outset, while some were very high: the IMR was initially as low as 16.6‰ in Sweden and 17.9‰ in the Netherlands, while it was 43.7‰ in Spain, 43.9‰ in Italy and 77.5‰ in Portugal. In Accession Countries, infant mortality rates have fallen considerably between 1960 and 1998. In all countries, rates were lower than 10‰ in 1998 and close to the EU average. Although levels were close to those in the EU in 1960, with 20‰ in the Czech Republic, 47.6‰ in Hungary and 35.1‰ in Slovenia, progress has been relatively slower between 1980 and 1998. In 1998, infant mortality rates were 6.1‰ in Cyprus, 9.3‰ in Estonia, and 9.5‰ in Poland.

In Africa, infant mortality rates were still above the 2005 international target of 50‰ in 1998. Despite a considerable decrease in mortality rates between 1960 and 1998 in Africa, infant mortality rates were still at 100 deaths per 1000 live births in 1998, above the respective international targets. In South East Asia, the 2005 international target has been already reached, with 46 deaths per 1 000 live births in 1998.

Data assessment

Developing country figures are produced from the United Nations Economic Commission for Africa and Asia. Due to difficulties in monitoring the diseases, infant mortality rates are only available as annual averages calculated over certain periods of years, i.e. 1960-1965 and 1990-1998. Hence, the yearly data for the EU are not fully comparable with those of developing countries.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'Key Data on Health 2000', Eurostat, 2000; 'Selected World Development Indicators', World Bank, 2000. Summary of progress towards the international mortality targets can be found in a recent World Bank report 'A Better World for All', June 2000; and the '2000 World Development Indicators Report', World Bank.

SOCIAL **HEALTH**

Mortality

Definition

Life expectancy at birth is defined as the average number of years that a person could expect to live according to the age-specific death rates of a given period. The UN calculates life expectancy in developing countries as an annual average over a certain period of time, commonly five years.

Indicator relevance

This indicator gives a good indication of the health conditions in each country. It is strongly correlated with the mortality and fertility rates, as well as the access to health care and the quality of health care. Agenda 21's chapter on Protecting and Promoting Human Health urges countries to provide basic health care to children, which should be reflected in post-natal care. In the EU, the ageing of the population and the consequent social and economic problems are strongly related to increasing life expectancies. The Treaty of Amsterdam states that 'Community actions, which shall complement national policies, shall be directed at improving public health, preventing human illness and diseases and obviating sources of danger to human health'.

Links to other indicators

This indicator is linked to the population growth indicator (SOC20) and indirectly to the health expenditure indicator (SOC13).

Targets

The International Conference on Population and Development Programme of Action targets were set at 65 years by 2005 and 70 years by 2015 for countries that have currently the highest mortality rates in Asia and Africa.

Life expectancy at birth in years

	Female							Male						
	1960	1970	1980	1985	1990	1995	1998	1960	1970	1980	1985	1990	1995	1998
EU-15	72.9	74.7	77.2	78.4	79.4	80.4	81.0	67.4	68.4	70.5	71.8	72.8	73.9	75.0
B	73.5	74.2	76.8	78	79.4	80.2	80.5	67.7	67.8	70.0	71.1	72.7	73.4	74.3
DK	74.4	75.9	77.3	77.5	77.7	77.8	78.8	70.4	70.7	71.2	71.5	72.0	72.7	73.9
D	:	:	76.1	:	78.4	79.7	80.6	:	:	69.6	:	72.0	73.3	74.5
EL	72.4	73.8	76.8	78.4	79.5	80.3	80.6	67.3	70.1	72.2	73.5	74.6	75.0	75.5
E	72.2	74.8	78.6	79.6	80.4	81.5	:	67.4	69.2	72.5	73.1	73.3	74.3	:
F	73.6	75.9	78.4	79.4	80.9	81.9	78.3	66.9	68.4	70.2	71.3	72.7	73.9	74.6
IRL	71.9	73.5	75.6	76.7	77.6	78.4	79.1	68.1	68.8	70.1	71.0	72.1	72.9	73.5
I	72.3	74.9	77.4	78.7	80.1	81.3	:	67.2	69.0	70.6	72.3	73.6	74.9	:
L	72.2	73.4	75.9	77.9	78.5	80.2	80.5	66.5	67.1	69.1	70.6	72.3	73.0	73.7
NL	75.3	76.5	79.3	79.6	80.9	80.4	80.6	71.5	70.7	72.7	73.1	73.8	74.6	75.2
A	72.7	73.4	76.1	77.4	78.9	80.1	80.9	66.2	66.5	69.0	70.4	72.4	73.6	74.7
P	66.8	70.8	75.2	76.4	77.4	78.6	78.9	61.2	64.2	67.7	69.4	70.4	71.2	71.7
FIN	72.5	75	77.6	78.7	78.9	80.2	80.8	65.5	66.5	69.2	70.1	70.9	72.8	73.5
S	74.9	77.1	78.8	79.7	80.4	81.4	81.9	71.2	72.2	72.8	73.8	74.8	76.2	76.9
UK	73.7	75	76.2	77.6	78.5	79.2	79.7	67.9	68.7	70.2	71.7	72.9	74.0	74.8
IS	76.4	77.3	80.1	80.3	80.5	80	81.5	71.3	71.2	73.4	74.9	75.4	75.9	77.7
NO	76	77.5	79.2	:	79.8	80.8	81.3	71.6	71.2	72.3	:	73.4	74.8	75.6
EEA	72.9	74.7	77.2	78.6	79.4	80.4	:	67.4	68.5	70.5	72	72.8	73.9	:
CH	74.5	76.9	79.6	:	80.7	81.7	82.4	68.7	70.7	72.8	:	74.0	75.3	76.3
CY	:	:	77.0	77.8	78.6	79.8	:	:	:	72.3	73.9	74.1	75.3	:
CZ	73.4	73.0	73.9	74.7	75.4	76.6	78.1	67.9	66.1	66.8	67.5	67.6	69.7	71.1
EE	71.6	74.1	74.1	74.9	74.6	74.3	75.5	64.3	65.5	64.1	65.5	64.6	61.7	64.4
HU	70.1	72.1	72.7	73.1	73.7	74.5	75.2	65.9	66.3	65.5	65.1	65.1	65.3	66.1
PL	70.6	73.3	75.4	75.3	76.3	76.4	77.3	64.9	66.6	66.9	66.9	66.7	67.6	68.9
SI	72.0	72.4	75.2	75.7	77.4	77.8	77.8	66.1	65.0	67.4	67.6	69.5	70.3	69.9
J	70.2	74.7	78.8	80.5	81.9	83.0	:	65.3	69.3	73.3	74.8	75.9	76.6	:
USA	:	:	77.4	78.2	78.8	78.9	:	:	:	70.0	71.1	71.8	72.5	:
Africa	:	:	:	:	:	:	52.8	:	:	:	:	:	:	50.0
South East Asia	:	:	:	:	:	:	67.8	:	:	:	:	:	:	63.7

Source: Eurostat. Asia, Africa: United Nations Population Fund (2000). EU figures are calculated for the population of all countries that are now Member States but exclude Germany for 1960, 1970 and 1985

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Life expectancy at birth, EU-15, Asia, Africa, per gender
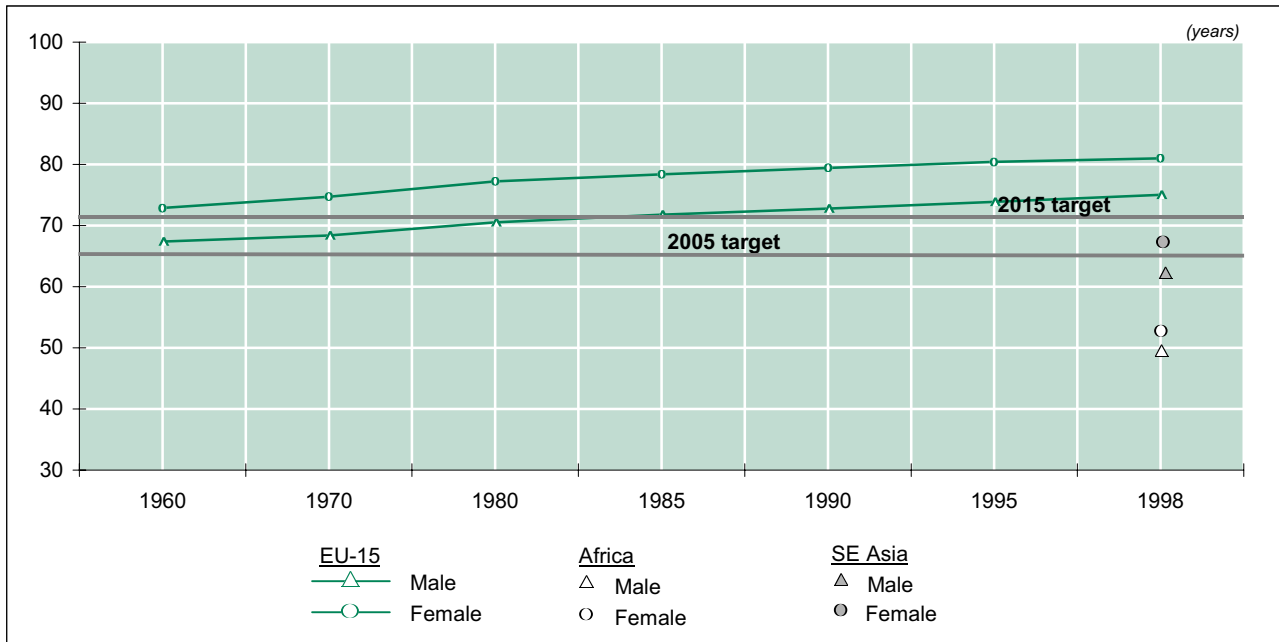
Source: Eurostat. Asia and Africa - UN Population Fund (2000). EU figures are calculated for the population of all countries that are now Member States but exclude Germany for 1960, 1970 and 1985

Evaluation

EU life expectancy at birth has dramatically increased between 1960 and 1998 for each sex, by 10% for females and 9.6% for males. Female life expectancy reached 81 years in the EU in 1998. Levels are the lowest in France (78.3), Denmark (78.8) and Portugal (78.9). Male life expectancy reached 75 years in 1995. Lowest levels are in Portugal (71.7), Finland and Ireland (73.5). Also, life expectancy without any disability has been estimated to be 60 years for men and 62 years for women in 1994 in the EU, with 63 and 65 respectively in Greece and 55 and 57 in Portugal. This shows progress in medical research and care throughout the EU. Eurostat estimates that the life expectancy at birth of women and men may reach 84 and 78 respectively by the year 2020. In the Accession Countries, although slightly under EU levels, female life expectancy has also experienced a steady trend upwards (+6% on average), with a maximum life expectancy of 78.1 years in the Czech Republic in 1998. Male life expectancy has increased from 65.9 years on average in 1960 to 67.5 years in 1998, i.e. by 2.4% as compared to the 10% increase in the EU over the same period.

Africa has the lowest life expectancies in the world and only showed slow progress in the 1990s. In 1998, African female and male life expectancies were 52.8 and 50.0 years, respectively. South East Asia reached the 2005 international target in 1998 for women (67.8 years in 1998).

Data assessment

During the 1960-1980 period, life expectancy statistics were based on data delivered by the Member States. From 1985 onwards, they have been harmonised and calculated by Eurostat, which creates a break in the time series. Developing country data comes from the UN Population Fund and are not fully comparable with Eurostat data: they are 5-year annual averages due to the lack of monitoring in these countries. Latest Eurostat estimates are presented in the 'Key Data on Health 2000'. Eurostat is disseminating an indicator on disability-free life expectancy. Other health expectancy indicators on composite health measures are being developed by the WHO and OECD

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'The Social Situation in the European Union 2001', European Commission (DG Employment and Social Affairs)/Eurostat, 2001; 'Key Data on Health 2000', Eurostat, 2000.

SOC12 Population connected to sanitation system

Definition

Connection to a sanitation system is measured as percentage of the total population and includes connection to public sewerage networks and to wastewater treatment plants. Wastewater treatment is a process to render wastewater fit to meet applicable environmental standards or other quality norms for recycling or re-use. Collected wastewater may be treated at public or at independent sewage plants, that is individual private treatment facilities. Independent treatment is used in cases where a public sewerage network is not available or not justified either because it would produce no environmental benefit or it would involve excessive cost. Three broad types of treatment technologies are distinguished: mechanical, biological and advanced. **Mechanical** treatment technology refers to processes of a physical and mechanical nature which result in decanted effluents and separate sludge. **Biological** treatment employs aerobic or anaerobic microorganisms and results in decanted effluents and separated sludge containing microbial mass together with pollutants. **Advanced** treatment is capable of reducing specific constituents in wastewater or sludge not normally achieved by other treatment options; for example it can eliminate phosphorus very efficiently by adding a chemical (lime, aluminum, iron, salts) to biologically treated sewage. Biological treatment processes are also used in combination and/or in conjunction with the mechanical as well as with the advanced one. Wastewater connection rates are also broken down by type of treatment as the percentage of total population connected to each type of treatment.

Indicator relevance

Agenda 21 states the need to assess the protection of the quality and supply of freshwater resources (Chapter 18) and insists on the application of integrated approaches to the development, management, and use of water resources. The extent to which the population can benefit from public wastewater collection and treatment systems indicates the level of sanitation in the whole community - especially in urban densely populated areas and hence the potential risk for infectious diseases. At EU level, the type of treatment affects the environmental impact from wastewater discharges - depending on the concentration of pollutants left in the sludge. Water quality is a key EU environmental policy and is addressed *inter alia* through the Urban wastewater Directive (91/271/EEC).

Links to other indicators

This indicator is linked to the other water quality indicator, (ENV 14) and, indirectly, to health indicators (SOC 9/10/11).

Connection rates and types of treatment

(% total population)

	Latest Year	Connected to: public sewerage system		Not connected to: public sewerage system		Connected to: Public Sewage Treatment		
		total	of which: public sewage treatment	total	of which: independent treatment	Mechanical	Biological	Advanced
B [1]	1998	*81*	*38*	*19*	:	*0*	*22*	*16*
DK	1998	89	89	11	*11*	2	3	84
D	1995	92	89	8	:	4	12	72
EL	1997	:	56	32	:	32	14	10
E	1995	:	48	:	:	11	34	3
F	1995	81	77	10	:	:	:	:
IRL	1995	:	58	32	:	24	32	2
I	1995	:	63	:	:	3	36	24
L	1999	*93*	93	*7*	:	:	:	:
NL	1999	98	98	2	:	*0*	:	:
A	1998	*82*	*81*	*19*	:	1	*17*	*64*
P	1994	*61*	21	*39*	:	4	16	1
FIN	1999	*80*	*80*	*20*	:	*0*	*0*	*80*
S	1998	93	93	7	:	0	6	87
UK [2]	1996	:	*90*	*4*	:	*12*	*55*	*23*
IS	1999	90	16	10	6	16	0	*0*
N	1999	80	73	20	20	21	1	51
CH	1999	*96*	96	*4*	:	0	22	74
CZ	1999	75	62	25	:	:	:	:
EE	1999	*70*	69	*30*	:	1	31	37
HU	1998	*48*	*26*	*52*	*17*	3	20	*3*
PL	1999	58	52	42	:	4	32	16
SI	1999	:	74	:	:	15	15	:

Source: Eurostat. Data in italics are provisional. CY - no data available. A - 1998 advanced treatment rate includes biological treatment

1) Walloon and Flemish regions.
2) England and Wales.

Type of wastewater treatment plants - selected countries, latest available year

(% of total population connected)

Legend: DK, EL, P, PL

Categories: Mechanical, Biological, Advanced
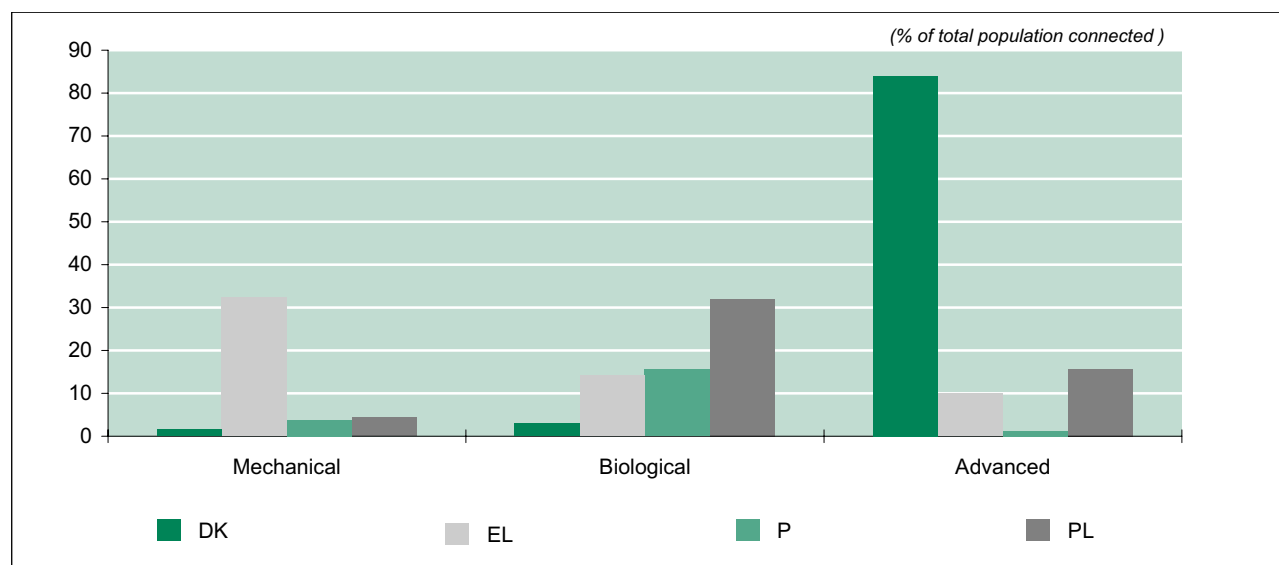
Source: Eurostat. DK - 1998. EL - 1997. P - 1994. PL - 1999

SOCIAL
HEALTH

Sanitation

Evaluation

The proportion of the population connected to public sewage systems varies across Member States, although on average, more than 80% of the EU population was connected to a sewerage system in the nineties. However, the non-connected rate remained at a significant level for some countries, i.e. 39% for Portugal (1994) and 32% for Greece and Ireland in 1997 and 1995, respectively. Mechanical technology remains predominant in Greece (32%) and important in Ireland (24%). Biological treatment is the main treatment option in the UK, (55%), Italy (36%), Spain (34%), Belgium (22%) and Portugal (16%). In the Nordic countries, Germany, Austria and Switzerland, the majority of treatment plants use advanced technologies. In 1999, the population connected to a public sewerage system in the Accession Countries was 75% in the Czech Republic and 70% in Estonia. A high non-connection rate can be observed for Hungary (52%) and Poland (42%). With the exception of Estonia where 37% of the population is connected to systems using advanced treatment, biological treatment is the most widely applied treatment method in the Accession Countries.

Targets

Under the Urban Waste Water Directive, all towns and villages with a population equivalent of or above 2,000 must have sewerage collection systems and adequate waste water treatment plants. A range of discharge requirements is necessary for certain industrial sectors in sensitive areas, estuarine, fresh and coastal waters, and 'appropriate treatment' is required for other discharges.

Data assessment

Time coverage is at present different for each country, which may affect the comparability of data. In terms of the treatment technologies used, comparisons among countries can imply some limitations due to the mixed/combined use of different treatment technologies. In addition, some countries use different types of treatment at the same plant, or change the type of treatment on a seasonal basis. In the future, national definitions of treatment technologies will be harmonised at EU level to improve the overall comparability of data.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL INDICATOR	OECD Hous	TEPI	UN AGENDA 21

Further reading: 'Wastewater Treatment in Europe' - 'Water Management in the EU Regions', Statistics in focus, Eurostat, 2001.

Definition

According to OECD methodology, total health expenditure includes hospital services (medical staff, ambulance, medicine) and own-initiative health expenditure, vaccination programmes, investments in hospitals, laboratories, administration, research & development, medical industry and non-governmental measures. It covers publicly funded care in institutions, whether publicly or privately owned. Public refers to central and local authorities, health boards or social insurance institutions.

Indicator relevance

Agenda 21's chapter on Protecting and Promoting Human Health insists on the need for countries to have a national health action plan which includes monitoring diseases, providing basic health care, and using effective traditional knowledge in health care systems. Protecting human health is a priority in order to achieve sustainable patterns for society. The UN indicator is the proportion of population with access to primary health care facilities. At EU level, total national health expenditure seems more appropriate, given that access to health care is ensured while the quality and the number of facilities can vary. As such this indicator measures the proportion of national resources devoted to health - not the degree of access to health care by the public - and is therefore a welfare indicator. It does not affect the quality and availability of the resulting health services. Moreover, if national health expenditure is financed predominantly by the private sector, public access to health care might be compromised. Although health care is the responsibility of the Member States, the European Union is committed to ensuring a high level of health promotion and disease prevention.

Links to other indicators

The indicator is strongly related to the indicators on poverty and equity (SOC1/2), social benefits (SOC5) and macro economic performance indicators such as GDP (ECON 1) and public debt (ECON 7).

Targets

International targets in this matter include those set out in the 'Global Strategy for All by the Year 2000' adopted by the WHO Assembly in 1981. It states that at least 5% of GNP should be spent on the health sector.

National health expenditure, public and private   **Public expenditure**

													(% of GDP)	*(% 0f total health expenditure)*	
	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	1970	1997
EU	:	:	:	:	:	:	:	:	:	:	:	:	:	75.4	76.6
B	5.9	6.4	7.2	7.4	7.8	7.9	8.1	7.9	8.2	8.6	8.6	8.8	:	87.0	87.6
DK	:	9.2	8.8	8.4	8.3	8.4	8.7	8.5	8.2	8.3	8.2	8.3	8.3	86.3	83.8
D	8.8	8.8	9.3	8.7	9.1	9.7	9.7	9.8	10.2	10.6	10.5	10.6	10.5	72.8	77.1
E	4.9	5.6	5.7	6.9	7.0	7.4	7.6	7.4	7.0	7.1	7.0	7.1	:	42.6	57.7
EL	:	6.6	:	7.6	7.9	8.3	8.3	8.3	8.3	8.3	8.5	8.3	:	65.4	76.1
F	7.0	7.4	8.3	8.8	9.0	9.2	9.7	9.6	9.8	9.7	9.6	9.6	:	74.7	74.2
IRL	7.7	8.7	7.9	7.0	7.4	7.8	7.8	7.7	7.4	7.2	7.0	6.4	6.1	81.7	83.8
I	6.2	7.0	7.1	8.1	8.4	8.5	8.6	8.4	8.0	8.1	8.4	8.4	8.4	86.9	69.9
L	5.1	6.2	6.1	6.6	6.5	6.6	6.7	6.5	6.3	6.4	6.0	5.9	:	88.9	91.8
NL	7.9	8.3	8.1	8.8	9.0	9.2	9.4	9.2	8.9	8.8	8.6	8.6	:	84.3	72.6
A	7.2	7.7	6.7	7.2	7.2	7.6	8.1	8.1	8.9	8.9	8.2	8.2	8.3	63.0	73.0
P	5.6	5.8	6.3	6.4	7.0	7.2	7.5	7.5	7.7	7.7	7.6	7.8	:	59.0	60.0
FIN	6.2	6.4	7.2	7.9	9.0	9.1	8.3	7.8	7.5	7.7	7.3	6.9	:	73.8	76.0
S	7.9	9.4	9.0	8.8	8.7	8.8	8.9	8.6	8.4	8.7	8.5	8.4	:	86.0	83.3
UK	5.5	5.7	5.9	6.0	6.4	6.9	6.9	7.0	7.0	7.0	6.7	6.7	7.0	87.0	84.6
IS	5.8	6.2	7.3	8.0	8.1	8.2	8.3	8.1	8.2	8.1	7.9	8.3	8.4	81.7	83.8
NO	6.0	7.0	6.7	7.8	8.1	8.2	8.1	8.0	8.0	8.0	8.1	8.9	:	91.6	82.2
CH	6.6	6.9	7.7	8.3	8.9	9.3	9.4	9.5	9.6	10.1	10.3	10.4	:	63.9	69.9
CY	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
CZ	:	3.8	4.5	5.0	5.2	5.4	7.2	7.3	7.3	7.0	7.1	7.2	7.6	:	:
EE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HU	:	:	:	:	7.3	7.8	7.8	8.2	7.6	7.2	6.9	6.8	:	:	:
PL	:	:	:	5.3	6.6	6.6	6.4	6.0	6.0	6.4	6.2	6.4	6.3	:	:
SI	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Source: OECD. 1970 EU figures have been calculated for all countries which are now Member States

National health expenditure - selected countries, 1970-1998
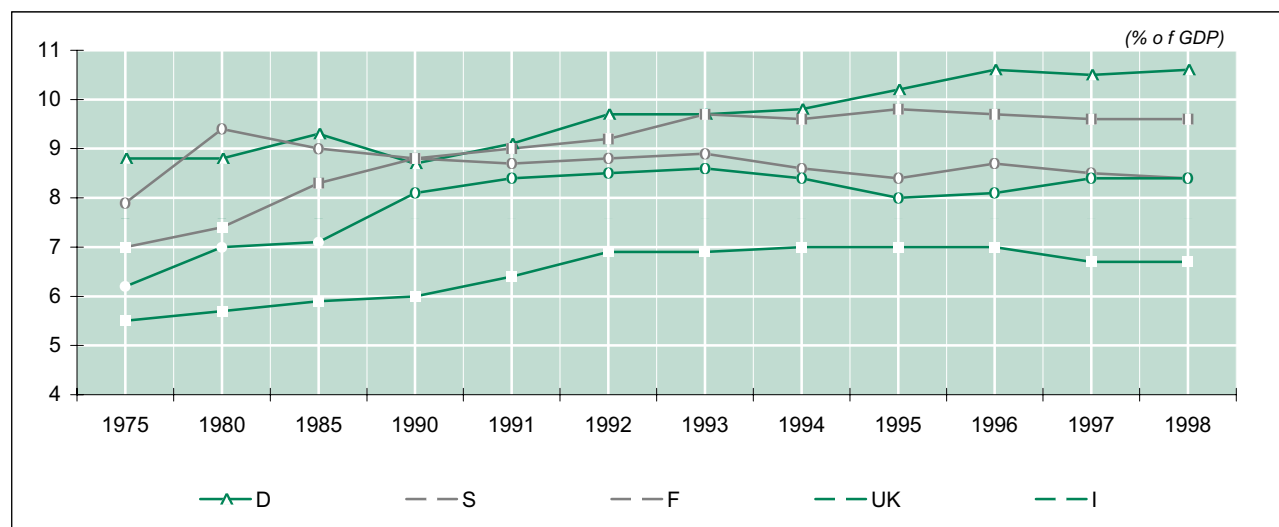
Source: OECD

Evaluation

In most EU Member States, health expenditure levels as a share of GDP have increased from 5% in 1970 to between 8-10% at the beginning of the 1990s. From 1993 onwards, health expenditure declined slowly or stabilised. Sweden experienced a very marked switch from 1992, with the share of expenditure in 1997 dropping to 1988 levels. While since 1995 the health share of GDP has continued to grow in Belgium, Italy and Germany (by 7%, 5%, 4% respectively), a decrease or stabilisation around the 1995 levels has taken place in other countries. In comparison to others, France and Germany's expenditure on health have typically accounted for the largest share of GDP. In 1998 Germany and France spent the highest proportions of their GDP (9.9-10.7%) on health, while Portugal, Greece and Luxembourg spent the least (7% of GDP). In 1997, public health expenditure represented 76% of total health expenditure in the EU. In Belgium, Denmark, Ireland, Luxembourg, Sweden and the UK it accounted for more than 80% of total national expenditure whereas in other Member States, private health expenditure accounted for more than the EU average of 23% of total health expenditure. Private expenditure represented around 40% of total expenditure in Spain and Portugal, 30% in Italy and 27% in the Netherlands and Austria. In Poland, the Czech Republic and Hungary, the share of GDP has increased from 5% in 1990 to 7% over the period 1998-1999. Since the mid-1990s, national health expenditure has accounted for a decreasing share of GDP in Hungary whereas it continues to increase slowly in Poland and the Czech Republic. Japan's expenditure on health is comparable to the average for the fifteen Member States. The United States' expenditure far outstrips that of any of the Member States with 14% of GDP. The majority of this expenditure is within the private sector.

Data assessment

The OECD methodology ensures that the most internationally accepted accounting of health expenditure is presented. As from 2002, a new manual on health accounting, jointly developed by Eurostat and the OECD, will be implemented.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL		

Further reading: 'Key Figures on Health 2000', Eurostat, 2000.

SOC14 Immunisation against childhood diseases

Definition

Immunisation rates consist of the percentage of children aged 0 to 2 years who are fully immunised against common childhood diseases such as tuberculosis, DTP (Diptheria, Pertussis and Tetanus) and hepatitis B as defined by the World Health Organization (WHO). Incidence rates are defined as the number of new cases/year/100 000 population.

Indicator relevance

This response indicator provides insights into the national immunisation policies and their implementation, including health care availability at birth and at the early post-natal stage. Agenda 21's chapter on 'Protecting and Promoting Human Health' insists on the necessity to address primary human health needs if sustainable development is to be achieved. Urbanisation, lack of decent housing with basic amenities, basic sanitation and clean water, combined with inadequate health care and overcrowding leads to people (including children) contracting tuberculosis, cholera, respiratory and other diseases. The EU relevance of this indicator is limited given the high immunisation rates for most preventable diseases and low incidence rates (ranging from 43.2 new cases/year/100 000 population for pertussis, 13.2 for tuberculosis, and 0.01 for diptheria in 1997). The incidence of hepatitis B is relatively small (0.5 deaths per 100 000 population in the EU - see SOC7). Although national health care is the responsibility of Member States, the EU plays an important role in public health by promoting health protection and the prevention of diseases, including immunisation. The PHARE assistance programme for Eastern and Central Europe supports disease prevention measures in addition to public health organisational and financing issues.

Links to other indicators

This indicator is linked to the indicators concerning infant mortality (SOC10), life expectancy (SOC11), and mortality per selected diseases (SOC9) and can be related to the national health expenditure indicator (SOC13).

Targets

The WHO 'Global Strategy for Health for All' adopted in 1981 states that 90% of children should be immunised against diptheria, pertussis, tetanus, measles, poliomyelitis, tuberculosis and, since 1992, hepatitis B.

Evaluation

Immunisation against **tuberculosis** shows very different patterns across EU countries (depending on data availability) while all Accession Countries have maintained or improved their high 1980s achievements by 1997, achieving rates from 97% in the Czech Republic up to 100% in Hungary. While immunisation was close to 100% in Finland and the UK in 1997, some countries achieve rates sometimes below or close to their 1981 levels: 70% in Greece, 83% in France, 12% in Sweden in 1995, without any relative increase in incidence.

DTP immunisation rates have increased since 1981 to near 100% (or >90%) in most EU countries and Accession Countries. In 1981, immunisation was already well advanced above 90% except for Ireland (36%), the UK (44%); Cyprus (56%), Portugal (75%), France (79%) and Denmark (85%). While the rate has fallen in Belgium and stagnated around 60% in Italy after a steep increase in the 1980s (98% in 1986), most countries have caught up in 1996-1997. Again, the incidence of these diseases remain very low across the EU, even in Belgium and Italy where there are no more new cases per year than EU average.

Immunisation against **Hepatitis B** has become a concern in the 1990s and degrees of children immunisation vary extremely in countries where data is available. Despite a general increase in the last decade, 1997 rates remain well below those of DTP and tuberculosis, with only 2% of the infants immunised in Belgium, 34% in Portugal (1996), 49% in Luxembourg, 50% in Greece and 82% in Poland (1995). It is important to note that hepatitis B is mainly a concern for adults in the EU and that the degree of popularity of the vaccine may be low in some Member States where it is not compulsory, such as in France and Belgium.

Measuring Progress Towards a More Sustainable Europe

Immunisation rates

(% of 0-2 year olds)

		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
B	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	:	95	95	95	95	:	95	95	80	94	:	92	:	97	:	94	:	62
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	2
DK	Tuberculosis	:	95	95	85	85	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	:	85	85	94	94	:	89	88	88	95	95	95	87	88	89	90	:	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
D	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	:	:	:	:	:	:	95	97	93	94	80	80	80	80	80	:	45	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
EL	Tuberculosis	:	95	:	56	:	:	:	:	:	:	:	50	:	50	50	50	70	70
	Diphteria etc.	72	95	:	:	60	54	80	82	83	54	54	75	78	78	78	78	78	85
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	10	15	2	2	12	12	50
E	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	:	:	:	:	95	79	88	77	93	93	93	86	84	87	88	:	:	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
F	Tuberculosis	:	80	:	81	96	:	98	:	79	80	80	78	:	79	:	:	83	:
	Diphteria etc.	:	79	:	90	94	:	96	:	79	95	95	89	:	94	:	:	96	97
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
IRL	Tuberculosis	:	:	:	75	75	80	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	34	36	43	42	45	45	:	:	:	43	65	65	:	:	:	:	:	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
I	Tuberculosis	:	:	:	50	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	:	:	:	:	10	12	98	88	85	85	:	83	40	40	40	50	50	60
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	95	95	95	95	95	95	95
L	Tuberculosis	:	:	:	50	:	:	:	:	:	:	:	:	:	:	:	:	:	58
	Diphteria etc.	:	:	:	75	68	:	:	95	90	90	90	:	95	:	:	:	:	94
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	49
NL	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	96	96	96	97	97	97	97	97	97	97	97	97	97	97	:	97	97	95
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
A	Tuberculosis	:	90	90	90	90	:	90	90	90	90	:	:	:	:	:	:	:	:
	Diphteria etc.	:	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	:	90
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
P	Tuberculosis	:	74	76	76	79	82	71	78	86	87	88	89	92	91	87	94	91	:
	Diphteria etc.	73	75	78	79	78	72	81	83	81	88	89	95	94	92	97	93	95	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	6	34	:
FIN	Tuberculosis	:	90	90	90	:	:	80	:	94	91	91	99	99	99	99	100	100	:
	Diphteria etc.	:	92	94	94	:	:	:	:	91	90	90	95	99	99	99	100	100	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
S	Tuberculosis	:	:	:	31	6	14	:	:	:	:	:	:	:	:	:	12	:	:
	Diphteria etc.	:	99	:	:	99	99	99	99	99	99	99	99	:	99	99	99	:	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
UK	Tuberculosis	:	:	:	74	5	:	96	96	75	75	:	:	:	:	:	:	:	99
	Diphteria etc.	:	44	49	57	60	:	67	70	73	78	85	86	90	91	92	:	94	95
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
IS	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	:	99	98	94	99	:	99	:	99	99	99	98	98	98	:	98	:	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
NO	Tuberculosis	:	:	:	:	90	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	:	:	:	:	90	90	85	83	80	83	83	86	96	98	92	:	:	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
CH	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	:	:	:	:	:	:	:	90	:	90	90	90	89	:	:	:	:	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
CY	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Diphteria etc.	34	56	26	34	30	:	91	93	90	93	:	:	:	:	95	96	98	98
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	20	27	:	:	68	88	88
CZ	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	:	:	98	:	:	96	97
	Diphteria etc.	:	:	:	:	:	:	:	:	:	:	:	:	:	99	98	96	97	98
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
EE	Tuberculosis	96	96	97	97	96	97	96	98	99	99	93	99	98	99	99	99	99	99
	Diphteria etc.	84	82	80	82	82	84	88	:	:	:	76	75	76	79	79	84	90	85
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	0	:	:
HU	Tuberculosis	99	99	99	99	99	:	:	100	99	:	99	:	:	100	100	100	100	100
	Diphteria etc.	99	99	99	99	99	99	99	100	99	99	99	100	100	99	99	100	100	100
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
PL	Tuberculosis	93	93	93	95	95	95	95	95	95	95	97	94	95	95	94	:	:	:
	Diphteria etc.	96	95	95	95	95	94	95	96	96	96	96	94	94	95	95	:	:	:
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	59	76	78	82	:	:	:
SI	Tuberculosis	:	:	:	:	:	:	:	:	:	:	:	87	92	96	99	:	:	98
	Diphteria etc.	:	:	:	:	:	:	:	:	:	:	:	97	98	98	98	:	:	91
	Hepatitis B	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Source: WHO. Hepatitis - No data available for France and Belgium where vaccination is voluntary

Data assessment

The data presented here are produced by the World Health Organization and cover all countries and the main vaccines, following a harmonised international methodology. However, an EU-15 average is not feasible. The geographical and time coverage of tuberculosis and hepatitis B immunisation rates is rather limited. The lack of data for tuberculosis and hepatitis in certain Member States is due to differences in national immunisation across countries where some vaccines against infectious diseases are not compulsory. Consequently, immunisation rates for these diseases are not fully monitored or reported upon by these countries.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'Key Data on Health 2000', Eurostat, 2000.

SOCIAL HEALTH

Healthcare delivery

eurostat

SOC15 Level of educational attainment

Definition

The UN uses the primary and secondary school completion ratio, i.e. the proportion of the population of the official ages for primary and secondary education respectively, who have completed this level of education. An equivalent indicator used by Eurostat is the highest level of educational attainment. The levels of education are defined according to the International Standard Classification of Education (ISCED). Post compulsory attainment is defined as the proportion of persons (per age group) whose highest level of education attained is (a) upper secondary education (ISCED 3 and ISCED 4 since 1997; e.g. Baccalauréat, Abitur, A levels or Bachillerato), and/or (b) tertiary education (ISCED 5-7 or ISCED 5-6 since 1997 e.g. university, Hochschule, higher non-university technical education).

Indicator relevance

Agenda 21 regards the promotion of education, public awareness and training as being essential to enable the population to promote and act towards a more sustainable society. In the EU, the level of post-compulsory educational attainment is a relevant driving force indicator for changes in the level of qualification skills leading to increased employability. The EU 2000 Employment Guideline No. 7 recommends the improvement of national schooling systems with a view to reducing the number of drop outs and attention to the needs of those with learning difficulties. Guideline No.8 recommends that Member States also ensure that their young people are better equipped to adapt to technological and economic changes, with skills relevant to the labour market. Participation in, and completion of education (whether academic or vocational) throughout the course of every individual's lifetime is endorsed through the EU's Lifelong Learning Agenda.

Links to other indicators

This indicator is linked to the indicators of low qualification (SOC16), (youth) unemployment (SOC3/4), poverty (SOC1) and child welfare (SOC7).

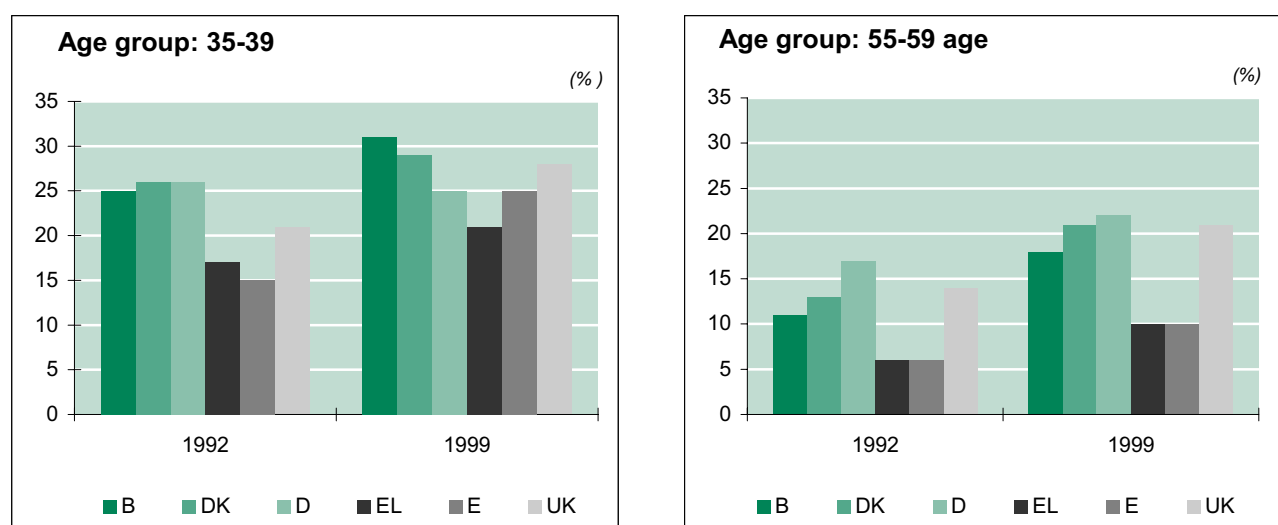### Levels of educational attainment, 1992 and 1999

(% for selected age-groups)

	UPPER SECONDARY (ISCED 3-4)								TERTIARY (ISCED 5-6)							
	Age groups:								Age groups:							
	25-64		25-29		35-39		55-59		25-64		25-29		35-39		55-59	
	1992	1999	1992	1999	1992	1999	1992	1999	1992	1999	1992	1999	1992	1999	1992	1999
EU	:	42	:	51	:	47	:	34	:	20	:	24	:	22	:	16
B	29	31	37	40	34	34	21	22	21	27	29	37	25	31	11	18
DK	55	53	76	63	55	51	43	53	19	27	12	26	26	29	13	21
D	59	57	71	66	60	58	52	53	21	23	16	18	26	25	17	22
EL	24	33	42	52	31	41	14	18	12	17	21	22	17	21	6	10
E	11	15	24	22	13	19	3	6	12	20	23	36	15	25	6	10
F	:	40	:	44	:	45	:	32	:	21	:	34	:	22	:	13
IRL	25	27	36	35	29	32	16	18	17	22	22	34	19	25	11	13
I	26	34	42	51	33	40	11	18	7	10	7	9	11	11	4	7
L	23	44	30	47	24	50	16	36	12	18	14	21	14	17	7	16
NL	:	42	:	51	:	47	:	34	:	23	:	25	:	24	:	18
A	:	61	:	71	:	66	:	53	:	14	:	14	:	16	:	12
P	9	11	21	22	10	12	3	5	11	10	14	13	15	9	6	7
FIN	:	40	:	49	:	49	:	27	:	31	:	35	:	36	:	24
S	:	48	:	55	:	52	:	43	:	29	:	32	:	31	:	23
UK	30	53	33	60	32	57	25	41	19	27	21	30	21	28	14	21
IS	:	41	:	46	:	39	:	43	:	23	:	23	:	25	:	11
NO	:	56	:	55	:	61	:	51	:	31	:	39	:	30	:	20
CH	:	59	:	67	:	56	:	56	:	31	:	25	:	28	:	19
CZ	:	76	:	84	:	78	:	67	:	11	:	10	:	14	:	11
EE	:	58	:	65	:	60	:	43	:	30	:	25	:	34	:	29
HU	:	61	:	68	:	65	:	45	:	15	:	14	:	15	:	13
PL	:	70	:	76	:	77	:	46	:	11	:	13	:	11	:	11
SI	:	60	:	78	:	62	:	51	:	16	:	20	:	19	:	12

Source: Eurostat, Labour Force Survey. ISCED 3 - includes ISCED 4 from 1997 onwards. ISCED 5-7 is classified as ISCED 5-6 from 1997 onwards. UK: ISCED 3C short re-allocated to ISCED 2

Measuring Progress Towards a More Sustainable Europe

Tertiary educational attainment, 1992 -1999, selected countries and age groups

Age group: 35-39

(%)

Age group: 55-59 age

(%)

Source: Eurostat. ISCED 5-7 is classified as ISCED 5-6 from 1997 onwards

SOCIAL EDUCATION

Education levels

Evaluation

Over the last thirty years, the level of post compulsory educational attainment has increased significantly in the EU. In 1999, 51% of EU citizens aged 25-29 were qualified at upper secondary level compared with only 34% of the population aged 55-59. This overall trend is confirmed by a significant increase over the 1992-1999 period in tertiary education attainment levels within the 35-39 and the 55-59 age groups (see graphs). In 1999, 22% of EU citizens aged 35-39 had attained a tertiary qualification, compared with 16% of the 55-59 population. Despite national differences, most Member States have experienced a significant trend towards higher post-compulsory educational attainment levels. Spain and Greece have experienced significant increases in tertiary education attainment levels from 1992 to 1999 for the 35-39 age group: 17% to 21% in Greece and 15% to 25% in Spain. In Belgium, the percentage of adults in these two age groups qualified at tertiary education levels increased from 25% to 31% (35-39 age group) and from 11% to 18% (55-59 age group). Within the 55-59 age group, Denmark and Germany have also witnessed significant increases over the same period (see graph). In Finland and Sweden, more than 30% of the 35-39 age group and over 20% of the 55-59 age group were qualified at tertiary education levels in 1999.

Accession Countries experienced upper secondary attainment levels above the EU-15 average in 1999: the level was 76% of the 25-64 population in the Czech Republic, 70% in Poland, 61% in Hungary and 60% in Slovenia. Tertiary attainment levels among the 55-59 age group were significantly high in 1999, ranging from 11% in Poland and the Czech Republic to 29% in Estonia.

Data assessment

Data comparability of attainment levels over time may be slightly affected by the revision of ISCED in 1997. The lack of a long time series is compensated by focusing on the 25-29 and the 55-59 age groups: taken together, attainment levels provide a 30-year picture of the trends in education attainment levels, beyond the 1992-1999 period.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'Key data on education', European Commission, DG Education and Culture/Eurostat, 1999; 'Education across Europe - Statistics and Indicators 1999', Eurostat; 'Youth in the European Union, from Education to Working Life', 1997, Eurostat; 'The Social situation in the European Union 2001', European Commission (DG Employment and Social Affairs) / Eurostat, 2001.

SOC16 Low qualification levels

Definition

The indicator is defined as the proportion of the population that has attained, at best, the level of primary or lower secondary education (ISCED 0-2). Low qualified young people are defined as the proportion of the population aged 18-24 who are not in education and with low qualifications (ISCED 0-2).

Indicator relevance

Adult literacy is essential for the communication and promotion of sustainable development. As stated in Agenda 21's chapter 'Education Training and Public Awareness', it is the primary tool that allows individuals to fully participate in their societies, both through their involvement in the labour market, the political system and social fora.

At EU level, a basic education is a fundamental basis for lifelong learning for adults, and all of the other elements of the European Employment Strategy - employability, entrepeneurship, adaptability and equal opportunities. Individuals with low qualifications and lacking basic skills are less likely to be able to be engaged in well paid and stable employment. The 2000 Employment Guidelines urge Member States to reduce the number of young people dropping out of education systems early, and to develop vocational training to ensure higher levels of employment for youth. Promotion of training, retraining, work practice (any sort of lifelong learning) for unemployed adults before 12 months-unemployment is a key action[a].

Links to other indicators

This indicator is clearly linked to Youth Unemployment (SOC4) and Post Compulsory Education (SOC15).

Low level[1] of educational attainment, 1992 and 1999

(% population by age-group)

25-64 Age group

	EU	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	IS	NO	CH	CZ	EE	HU	PL	SI
1992	48	50	26	20	63	77	:	58	67	65	:	:	80	:	:	51	:	:	:	:	:	:	:	:
1999	37	43	20	20	50	65	39	51	57	38	35	25	79	28	23	20	36	14	17	13	12	24	19	24

25-29 Age group

	EU	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	IS	NO	CH	CZ	EE	HU	PL	SI
1992	38	34	13	13	37	54	:	42	51	55	:	:	65	:	:	46	:	:	:	:	:	:	:	:
1999	25	22	11	17	26	42	22	31	40	32	24	15	65	16	13	10	31	6	9	6	10	18	11	12

35-39 Age group

	EU	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	IS	NO	CH	CZ	EE	HU	PL	SI
1992	43	42	19	14	52	72	:	52	56	62	:	:	75	:	:	46	:	:	:	:	:	:	:	:
1999	31	35	20	17	38	56	33	43	49	33	30	18	78	15	17	15	36	9	16	9	6	20	12	19

55-59 Age group

	EU	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	IS	NO	CH	CZ	EE	HU	PL	SI
1992	63	69	44	31	80	91	:	73	84	77	:	:	91	:	:	61	:	:	:	:	:	:	:	:
1999	50	60	25	25	72	84	55	68	75	49	48	35	89	49	34	38	46	29	25	23	28	42	43	37

Source: Eurostat, Labour Force Survey 1992-1999. There is a break in the time series after 1997 due to a revision in the EU LFS coding questionnaire. UK-ISCED 3C (shorter than 3 years education) is included in ISCED 2. 1992 EU figures include only the reporting countries

1) Primary and lower secondary education (ISCED 0-2)

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a   OJ See also Council Decision (2001/63/EC)

Measuring Progress Towards a More Sustainable Europe

Population aged 18-24 not in education and with low qualifications, 1999
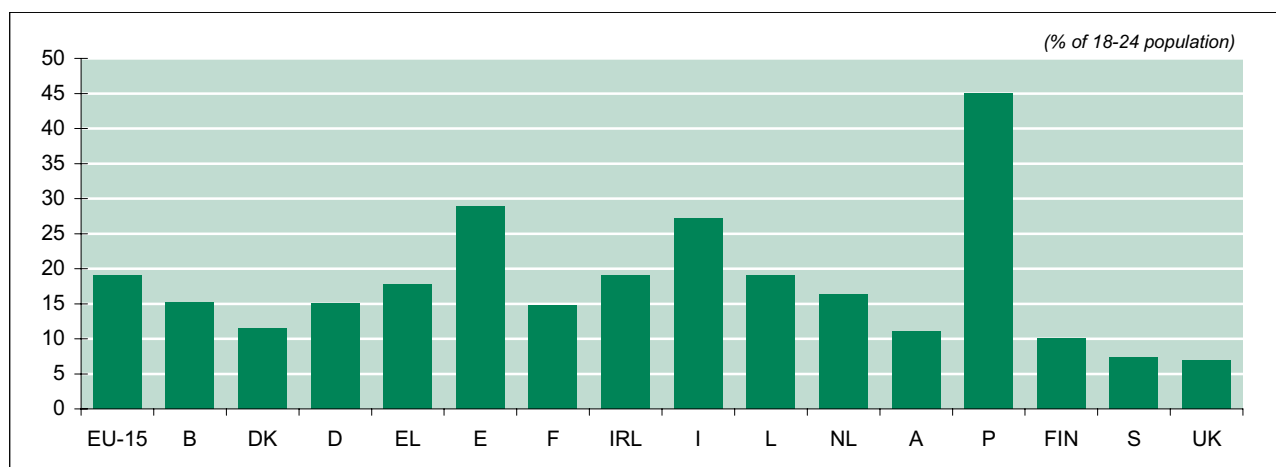
Source: Eurostat, Labour Force Survey 1999. 1997 data for IRL and A. UK - The UK General Certificate of Secondary Education (GCSE) 'O' levels are included under ISCED 3

Evaluation

Over the last thirty years, the proportion of adults with low qualifications has decreased significantly. In 1999, 50% of persons aged 55-59 had only completed lower secondary education, while this proportion has fallen to 25% of persons aged 25-29 in 1999. In 1999, the following countries had the largest numbers of individuals qualified only at basic level: Portugal (79%), Spain (65%), Italy (57%) and Greece (50%). In 1999 only 12% of adults aged 25-64 had not completed education beyond lower secondary education in Estonia and 24% in Hungary and Slovenia. In these countries as well, qualification levels are improving in that a larger share of the population has completed at least upper secondary education. In 1999, only 6% of the younger generation aged 25-29 had low qualifications in the Czech Republic compared with 23% of the older generation aged 55-59. Similarly, in Hungary 18% of the younger generation had low qualifications compared to 42% of persons aged 55-59.

Although educational attainment levels continue to improve, 19% of 18-24 year-olds in the EU have left the education system without completing a qualification beyond lower secondary schooling (the equivalent of compulsory schooling in many cases). Those countries which have the highest proportions of low-qualified young people are Spain (29%), Italy (27%) and Portugal (45%) (see graph). To put these figures into context, it is useful to look at the activity status of 18-24 year-olds. EU-wide, an estimated 33% of this age-group are full-time students and it can be assumed that the majority have already attained (or will do so in the near future) at least an upper secondary qualification. Around 60% are in the labour force: 14% are combining training with work, 35% are in work only and 11% are unemployed. The picture across the EU is far from homogeneous due to differences in the education systems, length of study, labour market situation, opportunities for young people without work experience, etc.

Data assessment

Data comparability of attainment levels over time may be slightly affected by the revision of ISCED in 1997. Focusing on the 25-29 and the 55-59 age groups compensates for the lack of a long time series: taken together, attainment levels provide a 30-year picture of the trends in education attainment levels, beyond the 1992-1999 period.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'Key data on education', European Commission, DG Education and Culture/Eurostat, 1999; 'Education across Europe - Statistics and Indicators 1999', Eurostat; 'Youth in the European Union, from Education to Working Life', 1997, Eurostat; 'The social situation in the European Union 2001', European Commission (DG Employment and Social Affairs) / Eurostat, 2001.

SOC17 Number of rooms per capita

Definition

As a proxy for the living space available to any given individual, Eurostat uses the average number of rooms per capita. Overcrowding, presented in the graph, describes a situation where there is on average more than one person per room in the dwelling, excluding kitchens.

Indicator relevance

Agenda 21's chapter on Promoting Sustainable Human Settlement Development is concerned with rapid urbanisation and related poverty, basic services such as clean water, waste collection and transport, health, employment and housing quality. The amount of living space available for an individual is a key state indicator of their quality of life and in developing countries, the degree of significance of related child health problems due to the lack of space are usually linked to the lack of basic amenities.

While there is no specific EU policy on housing, there is a clear link between the quality of housing available to an individual, poverty and social exclusion, which is one of the main priorities of both the EU Social Policy Agenda (COM(2000) 379 Final) and the EU urban policy. The EU Strategy against social exclusion sets the objective 'to facilitate access to resources, rights, goods and services for all, and more particularly to implement policies which aim to provide access for all to decent and sanitary housing, as well as the basic services necessary to live normally having regard to local circumstances (electricity, water, heating etc.).' The URBAN initiative promotes integrated urban regeneration programmes and the 1998 EU Action Framework for Sustainable Urban Development promotes measures against social exclusion in the cities, which include the improvement of housing quality.

Links to other indicators

This indicator is linked to the indicators of household composition (SOC18), population density (SOC21), urbanisation (ENV9) and poverty (SOC1/2).

Average number of rooms per capita

	EU-15	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	IS	NO	CH
1971	:	1.7	1.3	1.4	:	:	1.1	1.1	:	1.7	1.4	:	:	:	:	1.7	:	:	:
1981	1.6	1.8	1.9	1.7	1.2	1.3	1.6	1.3	1.3	1.9	1.8	:	1.0	1.3	1.7	1.8	:	:	:
1991	1.6	1.7	2.1	1.8	1.3	1.5	1.6	1.6	1.6	2.0	1.7	1.2	1.4	1.8	:	2.0	:	:	:
1996	1.9	2.1	2.0	1.8	1.3	1.6	1.9	2.1	1.6	2.2	2.6	1.9	1.5	1.5	1.6	2.2	1.4	1.8	:

Source: Eurostat, 1971/1981/1991 data come from Censuses of population and housing. 1996 data from European Community Household Panel; S - national source. EU figures for 1981 and 1991 are calculated to include countries that are now Member States and in any year include only countries reporting data

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Population living in overcrowded conditions, EU-15, 1996

(% of total population)
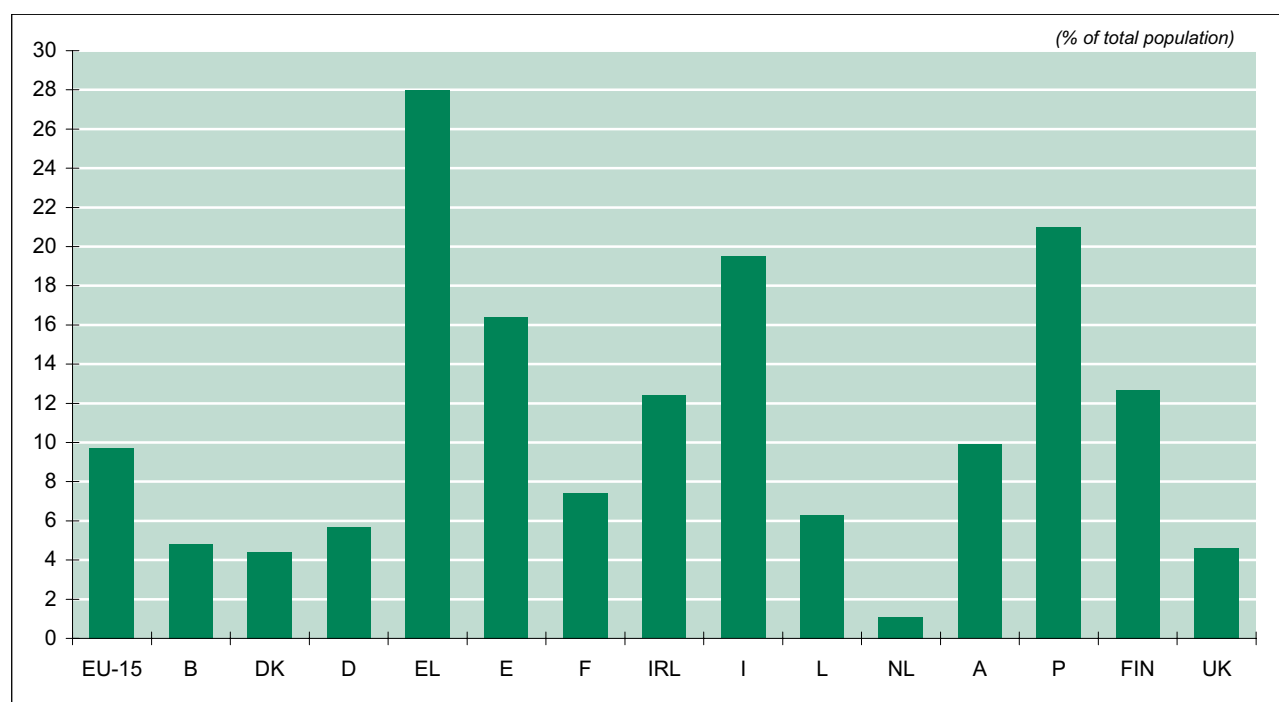
Source: Eurostat, European Community Household Panel. EU-15 figure excludes Sweden

Evaluation

In 1996, the EU average number of rooms/capita was 1.9, against 1.6 in 1981. In many countries, space available per capita -in terms of average rooms- has increased considerably between 1971 and 1996, from 1.3 to 2 in Denmark, 1.1 to 1.9 in France, 1.4 to 2.6 in the Netherlands and 1.1 to 2.1 in Ireland. However, southern Member States still remain below EU average and have experienced slower increases (1 to 1.5 in Portugal, 1.3 to 1.6 in Spain and Italy) or very minor changes as in Greece with 1.3 in 1996. Indeed, larger families with 2 or more children are more often found in southern Europe, which often implies a reduction of available space.

The unemployed, low-income households and families with 3 children or more are more likely to be faced with overcrowding. Households in Greece, Portugal, Italy and Spain experience the worst overcrowding conditions, whilst those in the Netherlands, Denmark, the United Kingdom and Belgium have the most space available to them.

Data assessment

Comparability over time may be affected by the fact the data presented come from two different sources: the Census of Population for 1971, 1981 and 1991 and the European Community Household Panel for 1996.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'The Social Situation in the European Union 2001', European Commission (DG Employment and Social Affairs)/Eurostat, 2001; 'Living Conditions in Europe, Statistical Pocketbook', Eurostat, 2000; Statistics in Focus: 'Housing conditions for the Elderly in the EU', N. 14/1999, Eurostat, 1999; 'Population, Households and Dwellings in Europe - Main Results of the 1990/1991 Census', 1996, Eurostat.

SOC18 Household Composition

Definition

Household types are classified according to their composition: 1 adult with dependent children ('single-parent family'), 1 adult without dependent children ('one person household'), 2 adults with/without dependent children and 3 or more adults with/without dependent children. Dependent children include all children up to the age of 15 and all persons aged 16-24 who are economically inactive (mainly in education) and who are living with a least one of their parents.

Indicator relevance

Family characteristics, reflecting societal trends in marriage, family formation and dissolution, affect income levels, and housing conditions, hence the welfare of children and the elderly, education and health. Changes in household composition have a direct impact on several aspects of the social, economic and environmental patterns and are linked to models of household consumption and expenditure attitudes, both private and public. Given the significant changes that have taken place recently in the EU, an insight into household structure at EU level is presented. Agenda 21 does not include a chapter on household and families, but highlights the importance of child welfare by including an indicator on children living outside their own home which has been substituted, in the EU context, by an indicator on children living in single-parent families.

Links to other indicators

The indicator is linked to the indicators of low-income households and children living in single-parent families (SOC7), social benefits (SOC5), housing (SOC17) and population growth (SOC20).

Household composition
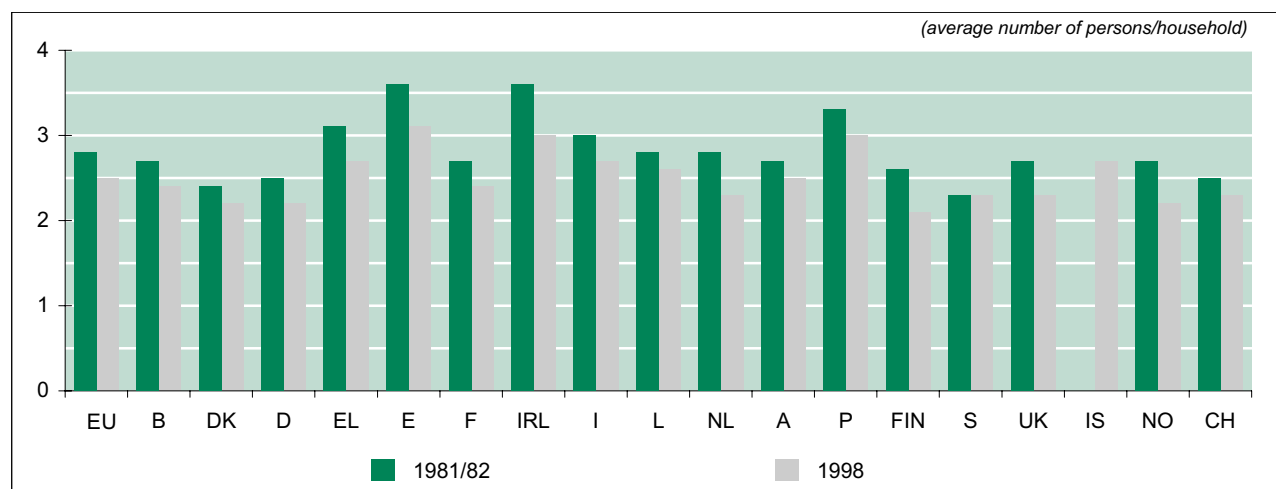
(% of total population)

1 adult without dependent children				2 adults without dependent children			
1988	**1992**	**1996**	**1999**	**1988**	**1992**	**1996**	**1999**
EU	9.7	10.2	11.3	11.8	20.9	22.2	22.9	23.7
B	10.9	10.5	11.0	12.2	21.5	22.6	23.3	23.5
DK	:	:	17.0	:	:	:	28.0	:
D	15.3	14.8	15.9	16.1	25.4	26.1	27.6	28.8
EL	5.9	7.0	8.0	:	18.0	20.0	21.2	:
E	2.9	3.6	3.9	4.7	12.7	13.9	14.3	16.3
F	10.8	11.0	12.4	12.9	22.2	23.7	24.1	25.0
IRL	6.0	6.8	7.2	:	12.5	12.9	14.3	:
I	8.4	7.8	8.2	9.0	18.0	17.0	17.4	18.0
L	8.8	8.9	11.5	9.7	20.5	21.2	19.8	19.6
NL	11.1	12.6	13.0	14.2	23.4	26.4	27.8	29.3
A	:	:	11.8	12.4	:	:	21.2	22.4
P	4.2	4.1	5.1	4.8	15.2	16.1	17.2	15.8
FIN	:	:	16.0	:	:	:	26.0	:
S	:	:	:	:	:	:	:	:
UK	9.8	11.0	12.3	12.9	24.8	26.6	25.9	26.6

1 adult with dependent children				2 adults with dependent children			
1988	**1992**	**1996**	**1999**	**1988**	**1992**	**1996**	**1999**
EU	2.6	3.2	3.8	4.0	38.4	38.5	37.5	36.3
B	3.4	3.9	4.5	4.5	45.7	43.1	42.8	41.5
DK	:	:	3.0	:	:	:	36.0	:
D	2.7	3.0	3.6	3.8	32.5	35.6	35.3	33.9
EL	1.5	1.6	1.7	:	41.6	38.9	37.7	:
E	1.1	1.2	1.5	1.6	36.7	36.5	36.3	34.2
F	3.4	4.1	4.6	4.8	45.7	45.7	44.4	42.7
IRL	2.6	3.1	3.9	:	45.8	45.2	42.8	:
I	1.8	2.0	2.0	2.1	40.0	40.3	38.2	36.6
L	1.9	1.8	2.9	3.8	38.1	37.4	41.7	43.2
NL	2.8	2.6	2.9	2.9	41.2	38.7	36.9	35.5
A	:	:	3.2	3.3	:	:	33.0	33.1
P	2.2	2.4	2.7	2.5	34.0	38.7	36.8	38.7
FIN	:	:	6.0	:	:	:	41.0	:
S	:	:	:	:	:	:	:	:
UK	3.8	5.4	7.2	8.0	35.1	33.6	33.2	32.6

Source: Eurostat - European Labour Force Survey, 1988, 1992; 1996, 1999. DK and FIN - 1996 data from European Community Household Panel. EU figures for any given year include only the reporting countries

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Average size of households, EU and EFTA, 1981 and 1998

(average number of persons/household)

Legend: ■ 1981/82   ▢ 1998

Source: Eurostat, Census (1981) and Labour Force Survey (1998). No 1981 data for Iceland. For 1981-82 EU figures are calculated to include all current Member States. EU figures for any given year include only the reporting countries. For some countries, estimates are based on ECHP (1996)

Evaluation

Over the 1988-1998 period, a clear trend towards smaller households took place, from 2.8 persons in 1988 to 2.5 in 1998. This trend was mirrored by a decline in the (still) most prevalent '2 adults with dependent children' households and a rise in single-parent and one-person households. This trend reflects a change in patterns of marriage (less and later), family formation (less children and later) and dissolution (higher divorce rates), and the ageing of the population. In all Member States, the average size has declined between 1981 and 1998: from 2.8 to 2.6 persons in Luxembourg, 3.6 to 3 in Ireland, 2.8 to 2.3 in the Netherlands, 2.6 to 2.1 in Finland. In 1998, the average household consisted of 3 persons in Spain, Ireland, Portugal and close to 3 in Greece, Italy and Iceland. In 1999, 36.3% of the EU population lived in '2 adults with children' households, although the relative share of total population living in such households declined by 2.1 percentage points since 1988. A similar trend could be observed in most Member States except Portugal and Luxembourg where the share of total population living in such households rose by 4.7 points and 5.1 points respectively. Decline was most pronounced in the Netherlands (-16%), Greece (-9.3%) and Italy (-8%).In the EU, the percentage of persons living in 'single-parent families' rose by 1.4 percentage points between 1988 and 1999. As a result, 4% of the EU population lived in such families in 1999. 'Single-parent families' remain most common in the UK (8% of total population) and Finland (6%), followed by France and Belgium (around 4.5%). However, only 1.6% of Spanish citizens lived in single-parent families in 1999. The trend towards single-parent families was sharper in the UK and Luxembourg (+100%), Ireland, Spain, Germany and France (+40-50%) while the Netherlands, Greece, Portugal and Italy experienced slower growth. More and more people live alone, representing 11.8% of the EU population in 1999, against 9.7% in 1988. These persons are mainly adults and, increasingly, older people (45% of the persons aged 85 and above). In 1999 one-person households represented 17% of the population in Denmark, 16% in Germany and Finland, 14.2% in the Netherlands and 12.9% in France. In southern Member States, the proportion of persons living alone remained between 5% and 9% of the population in 1999. However, this proportion significantly increased in Spain and Greece.

Data assessment

Data on households and families are drawn from three different sources: the 10-year Censuses of Population, the European Community Household Panel and the Labour Force Survey.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD Hous	UN AGENDA 21

Further reading: 'The Social Situation in the European Union 2001', European Commission (DG Employment and Social Affairs)/Eurostat, 2001; 'Lone-Parent Families: a growing phenomenon', Statistics in Focus N. 12/1998, Eurostat; Low income and low pay in a household context, No. 6/1998, Eurostat.

SOC19 Reported crimes

Definitions

Crimes only include crime recorded by the police. The category 'all crimes' covers a wide range of offenses, and definitions vary by country. Burglary is defined as the gaining of access to a dwelling by the use of force to steal goods. Theft of a motor vehicle includes all land vehicles with an engine that run on the road. Drug trafficking includes the illegal importing, exporting, supply, transportation etc. of narcotic drugs. Homicide is defined as the intentional killing of persons excluding attempts: murder, manslaughter (excluding death by dangerous driving), euthanasia and infanticide, excluding abortion and help with suicide. It is presented as the number of homicides recorded per 100 000 population.

Indicator relevance

Crime is primarily treated as a security issue (not included in Agenda 21) and a wider quality of life issue which, as such, relates to the social sustainability of a society as it affects several components of a country's structure - not only at economic, social, administrative levels but also at a political level. However, crime trends are also conventionally linked to other issues such as unemployment, poverty and social exclusion, social cohesion, economic organisation and policing. Increasingly, crime is also related to questions concerning the fear of crime (the extent to which one is fearful or very fearful of being victim of crimes such as murder, sexual assault, robbery, theft). As some recent research has shown, fear of crime tends to affect the choices and well-being of citizens just as much as the actual crime rate in the area where they reside. There is no EU policy that is directly related to national-level crime reduction. EU policy is currently concerned with the reduction of cross-border crime.

Links to other indicators

Crime is related to poverty (SOC1/2) and unemployment (SOC3/4).

Reported crimes, 1997-1998

(% annual change)

	EU	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	NO	CH	CY	CZ	EE	HU	PL	SI
All crimes	3	3	-6	-2	2	-1	2	-6	-1	11	0	0	6	3	0	-1	3	-1	:	6	:	17	8	:
Domestic Burglary [1]	-4	:	-9	-8	-2	-2	3	-7	4	:	-4	-8	-11	-1	-4	-6	-11	1	:	-2	:	-2	6	:
Motor vehicle theft	4	4	-9	-15	14	2	0	2	3	:	1	6	18	20	-2	-2	8	3	:	-5	:	6 [4]	15 [4]	:
Drug trafficking [2]	1	-8	4	0	10	-7	7	8	4	2	-14	-5	4	14	-11	-9	12	15	:	30	:	119	-32	:
Recorded Homicides [3]	1.8	2.1	0.9	1.2	1.9	2.6	1.6	1.4	1.6	0.9	:	1.0	1.5	2.2	2.1	1.4	0.9	1.1	1.4	3.0	14.7	2.9	2.0	2.6

Source: Home Office, United Kingdom. EU figures only include reporting countries

1) EL excludes burglary in non-domestic premises; CY includes burglary in non-domestic premises; PL - includes burglary from garrets and basements in blocks or flats.
2) NL - 1996-1997 CZ number of people prosecuted; EE all drug offences.
3) Per 100 000 population, 1998. EL and L - includes all drugs offences. NL and CH - 1996-1997; CY, HU, SI - 1996.
4) Cars only.

Evaluation

In 1998, an estimated 24 million crimes were recorded by the police of the EU Member States and recorded crime rose on average by 3% and 10% respectively in the EU and Accession Countries between 1997 and 1998. Domestic burglary fell by 4% in the EU and remained constant in the Accession Countries. Theft of motor vehicles rose by 4% on average in the EU and by 5% in the Accession Countries. Drug trafficking offences increased by 1% in the EU and 4% in the Accession Countries. Major decreases were observed in the Netherlands (-14%), UK (-9%) and Sweden (-11%). Conversely, drug trafficking increased in Finland (+14%) and Switzerland (+15%). Homicide rates in the majority of both EU and Accession Countries were below 3 per 100,000 population.

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Recorded crimes at EU level, 1997-1998

(% change in recorded crime)
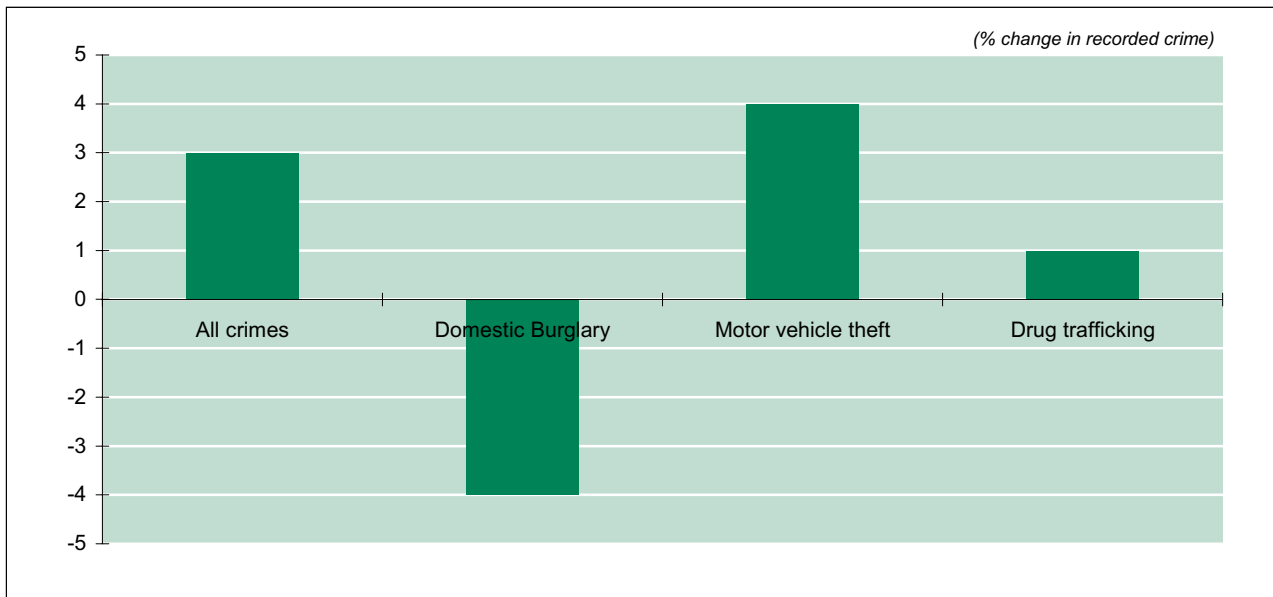
Source: Home Office, United Kingdom. EU figures include only the reporting countries (see table on previous page)

SOCIAL SECURITY

Crime

Data assessment

This area is still under development as it suffers from poor data comparability and limited time coverage. In terms of comparability, the range of offences covered differs across countries and comparisons based upon absolute figures are therefore misleading. Comparison in trends (% change across several years) is more informative but the current data coverage does not allow this type of analysis. In addition there are some issues concerning the differences between the various definitions for each category of crime and crime registration practices. For example, all drugs offences are covered under the definition of drug trafficking in Greece and Luxembourg, whereas in other countries, drug-trafficking only includes illegal importing, exporting, supply and transportation of narcotic drugs. One of the few sources of comparable data currently available is from the UK Home Office who in conjunction with the Council of Europe carried out considerable methodological work. In addition, an International Crime Victimization Survey was carried out in 17 industrialised countries in 2000.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'Comparisons of criminal justice statistics, European Union Member States, applicant countries and selected other countries 1998', Home Office (United Kingdom); The 1996 International Crime Victimisation Survey, UK Home Office Research Findings No. 57; 'European Sourcebook of Crime and Criminal Justice Statistics', Council of Europe, October 1999.

eurostat

Definition

Population growth rate is the total population change during a period of time divided by the total population at the beginning of the period. The old age dependency ratio is equal to the population aged 65 and over as a percentage of the working age population (15-64).

Indicator relevance

Agenda 21's chapter on 'Demographic Dynamics and Sustainability' acknowledges the crucial importance of population growth as one of the main driving force affecting long-term sustainability, especially in conjunction with poverty, lack of access to resources, unsustainable patterns of consumption and production, or in ecologically vulnerable zones. At present, international migration is a major determinant of population growth in the EU while falls in fertility and mortality explain population ageing. The latter can have significant impacts on the labour market - including social welfare and benefits and the health care system to support older citizens. To offset the trend, employment rates, including those of older workers, should increase. To this end, the 2000 Employment Guidelines urge each Member States to improve the employability of older workers, by means of training and re-training e.g. life-long learning programmes and flexible work arrangements (part-time jobs, etc).

Links to other indicators

The indicator is linked to the indicators of net migration (SOC22), life expectancy (SOC11) and mortality rates (SOC7).
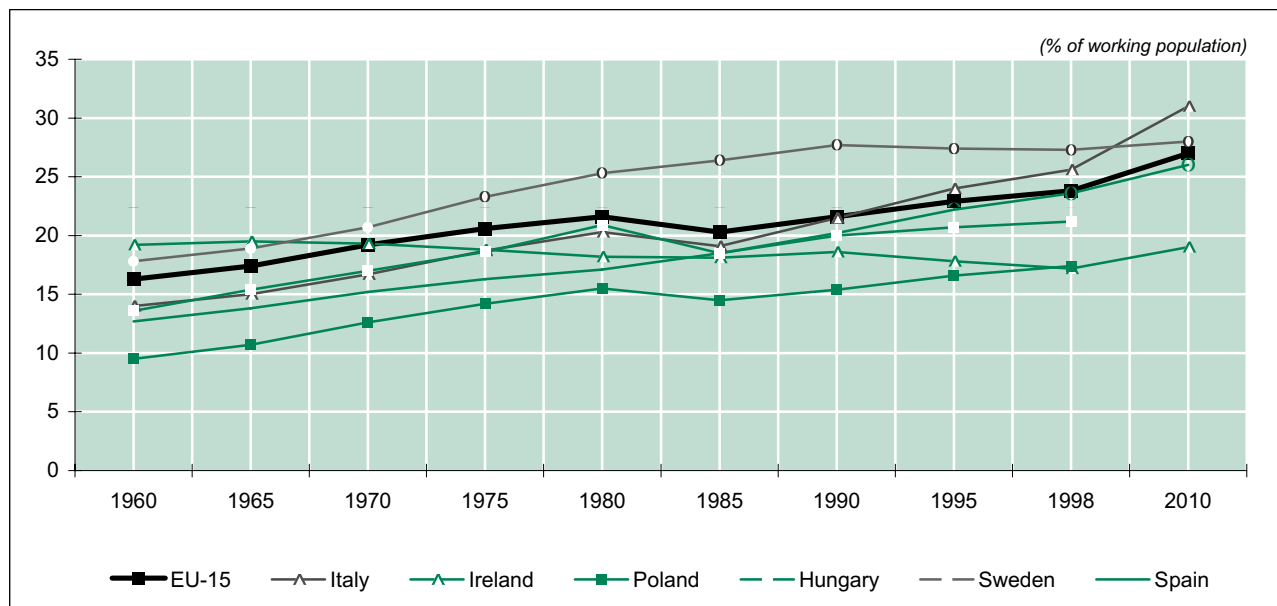
Population growth rate

(annual rate per 1 000 population)

	1960	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998
EU-15	7.7	8.0	4.2	3.6	4.2	1.9	4.6	2.9	2.8	2.3	**2.2**
B	5.4	7.5	-1.0	2.5	0.8	0.1	3.9	1.2	2.7	2.2	2.1
DK	6.2	7.6	8.9	2.2	0.4	1.0	2.2	6.8	4.6	3.7	3.5
Dª	7.5	9.8	-2.6	-5.3	2.8	-0.6	8.1	3.4	2.4	0.6	**-0.2**
EL	7.9	5.2	2.8	13.3	11.7	3.0	7.8	2.1	2.1	2.3	1.0
E	8.4	11.1	9.8	10.9	10.5	3.4	1.2	1.6	1.4	1.3	*1.2*
F	9.6	8.0	9.6	3.8	5.5	4.6	5.6	4.1	4.0	*4.0*	*3.3*
IRL	-4.9	3.1	9.5	16.1	11.8	-1.1	4.0	6.2	8.9	*11.4*	*11.0*
I	6.9	7.9	5.1	5.3	1.6	0.2	0.9	1.1	2.2	1.8	0.9
L	5.9	9.0	4.0	8.6	3.8	2.8	13.4	15.1	13.2	12.8	*12.9*
NL	12.1	13.4	12.4	9.8	8.3	5.2	7.9	4.5	4.7	5.6	6.7
A	4.9	6.3	3.2	-3.5	1.0	1.0	10.3	1.9	1.6	0.9	1.0
P	7.2	-6.7	-4.0	47.1	10.8	0.6	-4.3	0.9	1.3	2.3	2.2
FIN	7.5	2.7	-3.5	3.8	3.4	3.4	4.8	3.5	3.0	2.9	2.4
S	3.6	10.0	9.5	3.9	1.8	1.9	7.4	2.4	0.8	0.4	0.8
UK	8.1	6.0	4.2	-0.2	1.0	3.1	3.9	3.5	3.4	**3.1**	*5.1*
IS	21.3	17.0	3.9	11.8	10.4	6.6	8.2	3.7	7.1	9.3	12.2
NO	7.6	7.8	6.5	4.9	3.3	3.2	3.9	4.9	5.2	5.6	6.3
CH	12.1	9.3	3.9	-5.6	5.0	4.5	11.4	6.2	2.7	2.1	*3.8*
CY	:	8.1	8.0	-37.2	11.5	11.3	17.6	8.3	6.9	7.8	*7.2*
CZ	-7.4	4.7	-9.9	6.9	-2.2	0.6	0.2	-1.1	-1.2	-1.0	-0.9
EE	10.8	9.7	12.4	7.4	6.8	6.9	-0.8	-10.3	-9.6	-5.7	-5.7
HU	4.6	2.5	2.9	5.9	-0.4	-3.7	-1.9	-3.3	-3.7	-3.8	*-4.3*
PL	10.7	6.7	-0.4	10.0	9.0	7.5	3.8	0.7	0.8	0.5	0.2
SI	5.3	13.2	6.9	10.3	8.7	13.5	1.8	0.4	-1.6	-1.0	-3.3

Source: Eurostat - Demographic statistics. EU figures take into account all those countries that are now Member States. Italics: Provisional Data. Bold: Estimates. a) After 1990, data refer to the Federal Republic of Germany as constituted from 3 October 1990

Measuring Progress Towards a More Sustainable Europe

Old age dependency ratio

(% of working population)

Source: Eurostat. EU figure takes into account all those countries that are now Member States

Evaluation

There has been a gradual slowing down of population growth in the EU over the last 35 years. Over the 1995-1999 period, the population increased on average 2.5 per 1 000 population per year compared with an annual average of around 8 in the 1960s. Since 1995 population growth has been slowly declining from 2.9‰ to 2.2‰ in 1998. Exceptions include Germany, Sweden and Austria, which all benefited from migration from the former USSR, German New Länder and Bosnia-Herzegovina in the early 1990s, although the trend is now slowing down. These three countries experienced strong growth in the early 1990s, from 16.5‰ in Germany, to 10.3‰ in Austria and 7.4‰ in Sweden, well above the other Member States. Ireland experienced growth in the 1990s due to higher birth rates but the trend is now slowing down. After a decline in population growth rates in Accession Countries since 1960, population growth rates became negative in the Czech Republic, Estonia and Hungary in 1995 while remaining close to 0‰ in Poland and Slovenia due to important emigration and lower fertility rates. In 1998, the population declined by 5.7‰ in Estonia and 4.3‰ in Hungary. The proportion of persons aged 65 and over in the working population increased from 19.2% in 1970 to 23.8% in 1998. Eurostat projected that the old age dependency ratio will rise to 27% in 2010. Since 1990 the proportion of older citizens in the active population increased in all Accession countries. In 1998, older citizens represented 21.2% of the working population in Hungary and Estonia and 19.7% in the Czech Republic.

Data assessment

Population growth is well measured. In 2001, Eurostat will extend its work on population forecasts to cover the Accession Countries.

Indicator's place in other EU/ international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'European Social Statistics - Demography', 2000 edition, Eurostat; Statistics in Focus (Population and Social conditions): 'Demographic Changes in the EU up to 2050' N7/1997; 'The Social Situation in the European Union 2001', European Commission (DG Employment and Social Affairs)/Eurostat, 2001.

SOC21 Population density

Definition

Population density is the ratio of the total population of a country to its area, measured in population per square kilometre. This indicator measures the concentration of the population in a given area.

Indicator relevance

Agenda 21's chapter on Promoting Sustainable Human Settlement Development refers to the 'area of urban formal and informal settlements' as a state indicator of human living conditions, related also to the lack of basic amenities affecting both human health and socio-economic development. Population density is currently used as an EU proxy for the new UN indicator 'population of urban formal and informal settlements'. While informal urban settlements are not relevant in the EU, population density expresses the problem of growing urbanisation coupled with trends of decreasing rural population and settlements. It is most commonly used as an index of the degree of urbanisation but can also be used as a partial indicator of human requirements and activities in an area. In rural areas, demographic factors, in interaction with other factors such as ecological endowments, can place pressure on land resources. Increasing population density may threaten sustainability of protected forest areas and ecologically fragile or protected land. In urban areas a high concentration of population also means that there will be more demand for employment, housing, amenities, social security and services and infrastructure for sanitation and waste management.

Links to other indicators

Population density should be seen in relation to the indicators of population growth rate (SOC20), net migration rate (SOC22) and life expectancy at birth (SOC11).
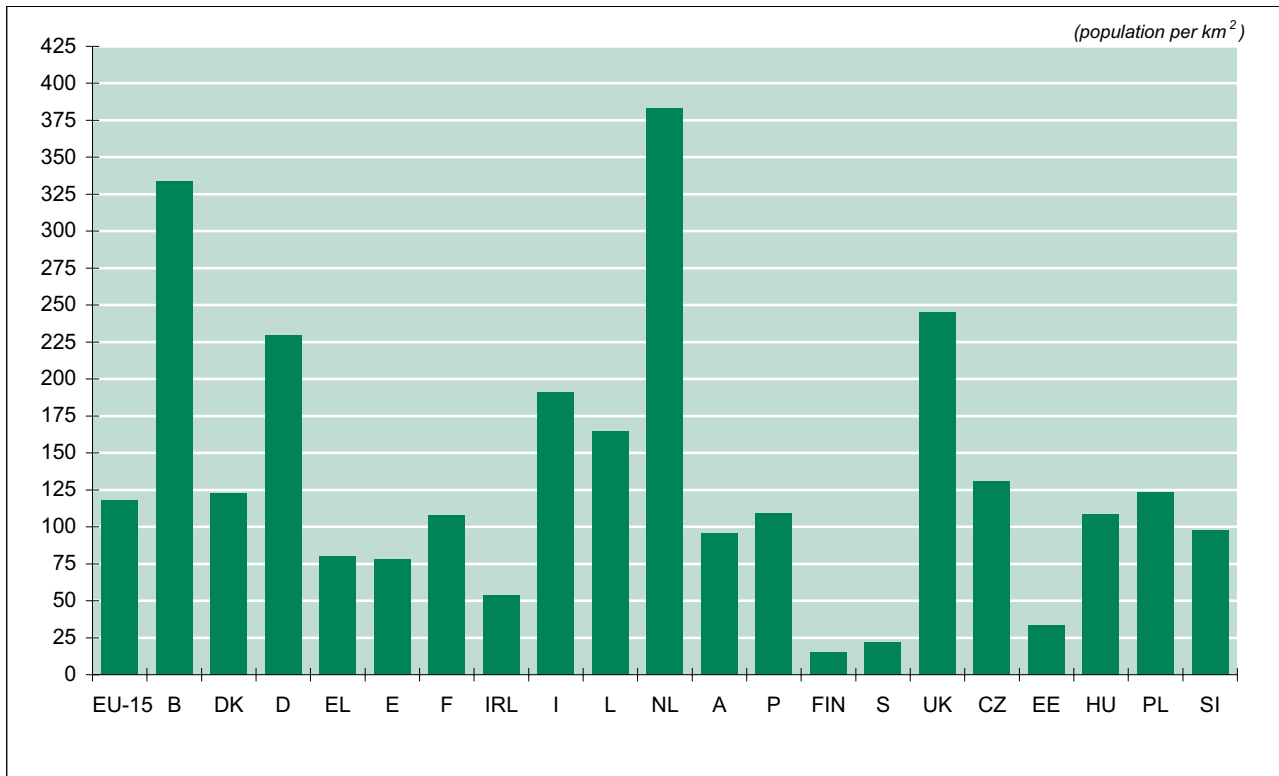
Population density

(population per km^2)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
EU-15	109	109	115	116	116	117	117	117	118
B	327	328	329	330	332	332	333	334	334
DK	119	120	120	120	121	121	122	123	123
D	:	224	226	227	228	229	229	230	230
EL	77	78	78	79	79	79	80	80	80
E	77	77	77	77	78	78	78	78	78
F	104	105	106	106	106	107	107	108	108
IRL	50	50	51	51	51	51	52	52	54
I	188	188	189	189	190	190	191	191	191
L	147	150	152	154	156	158	161	163	165
NL	441	445	448	451	454	456	458	461	464
A	92	93	94	95	96	96	96	96	96
P	108	107	107	108	108	108	108	108	109
FIN	16	17	17	17	17	17	17	17	15
S	21	21	21	21	22	22	22	22	22
UK	236	237	238	239	240	240	241	242	245
IS	:	:	:	:	:	:	:	:	3
NO	:	:	:	:	:	:	:	:	14
CH	:	:	:	:	:	:	:	:	172
CY	:	:	:	:	:	:	:	:	:
CZ	131	131	131	131	131	131	131	131	131
EE	36	36	36	35	35	34	34	34	33
HU	111	111	111	111	110	110	110	109	109
PL	:	:	:	:	:	:	:	:	124
SI	99	99	98	98	98	98	98	98	98

Source: Eurostat Regional Statistics. 1990 EU figure has been calculated for all countries that are now Member States except Germany

Measuring Progress Towards a More Sustainable Europe

eurostat

Population density in the EU and ACs, 1998

(population per km^2)

Source: Eurostat

Evaluation

Between 1990 and 1998, population density increased by 8% in the EU, from an average of 109 to 118 inhabitants per km^2. The Netherlands and Belgium are the most densely populated Member States with densities three times higher than the EU average (464 and 334 population/ km^2 in 1998, respectively). The least populated Member States are Sweden and Finland, with respectively 22 and 15 population/ km^2. Since 1990, population has increased by 4% in Greece, Austria, France and the UK, 8% in Ireland and 12% in Luxembourg. Other Member States experienced a certain stability (around 1%-2%) with the exception of Finland and the Netherlands (-9% and -13%, respectively). Population density in the Accession Countries declined between 1990 and 1998, more significantly in Estonia (-8%) than in the other countries (1%-2%). The Czech Republic (131 population/ km^2) is the most densely populated country. Despite their size, Poland (124) and Hungary (109) are more densely populated than the EU average. Estonia is the least populated with only 33 population/ km^2, followed by Slovenia with 98 population/ km^2.

Data assessment

The EU data based on Eurostat regional statistics are highly comparable with the Accession Countries' data.

Indicator's place in other EU/international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'European Social Statistics - Demography', 2000 edition, Eurostat.

SOC22 Net migration rate

Definition

The UN defines the net migration rate as the difference between the number of immigrants and emigrants from a particular area during a specified period to the average population of that area. Eurostat calculates the net migration rate as the difference between total and natural population growth, i.e. the change in the stock of total population, which is attributable to international migration (as opposed to natural population growth, i.e. live births minus deaths). A positive (negative) net migration rate indicates that inflows are bigger (smaller) than outflows.

Indicator relevance

Migration is included in Agenda 21's 'Demographic Dynamics and Sustainability' chapter. Although the new UN list does not include it, it is considered as a driving force for demographic distribution in Europe, which in turn, influences population growth. In the wider context of the enlargement of the European Union, and the increasing number of asylum-seekers and refugees combined with an ageing population, migration appears to be of relevance to the EU social concerns. The Commission Communication on a Community Immigration Policy (COM(2000)757) lays down the basis for the development of a common immigration policy with setting-up of a common legal framework for third-country national admission, developing partnerships with countries of origin and transit, improving co-ordination at Community level. The EU principle of 'free movement of workers' across Member States enshrined in the Rome Treaty is limited in practice due to economic, social, cultural, linguistic and qualification barriers to mobility. The EU initiative 'New European Labour Markets'[a] sets the objective to remove these remaining barriers for all skill levels in Europe so that these new markets are 'open and accessible to all by 2005'.

Links to other indicators

Migration directly relates to population growth (SOC20). Indirectly, and on a long-term scale, it is related to population density (SOC21), unemployment (SOC3), education (SOC15, SOC16) and to equity and poverty issues (SOC1, SOC2).

Net migration rate

(per 1 000 population)

	1960	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998	1999
EU	0.1	0.2	-1.1	0.8	1.7	0.5	2.8	2.2	2.0	1.4	1.4	**1.9**
B	0.9	3.2	-3.4	2.5	-0.2	-0.1	2.0	*0.4*	*1.6*	*0.9*	1.1	**1.6**
DK	-0.9	-0.4	4.3	-2.0	0.1	1.9	1.7	5.5	3.3	2.3	2.1	1.8
D[1]	6.8	5.8	-4.4	-3.2	5.1	1.5	16.3	:	:	:	:	:
D[2]	2.2	4.3	-3.5	-2.7	3.9	0.9	8.3	4.9	3.4	1.1	0.6	**2.5**
EL	-3.7	-4.7	-5.3	6.5	5.4	0.6	7.0	2.0	2.1	2.1	**1.2**	**2.4**
E	-4.6	-1.6	-1.5	0.4	3.0	-0.3	-0.5	1.2	1.2	0.8	1.1	1.0
F	3.1	1.5	3.6	0.3	0.8	0.7	1.4	0.7	0.6	*0.7*	*-0.1*	*0.9*
IRL	-14.8	-7.5	-0.9	5.4	-0.2	-9.4	-2.2	1.6	3.6	*5.8*	*5.0*	*4.9*
I	-1.6	-1.2	-2.0	0.4	0.1	-0.4	0.4	1.7	2.7	*2.2*	1.6	1.8
L	1.7	5.3	3.2	9.7	3.7	2.5	10.3	11.2	8.9	9.1	9.4	10.9
NL	-1.1	1.4	2.5	5.1	3.6	1.4	3.3	1.0	1.4	1.9	2.8	2.8
A	-0.3	1.4	1.4	-3.2	1.2	1.3	9.3	0.9	0.6	0.4	0.6	**1.1**
P	-6.3	-19.5	-14.0	38.2	4.3	-2.7	-5.6	0.5	1.0	1.5	1.5	*1.1*
FIN	-2.1	-4.6	-7.9	-0.8	-0.5	0.5	1.7	0.8	0.8	0.9	0.9	0.7
S	-0.1	4.2	5.8	2.0	1.2	1.3	4.1	1.3	0.7	0.7	1.2	1.5
UK	2.1	-0.8	-0.3	-0.8	-0.6	1.6	1.2	2.0	1.8	**1.5**	3.6	**2.7**
IS	0.0	-0.8	-8.7	-1.9	-2.7	-2.5	-3.9	-5.1	-2	0.7	3.6	*4.1*
NO	-0.7	-0.5	-0.2	0.8	0.9	1.6	0.4	1.5	1.3	2.2	3.0	*4.3*
EEA	0.1	0.2	-1.1	0.8	1.6	0.5	2.7	*2.2*	*2*	**1.4**	**1.3**	:
CH	4.2	-0.3	-2.9	-9.1	2.7	2.1	8.4	3.5	-0.2	-0.4	1.5	*3.1*
CY	:	-4.8	-1.5	-45.3	0.4	0.3	7.7	0.6	-0.3	0.7	2	*-0.9*
CZ	-11.0	0.4	-12.4	0.2	-4.0	0.2	0.1	1.0	1	1.2	0.9	0.9
EE	4.6	5.5	7.7	4.0	4.1	4.1	-2.5	-5.4	-5.7	-1.6	-0.7	-0.3
HU	0.1	0.1	-0.2	-0.1	-0.7	-2.0	0.0	0.0	0	0	4.9	*0.0*
PL	-4.4	-3.2	-9.0	-0.2	-0.6	-0.5	-0.3	-0.5	-0.3	-0.3	-0.3	-0.4
SI	-2.7	4.4	1.0	3.8	2.9	10.4	-0.1	0.4	-1.7	-0.7	-2.7	5.3

Source: Eurostat. EU figures have been estimated taking into account all countries that are now Member States
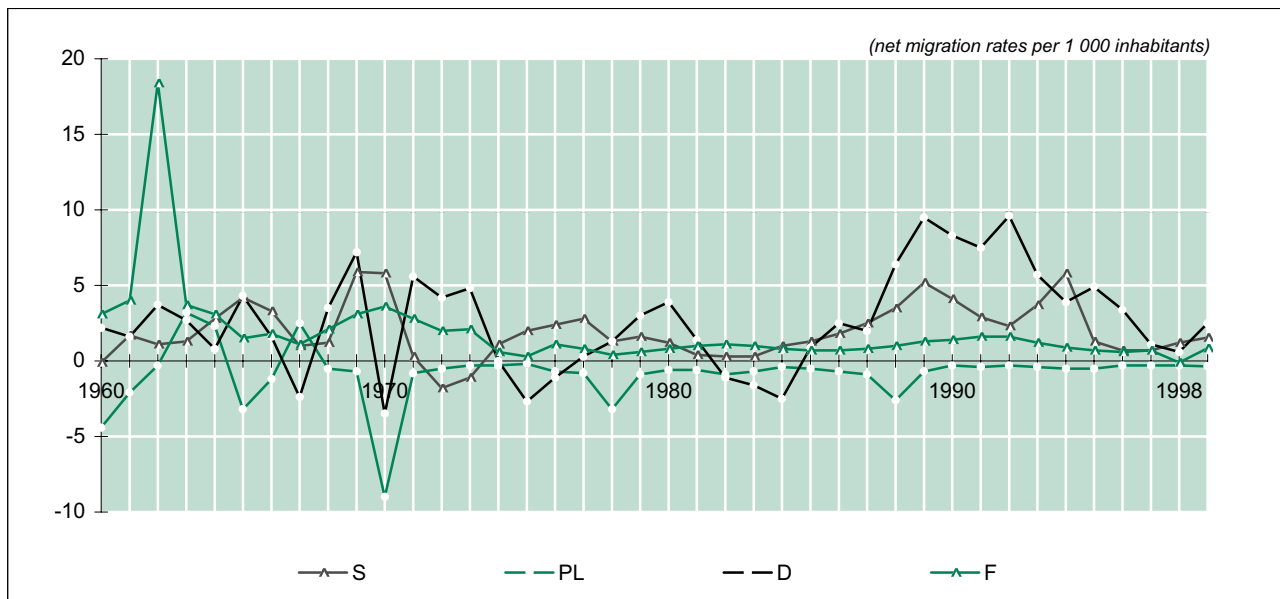
Data in bold are estimated and data in italics are provisional.
1) *Figures for the Federal Republic of Germany as constituted prior to 3 October 1990 only.*
2) *Before 3 October 1990, figures for the then Federal Republic of Germany plus the German Democratic Republic; after 3 October 1990, figures for the present Federal Republic of Germany.*

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a   Communication from the Commission to the Council- January 2001 - New European Labour Markets, Open to All, with Access for All

Measuring Progress Towards a More Sustainable Europe

Net migration rates, selected countries, 1960-1999

(net migration rates per 1 000 inhabitants)

Legend: S, PL, D, F

Source: Eurostat. EU-15 values have been estimated for all countries which are now Member States. D - Federal Republic of Germany (including the New Länder from 1991 onwards)

Evaluation

At EU level, the net migration rate fluctuated between 0.1 and 0.2 ‰ until 1970 despite negative rates in Ireland, Finland and southern Member States. From 1984 the net migration rate gradually increased to reach a peak of 2.8 ‰ in 1990. This was followed by a period of slow decline to reach 1.9‰ in 1999. In most Member States, the net migration rate has decreased slowly since 1980, with some peaks in positive migration around 1990-1995 in Germany, Denmark, Italy, and Sweden due to changes in Eastern and Central Europe. Portugal - and to a lesser extent, Ireland - has historically experienced the highest negative net migration rates from 1960 to 1990. In Luxembourg, inflows were always significantly higher than outflows, with the net migration rate stabilising around 10‰ in the 1990s. The net migration rate in the German Old Länder culminated at 25‰ in 1995 following the German reunification, which led to important inflows from the New to the Old Länder. Accession Countries (except for Estonia and Hungary) experienced significantly negative net migration rates in the 1960s, especially in Poland (-4.4‰ in 1960) and the Czech Republic (-11‰ in 1960). While Poland is characterised by a constant trend in negative net migration rates over the whole period (stabilising around zero in the 1990s), the persistence of migration outflows decreased in the 1980s in Cyprus and the Czech Republic. Significant migrant outflows in the Czech Republic and Poland in the 1970s and in the early 1990s in the Czech Republic, Estonia and Slovenia seem to coincide with markedly positive net migration rates in Germany and Sweden. Since 1995, net migration rates converged to a neutral 0‰ rate in most Accession Countries except in Slovenia (5.3‰ in 1999).

Data assessment

These net migration figures represent only that element of the change in the stock of the total population which is attributable to international migration. They do not however provide an accurate measure of the levels of migrant flows into or out of each recording country. Migrants included in the calculation are generally those who are recorded as entering or leaving in whichever registration system or survey method is used by the reporting country. In principle, these should be long-term migrants, but in practice, many short-term migrants are included. On the other hand, many long-term and short-term migrants are not recorded at all.

Indicator's place in other EU/international indicator lists

EU KEY SOCIAL	OECD SOC	UN AGENDA 21

Further reading: 'European social statistics - Migration', 2000. Eurostat.

ENVIRONMENTAL DIMENSION

Definition

Many of man's activities pose a threat to the different environmental media: the air, the land, waters and to biodiversity. Some of these issues are of concern at local and national level. Others such as depletion of the ozone layer and emissions of greenhouse gases are of international significance.

The sub-themes under which the UN suggests indicators should be organised are:

• emissions of greenhouse gases and ozone depleting substances

• air quality

• agriculture

• forests

• desertification

• urbanisation

• coastal zones

• fisheries

• water quantity

• water quality

• biodiversity of ecosystems and species

Waste indicators are covered together with material resources under the economic dimension.

Indicators omitted from the UN list

It was not possible to include a number of indicators proposed by the UN in their original list of 59 indicators in this publication.

Land affected by desertification - In the EU, desertification is only an issue in the Mediterranean countries, but structured statistical information on the related phenomena is not yet available.

Development in coastal areas - this is an issue in Europe but the detailed land use data needed to calculate this indicator are not available on a consistent basis for the EU countries.

Area of key ecosystems - there is no international agreement on the definition of 'key ecosystems'. Data on land use especially categorised by ecosystem are not available on a comparable basis.

Some of the environmental indicators have been changed from the UN's definition either for policy relevance or for reasons of comparability within the EU context. ENV4 has been expanded to include organic farming. ENV9 on area of urban formal and informal settlements - not an issue in Europe - has been expanded to talk about the growth of built-up areas and on land use more generally. ENV10 originally about algae concentration in coastal water has been changed to nitrate and phosphate discharges in coastal waters - the *driver* that stimulates the formation of algae blooms. ENV14 on faecal coliform pollution in freshwater has been changed to quality of coastal water since freshwaters are very tightly regulated in the EU and the remaining problem is mainly confined to coastal areas.

Additional Eurostat indicators

Four environment-related indicators have been added (industrial waste, waste treatment and disposal facilities, environmental protection expenditures, freight transport by mode), but following the UN framework they are presented in the economic dimension under the theme 'Consumption and Production' patterns.

ENV1 Per capita emissions of greenhouse gases

Definition

This indicator measures the anthropogenic emissions of the greenhouse gases carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4) and three halocarbons, hydroflourocarbons (HFCs), perflourocarbons (PFCs) and sulphur hexaflouride (SF_6), weighted by their global warming potentials (GWPs). The GWPs relate to the ability of the different gases to contribute to global warming over a 100 year time horizon. GWPs are calculated by the Intergovernmental Panel on Climate Change. The figures are given in CO_2 equivalents on a per capita basis to normalise for the size of the country. The indicator does not include ozone depleting substances with global warming properties covered by the Montreal Protocol (1987) as these are covered in ENV2.

Indicator relevance

Recent studies and research provide scientific evidence that increases in the atmospheric concentration of greenhouse gases (due mainly to human activities) give rise to climate change. This refers to the general increase in global surface mean temperature, changes in weather patterns, rainfall and a rise in the sea level. Over the 20th century the global average surface temperature increased by about 0.6°C. By far the largest source of anthropogenic emissions - around 80% of the total - is the combustion of fossil fuels, mainly in transport, heating and electricity generation. The Kyoto Protocol, a follow-up of the UN Framework Convention on Climate Change (UNFCCC) agreed in 1992, sets targets for signatories to control emissions. The policies in place to reduce these emissions include those which seek to improve efficiency in energy production and use, improve public transport (thereby reducing transport emissions) and to reduce the amount of waste landfilled (landfills produce methane). Preventing and mitigating the effects of climate change is therefore one of the most important challenges for attaining a sustainable development.

Links to other indicators

This indicator can be associated with indicators ECON10 (energy use), ECON19 and ECON20 (transportation) and ENV2 (depletion of ozone layer). There is also a correlation with ECON1 on per capita GDP given that higher levels of production and consumption generally lead to higher greenhouse gas emissions.

CO_2, CH4 and N_2O (tonnes CO_2 eq. /capita)   **FC, PFC and SF_6 (kg CO_2 eq./capita)**

	(tonnes CO_2 equivalent/person)									*(kg CO_2 equivalent/person)*								
	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
EU-15	11.4	11.4	11.0	10.7	10.7	10.8	11.0	10.8	10.8	:	:	:	:	:	:	:	:	:
B	13.7	14.4	14.3	14.1	14.5	14.6	15.0	14.1	14.2	40.0	:	:	:	:	53.2	61.5	75.3	71.9
DK	13.5	15.6	14.4	14.7	15.3	14.6	17.0	15.1	14.3	0.0	0.1	23.0	44.2	57.8	73.7	91	115	102
D [1]	15.2	14.4	13.6	13.3	13.0	12.9	13.0	12.6	12.3	112.9	113.4	118.1	137.9	140.6	136.6	125	130	130
EL	10.3	10.2	10.2	10.2	10.3	10.4	10.6	10.9	11.4	79.0	78.4	68.0	9.7	19.2	28.7	28.7	28.6	28.5
E	7.8	7.9	8.2	7.8	8.2	8.4	8.3	8.9	9.2	98.5	89.2	96.5	81.0	122.5	166.9	191	232	238
F	9.2	9.5	9.3	8.8	8.7	8.7	8.9	8.7	8.9	135.1	109.1	95.5	82.2	78.6	87.0	106	118	125
IRL	15.3	15.4	15.4	15.3	15.8	15.9	16.3	16.8	17.3	:	:	:	:	:	:	:	:	:
I	9.1	9.1	9.0	8.8	8.7	9.2	9.1	9.1	9.3	13.8	14.3	14.2	14.5	22.8	31.8	29.8	37.2	37.2
L [2]	37.2	38.8	37.6	37.6	31.6	19.0	18.9	16.3	13.9	:	:	:	:	:	:	:	:	:
NL	14.0	14.3	14.1	14.1	14.0	14.5	14.9	14.7	14.4	201.5	195.5	177.6	179.9	197.2	191.5	216	232	229
A	9.8	10.2	9.3	9.1	9.3	9.5	9.7	9.8	9.7	:	:	:	:	:	211.6	:	:	219
P	6.3	6.5	6.9	6.8	6.9	7.2	7.0	7.2	7.4	:	:	:	:	:	15.9	:	:	:
FIN	14.6	14.8	12.1	12.2	13.8	14.2	15.2	14.8	14.8	:	:	:	:	:	:	:	:	:
S	8.1	7.6	7.6	7.6	7.7	7.6	8.7	7.9	7.9	:	:	:	:	207.3	200.2	:	35.4	34.2
UK	12.7	12.6	12.2	11.7	11.6	11.4	11.7	11.2	11.1	69.9	62.7	49.5	49.2	59.9	71.6	79.2	84.8	94.8
IS	14.1	11.8	10.7	10.8	9.7	10.4	:	:	:	:	:	:	:	:	:	:	:	:
CZ	18.3	16.9	15.6	15.0	14.2	14.3	14.9	15.1	:	:	:	:	:	:	:	:	:	:
HU	8.3	8.5	7.6	7.7	7.5	7.6	7.7	7.5	:	:	:	:	:	:	:	:	:	:
PL	12.1	11.8	11.5	11.4	11.4	11.3	11.3	11.0	:	:	:	:	:	:	:	:	:	:

Source: European Environment Agency (EEA)
1) *After 1990 data refer to the Federal Republic of Germany as constituted from 3 Oct 1990.*
2) *Break in series due to changes in methodology: from 1994 Luxembourg data excludes fuel purchased by visitors.*

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CO_2 emissions by sector - EU-15, 1990-1998
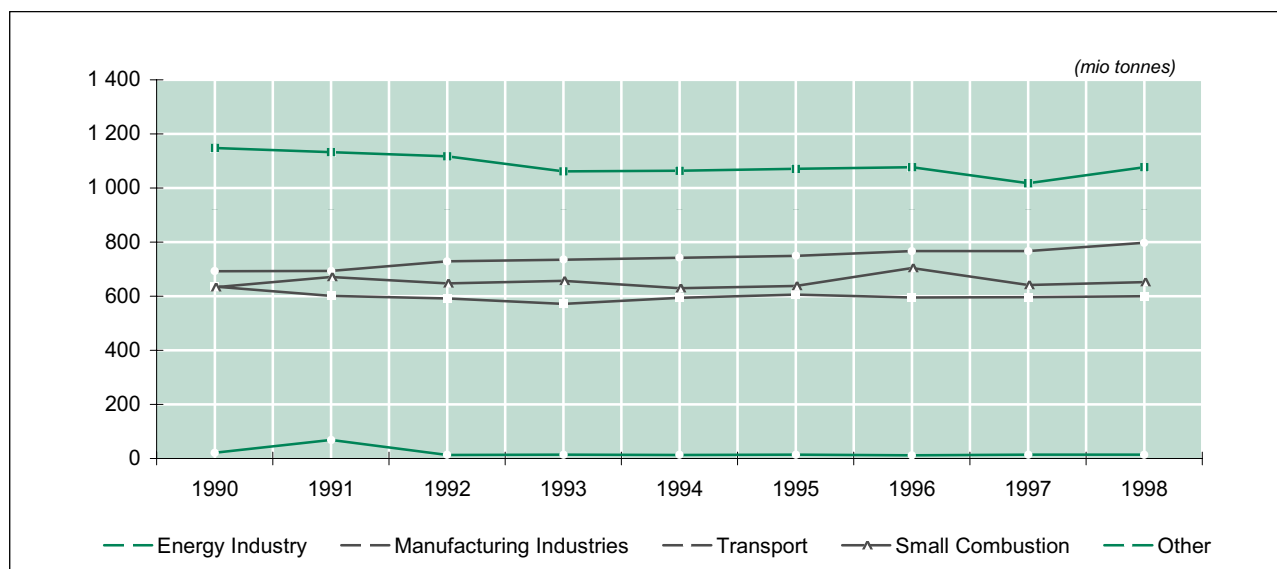
Source: European Environment Agency (EEA)

Targets

The European Community has agreed to reduce its emissions of the above six GHGs by 8% from 1990 levels by the period 2008-2012. This overall target of 8% has been apportioned within the Community in a burden sharing agreement which allows some countries to increase emissions (Greece, Spain, Ireland, Portugal and Sweden) while others make large reductions (e.g. Germany, Denmark, UK). At European and international level, the definition of cost effective instruments as a tool to reduce emissions with less impactsd on the economic sectors is a major policy issue under discussion.

Evaluation

Overall at EU-15 level the per capita greenhouse gas emissions appear to have stabilised since 1992. Some EU countries have increased emissions (e.g. Ireland (13%) and Spain (12%) rise between 1990 and 1998) while some are decreasing (e.g. UK 13% decrease). Although the contribution of halocarbons is small compared to the other GHGs, consumption is rising in a number of countries as these substances are used to replace HCFCs and CFCs which are being phased out under the Montreal Protocol on ozone depleting substances. The graph showing emissions by sector illustrates the continued growth in emissions from transport throughout the nineties and the slight decrease in emissions from energy industries, due to a switch in fuels used in power stations (mainly from coal to gas and nuclear). The peaks in small combustion coincide with the coldest years during the period, showing the importance of energy used for space heating by this sector.

Data assessment

Emissions of the three major greenhouse gases are estimated according to guidelines set out by the UNFCCC and there is good comparability. Data on emissions of halocarbons are more uncertain, as these are modelled from purchase data and use characteristics.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	EE

Further reading: 'UN-Framework Convention on Climate Change (UNFCCC)', 1992; 'Kyoto Protocol to the UN-FCCC', 1997. 'Environmental Signals 2001', European Environment Agency, 2001. Intergovernmental Panel on Climate Change (IPPC), Third Assessment Report, Climate Change 2001 - Summaries for policy makers -Working Groups I (The scientific basis), II (Impact, Adaptation, Vulnerability) and III (Climate Change Mitigation).

ENV2 Consumption of ozone depleting substances

Definition

This indicator gives the apparent production and consumption of ozone depleting substances (certain halogen containing organic molecules). Production is defined as production minus the amount destroyed (e.g. incinerated) minus the amount used as a chemical manufacture feedstock. Consumption is production plus imports minus exports. The figures are given in tonnes of the proscribed substances weighted by their Ozone Depleting Potential (ODP). The ODP is calculated relative to CFC11. Actual emissions are difficult to measure so production or apparent consumption is used as a proxy.

Indicator relevance

In the 1970s it was discovered that certain classes of chlorine and bromine compounds could reduce the concentration of ozone in the upper atmosphere. This so-called 'ozone layer' acts as a shield against ultra-violet radiation from the sun. In 1985 the Vienna Convention for the protection of the ozone layer was signed, followed by the Montreal Protocol and London and Copenhagen amendments on substances that deplete the ozone layer. Production and use of several classes of substances are now proscribed[a].

Links to other indicators

This indicator can be associated to indicator ENV1 (greenhouse gas emissions), since hydrofluorocarbons (HFCs) are used as replacements for CFCs and are included in the greenhouse gases covered by the Kyoto protocol. Moreover, CFCs are themselves greenhouse gases.

Ozone depleting substances

(ODP tonnes)

Production of Ozone Depleting Chemicals										
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
EU-15[1]	539 403	332 100	293 386	296 030	225 204	104 568	30 580	24 331	47 436	32 173
B	26 593	0	0	23 257	0	0	0	0	0	0
D[2]	137 433	94 380	75 952	64 362	54 956	17 757	641	794	435	0
EL	12 447	8 559	11 397	12 750	11 856	3 757	2 830	1 890	1 995	1 277
E	71 949	23 596	25 292	35 499	31 986	25 427	6 176	5 673	7 354	0
F	105 730	62 765	57 661	35 214	30 764	10 905	10 440	8 955	8 828	9 184
I	57 946	36 395	35 087	45 615	36 992	10 393	6 656	9 274	8 004	0
NL	41 831	33 288	22 432	31 478	22 177	21 897	- 1 560	- 7 606	15 929	17 082
UK	112 067	73 117	65 565	71 112	36 473	14 432	5 397	5 351	4 891	4 630
CZ	7 408	0	0	0	840	231	321	7	18	0
PL	3 960	0	0	0	4 963	4 916	0	9	0	0
USA	476 360	251 098	230 637	222 058	190 780	128 595	77 555	29 798	29 907	32 228

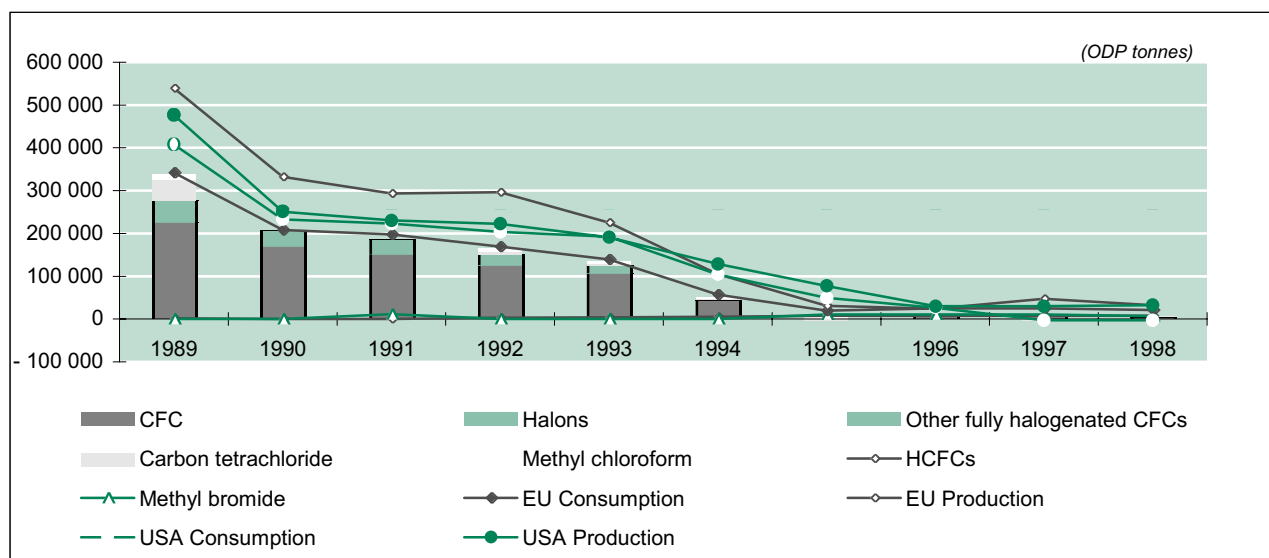| Consumption of Ozone Depleting Chemicals										
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
EU-15[1]	341 876	208 114	197 590	169 567	139 486	56 891	19 619	24 721	24 980	20 840
CZ	8 602	0	6	0	87	556	442	56	19	0
PL	6 036	5 269	3 510	2 637	2 974	4 164	1 756	712	443	308
USA	407 692	232 862	223 032	203 760	192 643	103 959	49 601	26 199	- 2 750	- 3 080

Source: United Nations Environment Programme (UNEP)

1) *EU figures before 1995 refer to EC12; from 1995 onwards Austria, Finland and Sweden are included. Those EU Member States not individually listed are assumed to be non-producers. The consumption figures are as reported for the EU as a whole.*
2) *After 1990, data refer to the Federal Republic of Germany as constituted from 3 October 1990.*

[a] Annex A, Group I: chlorofluorocarbons (CFCs) and Group II: halons (Montreal Protocol, 1987);
Annex B, Group I: other fully halogenated CFCs, Group II: carbon tetrachloride and Group III: methyl chloroform (London Amendment, 1990);
Annex C, Group I: hydrochlorofluorocarbons (HCFCs) and Group II:hydrobromofluorocarbons (HBFCs);
Annex E: methyl bromide (Copenhagen Amendment, 1992)

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Consumption (by chemical type) and production, EU and USA

(ODP tonnes)

Legend:
- CFC
- Halons
- Other fully halogenated CFCs
- Carbon tetrachloride
- Methyl chloroform
- HCFCs
- Methyl bromide
- EU Consumption
- EU Production
- USA Consumption
- USA Production

Source: UNEP

Evaluation

Production and consumption of ozone depleting substances have fallen rapidly in all of the EU countries which report data. The remaining consumption and production are mainly for uses where no alternatives have yet been found, for instance use in measured dose inhalers (medicinal aerosols packaging). It is interesting to note the larger gap between EU production and consumption than between USA production and consumption, concerning in particular the period 1989-1985. This is because a greater amount has been exported from the EU than from the USA. Negative production is recorded for the Netherlands in 1995 and 1996 when they either destroyed substantial quantities of ozone depleting substances or used feedstocks from previous years. The bulk of the production and consumption was of chemicals covered by Annex A (82% in 1990). As these have been phased out, the relative importance of the other chemicals (which in some cases have been used as substitutes) has increased, e.g. HCFCs and Methyl bromide.

Targets

Since January 1994, industrialised countries have been obliged to phase-out CFCs (zero production and consumption; with some exemptions for essential uses, mainly in the medicinal field). A complete phase out of HCFCs is scheduled by 2030 (2015 in the EU).

Data assessment

Countries only report data to UNEP as and when they ratify each amendment, this means that an apparent increase in total production could be related to an increase in countries ratifying and hence reporting in that year. The production and consumption can be negative in some years. This is partly because the figures are for each calendar year, so it is quite possible that in some years the feedstock figure may exceed the production figure of that year, if feedstocks are taken from stocks. Destruction of chemicals (e.g. by incineration) is another possible reason for negative figures.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Production and Consumption of Ozone Depleting Substances 1986 - 1998', Ozone Secretariat United Nations Environment Programme, October 1999. For the EU ozone policy and figures for specific substances see: http://europa.eu.int/comm/environment/ozone.

ENVIRONMENTAL

ATMOSPHERE

Ozone depletion

Definition

This indicator measures the number of days per year per station that the concentration of a number of air pollutants exceeded the health-based thresholds in urban areas[a]. The number of monitoring sites varies between countries and between years. An average value for each year for all the urban stations in each country is recorded in the table below for each of the four main local air pollutants NO_2, SO_2, ozone and particulates, selected here.

Indicator relevance

Nitrogen dioxide, sulphur dioxide and ground level ozone pollution are associated with a number of respiratory diseases. Fine particulates (PM10 and PM 2.5, i.e. particulates whose diameter is less than 10 microgrammes (μm) and 2.5 μm) have been linked to asthma and premature mortality. These particles can be carried deep into the lungs where they can cause inflammation and a worsening of the condition of people with heart and lung diseases. Road transport is a major source of these air pollutants in urban areas. Ground level ozone is produced in the atmosphere when NO_X and VOCs react in the presence of sunlight. Peak events in air pollution trigger increased admissions to hospital. Power generation and small combustion are additional sources of air pollution in urban areas.

Exposure above Limit Values

(average number of days for urban stations)

Nitrogen Dioxide [1]							
1990	1991	1992	1993	1994	1995	1996	1997
B	:	:	:	:	:	:	:	1

	1990	1991	1992	1993	1994	1995	1996	1997
B	:	:	:	:	:	:	:	1
DK	:	0	1	0	0	0	0	0
EL	108	58	86	58	57	26	:	29
E	:	24	21	21	:	14	8	:
NL	6	5	3	1	1	0	1	0
A	0	:	:	:	:	4	3	:
P	2	:	1	:	:	:	:	:
FIN	:	:	:	0	1	1	2	0
UK	:	:	:	6	10	10	:	7

Total number of stations							
15	21	21	43	41	69	45	92

	Sulphur Dioxide [1]								
	1989	1990	1991	1992	1993	1994	1995	1996	1997
B	:	:	:	:	:	:	:	:	1
DK	0	:	1	0	0	0	0	0	0
EL	41	21	31	45	14	17	2	:	0
E	6	25	10	:	9	:	1	0	:
NL	5	2	2	1	1	0	0	0	0
A	:	:	:	:	:	:	0	0	:
P	9	1	:	3	:	:	:	:	:
FIN	:	:	:	:	:	0	0	0	0	0
UK	:	:	:	:	30	10	9	:	5

Total number of stations								
56	15	21	15	35	34	61	40	95

	Ozone								
	1990	1991	1992	1993	1994	1995	1996	1997	1998
B	:	12	19	14	23	42	17	23	12
DK	:	:	:	6	22	9	9	5	5
D [2]	:	:	:	:	35	32	20	23	19
EL	:	:	:	:	:	68	84	53	78
E	:	:	:	:	8	3	15	:	34
F	:	:	:	:	:	23	:	19	:
IRL	:	:	:	:	:	10	1	2	2
I	:	:	:	:	29	42	54	55	61
NL	30	10	19	8	16	21	9	14	5
A	:	:	:	29	38	30	26	20	30
FIN	:	:	8	5	3	10	6	2	4
UK	:	:	:	3	7	21	7	10	4

Total number of stations								
8	8	9	19	47	58	57	242	380

	Particulate Matter [1]								
	1989	1990	1991	1992	1993	1994	1995	1996	1997
B	:	:	:	:	:	:	:	:	44
DK	40	:	:	:	31	22	7	27	5
D [2]	8	2	:	:	:	:	:	:	:
EL	80	60	31	34	116	81	47	:	28
E	218	7	42	:	5	10	9	5	1
F	8	:	:	:	:	:	:	:	:
IRL	14	14	9	9	3	3	1	1	:
I	:	:	:	:	:	:	:	:	:
NL	0	7	42	:	5	10	9	5	97
A	:	:	:	:	:	:	6	6	:
FIN	:	:	:	:	:	:	:	:	8
UK	1	2	3	4	1	2	0	1	22

Total number of stations								
55	31	27	15	27	32	47	35	82

Source: European Environment Agency (EEA) European Topic Centre Air Quality

1) Includes background stations.

2) After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990.

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[a]   The following exposure limits have been used to determine whether a site registers as an exceedance:
   Particulates: black smoke 24h >125, total solid particles 24 h > 120, PM10 24h > 50 μm /m3
   Ozone : 110 mg/m3 (8h-mean), **SO_2**: 24h >125 mg/m3, **NO_2**: 1h >200 mg/m3   Source: EEA

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Links to other indicators

This indicator is related to indicator ECON19 and 20 dealing with transport issues, since the majority of urban air pollution is caused by road traffic.

Targets

The EU has established a Framework Directive on Ambient Air Quality Management - Directive 96/62/EC. Its daughter directives are under development and will set limits on 12 air pollutants including the four covered in this indicator. The targets agreed to date are:

- particulates (PM10) 50 µm /m^3 24 hour mean not to be exceeded 35 times a year, by the beginning of 2005;

- nitrogen dioxide is 200 µm /m^3 as a 1 hour mean not to be exceeded 18 times a year, to be achieved by the beginning of 2010;

- sulphur dioxide is calculated for a 24hr period average (125 µm /m^3) not to be exceeded more than 3 times a year and for a one hour average 350 µm /m^3 not to be exceeded more than 3 times a year;

- a proposed target for ozone of 120 µm /m^3 not to be exceeded on more than 20 days per year, averaged over a three-year period.

Evaluation

For available stations, the number of exceedance events has been highest for NO_2 and particulates in the early 1990s. More recently (1998) the ozone concentrations have increased in several countries. In recent years the number of days of NO_2 exceedance appears to be falling as petrol cars with petrol engines have been fitted with three-way catalytic converters. Days when sulphur dioxide levels are higher than recommended have been falling. This is linked to the use of lower sulphur content fuels. Fluctuations in the reported number of days could arise because of a higher *actual* number of days of exceedance or a greater number of stations reporting, especially where data from additional stations in areas of low air quality is included. The exceedance days due to particulates were falling but high figures for the Netherlands, Belgium and UK in 1997 have partially reversed this trend. It is likely that this was caused by an increase in the number of stations used.

Data assessment

There is a significant amount of variability in the number of monitoring centres reporting data from year to year. Despite efforts to standardise measurement and reporting procedures, the data availability and quality depend on the situation and number of monitoring stations. As the Framework Directive on Air Quality Management (96/62/EC) comes into force in 2005 the quality of monitoring will be significantly improved.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Environmental Signals', European Environment Agency, 2000. 'Air Pollution in Europe', European Environment Agency, 1997.

ENVIRONMENTAL
ATMOSPHERE

Air quality

eurostat

Definition

This indicator measures the area and percentage of land given over to conventional agriculture and organic farming in each country. Conventional agriculture includes arable land (used mainly to grow cereals and oilseeds), permanent crops (e.g. olives, grapes), permanent pastures and rotational grassland (used for grazing).

Indicator relevance

Much biodiversity and traditional landscapes depend on certain farming practices. Some agriculture, particularly intensive systems, is a source of pressure on the environment, including water pollution and abstraction, soil degradation and loss of habitat. Council Regulation 2078/92 invites EU Member States to introduce specific incentive schemes to encourage farmers to adopt environmental practices to maintain the countryside, to make production less intensive, to avoid polluting practices and to protect biodiversity.

In the European Union, the organic production of agricultural products is regulated by Council Regulation 2092/91. This establishes strict requirements which must be met before agricultural products, whether produced in the EU or imported from third countries, may be marketed as organic. In particular, the Regulation severely restricts the range of products that can be used for fertilising and for plant pest and disease control, and requires each Member State to set up an inspection system to certify compliance with these principles. Before the products can be sold as organic, the relevant procedures must normally have been followed for at least two years before sowing or, in the case of perennial crops, at least three years before harvesting. During this period, the farm is said to be 'in-conversion'. The main advantages of organic farming are generally seen as less intensive use of land and better protection of the environment even if, in certain conditions, organic farming can lead to an increase in the amount of pesticide applied since organic pesticides, such as sulphur, are used in much higher quantities than modern low dose pesticides. However in organic farming dependence on external inputs is reduced as far as possible and there is heavy reliance on self-regulation.

Links to other indicators

This indicator is linked to ENV5 and ENV6 (nitrogen balance and pesticides respectively), in that organic farming requires less use of pesticides and mineral fertilisers.

ENVIRONMENTAL
LAND

Agriculture

Measuring Progress Towards a More Sustainable Europe

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Total Utilised Agricultural Area

(1 000 hectares)

	Total Utilised [1]					Area Organically Farmed [2]				(%)
	1990	1993	1995	1997		1990	1993	1995	1997	1997 [3]
EU-15	:	:	128 336	128 538	EU-15	312	835	1 406	2 302	1.79
B	1 344	1 344	1 354	1 383	B	1.3	2.2	3.4	6.7	0.48
DK	2 779	2 739	2 727	2 689	DK	11.6	20.1	40.9	64.3	2.39
D	17 023	17 001	17 144	17 149	D [4]	105.0	372.8	461.5	450.0	2.62
EL	3 649	3 525	3 565	3 486	EL	0.2	0.6	2.4	10.0	0.29
E	24 505	24 707	25 225	25 625	E	3.7	11.7	24.1	152.1	0.59
F	28 142	28 070	28 235	28 303	F	72.0	87.8	118.4	165.4	0.58
IRL	4 440	4 278	4 325	4 342	IRL	3.8	5.5	12.6	23.6	0.54
I	14 913	14 670	14 625	14 773	I	13.2	88.4	204.5	641.1	4.34
L	126	127	127	127	L	0.6	0.5	0.6	0.6	0.49
NL	2 011	2 015	1 999	2 011	NL	7.5	10.4	11.5	16.7	0.83
A	:	:	3 417	3 407	A	21.5	136.0	335.9	345.4	10.14
P	3 973	3 919	3 897	3 796	P	1.0	3.1	10.7	12.2	0.32
FIN	:	:	2 192	2 172	FIN	6.7	20.3	44.7	102.3	4.71
S	:	:	3 060	3 109	S [4]	33.4	44.5	86.8	205.2	6.60
UK	16 499	16 383	16 447	16 169	UK	31.0	31.0	48.4	106.0	0.66
CY	146	146	136	134	CY	:	:	:	:	0.000
CZ	4 130	4 124	4 121	4 121	CZ	3.5	15.7	14.1	20.2	0.004
EE	1 358	1 321	991	1 024	EE	:	1.6	3.0	4.0	0.010
HU	5 898	5 870	5 864	5 859	HU	:	6.4	12.3	16.7	0.002
PL	18 646	18 474	18 410	18 264	PL	0.5	3.5	6.9	9.0	0.002
SI	:	795	724	492	SI	:	0.1	0.2	1.0	0.020

Source: Eurostat, Eurofarm   *Source: Martin and Lamb, Welsh Institute of Rural Studies*

1) Includes arable, permanent crops, permanent grassland and kitchen gardens.
2) Includes certified and policy-supported organic and in-conversion land.
3) Percentage of agricultural area that is organically farmed, 1997.
4) The German and Swedish figures include non certified organic land.

Evaluation

As a whole, the area of utilised agricultural land has changed little in most Member States in recent years. The area for the EU-15 is over 128 million hectares in 1997, 0.15% higher than in 1995, with the largest areas in France (28 million hectares) and Spain (25 million hectares). When Poland joins the EU it will have the third largest agricultural area with 18 million hectares. The area of organically farmed land is increasing rapidly. It is estimated that between 1990 and 1999 there was a ten fold increase at EU level. There is a high degree of variation between countries: Austria has the highest percentage of organic land (following government subsidies to encourage organic farming in the early nineties) followed by Sweden, Finland and Italy.

Data assessment

At EU level a reporting system on organically farmed areas has been established with the first data now available. However, these figures refer only to very recent years (1997/98/99), so another data source with larger time coverage, has been selected for this indicator. The organic land figures include areas in conversion, on the assumption that these will remain organic.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	OECD AGRIC.

Further reading: The policy and regulatory environment for organic farming in Europe, Nicolas Lampkin, Carolyn Foster, Susanne Padel and Peter Midmore; Organic Farming in Europe: Economics and Policy. Stuttgart-Hohenheim 1999; Organic Farming in Europe, Statistics in Focus, Eurostat, 2001.

ENVIRONMENTAL LAND

Agriculture

eurostat

ENV5 Nitrogen balances

Definition

This indicator measures the amount of mineral and organic fertilisers applied per hectare to agricultural land as well as the total amount of nitrogen (N) taken out of the soil. The surplus, i.e. the difference between the total inputs and out-take is also shown. The figures are given in kilogrammes of nitrogen per hectare of agricultural land (kg N/ha) to reflect the size of each country.

Indicator relevance

Nitrate pollution is a problem in specific regions of some EU Member States. As well as the concern over levels in drinking water, the inputs of nitrates to rivers and then to the North Sea, Baltic Sea and Mediterranean are significant in causing increased algae growth which leads to eutrophication and damage to ecosystems. Agriculture is the largest source of nitrates in internal fresh waters and also contributes to marine waters, where atmospheric deposition is another major source of pollution. Modern agricultural practices have resulted in an increased use of chemical fertilisers and a more intensive rearing of livestock. The manure produced by livestock is disposed of by spreading it on land and is a major source of nitrates.

Links to other indicators

This indicator is linked to ENV10 (eutrophication) since a nitrogen surplus will affect the amount that runs off into surface waters and eventually into coastal waters.

Nitrogen Balances

(kg Nitrogen per hectare[1])

|	Mineral Fertilisers			Organic Fertilisers			Deposition and Fixation			Total Out-Take [2]			Surplus [3]		
	1993	1995	1997	1993	1995	1997	1993	1995	1997	1993	1995	1997	1993	1995	1997
EU-15	:	74	75	:	56	56	:	17	18	:	93	96	:	55	52
B	112	109	114	224	226	220	36	35	36	232	235	225	140	136	145
DK	120	111	106	117	113	114	26	24	26	128	130	135	135	119	111
D	95	103	104	67	65	65	30	31	32	100	104	109	92	95	92
EL	96	88	88	49	49	49	10	9	9	96	97	98	59	49	48
E	38	36	41	23	23	23	7	9	9	34	31	38	34	37	35
F	79	85	89	47	47	46	21	20	22	110	112	116	38	40	41
IRL	94	98	91	112	110	123	11	11	11	152	152	162	64	68	63
I	63	63	62	46	46	45	13	12	13	72	78	80	50	43	40
L	142	142	142	112	114	114	28	28	28	181	185	186	100	100	99
NL	184	195	184	296	285	265	37	37	37	245	243	230	271	274	256
A	:	37	33	:	45	48	:	21	23	:	72	68	:	32	36
P	33	32	31	39	39	39	6	6	5	49	51	51	29	26	24
FIN	:	84	81	:	38	39	:	6	7	:	67	72	:	61	56
S	:	63	66	:	39	39	:	8	9	:	73	79	:	36	35
UK	77	81	77	67	66	67	19	18	19	121	123	125	41	42	37

Source: Eurostat

1) *Includes arable land, permanent crops and permanent meadows and pasture.*
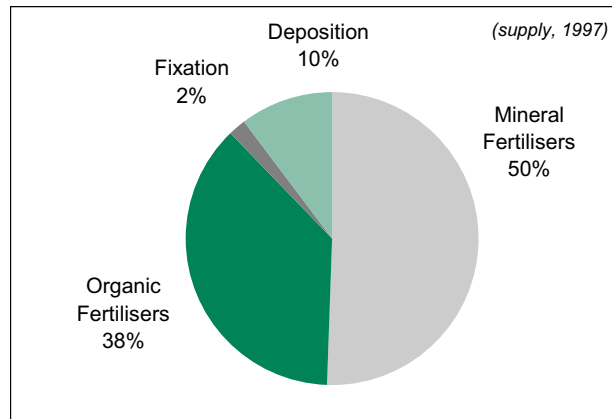2) *Out take by harvesting and by fodder crops.*
3) *Surplus is the difference between all inputs (mineral + organic fertilisers + fixation +deposition) and out-takes.*

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Consumption of nitrogen fertilisers and supply of nitrogen in the EU-15
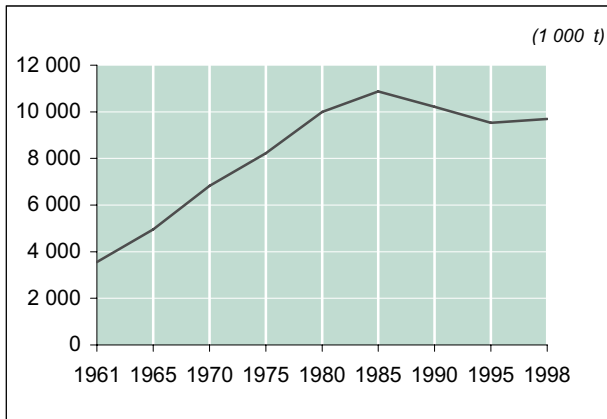
Source: FAO

Source: Eurostat

Evaluation

The balance or surplus shows the difference between the nitrogen applied to and removed from the soil. The fate of this surplus will depend on many factors: nitrogen may be lost from the system into air as ammonia, via denitrification to the air as nitrous oxide and nitrogen gas, and to water by run-off or by leaching of nitrate. It may also be immobilised in the soil. The Netherlands and Belgium (both of which have a high livestock density) have the largest input of nitrogen per ha of agricultural area from livestock manure, followed by Ireland, Luxembourg and Denmark. As nutrient surpluses can be rather localised, a deeper look at the regions within countries (see further reading for details), shows that the regions with the highest nitrogen fertiliser application rates are located in the Netherlands, Belgium, Germany and France. The pie chart illustrates the relative importance of mineral fertilisers and manure (organic fertilisers) compared with the relatively low inputs from fixation and deposition. Not surprisingly the Member States with high livestock densities also have largest nitrogen surpluses, i.e. Netherlands, Belgium and Denmark. Consumption of nitrogen fertilisers showed consistent growth through the sixties and seventies, with consumption flattening out in the eighties, decreasing in the early nineties, followed by a more recent steady level.

Targets

The Nitrates Directive (91/676/EEC) seeks to reduce water pollution caused or induced by nitrates from agricultural sources. This is to be achieved by requiring Member States to place restrictions on the amount of nitrate, both mineral fertiliser and animal manure, that can be applied to land in areas identified as vulnerable. The Directive states that the land application of livestock manure should be limited to 170 kg N per hectare per year for each farm from the end of 2002 (with an interim limit of 210 kg N ha per year from the end of 1998). Implementation of this directive is behind schedule. Directive 80/778 /EEC on Drinking Water recommends that nitrogen levels in drinking water do not exceed 25 milligrams per litre, with maximum allowed concentration set at 50 milligrams per litre.

Data assessment

Other mineral fertilisers (e.g. phosphates, sulphur, potash) also contribute to the nutrient load in rivers and marine environments. The indicator gives no indication of this contribution. The input from manure is calculated as a function of the animal numbers present. This calculation cannot be precise. A similar problem exists for the calculation of the out-take which is based upon crop production and typical nitrogen co-efficients. There are a number of variables which are excluded due to lack of data, such as spreading of sewage sludge on agricultural land.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	OECD AGRIC.

Further reading: 'Nitrogen Balances in Agriculture', Statistics in Focus, Eurostat, 16/2000.

Definition

This indicator represents the amount of herbicides, fungicides and insecticides used annually on the major arable and speciality crops grown in the EU, as listed under the table below. The quantities refer to active ingredient. The active ingredients are those which have the desired effect on the fungi, weeds or insects targeted. Other pesticides such as molluscides and nematicides and agricultural chemicals such as soil sterilants and growth regulators are not included.

Indicator relevance

In this indicator the term 'pesticides' refers to chemicals that are applied to crops and soils to control weeds (herbicides), insect pests (insecticides) and fungi (fungicides). Excessive use of pesticides is a cause of concern because of contamination of water resources used for human consumption, possible effects on non target species, risks to consumers from residues in foods, contamination of surface water or marine environments, risks to users of agricultural chemicals and misuse due to lack of user knowledge. There can be potentially negative impacts on specific ecosystems (e.g. on agriculturally beneficial arthropods). The potential damage that pesticides can cause to the environment is mainly determined by the nature of their active ingredient. Therefore when looking at data on total weight applied, it is important to remember that not all pesticides are equally damaging. Some active ingredients have already been removed from the market by the pesticide Directive (91/414). This directive aims to establish common rules including health and environmental criteria to be applied in the assessment of new and existing active ingredients.

An increase in organic farming is likely to lead to an increase in the tonnage applied (though not necessarily an increase in the risk to the environment) since organic pesticides are used at much higher doses than modern low dose pesticides.

Links to other indicators

This indicator may be linked to biodiversity indicators, such as number of threatened species (ENV19).

Agricultural Pesticide[1] Consumption[2]

(tonnes of active ingredient)

|	1992	1993	1994	1995	1996	kg/ha[3] 1993	kg/ha[3] 1995
EU-15	231 334	235 111	226 837	247 532	249 106	:	3.0
B+L	3 616	3 179	3 246	3 571	3 310	3.6	3.9
DK	3 663	3 253	3 196	2 953	2 904	1.3	1.3
D	24 382	21 946	21 854	25 507	27 083	1.9	2.1
EL	9 886	9 923	9 970	10 119	10 369	3.3	3.4
E	28 350	26 455	26 817	25 633	26 662	1.6	1.5
F	86 689	85 091	74 943	90 880	91 233	4.4	4.7
IRL	563	440	463	531	528	0.5	0.5
I	48 871	58 302	57 927	58 759	57 197	5.4	5.4
NL	4 033	3 843	4 023	4 170	4 258	4.0	4.4
A	2 855	3 054	2 540	2 594	2 255	:	1.8
P	6 245	7 933	9 260	9 505	10 088	2.6	3.3
FIN	368	316	285	465	473	:	0.2
S	633	539	708	743	841	:	0.3
UK	11 180	10 837	11 605	12 102	11 905	1.6	1.7

Source: Eurostat

1) *Includes insecticides, herbicides and fungicides.*
2) *Applied to beets, cereals, citrus, grapes, maize, oilseed, pome and stone fruits, potatoes, vegetables.*
3) *Refers to arable land and permanent crop areas. See also data assessment for a more complete evaluation of these figures.*

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Agricultural Pesticide Consumption kg/ha

Consumption by Type (EU 1996)

(kg per hectare)

■ 1993 ■ 1995

(total pesticide consumption)

Herbicides 34 %
Insecticides 6 %
Fungicides 60 %
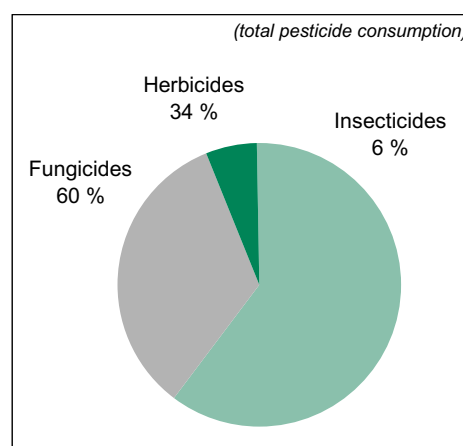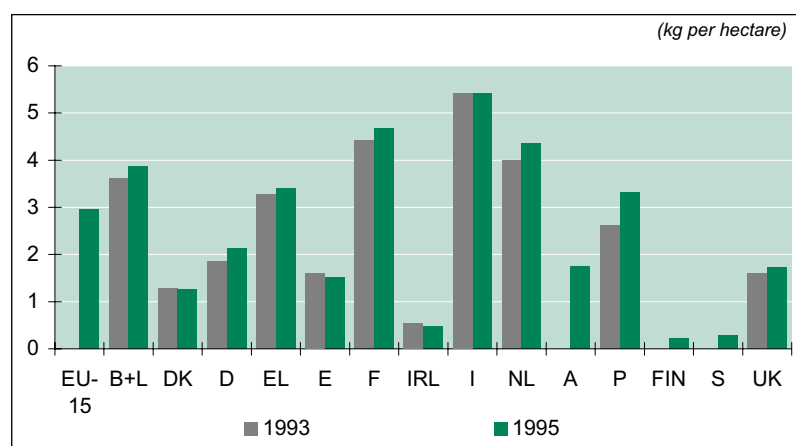
Source: Eurostat

Targets

Council Directive 98/83/EC on the quality of water intended for human consumption establishes limits of 0.1 µg/l for individual substances and 0.5 µg/l for total pesticides.

Evaluation

As expected, the countries with the largest areas of crops for which data is available (e.g. France, Italy, Spain and Germany), have the largest consumption of pesticides in absolute values. If the use of pesticides on a per hectare basis is considered, Italy, France, the Netherlands and Belgium appear large users, reflecting the intensive nature of agriculture in these countries. It should be noted that the high dose rates of Italy and France are due also to high use of sulphur (a fungicide approved for use in organic systems) in grapes and tree fruit production. In terms of tonnes of active ingredient, fungicides are the most heavily consumed, followed by herbicides and insecticides. From 1992 the use of pesticides on the crops covered has fallen partly in response to changes introduced that year to the Common Agricultural Policy (CAP), but also due to increased use of new low dose pesticides. By the mid-nineties the consumption had risen again in several countries. To a large extent the use of pesticides is determined by outbreaks of plant disease, plagues of insects etc. which are beyond the control of legislation. A number of other factors affect figures from one year to the next, such as weather conditions, seasonal factors, price of pesticides and land set aside.

Data assessment

Trends in pesticide use are hard to discern since the compounds used vary enormously over time (new products are being licensed while older ones are withdrawn). Because the data shown cover only herbicides, fungicides and insecticides, and only a selection of crops, coverage is incomplete. This is particularly the case for the Netherlands, where as much as 50% of the pesticides used in that country are for bulbs, flowers and other ornamentals which are not included. The weight of active ingredients does not give an accurate indication of the risks associated with the use of pesticides. The risks depend on many factors including type of product, toxicity, persistence, climate and soil conditions, type of cultivation, farmer knowledge and application practices. The OECD Pesticide Forum is currently examining the problem, focusing at present on the aquatic environment, with a view to producing an international methodology for calculating pesticide risk. Such an index would combine the total amount applied with the toxicity and risks. This would involve complex and contentious calculations.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	OECD AGRIC.

Further reading: 'Plant Protection in the EU', Eurostat, 2001.
See also: http://europa.eu.int/comm/environment/ppps/synth/contents.htm

ENVIRONMENTAL LAND

Agriculture

Definition

This indicator measures the area of forest in thousand hectares (ha) for each country and expressed as a percentage of the area of the country. 'Forest' is defined as an area of more than 0.5 ha with a tree crown cover of more than 10%. Young plantation forests yet to reach 10% cover are included in the definition. 'Other wooded land' has tree cover of between 5% and 10% and comprises species that will reach a height of more than 5 metres when they reach maturity. Deforestation is seen as a major priority in developing countries. The issue is less of a priority in developed countries where the area of 'natural' forest is often small.

Indicator relevance

Forests are important for water catchment, carbon storage and social and landscape reasons. In addition natural and semi-natural forests can be biodiverse habitats, home to many different species. Forested land provides valuable services for soil conservation and water management by trapping water in the root systems and allowing groundwaters to recharge. Forests are also important economic assets, especially for wood production. An entire chapter in Agenda 21 is devoted to deforestation. It lists as one of its objectives: *'To maintain existing forests through conservation and management, and sustain and expand areas under forest and tree cover, in appropriate areas of both developed and developing countries, through the conservation of natural forests, protection, forest rehabilitation, regeneration, afforestation, reforestation and tree planting, with a view to maintaining or restoring the ecological balance and expanding the contribution of forests to human needs and welfare'.*

Area and Proportion of Forest Land, 1990-1999

(1 000 hectares, % of total area)

	Surface area	Total forest		Forest available for wood supply		Other forest		Other Wooded Land	
	1000 ha	*1000 ha*	*%*	*1000 ha*	*%*	*1000 ha*	*%*	*1000 ha*	*%*
EU-15	323 963	113 567	35	95 525	29	18 042	6	22 637	7
B	3 053	646	21	639	21	7	0	26	1
DK	4 309	445	10	440	10	5	0	93	2
D	35 702	10 740	30	10 142	28	598	2	:	:
EL	13 196	3 359	25	3 094	23	265	2	3 154	24
E	50 596	13 509	27	10 479	21	3 030	6	12 475	25
F	54 919	15 156	28	14 470	26	686	1	1 833	3
IRL	7 029	591	8	580	8	11	0	:	:
I	30 132	9 857	33	6 013	20	3 844	13	985	3
L	259	86	33	86	33	0	0	3	1
NL	3 735	339	9	314	8	25	1	0	0
A	8 387	3 840	46	3 352	40	488	6	84	1
P	9 204	3 383	37	1 897	21	1 486	16	84	1
FIN	33 814	21 883	65	20 675	61	1 208	4	885	3
S	45 218	27 264	60	21 236	47	6 028	13	2 995	7
UK	24 410	2 469	10	2 108	9	361	1	20	0
IS	10 295	30	0	14	0	16	0	100	1
Li	16	7	43	4	25	3	18	1	3
NO	32 376	8 710	27	6 609	20	2 101	6	3 290	10
CH	4 129	1 173	28	1 060	26	113	3	61	1
CY	925	117	13	43	5	74	8	163	18
CZ	7 887	2 630	33	2 559	32	71	1	:	:
EE	4 523	2 016	45	1 932	43	84	2	146	3
HU	9 303	1 811	19	1 702	18	109	1	:	:
PL	31 268	8 942	29	8 300	27	642	2	:	:
SI	2 027	1 099	54	1 035	51	64	3	67	3
CA	997 061	244 571	25	125 863	13	118 708	12	173 013	17
RU	1 709 761	816 538	48	525 191	31	291 347	17	70 000	4
USA	980 963	217 333	22	198 123	20	19 210	2	80 802	0

Source: 2000 Temperate and Boreal Forest Resource Assessment (TBFRA), United Nations Economic Commission for Europe. (UN-ECE) and Food Agriculture Organisation (FAO); extracted from EFIDAS, EFI (European Forest Institute, Joensuu, Finland)

Evolution of Forest Area in EU countries between 1950 and 1995 (1950 =100)
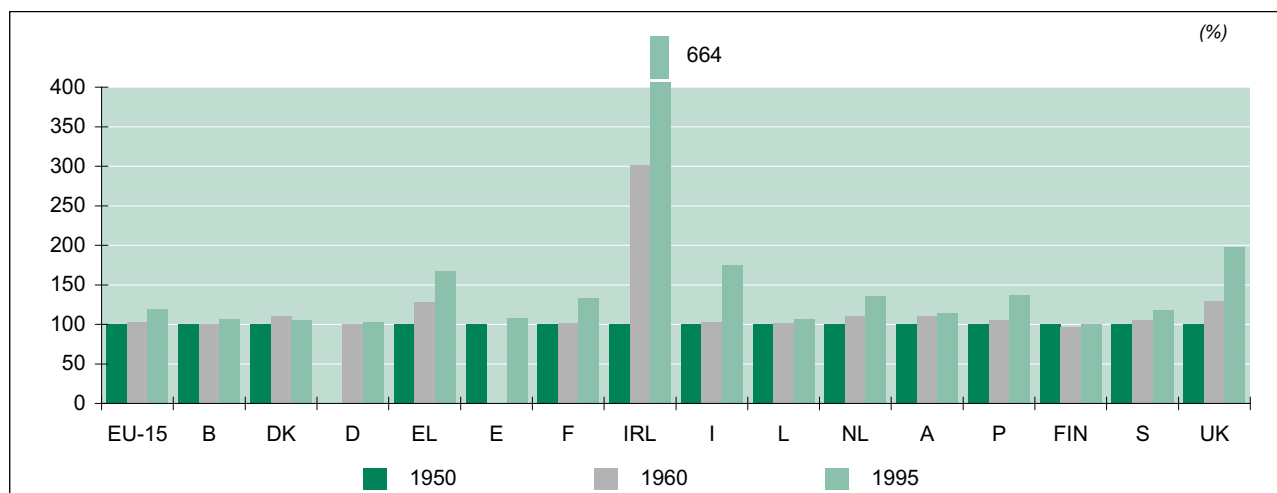
Source: United Nations Economic Commission for Europe; extracted from EFIDAS, EFI (European Forest Institute, Joensuu, Finland). The reference periods of the countries may differ by up to 5 years from the years presented

At the EU level there are specific programmes for the afforestation of agricultural lands especially for rural development and soil conservation purposes. Although a country's forest area is not directly linked to sustainable development, a continued decline in forest area can, in certain conditions, signal unsustainable management of forests or land-use planning. In the European context, expansion of forest might indicate monocultural afforestation practices or the reduction in area of agricultural land of high landscape value.

Links to other indicators

This indicator is linked to ENV4 (agricultural land area) and ENV18 (protected areas). ENV8 discusses the intensity of economic exploitation of forests and INST4 presents forest fire data.

Evaluation

It is estimated that about two thirds of the forest area in EU consists of coniferous stands. The Nordic countries have by far the largest forest cover, Sweden with 60% and Finland 65% in 1995. These two countries, with 27.2 million and 21.8 million ha of forested land respectively, together make up 43% of the EU's forest area. The proportion of land under forest cover is also high in mountainous countries such as Austria. Countries with the lowest forest cover are Ireland (8%), Denmark, Netherlands and UK (all 10%). In all these cases the climate and relief of the land favour agriculture over forestry.

As well as the forested land, a further 7% of the EU is wooded but with the density of tree cover too low to be considered forest. This other wooded land is particularly common in Spain (25%) and Greece (24%). Amongst the Accession Countries Estonia (46%) and Slovenia (54%) have high proportions of forest land. Overall there has been a 19% increase in forested area between 1950 and 1995 in the EU. Area under forest has risen in all EU countries, with particularly rapid growth in Ireland (a more than six-fold increase between the 1950s and 1995). Forested area in the US and in Canada has decreased by 14% over the same period. In Finland, the area of forest has remained almost unchanged since 1950. In Sweden, it has risen by 18% in the same period.

Data assessment

The data on forest area are compiled on a 10 yearly basis, the normal observation period, by UN-ECE/FAO. Since 1990 a regular reporting cycle has been implemented at FAO level.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Temperate Boreal Forest Resource Assessment' TBFR, United Nations, New York & Geneva, 2000; ISBN 92-1-116736-3; Chapter 11, Agenda 21 'Combating deforestation'; 'Forest and the Environment', Statistics in Focus, Eurostat 17/2000.

Definition

The wood harvesting ratio (WHR) is defined as the ratio of fellings, i.e. the annual average harvest (standing volume of all trees felled) of wood, to the Net Annual Increment (NAI), for the national forest, defined as the average annual volume of gross increment less natural losses. Both are measured in 1000 m^3. The NAI is the amount of biomass of new timber that grows over the year less the volume of timber that naturally dies. The NAI is calculated from data on the area of land under forest, the type of soil that is forested and the species of tree being grown. The WHR could be considered as a measure of the sustainability of the rate of commercial felling.

Indicator relevance

This indicator assesses whether the amount of wood harvested annually is compensated for by new growth within the nations forests. If the WHR is greater than 100, it implies that the exploitation of the forests is unsustainable. If this occurs for a succession of years this means that the country is depleting its stock of forest. Values below 100% mean sustainable wood production.

Wood harvesting ratio

	Net annual increment (1000 m^3)		Fellings (1000m^3)		Wood harvesting ratio	
	1980-1990	**1990-1999**	**1980-1990**	**1990-1999**	**1980-1990**	**1990-1999**
B	4 457	5 176	3 426	4 400	77	85
DK	3 515	3 200	2 535	2 444	72	76
D	:	90 649	42 716	48 584	:	54
EL	3 648	3 813	3 376	:	93	:
E	33 488	30 092	18 530	15 863	55	53
F	67 649	93 211	:	60 174	:	65
IRL	3 363	3 500	1 568	2 330	47	67
I	:	30 507	:	10 101	:	33
L	:	667	:	400	:	60
NL	2 419	2 328	1 520	2 150	63	92
A	23 972	27 837	17 402	20 041	73	72
P	11 793	14 312	11 245	11 500	95	80
FIN	71 735	73 666	57 460	54 300	80	74
S	95 357	94 122	60 218	67 766	63	72
UK	11 088	14 690	8 135	9 500	73	65
IS	:	58	:	0	:	0
Li	:	25	:	16	:	64
NO	18 546	24 391	12 765	11 632	69	48
CH	6 070	8 848	5 760	7 451	95	84
CY	:	44	:	50	:	113
CZ	:	20 715	:	16 355	:	79
EE	:	7 452	:	:	:	:
HU	9 902	10 344	7 789	6 449	79	:
PL	31 215	42 871	28 576	32 212	92	75
SI	:	6 132	:	:	:	:
CA	:	227 480	:	:	:	:
RU	:	742 000	:	125 500	:	17
USA	:	761 000	719 332	523 000	:	69

Source: 2000 Temperate and Boreal Forest Resource Assessment (United Nations Economic Commission for Europe and Food Agriculture Organisation) and Eurostat

Measuring Progress Towards a More Sustainable Europe

EU net annual increments and fellings,1990-1999

(1 000 m³)

Legend: ■ Net annual increment   ■ Fellings
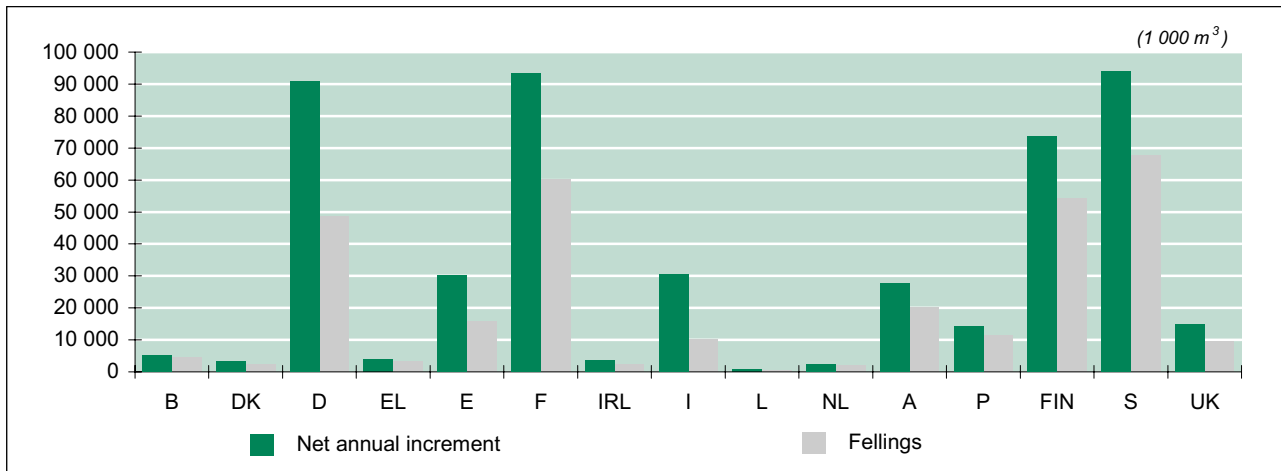
Source: Eurostat.. EL refer to fellings in 1990

Links to other indicators

This indicator is linked to ENV7 which describes the area of forest and INST4 which deals with forest fires.

Evaluation

Within Europe, the historical data suggests that the wood harvesting ratios (WHR) have been less than 100 for the last five decades, i.e. that European forests have been accumulating biomass. On average at EU level the WHR for the period 1990 - 1999 was around 65%, excluding Greece, which had a ratio of 93% in the reference period 1980-1990. In the last decade high ratios have been recorded in the Netherlands (92%), Belgium (85%), Switzerland (84%) and Portugal (80%). It can be said therefore that forests in EU-15 countries are managed in a sustainable way. This growth of wood stocks is found in all EU countries and most notably in Italy where fellings are just a third of the net annual increment (NAI). Forestry exploitation rates appear to be sustainable in all the Accession Countries, except Cyprus. However relatively high wood harvesting ratios have been observed in Czech Republic and Poland, 79% and 75%, respectively. The US, Russia and Canada all have substantial growth of forests and have a WHR of less than 100. It should be mentioned that some growth of forest in mountainous areas has the express function of stabilising soils against avalanche and soil erosion and forests are deliberately being grown not for harvest but for these wider environmental functions. In 1999 fellings were highest in Sweden, closely followed by France and Finland. Timber is harvested from both coniferous and non-coniferous species. Within Europe, between 1990 and 1999, 72% of fellings were coniferous and 28% were non-coniferous species. The former is used mainly for paper production, construction and furniture. Non-coniferous species are typically higher value and used for veneers, furniture and certain construction purposes.

Data assessment

The data are obtained from the latest Temperate and Boreal Forest Resource Assessment carried out by the United Nations Economic Commission for Europe (UN-ECE) and the Food and Agriculture Organisation (FAO). Collection of data on net annual increments (NAI) and fellings by the UN Food and Agriculture Organization and the UN-ECE began in 1940, but only since 1990 has data been collected on a regular 10 yearly basis and with internationally agreed methodologies and definitions. Data on NAI are calculated from timber models that take into account species, age structure and soil type of the national forests. Data on harvested forests have to be collected from both public and private sector forests. The latter especially are often small and widely dispersed making data collection difficult.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Temperate Boreal Forest Resource Assessment' (TBFRA), United Nations, New York & Geneva; 2000 ISBN 92-1-116736-3; Chapter 11, Agenda 21 'Combating deforestation'.

ENVIRONMENTAL LAND

Forests

eurostat

Definition

This indicator presents the total built-up area for different countries, measured in thousands of hectares. This value includes land used for residential purposes, roads, technical infrastructure, industrial and commercial premises and recreational sites. The definition excludes scattered farm buildings, yards and annexes. Data are presented as a percentage of total land area, as a growth rate over the period and relative to population (hectares/1000 people). An evolution of urbanised land for seven European cities, as well as an overview of the main land use categories at EU level in 1997 are also provided.

Indicator relevance

The country or region's land area is fixed. Building upon land is a long term, if not irreversible, change in land use that affects the landscape and has several negative environmental impacts (increases water run-off and thus increases the risk of flooding, hinders replenishment of groundwater, destroys habitats, affecting biodiversity). Within the EU, the 'European Spatial Development Perspective', adopted in May 1999, represents the main and most recent policy orientations and guidance on land use. The ESDP provides a co-ordinating framework for EU and national sectoral policies. Of the 60 policy options set out in the document, about one third deal with land use and environmental matters, aiming to control 'land use pressure', reducing the physical expansion of towns and ensuring the re-use of previously developed 'brown-field' sites. To this end, some Member States (UK, Germany, Denmark) have already set some specific targets in order to slow down the demand for new settlement areas, with cities being the areas first addressed. Sustainable land use patterns are also included in the Communication *Sustainable Urban Development in the EU: a Framework for Action, 1998.* Specific action plans are being implemented by several European cities and regions. Also, in the context of the Common Agriculture Policy and the Structural Funds (rural development objectives), specific programmes and actions aim to implement sustainable land use patterns and to preserve the landscape.

Links to other indicators

This indicator is linked to ENV4 (agricultural land), ENV7 (forest area) and ENV15 (protected land).

Built-up area
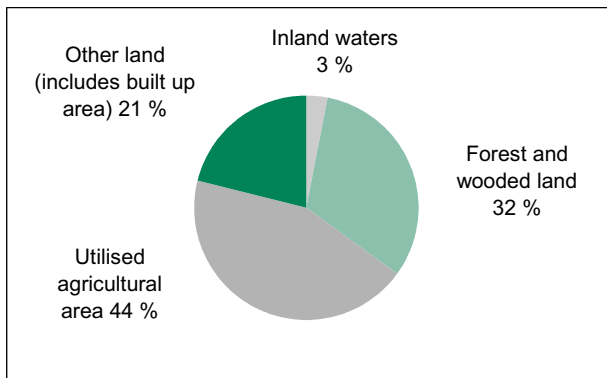
	1980	1985	1990	1995	1999	built up %	annual growth %	1980	1985	1990	1995	1999
			(1 000 ha)								*(ha/1 000 population)*	
B	434	484	507	534	552	18	1.3	44	49	51	53	54
DK	314	:	:	362*	:	8	1.0	61	:	:	69	:
D	*2 700*	*2 933*	*3 090*	4 118	4 297	12	1.1	*44*	*48*	*49*	50	52
EL	:	**489**	:	:	:	:	:	:	**49**	:	:	:
E	:	:	:	**453**	**507**	:	2.9	:	:	:	**12**	**13**
F	:	3 245	3 515	3 916	4 098	7	1.7	:	59	62	67	69
L	:	:	22	:	:	9	:	:	:	58	:	:
NL	509	535	539	561	575	15	0.6	36	37	36	36	37
A	:	:	311	341	397	5	2.7	:	:	40	42	49
P	:	:	1 414	:	1 637	18	1.6	:	:	143	:	164
FIN	773	:	939*	956*	:	3	1.4	162	:	189	187	:
S	1 089	:	1 172	:	:	3	0.7	131	:	137	:	:
UK	:	:	:	:	3 613	15	:	:	:	:	:	61
IS	110	:	125	135	140	1	1.3	485	:	493	506	508
CH	:	246	:	279	:	7	1.1	:	38	:	40	:
CZ	739	779	812	818	:	10	0.7	72	75	78	79	:
HU	**107**	:	:	:	:	:	:	**10**	:	:	:	:
PL	1 835	1 922	1 983	2 037	2 046	7	0.6	52	52	52	53	53
SI	:	:	:	51	:	3	:	:	:	:	26	:

Source: Eurostat and other official sources. BBR-Stat.Bundesamt (D), Environment Ministry (DK), Statistics Finland, Min. de Fomento y Min. de Hacienda(E), BFS (CH).

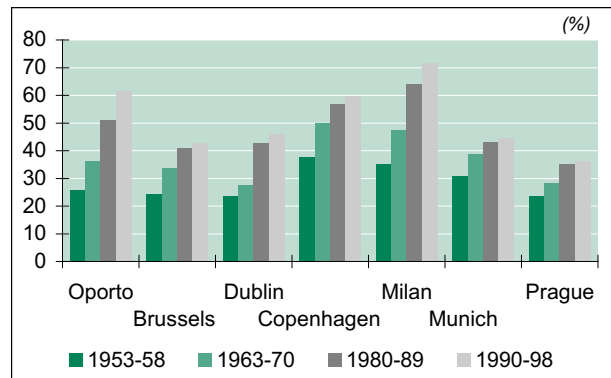*Other remarks: '% built up' calculated using the latest available year. Bold values represent residential land only.*

(*) Official estimates. For D, data refer to the 'settlement area' (includes housing, industries, traffic areas, and adjacent non built-up areas),
Years in italics refer to Old Länder. DK- 1980 refers to 1982. CH- 1985 refers to 1983, data refer to 'settlement and urban areas'

Measuring Progress Towards a More Sustainable Europe

Land use by main category - EU-15, 1997

Other land (includes built up area) 21 %

Inland waters 3 %

Forest and wooded land 32 %

Utilised agricultural area 44 %

Source: Eurostat

Built-up area (% of city total area)

(%)

| | | | | 80 |
| 70 |
| 60 |
| 50 |
| 40 |
| 30 |
| 20 |
| 10 |
| 0 |

Oporto   Dublin   Milan   Prague
Brussels   Copenhagen   Munich

■ 1953-58   ■ 1963-70   ■ 1980-89   ■ 1990-98

Source: EU-Commission, Joint Research Centre. Sample years for each city lie within the range identified

Evaluation

Although there are considerable gaps in the information on land use there is evidence that in the last two decades the area of built up land has increased at a relatively important rate in every EU country, with annual growth rates ranging from 0.6% in the Netherlands to 2.9% in Spain. This slow growth in the Netherlands should be seen in context: with 15% of its land area built up, the Netherlands is one of the most built up countries in the EU, together with Belgium and Portugal (18%), UK (15%) and Germany, with 12%. However, the area of built up land per inhabitant in the Netherlands is only two-thirds the rate for Belgium, Germany or the UK. Sweden and Finland have the lowest proportion of their land surface built up (3%). Built-up land has continued to increase during the nineties: for example by 28% in Austria, 16% in Portugal and France. France and Germany have the largest absolute areas of built-up land (over 4 million hectares in 1999). More detailed information is becoming available on the use of land for urban development, for instance in Germany in 1999 the daily increase of built up area was 129 ha, equivalent to 200 football fields. The pie chart reinforces the fact that within Europe the vast majority of land is used for other economic purposes most notably agriculture and forestry. The graph shows the development of artificial areas over four decades for seven European urban areas. It provides clear evidence of the expansion of built up areas in cities.

Data assessment

Land use statistics, particularly concerning built up area, suffer from a lack of standardised definitions and harmonisation. The data used in this indicator come from the OECD/Eurostat Joint questionnaire to Member States or from other official national sources. At present, only some EU countries collect information on built up area on a regular basis. Historically, information on land use has been partially derived from sectoral, mainly agricultural, statistics and since the mid-eighties the EEA's 'CORINE Land Cover' inventory (Co-ordinating Information on the Environment' programme based on satellite images). The major limitation of this last source is the scale and the fact that CLC data is available for only one point in time. In view of this there is a need for an integrated information system on land resources and use, focused on different components and the changes over time between them (flows and final stocks). Another crucial issue is the need for standard classifications to enable all the countries to consistently record data. Eurostat has developed a manual of concepts on land cover and land use information systems, to be used in 2001 in LUCAS, the first harmonised European LU/LC area frame sampling survey.

The approach adopted by the MURBANDY/MOLAND project (EU-Commission Joint Research Centre Space Applications Institute) is an example of harmonised land use information, combined with socio-economic statistics which enables comparative analysis to be carried out at a European level.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	OECD Hous.

Further reading: 'Sustainable Urban Development in the EU: a framework for action' (COM(98)/605), 'Manual of concepts on land cover and land use information systems', Eurostat 2000; 'From land cover to landscape diversity in the EU' Eurostat 2000; 'European Landscape: farmers maintain more than half of the territory', Eurostat 1999; 'Europe's farm landscape: some examples and figures', Eurostat 1999; 'Land use and cover accounting' IFEN, France 1999; MURBANDY/MOLAND Technical Report (Eur, in press. See: http:/murbandy.sai.jrc.it/).

ENVIRONMENTAL LAND

Urbanisation

eurostat

Definition

This indicator provide the average annual load of nitrogen and phosphorus that flow into coastal waters from rivers (riverine inputs) and from sources that release these nutrients directly into coastal waters (direct inputs). Riverine inputs include natural flows and human pressures from the entire catchment area, whereby the pressure from upstream countries are ascribed to downstream countries (e.g. the Rhine is ascribed to the Netherlands). Direct inputs are pressures from point sources (e.g. wastewater treatment plants and industries) that discharge directly into the sea. Releases in the table are lower bound[a] estimates for the Atlantic, Baltic and North Sea. Total nitrogen includes oxidised nitrogen such as nitrates, ammonia and organically bound nitrogen. Similarly, total phosphorus includes ortho-phosphate, poly-phosphate and organically bound phosphate. Atmospheric deposition of nitrogen is excluded.

Indicator relevance

Nitrogen and phosphorus give rise in coastal waters to eutrophication, which is the nutrient enrichment of waters leading to the deoxygenation of waters and subsequently causing major changes in ecosystems. Toxic algae blooms and fish kills are the main associated phenomena. Such blooms jeopardise many beneficial uses of the sea and are a cause of concern to the public. A substantial part of nitrogen and phosphorous inputs are of natural origin and the riverine input fluctuates considerably as a result of precipitation, as well as depending on human activities upstream. Surplus fertiliser run-off from agricultural land and outflows from sewage disposal are the major sources of anthropogenic release.

Riverine inputs of nitrogen and phosphorus to coastal zones

	(1 000 tonnes total Nitrogen)						*(1 000 tonnes total Phosphorus)*					
	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
DK	97	79	92	98	119	94	4	2	2	2	3	2.2
D	201	152	226	233	346	293	12	11	11	15	12	11.5
F	67	67	67	67	67	67	5	5	5	5	5	4.7
IRL	147	162	117	155	169	141	4	4	4	5	8	4.8
NL	340	320	390	360	485	570	22	19	19	21	28	33
P	11	11	10	10	8	2	1	1	1	4	12	0.9
FIN	62	:	:	:	:	60	3	:	:	:	:	3.4
S	136	32	34	29	40	151	5	1	1	1	1	5.3
UK	201	231	278	269	300	283	17	15	16	18	18	19.3

Direct inputs of nitrogen and phosphorus to costal zones

	(1 000 tonnes total Nitrogen)						*(1 000 tonnes total Phosphorus)*					
	1990	**1991**	**1992**	**1993**	**1994**	**1995**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
DK	15	14	13	10	9	9	3	3	2	2	2	1.1
D	6	7	4	4	5	9	1	1	1	1	1	0.6
IRL	10	10	10	10	10	10	3	3	3	3	3	2.5
NL	5	5.7	6.1	6.1	6.1	6.9	1.2	1	1.1	1.1	1.1	1.1
P	6.9	6.9	7.4	7.4	7.4	7.6	1.9	1.9	2.2	2.2	2.2	2.2
FIN	9.8	:	:	:	:	2.9	0.6	:	:	:	:	0.4
S	21.7	3.6	3.6	3.9	3.8	19.8	1.2	0.1	0.1	0.1	0.1	0.7
UK	105.5	90	105.2	88.7	75.2	76.7	23.8	23.9	20.8	14.5	17.1	16.3

Source: Estimates by VKI, Institute for the Water Environment, based on data from the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) and Helsinki Convention (HELCOM) data (1999). F includes only inputs to OSPAR area. S 1991-1994 includes only inputs to OSPAR areas. OSPAR and HELCOM data refer to the Atlantic, Baltic and North Seas. After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990.

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[a] Excludes concentrations of nitrogen and phosphorous below the thresholds of detection of the apparatus

Links to other indicators

This indicator is linked indirectly to ENV4 (agricultural area), ENV5 (nitrogen balances) and ENV14 (quality of bathing waters).

Targets

The Paris Convention (OSPAR) seeks to prevent and eliminate pollution and to protect the maritime area against the adverse effects of human activities, and was incorporated into EU law in the Council Decision 98/249/EC of 7 October 1997. The Helsinki Convention (HELCOM) covers the Baltic and Cattegat seas.

The objective of the Nitrates Directive 91/676/EEC is to protect ground water from pollution caused by nitrates from agricultural sources. Member States are required to identify areas where the ground water is vulnerable, either because it is already close to or above the threshold or because the soil conditions put it at risk. For these zones Member States must prepare action programmes with the aim of limiting nitrogen input from animal manure in these zones to a maximum of 170 kg ha.

Directive 80/778/EEC on Drinking Water indicates a recommended nitrogen level of 25 mg/l and maximum concentration 50 mg/l. The Bathing Water Quality Directive (Directive 76/160/EEC) seeks to reduce pollution of bathing water.

Evaluation

In the waters covered by the OSPAR and HELCOM Conventions, riverine inputs accounted for around 90% of nitrogen and phosphorus inputs in 1995. The Netherlands, which contains the mouth of the Rhine, is the single largest source of riverine inputs, followed by Germany since reunification. The UK is also a major source with 283,000 tonnes of nitrogen. There are no clear trends in the inputs of nitrate from rivers, as these fluctuate to a large extent according to rainfall. The largest emissions of phosphorus are seen again for the Netherlands and Germany (post reunification) which together account for just under 50% of inputs, and the UK with 19,300 tonnes in 1995.

Data assessment

Although incomplete, the OSPAR and HELCOM reported data are the only data sets available for nutrients discharges. Not all the EU countries regularly update the information. Data for inputs into the Mediterranean Sea are still missing, with what data there is being limited at present to some 'hot spots'.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: Agenda 21, Chapter 17: Protection of the oceans, all kinds of seas and coastal areas.

Definition

The data presented are for annual catches of over exploited species, for all commercial, industrial, recreational and subsistence purposes, in all European Economic Area countries. They are expressed in tonnes live weight equivalent of the landing. This excludes all quantities caught but not landed, for example, discarded fish or fish consumed on board fishing vessels. The species are defined according to a specific EU-classification of the fish stocks1 and a selection of most common species has been made. For a correct appreciation of this indicator from a sustainability perspective, it has to be considered that the catches can provide only partial information, given that the ability of fish stocks to recover differs greatly from one species to another. The removal of a number of fish from a threatened population of a very fecund fish (e.g. herring) is less serious than the removal of the same number of fish with a very low fecundity (e.g. sharks, rays etc). For comparison with the marine fish, the total figures for the shellfish products are also provided.

Indicator relevance

There is increasing concern over the state of fish stocks in certain areas (see table below). This indicator on catches provides some illustration of the main pressures on fishing resources. Ideally it should be complemented by figures on fishing mortality and spawning stock biomass, but the measurement of these variables still poses some problems. Fish stocks are also threatened by water pollution and to some extent also by global warming. Moreover, the depletion of the ozone layer interferes with the natural feeding cycle.

Targets

The Council declaration of 30 May 1980 on the Common Fisheries Policy calls for rational and non-discriminatory Community measures for the conservation and reconstitution of stocks to ensure their sustainable exploitation, and for a fair distribution of catches. However till now, no specific mid to long term targets have been set for identifying sustainable levels for fishing stock nor for optimised levels of fish harvesting. This is a primary goal of future action at EU-policy level on fisheries (see COM 2000/803). The Commission annually adopts measures for fixing fish quotas and prohibiting fishing. It is widely recognised that there is a need for a more structured long-term policy approach for more efficient conservation and management of fish stock.

State[1] of the main fish stocks by species and sea areas

	Baltic Sea	Skagerrak Kattegat	North Sea	West Scotland	Irish Sea	West Ireland	Celtic Sea Western Channel	Eastern Channel	Bay of Biscay	Iberian Peninsula	Med. Sea
Herring	:	FE	DR	:	:	:	FE	OE	:	:	:
Mackerel *	:	DR	DR	OE	OE	OE	OE	OE	OE	OE	OE
Sardine	:	:	:	:	:	:	:	:	:	DR	:
Salmon	DR	:	:	:	:	:	:	:	:	:	:
Bluefin Tuna *	:	:	:	:	:	:	OE	OE	OE	OE	OE
Swordfish *	:	:	:	:	:	:	OE	OE	OE	OE	OE
Cod *	OE	DR	DR	DR	DR	:	OE	DR	:	:	:
Haddock	:	OE	OE	OE	FE	:	:	OE	:	:	:
Whiting	:	:	:	OE	FE	:	FE	FE	:	:	:
Saithe *	:	OE	OE	DR	:	:	:	:	:	:	:
Hake *	:	OE	OE	OE	OE	OE	OE	OE	OE	DR	:
Plaice	:	OE	DR	:	FE	:	DR	FE	:	:	:
Sole *	:	:	:	:	OE	:	DR	OE	OE	:	:
Anglerfish *	:	:	:	OE	OE	OE	OE	OE	OE	OE	:
Megrim	:	:	:	FE	FE	FE	FE	FE	FE	FE	:
Nephrops	:	OE	FE	FE	FE	:	FE	:	OE	FE	:

*Source: EU-Commission, Fishery Directorate-General * Species detailed in total catches table*

1) The stocks of marine fish are classified as follows:
   Under exploited (UE): long term gains in yield could be achieved at higher fishing mortality rate provided that at these higher rates, the biomass of mature fish remains above levels at which replenishment of the stocks is imperilled;
   Fully exploited (FE): no substantial long-term gains or losses in yield accrue if fishing mortality rate is moderately increased and the biomass of mature fish remains above levels at which replenishment of the stocks is imperilled;
   Over exploited (OE): moderate to substantial gains in long-term yield if fishing mortality rate is reduced, and if such a reduction significantly reduces the probability that the biomass of mature fish falls to levels at which replenishment of the stocks is imperilled;
   Depleted (DR): fishing mortality rate is so high that the biomass of mature fish is already at levels, or is in the near future very likely to fall to levels, at which replenishment of the stocks is imperilled.

Measuring Progress Towards a More Sustainable Europe

ENVIRONMENTAL OCEANS SEAS

Fisheries

eurostat

Total catch of selected over exploited species by main sea areas

(1000 tonnes live weight equivalent of the landings)

		North-east Atlantic					East-central Atlantic					Mediterranean Sea				
		1990	1995	1996	1997	1998	1990	1995	1996	1997	1998	1990	1995	1996	1997	1998
Total Fishery	EU-15	4 627	5 713	5 108	5 290	5 185	493	450	534	543	603	610	702	673	644	562
Products	IS	1 521	1 620	2 062	2 223	1 702	:	:	:	:	:	:	:	:	:	:
	NO	1 774	2 698	2 804	3 043	3 026	1.8	0	0	0	0	:	:	:	:	:
Among Which:		:	:	:	:	:						:	:	:	:	:
Marine Fish	EU-15	4 078	5 066	4 537	4 712	4 549	431	392	467	496	552	447	529	499	476	408
	IS	1 462	1 517	1 953	2 106	1 599	:	:	:	:	:	:	:	:	:	:
	NO	1 497	2 465	2 592	2 807	2 787	1.8	0	0	0	0	:	:	:	:	:
Shell Fish	EU-15	454	516	437	507	525	62.4	58.3	66.4	46.3	50.6	156	171	171	164	149
	IS	43.6	89.4	92.7	97	85.2	:	:	:	:	:	:	:	:	:	:
	NO	79.1	47.1	37.9	43	58.8	0	0	:	:	0	:	:	:	:	:
Tuna-like fish	EU-15	50.6	67.8	66.1	70.8	71.6	205	182	166	137	137	30.9	41.2	42.5	41.3	35
	IS	0	0	0	1	2	:	:	:	:	:	:	:	:	:	:
	NO	0	0	0	0	0	1.8	0	0	0	0	:	:	:	:	:
Mackerel-like fish	EU-15	427	455	311	324	395	10.6	6.9	22.0	14.4	10.8	15.8	19.2	22.0	18.4	14.0
	IS	0	0	0	1	0	:	:	:	:	:	:	:	:	:	:
	NO	150	202	136	137	158	:	:	:	:	:	:	:	:	:	:
Anglerfishes	EU-15	3.8	3.5	3.5	5.2	6.3						0.5	1.6	1.2	1.1	1.0
	IS	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	NO	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Cod	EU-15	320	286	317	291	260	:	:	:	:	:	:	:	:	:	:
	IS	333	203	204	209	243	:	:	:	:	:	:	:	:	:	:
	NO	124	365	359	402	322	:	:	:	:	:	:	:	:	:	:
European Hake	EU-15	53.3	54.4	37.9	39.8	35.5	5.0	6.6	6.6	3.7	4.2	30.5	48.4	40.1	26.5	20.1
	IS	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	NO	0.7	0.8	0.9	1.0	0.8	:	:	:	:	:	:	:	:	:	:
Saithe (Pollock)	EU-15	92.7	58.1	59.4	56.8	52.3	:	:	:	:	:	:	:	:	:	:
	IS	95	47.5	39.3	36.5	30.5	:	:	:	:	:	:	:	:	:	:
	NO	112	219	222	184	194	:	:	:	:	:	:	:	:	:	:
Common Sole	EU-15	41.1	44.1	34.4	27.2	31.2	2.9	0.5	0.3	1.0	1.0	8.2	7.9	5.2	4.1	3.4
	IS	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	NO	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
Swordfish	EU-15	6.9	4.2	3.5	2.7	2.5	0.0	0.3	0.1	0.4	0.2	8.4	9.1	7.7	8.1	9.2
	IS	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	NO	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat. 1990 EU figures have been calculated considering all present 15 Member States

Evaluation

In 1998, total marine catches at EU level were greater than in 1990. However there was no uniform trend. In the mid 1970s fish landings were nearly 150% higher than in 1998. Shellfish catches also increased during the period. Catches for almost all of the overexploited species are decreasing, the only exceptions being the anglerfishes and the tuna-like fish, the latter probably being used as a substitute for bluefin tuna. Recent information indicates that for bottom dwelling species the stock status has deteriorated further since 1998. For pelagic fish species such as herring and mackerel the situation has improved or stabilised.

Data assessment

Data on catches are collected on an annual basis. Improved figures on landing will help in the estimation of fish stocks, particularly in terms of fishing mortality rates and information on the spawning stock biomass because stock assessment is dependant on the number of fish caught in different age classes. More appropriate and detailed indicators are needed to describe the effective pressures on fish stocks and define criteria for sustainability. To this end, specific work programmes are being proposed at Commission level.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: Fisheries Yearbook 200, Eurostat. Fisheries Statistics CD-ROM 1950-1999, Eurostat 2000. Precautory Principle and multi annual TAC, COM (2000)/803; Action Plans on Biodiversity European Commission (forthcoming); Environmental integration into the Common Fishery Policy, European Commission (forthcoming).

ENVIRONMENTAL OCEANS SEAS

Fisheries

Definition

This indicator presents the total abstraction of freshwater - in absolute values and per capita - including a breakdown between surface (rivers and lakes) and groundwater resources. The intensity of water use, in terms of the ratio between total renewable resources of water and total abstractions is also provided. Total renewable freshwater resources are estimated as a long term average and are calculated as precipitation minus evapo-transpiration plus inflows from other countries. This represents the potential water available for use. A graph is also presented on the sectoral uses of water with the split between Southern and Northern EU countries.

Indicator relevance

Water is a fundamental natural resource essential for individual needs and economic purposes (agriculture, industrial processes, cooling etc.). Water abstraction (in particular from groundwater) is a major pressure on fresh water resources. Therefore, the sustainable use of water is an essential pre-condition to assure future socio-economic development. Freshwater is the habitat for aquatic species and a satisfactory level of water is needed to safeguard these ecosystems. The EU Water Framework Directive (2000/60/EC) is aimed at preventing further deterioration of fresh water quantity and quality and promotes the sustainable use of water, which requires a balance between abstraction and recharge of groundwater. To this end, new water management policies based on river basins (and not on administrative boundaries) are foreseen. The directive also promotes a 'combined approach' of emission limit values and quality standards, getting the prices right, getting citizens more closely involved in water problems and streamlining legislation.

Links to other indicators

This indicator is indirectly associated with indicators, such as ENV4 (agricultural areas), ECON3 (value added by sector), SOC10 (wastewater), ENV13 (freshwater BOD levels) and, partially, ENV15 (protected areas).

Intensity of water use, 1980-1999

(million m³)

|	Total Abstractions (s+g)				Surface Water (s)				Groundwater (g)				Total abs.[2]	As % of
	1980	1985	1990	1999 [2]	1980	1985	1990	1999 [2]	1980	1985	1990	1999 [2]	m³ /capita	resource[1]
B	:	:	:	*7 442*	:	:	:	*6 802*	:	: :		*641*	729	*45.1*
DK	1 205	1 705	1 261	754	45	:	:	20	1 160	:	1 261	734	142	12.3
D[a]	:	:	46 273	43 374	:	:	38 507	:	:	:	7 766	:	532	25.4
EL	5 040	4 650	7 835	8 695	3 470	3 140	5 827	5 023	1 570	1 510	2 009	3 563	826	12.1
E	39 920	46 250	36 900	40 855	34 800	40 840	31 400	35 323	5 120	5 410	5 500	5 532	1 037	36.8
F	:	34 887	37 686	*30 341*	:	28 714	31 485	*24 240*	:	6 173	6 201	*6 101*	514	15.9
IRL	1 070	:	:	1 176	945	:	:	951	125	:	:	225	327	2.3
I	56 200	52 000	56 200	56 200	:	40 000	:	:	:	12 000	:	:	975	32.1
L	40	67	:	61	:	22	:	29	:	45	:	32	142	3.7
NL	9 198	9 350	7 800	4 655	8 190	8 242	6 751	3 502	1 008	1 108	1 049	1 153	302	5.1
A	3 342	3 363	3 734	3 561	2 207	2 195	2 561	2 496	1 135	1 168	1 174	1 065	441	4.2
P	10 500	:	7 288	:	8 500	:	4 223	:	2 000	:	3 065	:	735	10.0
FIN	3 700	4 000	2 327	1 526	3 510	3 680	2 087	1 251	190	320	240	275	296	1.4
S	4 106	2 970	2 968	2 711	3 511	2 348	2 360	2 068	595	622	608	643	307	1.5
UK	14 496	12 947	14 237	*15 256*	12 006	10 426	11 528	*12 828*	2 491	2 521	2 709	*2 428*	257	*22.4*
IS	108	112	167	156	5	8	7	4	103	104	160	152	566	0.1
NO	:	2 025	:	:	:	1 620	:	:	:	405	:	:	488	0.5
CH	2 589	2 646	2 665	2 566	1 667	1 693	1 724	1 689	922	953	941	877	360	4.9
CZ	3 622	3 679	3 623	*1 976*	2 820	2 873	2 787	*1 419*	802	806	836	*557*	192	*3.7*
HU	4 805	6 267	6 293	*5 653*	3 551	4 880	5 266	*4 822*	1 254	1 386	1 026	*831*	560	*4.7*
PL	14 184	15 453	14 248	*11 275*	11 899	13 076	11 928	*9 339*	2 285	2 377	2 320	*1 936*	292	*17.9*
SI	*391*	*498*	*444*	*328*	*292*	*337*	*279*	*169*	*99*	*160*	*165*	*159*	166	:
EE	3 129	3 047	3 215	*1 527*	2 791	2 620	2 720	*1 228*	338	427	495	*299*	1 056	:

Source: Eurostat

1) Data refer to total abstractions divided by total renewable resources.

2) Data refer to 1999 or latest available year. B: refers to Flanders and Wallonia. F: break in the time series in 1997. UK: refers to England and Wales. Italics refer to provisional data. D: after 1990, data refer to the Federal Republic of Germany as constituted from 3 October 1990.
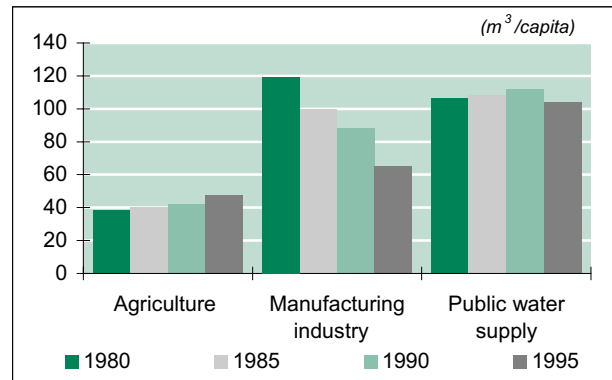
Measuring Progress Towards a More Sustainable Europe

Water abstractions by main sectors for south and north Europe
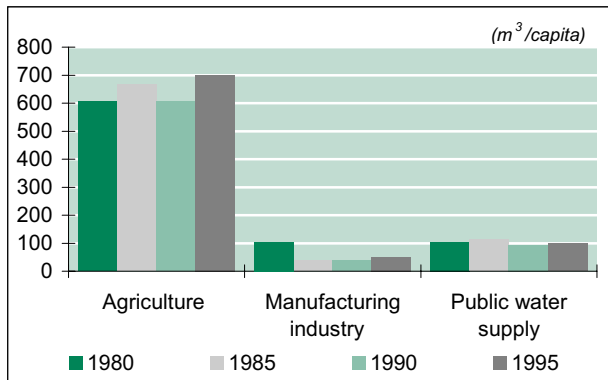
Southern (EL, E, PT)

Northern (DK, F, NL, A, FIN, S, ENGL& WALES)

Source: Eurostat

Source: Eurostat

Evaluation

As a whole, it is estimated that total water abstractions in the EU represent about one fifth of the potential water resources. However, on a global level, simple comparisons of abstractions with water resources have objective limitations, as it is then not possible to detect the real water supply problems affecting a specific area or region. This underlines the importance of the spatial dimension in order to appreciate water problems in Europe. The regional variations are primarily due to different overall conditions throughout Europe (geological, climatic etc.) and to different water use patterns by users/sectors. The utilisation rate is highest in some of the drier countries (37% in Spain, 32% in Italy) and in certain densely populated countries (Belgium 45%) and is lowest in sparsely populated countries (Finland 1.4%, Sweden 1.5% and Austria 4%). From 1980 to 1999, the figures for the countries with available time series show that there has been little overall change in the rate of total abstractions across Europe - about 229,000 billion m^3 were abstracted in 1999, even if partial changes occurred for industrial uses (decreases) and agriculture (increases). Abstractions for public water supply remained stable, approximately 100 m^3 per capita a year. The exploitation of groundwater resources has remained stable as a whole, with an increase for agricultural uses. Per capita abstractions differ significantly between countries. Spain uses around 1030 m^3 per capita and at the other extreme Denmark and Luxembourg each use less than 200 m^3 per capita per year. Most countries rely mainly upon surface water for the majority of their supplies. The main exceptions are Denmark, Luxembourg and Iceland which rely almost entirely on groundwater. As a general pattern, surface water is used for irrigation and cooling, groundwater for households and partially for agriculture and industrial processing. The Southern European countries have a comparatively large water consumption: this arises in a large part because of the high demands from agriculture (over 50% of water consumption). Between 1980 and 1995, water consumption for manufacturing has fallen significantly, and is almost halved in both Southern and Northern European countries.

Data assessment

Water statistics need improvement. The availability of data on water abstraction varies between countries and this has a direct effect on data comparability. More information on the sectoral uses of water is also required (for instance, data for agricultural abstractions is often partial, covering only irrigation, and excludes small users; industrial cooling is sometimes included in manufacturing uses). In order to permit assessment of water resources and stress at local level, annual calculations are needed, disaggregated by catchment areas.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Sustainable water use in Europe (Part 1)', Europe Topic Centre (ETC) -IW; 'Water resources: problems in Southern Europe', ETC-IW; 'Water stress in Europe', EEA; 'Water in Europe - part 1 - Renewable Water Resources, Eurostat 1988'; European Environment Agency Environmental Assessment Report No. 2', chap 3.5, No 6, chap 12, 1999.

Definition

The biological oxygen demand (BOD) of rivers, presented below, gives the mean annual oxygen demand at the mouth or downstream frontier of the river for key rivers in the EU and selected Accession Countries. The units of measurement are the mass of oxygen consumed per litre of water. The BOD 5 index is commonly used and represents the BOD met by 60 grammes of oxygen a day over five days.

Indicator relevance

BOD of water is a key parameter in the health of a water ecosystem. High levels of BOD reduce the concentration of dissolved oxygen making the water an unsuitable environment for fish and other aquatic animals. BOD arises from releases of organic matter such as human or animal effluent and waste from industries such as food processing.

BOD of selected rivers[1], annual mean concentration

(mg/litre O)

		1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	Average[2]
B	Meuse	4.2	8.0	:	:	:	:	2.0	2.0	2.5	:	2.2
	Escaut	10.7	3.4	:	:	:	:	2.9	3.9	5.7	:	4.2
DK	Gudenå	3.7	3.4	2.8	2.4	2.4	2.4	2.2	2.4	2.4	3.0	2.6
	Skjernå	8.1	5.5	2.3	2.3	2.3	2.0	2.3	2.2	1.3	1.6	1.7
	Suså	1.4	2.6	4.2	:	:	2.6	2.1	1.8	1.9	2.7	2.1
	Odenseå	3.1	3.5	2.4	2.3	2.1	1.9	1.9	1.9	2.0	1.9	1.9
D	Weser	5.0	3.0	3.3	3.8	3.2	4.0	3.8	3.3	3.8	2.9	3.3
	Donau	3.1	3.2	2.8	3.1	2.3	2.8	2.7	2.7	2.2	2.4	2.4
E	Guadalquivir	11.8	8.8	7.2	9.4	17.4	16.6	13.2	39.4	14.5	:	22.4
	Duero	2.1	2.7	3.0	2.4	2.0	2.5	1.3	4.3	3.8	2.5	3.5
	Ebro	3.3	4.3	2.3	4.6	6.9	6.6	8.2	13.6	5.2	5.5	8.1
	Guadiana	2.7	1.6	2.3	3.0	5.8	6.5	6.8	7.7	2.9	1.8	4.1
F	Loire	7.3	6.0	7.0	5.5	6.3	5.9	5.1	4.0	5.8	:	5
	Seine	6.4	4.3	5.6	5.2	5.7	5.1	5.0	3.8	4.7	:	4.5
	Garonne	2.3	2.4	1.3	1.4	1.9	1.7	1.1	1.8	1.1	:	1.4
	Rhône	7.8	5.0	1.4	1.2	1.2	1.7	1.7	1.5	2.8	:	2
IRL	Boyne	:	1.7	1.7	1.2	1.6	2.0	1.6	1.8	2.0	1.5	1.8
	Clare	:	1.7	1.3	1.3	1.5	1.4	1.9	1.8	1.5	1.1	1.5
	Barrow	:	1.7	1.7	1.7	1.9	2.1	1.5	2.5	2.4	1.7	2.2
	Blackwater	:	1.7	2.8	1.5	1.9	2.2	1.3	1.9	1.9	2.0	1.9
L	Moselle	4.2	3.6	4.3	4.5	3.7	4.0	3.6	2.4	:	:	3.3
	Sûre	4.1	3.1	3.2	4.6	3.9	4.5	3.5	2.5	:	:	3.5
NL	Maas-Eÿsden	2.8	2.9	1.8	2.0	1.5	2.3	2.3	2.0	:	:	2.2
	Rijn-Lobith	3.2	2.3	2.8	2.8	2.0	1.8	1.4	1.9	3.0	:	2.1
A	Donau	3.3	:	3.8	3.5	3.8	3.3	3.0	3.0	3.7	2.5	3.1
	Inn	2.2	:	1.4	:	3.0	2.0	2.2	2.8	2.4	2.2	2.5
	Grossache	1.0	:	:	:	3.2	2.6	1.4	1.8	1.2	1.1	1.4
UK	Thames	2.7	2.4	2.9	3.1	2.4	2.4	2.6	1.8	3.0	:	2.5
	Severn	2.6	1.7	2.8	2.6	1.9	2.2	2.3	2.4	1.8	:	2.2
	Clyde	4.1	3.2	3.5	4.3	4.5	3.9	4.4	2.9	3.9	:	3.7
	Mersey	5.1	5.0	4.4	3.8	3.6	3.5	4.0	3.7	3.9	:	3.9
	Lower Bann(N. Ireland)	5.1	5.5	2.9	3.0	3.3	4.0	3.0	3.6	3.8	2.8	3.4
CZ	Labe	8.5	6.6	6.8	6.8	5.3	5.8	5.2	3.7	3.5	3.9	3.7
	Odra	12.3	10.1	5.9	6.4	8.0	7.6	6.2	7.1	4.9	4.2	5.4
	Morava	7.8	7.8	7.9	6.2	7.0	5.7	5.6	4.2	5.0	5.4	4.9
	Dyje	6.7	8.1	7.4	3.8	6.5	6.2	6.1	4.3	4.5	5.1	4.7
HU	Maros	5.4	6.2	9.4	5.1	5.8	4.9	3.8	3.7	:	:	4.1
	Duna	4.7	4.9	3.1	3.3	2.4	2.6	2.5	2.1	:	:	2.4
	Dráva	5.0	3.8	3.4	3.5	3.7	3.3	3.1	3.5	:	:	3.3
	Tisza	2.9	1.9	1.5	2.1	2.2	2.0	2.0	1.9	:	:	2
PL	Wisla	3.7	5.6	6.0	5.2	5.4	4.6	4.3	4.2	3.9	4.6	4.2
	Odra	5.9	4.6	7.0	6.1	6.7	6.2	5.1	4.5	3.7	5.1	4.4

Source: OECD. After 1990 German data refer to the Federal Republic of Germany as constituted from 3 October 1990

1) *Measured at the mouth or downstream frontier of river.*

2) *Average over the last three years. F: Data refer to hydrological year (September-August). Seine: station under marine influence. Rhône: from 1987 data refer to another station. D: Weser: 1990-97 - BOD7 (20°). NL: Maas-Eijsden 1990 and 1993-94, Rijn-Lobith 1993-96: averages include limit of detection values. E: Guadalquivir: from 1990 onwards data refer to another station closer to the mouth and further away from the Sevilla influence. UK: When the parameter is unmeasurable (quantity is too small), the limit of detection values are used. Actual averages may therefore be lower. Clyde 1980: 1982 data.*

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Targets

The Directives on Water Quality (Directive 76/160/EEC 78/659/EEC and 80/778/EEC) establish guide values and limit values for BOD. The Urban Wastewater Treatment Directive (91/271/EEC) establishes different guidelines on the secondary treatment of wastewater which depend on the population equivalent in the agglomeration. Tertiary treatment is required for sewage treatment works serving more than 10,000 and discharging into sensitive waters. The Water Framework Directive will, once implemented, supersede certain water quality standard directives.

BOD in selected European rivers, 1980-97
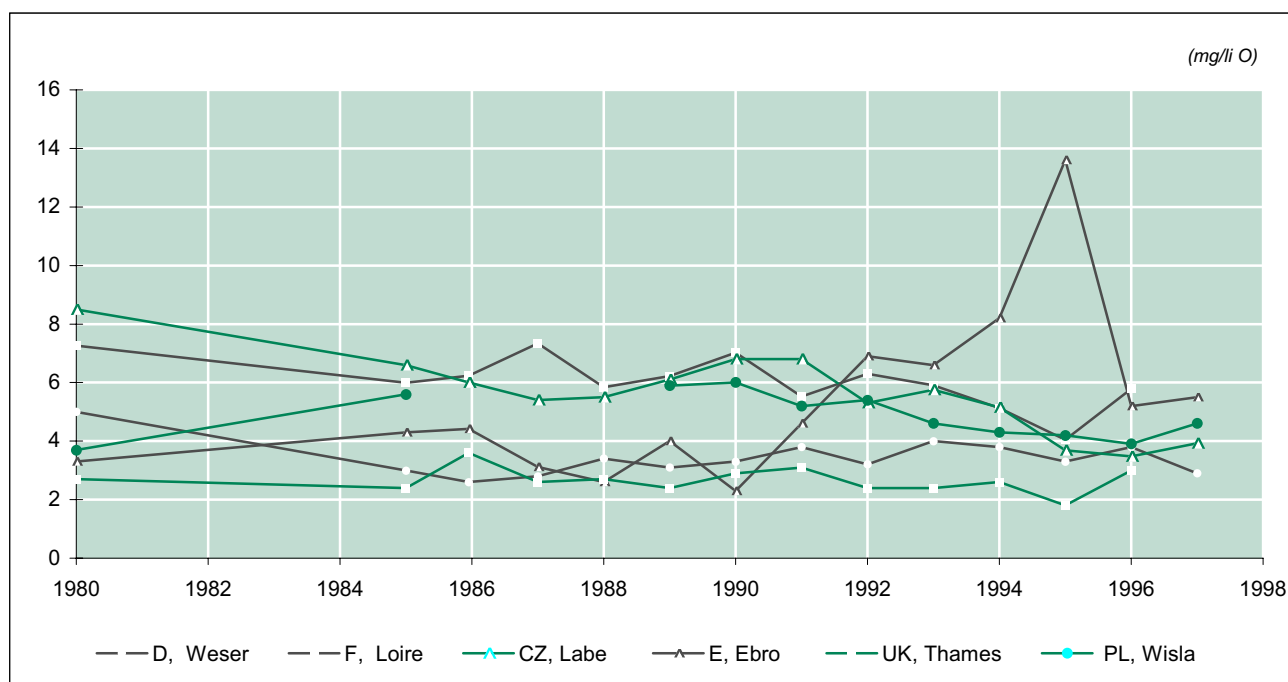
Source: OECD

Evaluation

There is no clear general trend in the BOD in the selected European rivers. The year on year variations for particular rivers are larger than the trends because measured BOD is greatly influenced by weather conditions in the river catchment (rainfall and temperature). Smaller rivers are more prone to problems of episodes of high BOD than larger rivers because they are vulnerable to accidental spills of organic matter. Moreover, effluents from households and industrial activities can vary considerably. Peak values can be reached in very dry weather conditions, as was the case for Spain in 1995.

Data assessment

Data are drawn from the OECD/Eurostat Joint Questionnaire. Due to natural conditions the comparability between rivers is generally difficult. Data are missing for many important European rivers and for certain years. The quality of the data depends on the structural programmes and resources made available by Member States for collecting water samples and estimating BOD levels, and the frequency of measuring stations. Data improvement is also a major objective of the Eurowaternet project, led by the European Environment Agency.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV

Further reading: 'EU Focus on Clean Water', European Commission, Environment Directorate General, 1999.

ENV14 Quality of bathing water

Definition

This indicator provides information on the quality of fresh and seawater bathing zones in each concerned EU country. It shows the number of sampling points and the proportion that comply with bathing water standards for the monitored parameters: two microbiological (total and faecal coliforms) for faecal pollution and three physiochemical parameters for chemical pollution (phenols, mineral oils, surface active substances).

Indicator relevance

Discharges or illegal dumping of chemicals or industrial waste are major sources of water pollution. Coliform pollution becomes a human health hazard only in bathing areas. Faecal coliform is a form of microbiological pollution that arises when inadequately treated sewage, animal manure or effluents from industry are released into inland and coastal waters. Ingestion of this water can cause gastroenteritis, and skin and eye irritations. Inland water (rivers and lakes) are in general much more vulnerable to waste water discharges than the seawater, which are warmer, with high salinity, etc. The setting-up and monitoring of bathing water standards are important to protect the public from accidental and chronic pollution discharged in or near European bathing areas. Moreover, clean and safe water is a key factor for the tourism industry. In the 1970s Europe decided that the quality of bathing water should be monitored and tested to protect bathers from health risks and preserve the environment from pollution. This resulted in Directive 76/160/EEC on Bathing Water Quality. Since then the development of a new Bathing Water Quality Standard directive has been undertaken by the EU Commission, COM (2000)860.

Links to other indicators

This indicator is linked to ENV13 (BOD in water), to SOC10 (sanitation connection) and to ENV11 (nutrients discharges to riverine and direct inputs).

Water quality for bathing zones - marine and inland waters, 1999

	Marine Waters				Inland Waters			
	Number sampling sites	Compliance with guide values %	Compliance with mandatory values %	Banned sites %	Number sampling sites	Compliance with guide values %	Compliance with mandatory values %	Banned sites %
B	39	12.8	100.0	0.0	52	51.9	92.3	0.0
DK	1 177	80.9	92.8	0.9	114	78.0	89.4	0.0
D	414	82.6	93.5	0.2	1 639	69.6	92.4	0.9
EL	1 816	95.8	98.8	0.0	4	25.0	100.0	0.0
E	1 624	87.8	97.8	0.1	213	31.9	0.5	9.9
F	:	:	:	:	:	:	:	:
IRL	121	89.3	98.4	0.0	9	88.9	100.0	0.0
I	4 811	92.4	96.4	0.0	724	73.8	94.8	0.0
L	0	:	:	:	20	55.0	85.0	15.0
NL	78	93.6	98.7	0.0	528	60.4	90.1	0.6
A	0	:	:	:	270	77.8	95.9	0.0
P	342	83.3	93.8	0.0	37	18.9	78.4	0.0
FIN	93	60.2	91.4	0.0	343	67.9	85.4	1.5
S	379	73.4	84.5	0.0	412	66.5	80.8	0.0
UK	541	50.5	94.5	0.0	11	36.4	90.9	0.0

Source: EU - Commission, Environment Directorate General. France did not report data for the 1999 bathing season

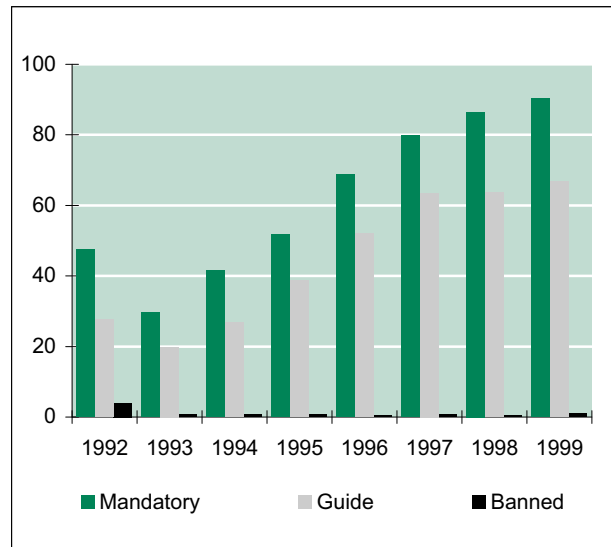*Measuring Progress Towards a More Sustainable Europe*

Water quality in bathing zones - EU, 1992 - 1999

MARINE WATERS
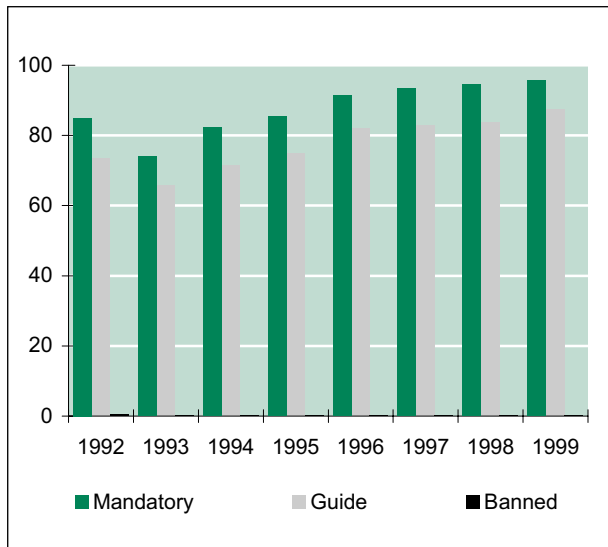
INLAND WATERS

(% compliance)

Source: EU-Commission, Environment Directorate- General. 1992 EU figures have been calculated considering all current 15 Member States. EU values include only the reporting countries

Evaluation

In 1999, the overall quality of seawater at the sampling sites improved compared to 1998. On average, the EU's coastal bathing areas are of high quality. From 1993, a clear trend can be observed towards higher compliance rates for seawater, both for mandatory (the minimum) and recommended (the most strict) guide values. The number of zones which do not conform are decreasing. The same positive and even more accentuated trend has been registered for the quality of inland bathing water. Between 1997 and 1999, the number of fresh water bathing zones in the EU which did not comply with standards decreased by 6%. In 1999, 66.8% of fresh waters were in compliance with the most strict standards, and 90.2% with the minimum standard, increases of 3.2% and 3.7% respectively, in comparison to 1998. In 1999, bathing was banned in 3.6% of the marine zones sampled, and in 1.1% of fresh water zones. Generally the more sea bathing zones meet the standards than freshwater: 5% more for the mandatory values and 20% more for the stricter norms.

Data assessment

There are considerable variations between countries in terms of the number of monitoring sites for bathing water, and this partially reflects the length of the coastline and its suitability for bathing. In the last two years there has been a decrease in the number of monitoring zones for fresh water. The number of seawater sites also varies. Another concern is the unsatisfactory level of samples as required for both sea and fresh water zones.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Quality of Bathing Water -1999 Season', EU Commission, 2000, ISBN 92-828-8939-4.

ENV15 Protected area as a percentage of total area

Definition

This indicator provides information on the number and area of sites of biodiversity that are protected under EU legislation in 2000. Data are given on areas covered by the Birds Directive and the Habitats Directive. The protected area is also given as the percentage of the total surface area of the country.
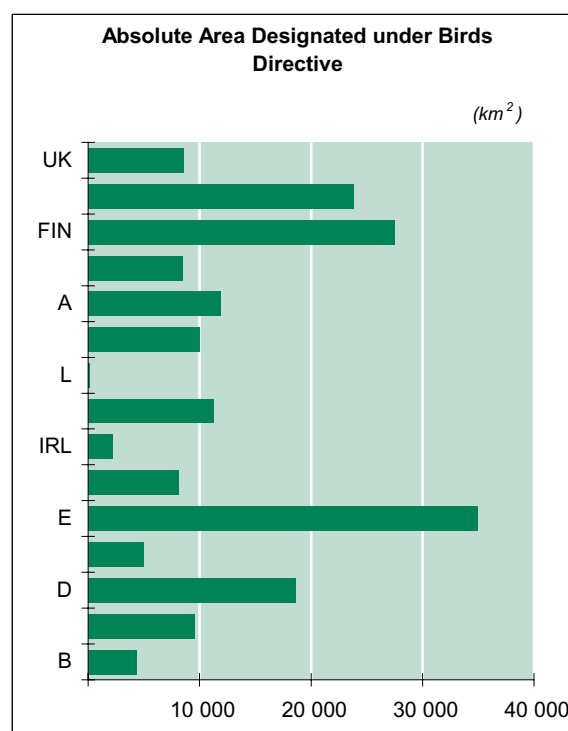
Indicator relevance

Loss of habitat is one of the principal reasons for the decline in wildlife populations and extinction of wild species. Wild flora and fauna constitute a valuable natural heritage that needs to be preserved and handed on to future generations. The Habitats Directive (Council Directive 92/43/EEC, amended by Directive 97/62/EC) on the conservation of natural habitats and of wild fauna and flora establishes a European ecological network known as 'Natura 2000'. The network comprises 'special areas of conservation' designated by Member States to protect the species and habitats listed in the provisions of the Habitats Directive, and 'special protection areas' (SPAs) classified according to Directive 79/409/EEC (Birds Directive). Special areas of conservation are designated in three stages. Each Member State must draw up a list of sites which include natural habitats and wild fauna and flora according to the Habitats Directive. On the basis of the national lists and by agreement with the Member States, the Commission will then adopt a list of sites of community importance. No later than six years after the selection of a site of Community importance, the Member State concerned must designate it as a special protection area. It is expected that about 10% of European land area will be designated under the Natura 2000 network.

Links to other indicators

This indicator is linked to ENV16 (threatened species).

EU Sites of nature conservation in 2000

	Birds Directive			Habitats Directive		
	No. Sites	Total Protected Area (km^2)	Total Surface Area %	No. Sites	Total Protected Area (km2)	Total Surface Area %
EU-15	2 613	184 477	5. 8	10 819	369 569	11.6
B	36	4 313	14.1	209	1 105	3.6
DK	111	9 601	22.3	194	10 259	23.8
D	582	18 628	5.2	1 524	15 175	4.2
EL	52	4 965	3.8	234	26 522	20.1
E	181	34 934	6.9	867	88 076	17.4
F	115	8 127	1.5	1 028	31 440	5.7
IRL	109	2 226	3.2	267	3 091	4.4
I	268	11 279	3.8	2 507	49 364	16.4
L	13	160	6.2	38	352	13.6
NL	79	10 000	24.1	76	7 078	17.0
A	73	11 931	14.2	127	9 144	10.9
P	47	8 468	9.2	65	12 150	13.2
FIN	440	27 500	8.1	1 381	47 154	13.9
S	304	23 787	5.3	1 962	50 996	12.4
UK	203	8 548	3.5	340	17 660	7.3

Absolute Area Designated under Birds Directive (km^2)

Source: EU-Commission, Environment Directorate General, Natura 2000 Barometer

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Numbers of Special Protection Areas designated by Member States
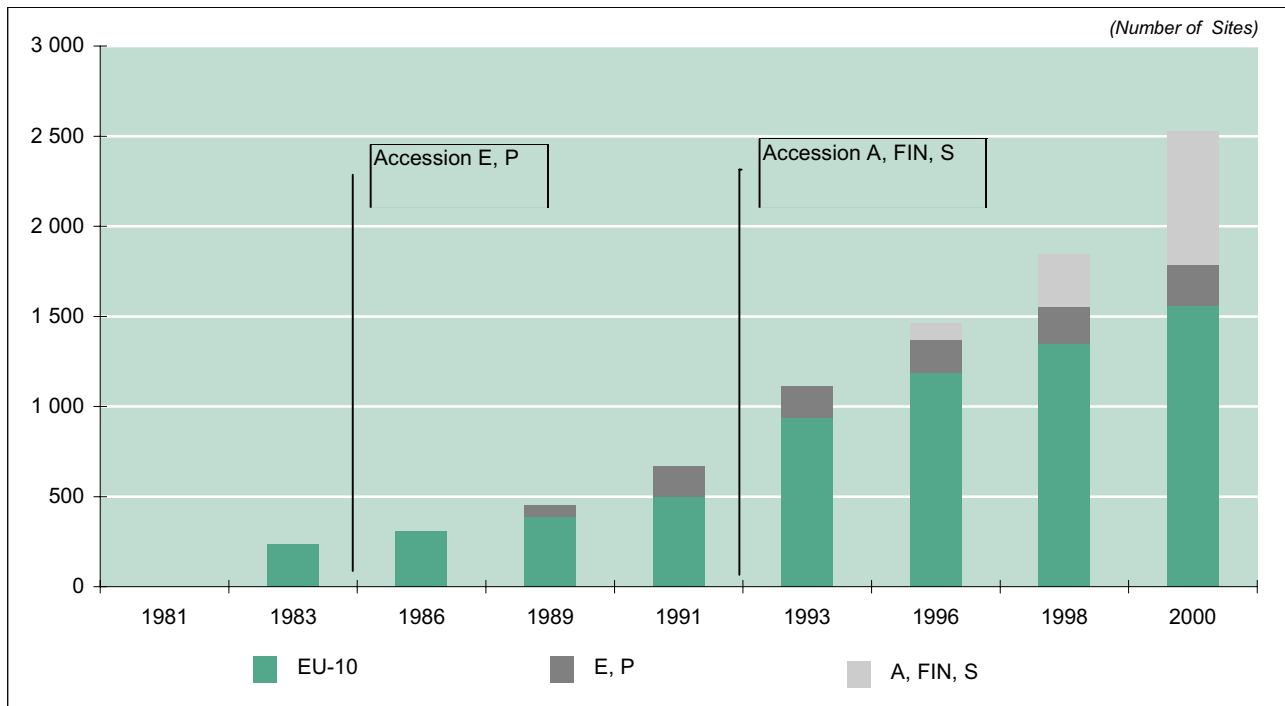
Source: EU-Commission, Environment Directorate General, Natura 2000 Barometer. EU10 figures exclude E, P, A, FIN and S

Evaluation

At present 6% of the EU's total area - about 184,000 km^2 is protected under the Birds Directive. The proportion of land so protected varies dramatically between countries with Netherlands (24%), Denmark (22%), Austria (14%) and Belgium (14%) all significantly above the EU average. In the larger countries such as Germany (5.2%), Italy (3.8%), UK (3.5%) and France (1.5%) a much smaller proportion of their total area is designated. In absolute terms the countries with the largest areas designated under the Birds Directive are Spain and the Nordic countries. The more recent Habitats Directive covers about twice the area covered by the Birds Directive, though this includes significant areas of marine nature reserves. Altogether 11.6% of the EU total area was designated under the Habitats Directive in 2000. Again Spain and the Nordic countries designated the largest areas of land and water. Denmark and the Netherlands have larger coastal reserves than terrestrial reserves. The number of sites protected under the Birds Directive has grown substantially since the Directive was introduced in 1979, from none to 1500 for the original EU10 Member States. The number of designated sites rose swiftly between 1996 and 2000, mainly because of the activities of the new EU Member States (Austria, Sweden and Finland). As well as the number and area of protected sites, information on the type of habitat being protected and the quality of protection would be useful.

Data assessment

The data on numbers and areas of designated sites are drawn from administrative data and are therefore reliable and comparable across the different EU countries. One important issue for nature conservation cannot be demonstrated at present, that is the difference in the quality of protection between different sites and in different countries. For an appropriate evaluation more detailed, qualitative information on the management of the conservation sites is needed.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	OECD Hous

Further reading: 'Environment in the European Union at the turn of the century', Chap 3.11, EEA, 1999. 'Action Plans for Biodiversity', European Commission, COM 2001/162.

ENV16 Number of threatened species

Definition

This indicator provides data on the number of plant and animal species that are globally threatened within Europe. The definition of 'threatened' used here covers species that are classified by the International Union of Conservation of Nature (IUCN) as either *'Extinct/endangered', 'Endangered' and 'Vulnerable'.* *'Extinct/endangered'* species are thought to be extinct. An *Endangered* species is defined by the IUCN as a species that is threatened by extinction in all or a significant proportion of its range and the factors causing their vulnerability continue to operate. *Vulnerable* species are species considered likely to move into the *Endangered* category. The data presented below have been compiled and validated by the World Conservation Monitoring Center. They are collected by a variety of different organisations and official sources. The indicator proposed by the UN on the Abundance of key species was not used since data on the numbers of wild plants and animals is extremely difficult to collect and exists only for some bird and mammal species.

Indicator relevance

Compared with other continents, Europe's natural biodiversity is relatively low (the last ice age - which dramatically reduced the number of species in Europe - ended only 10,000 years ago). Altogether 454 species of vertebrate animals are recognised as being endemic to Europe (not occurring outside the continent) and 189 species of butterfly. A large proportion of reptiles (45%), amphibians (75%) and fresh water fish (60%) found in Europe are exclusive to the region. This gives a special responsibility for their conservation. The principal threats to species are habitat clearance through drainage, land use change, deforestation, intensification of agriculture and fragmentation of ecosystems, especially by transport infrastructure. The main legal framework for biological conservation is the Convention on Biological Diversity (1992) implemented in Europe through the EU Biodiversity Strategy and the Bern Convention applied at EU level through the Birds Directive (1979) and the Habitat Directive (1992). A new EU Commission proposal for the development of a biodiversity strategy has been recentrly approved.

Number of known and threatened species

	Known Species [1]	Threatened Plants		Threatened Animals [2]	
		1997	2000	1996	2000
B	1 550	2	0	23	25
DK	1 450	0	3	15	17
D	2 682	5	12	49	55
EL	4 992	109	2	55	57
E	5 050	460	14	105	86
F	4 630	105	2	89	96
IRL	950	0	1	6	8
I	5 599	109	3	75	92
L	1 246	1	0	8	11
NL	1 221	1	0	19	23
A	3 100	2	3	61	63
P	5 050	159	15	97	116
FIN	1 102	1	1	17	18
S	1 750	3	3	23	23
UK	1 623	4	13	17	26
NO	1 715	3	2	16	21
CH	3 030	4	2	39	41
CY	1 682	22	1	11	9
CZ	:	10	3	:	37
EE	:	1	0	10	11
HU	2 214	10	1	56	52
PL	2 450	12	4	31	35
SI	:	2	:	57	85
JP	5 565	237	:	132	:
USA	19 473	3 142	168	854	830
Total	78 124	4 404	253	1 865	1 837

Source: World Conservation Monitoring Center

1) data refer to 1997.
2) animals includes mammals, birds, reptiles, amphibians, fishes, molluscs and other invertebrates.

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Europe's share of some of the world's species groups

	Known species in the world	Known species in Europe	Known in Europe %	Endemic to Europe	Endemic as a % of European species
Reptiles	6 500	198	3.0	90	45
Amphibians	4 000	75	1.9	56	75
Mammals	4 300	270	6.3	78	29
Freshwater Fish	8 400	334	4.0	200	60
Breeding Birds	9 600	514	5.4	30	6
Butterflies	30 000	575	1.9	189	33
Vascular Plants	260 000	12 500	4.8	3 500	28

Source: Council of Europe 1997, Davis et al 1994, van Swaay et al 1997, Walter and Gillet, 1997

Links to other indicators

This indicator is linked to ENV15 (protected areas).

Evaluation

Plant and animal species are under threat in most European countries. The number under threat is highest in the Mediterranean countries, which also have the greatest biodiversity (variety) in vascular plants. This is related to the fact that they were less effected by the last glaciation. Countries in Northern Europe, especially the islands of the UK and Ireland have a lower number of vascular plants. It is not possible from these data to assess whether European countries have succeeded in reducing the number of species considered endangered. The number of threatened species varies between country, probably in line with the research effort being placed in maintaining species inventories. Within plant and animals not all taxanomic groups are updated at the same time. Typically the data for highly visible species such as birds and large mammals are better than those for reptiles, amphibia and fish. This makes the time series comparisons unreliable.

Data assessment

The collection of data on numbers of species close to extinction is by definition extremely difficult. Considerable expertise is required to accurately identify species, and resources are inadequate even for highly visible species such as birds.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Environment in the European Union at the turn of the century', Chap 3.11, European Environment Agency, 1999. 'Action Plans on Biodiversity', European Commission, COM/2001/162. For further information, please consult the World Conservation Monitoring Centre web site (http://www.iucn.org).

ENVIRONMENTAL
BIODIVERSITY

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ECONOMIC DIMENSION

Definition

The economic indicators selected for inclusion in this section reflect the objective of sustainable development to maintain or enhance people's living standards over time. This means that overall macroeconomic performance should also take into account sustainability concerns. The application of sustainable production and consumption models plays a crucial role in this context. A sustainable economy must use efficiently energy and material resources, manage its wastes effectively and have a sustainable pattern of transport. The sub-themes reflect these concerns:

• economic performance

• trade

• financial status

• material consumption

• energy use

• waste generation and management

• transportation

Additional Eurostat indicators

The selection by and large follows the list proposed by the UN. Some macro-economic indicators have been introduced to reflect basic features of the EU-economies, namely on price levels and inflation, the structure of the economy by main sectors and international competitiveness. These three additional indicators were previously included in the UNCSD first list from 1996:

ECON3: value added by sector - this reflects the changing balance of economic activity. Changes in the mix of industries, for instance by outsourcing resource-intensive manufacturing to third countries, can reduce environmental impacts domestically but increase them in other countries.

ECON4: inflation rate - a sustainable economy needs to manage inflation. Increasing prices disproportionately affect those citizens on fixed incomes, such as pensioners, and give rise to damaging demands for wage increases.

ECON6: EU and international markets - the EU is a major provider (and recipient) of foreign direct investment (fdi). EU firms have control over (and are controlled by) foreign productive assets.

Moreover, on the important theme of consumption and production patterns, also because of the direct environmental implications, the following four indicators are proposed:

ECON14: generation of industrial waste - in the UN lists this indicator was combined with generation of municipal wastes. They have been treated separately here.

ECON18: waste treatment and disposal facilities - information on waste treatment plants is important in order to appreciate the distribution between different treatment and disposal techniques and the overall capacity to treat the given amount of waste generated.

ECON20: freight transport by mode - this indicator, which complements the indicator on passenger transport, reflects changes in freight movement and mode.

ECON21: environmental expenditure - this indicator describes the financial burden placed upon industry and public sector organisations in meeting their environmental obligations. Ideally this should be reduced over time as pollution control becomes integrated into core processes and is not introduced as an expensive add-on.

ECON1 Per Capita Gross Domestic Product

Definition

Per Capita Gross Domestic Product is calculated by dividing the nation's GDP at market prices by the country's population. The data are presented in *purchasing power standards* (PPS) which adjusts for differences in price levels between countries. The data are given at constant 1990 prices to account for inflation. GDP can be calculated by three methods: 1) the sum of value added by domestic units, 2) the sum of goods and services sold to final consumers (these are defined as households, Government, stocks, investment and net exports) and 3) the total income earned through employment plus the before tax profits of resident firms. The UN list advocates the use of gross *national* product rather than gross domestic product. The two measures of economic activity are similar but differ in the treatment of profits and wages earned by non-residents. GNP takes account of this repatriation of earnings. The difference is only material for a handful of countries, notably Luxembourg where the size of such flows compared to domestic production and consumption is large.

Indicator relevance

GDP is the monetary value of a nation's market and non-market (e.g. defence and education) activities in a given year. It provides a good proxy of the material wealth of citizens.

GDP per capita in constant 1990 prices in PPS

(Euro per capita in PPS)

	1960	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000
EU-15	*6 090*	*7 424*	9 463	10 631	12 154	12 930	14 885	15 231	15 441	15 807	*16 226*	*16 527*	*16 932*
EUR-11	*5 817*	*7 211*	9 298	10 511	12 186	12 866	14 895	15 124	15 316	15 660	*16 097*	*16 416*	*16 824*
B	6 374	7 939	9 588	11 167	13 029	13 460	15 501	16 246	16 423	16 876	*17 331*	*17 625*	*18 029*
DK	3 768	4 689	10 118	10 864	12 145	13 865	15 281	16 982	17 410	17 911	*18 339*	*18 595*	*18 910*
D[1]	7 717	9 233	10 885	11 891	14 022	14 974	17 046	15 696	15 852	16 170	*16 622*	*16 905*	*17 311*
EL	*2 682*	*3 845*	5 294	6 581	7 648	7 933	8 539	8 829	9 021	9 297	*9 593*	*9 870*	*10 174*
E	3 614	5 148	6 601	8 159	8 514	8 965	11 270	11 936	12 188	12 585	*13 051*	*13 468*	*13 925*
F	6 492	8 046	10 586	12 036	13 667	14 246	16 089	16 487	16 648	16 946	*17 419*	*17 731*	*18 119*
IRL	*3 676*	*4 351*	5 326	6 286	7 337	7 994	10 567	13 920	14 853	16 274	*17 994*	*19 454*	*20 918*
I	4 939	6 145	9 012	9 984	12 197	12 977	14 886	15 554	15 630	15 834	*16 024*	*16 247*	*16 588*
L	10 330	11 728	12 704	14 478	16 240	18 951	22 011	24 818	25 101	25 795	*26 916*	*27 421*	*28 206*
NL	6 153	7 287	9 451	10 557	12 644	13 148	14 775	15 852	16 280	16 785	*17 302*	*17 594*	*17 997*
A	5 911	7 015	8 840	10 563	12 624	13 502	15 487	16 400	16 643	17 032	*17 577*	*17 981*	*18 466*
P	2 524	3 264	4 555	5 445	6 543	6 738	8 906	9 666	9 945	10 295	*10 696*	*11 027*	*11 380*
FIN	5 541	6 822	8 519	10 178	11 517	12 917	15 004	14 249	14 707	15 545	*16 304*	*16 857*	*17 462*
S	7 734	9 633	11 327	12 633	13 306	14 431	15 762	15 647	15 820	16 089	*16 539*	*16 886*	*17 308*
UK	7 115	8 045	9 491	10 440	11 395	12 471	14 404	15 093	15 378	*15 855*	*16 155*	*16 283*	*16 592*
IS	6 393	8 230	8 656	11 053	14 756	15 633	17 315	17 050	17 903	18 551	:	:	:
NO	6 814	8 222	9 485	11 515	14 344	16 463	17 514	20 421	21 430	*22 047*	:	:	:
CH	12 036	14 012	16 332	16 643	18 438	19 318	21 223	20 301	20 223	*20 558*	:	:	:
CY	:	:	:	:	:	:	:	13 829	13 961	14 143	14 734	15 282	:
CZ	:	:	:	:	:	:	:	11 001	11 545	11 440	11 199	11 181	:
EE	:	:	:	:	:	:	:	5 608	5 887	6 561	6 909	6 872	:
HU	:	:	:	:	:	:	:	8 119	8 256	8 666	9 097	9 577	:
PL	:	:	:	:	:	:	:	5 644	5 980	6 379	6 680	6 961	:
SI	:	:	:	:	:	:	:	11 324	11 713	12 277	12 762	13 367	:
JP	3 149	4 690	8 609	9 943	11 786	13 457	16 511	17 481	18 098	18 196	:	:	:
USA	11 438	13 289	14 693	15 740	17 461	18 813	20 574	21 633	21 955	22 531	:	:	:

Source: Eurostat. EUR-11: EU Member States belonging to the Euro zone from 1 January 2000. Sweden, United Kingdom, Denmark and Greece are not Eurozone members, though Greece joined from 2001. More recent GDP data following the ESA 95 methodology are available from Eurostat, though they do not extend back to 1960. Values given in italics indicate estimates

1) After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990.

Growth in material prosperity is an important part of economic development and this indicator sets out this growth over time. As per capita GDP grows, more resources are available to invest in environmental protection, international development and social welfare measures such as wealth redistribution. However greater wealth is also linked to greater exploitation of energy and materials to service these material purchases. Though there is no explicit target growth rate for per capita GDP, growth is seen as one of the cornerstones of a successful economic policy and developed countries hope for real GDP growth averaging about 2% per annum.

Links to other indicators

This indicator is linked with Indicators ECON2 (investment share), ECON10/12 (energy use) and with SOC3 SOC4 (unemployment).

Per capita GDP in EU-15 countries and trends across the world, 1999
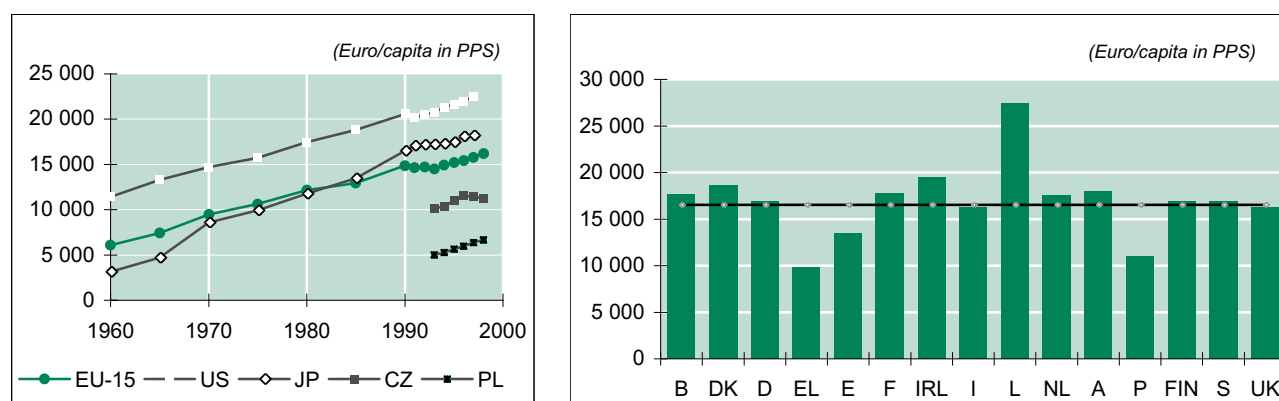
Source: Eurostat

Evaluation

Per capita GDP of all the countries shown has been increasing steadily over time. Between 1985 and 1999 per capita GDP in the EU-15 rose by 31% in real terms, at an average rate of 1.8% p.a. Per capita growth in Japan in the period 1985-1997 was 2.6% p.a. and that in the US was 1.5% p.a. When GDP is expressed in PPS it tends to reduce some of the variation in per capita GDP but significant differences between the EU countries remain. In 1999 Luxembourg had the highest per capita GDP in Europe, two and a half times that of Greece, at the other extreme. The Nordic countries also have high GDP per capita. Per capita GDP of the six Accession Countries once adjusted for PPS is between 8% (Cyprus) and 58% (Estonia) lower than the EU average, demonstrating the difference in material well-being between Eastern and Western Europe. If GDP is measured in actual rather than PPS terms the differences are much more marked. The first graph shows that the growth of GDP in developed economies has tended to proceed in parallel. Japan's growth has been faster than that of the US and the EU. Growth in two of the larger Accession Countries, the Czech Republic and Poland, has been more varied. Poland has enjoyed sustained growth while the Czech Republic has contracted since 1996. The second graph shows the difference in per capita GDP within the EU in 1999 and the EU average. The larger economies: France, Italy, Germany and UK all have a per capita GDP within 10% of the EU average. Luxembourg stands out as having far higher per capita GDP.

Data assessment

The calculation of GDP relies upon the successful integration of a great many data. With the introduction of the European System of Accounts 1995 (ESA95) there has been a high level of standardisation of methodologies. For the Accession Countries estimates have been used for PPS; however they are now implementing the ESA95 and the quality of data will improve over time. The change from ESA 79 to ESA 95 prevents so far a longer time series and more recent data from being available.

Indicator's place in other EU/international indicator lists

OECD ECON	EU-STRUCTURAL

Further reading: 'Economic Accounts of the European Union 1998', Eurostat.

ECONOMIC
ECONOMIC STRUCTURE
Economic performance

ECON2 Investment share in GDP

Definition

The value of new investment in the economy is recorded in the national accounts as Gross Fixed Capital Formation. This covers spending on buildings, equipment, transport equipment, certain types of intellectual property (spending on computer software) and spending by firms on mineral exploration. Acquisitions of durable capital goods are made by private sector businesses and by public services. The indicator is expressed as a proportion of GDP to show the scale of investment relative to the size of the economy.

Indicator relevance

Capital goods such as buildings, machinery and transport equipment are essential in maintaining the productive capacity of the economy. Spending on capital goods is necessary to renew and expand stock. A high proportion of capital spending suggests that businesses are optimistic about future prospects and are investing in the future. The actual accumulation of investment goods - net investment- is the more appropriate concept to assess sustainability. It is equal to gross investment less the depreciation of capital through wear and tear, obsolescence and accident. A long time series is not available for net investment so gross investment is used as a surrogate. Gross capital formation is a means of enhancing the real productive capacity of the economy. Net savings are the financial counterpart to fixed capital. The savings rate gives net savings as a proportion of GDP.

Gross fixed capital formation

(% of GDP)

	1960	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998	1999	2000
EU-15	*22.8*	*24.4*	*24.4*	*22.3*	21.0	18.9	21.3	19.8	19.6	*19.5*	*19.9*	*20.2*	*20.6*
EUR-11	*23.7*	*24.7*	*25.3*	*23.0*	21.8	19.1	21.6	20.3	20.0	*19.9*	*20.1*	*20.4*	*20.9*
B	19.5	21.5	21.7	20.8	19.3	15.0	20.3	18.4	18.3	18.7	*19.0*	*19.3*	*19.7*
DK	35.6	42.2	25.4	21.2	18.9	18.5	20.8	21.0	21.3	22.7	*23.6*	*23.8*	*24.0*
D[1]	26.5	27.3	25.9	21.6	22.4	19.5	20.9	22.0	21.4	21.0	*20.6*	*20.6*	*20.7*
EL	27.5	31.5	32.0	26.5	26.5	22.1	23.0	21.5	22.8	24.3	*25.7*	*27.5*	*29.3*
E	16.9	21.9	24.1	23.7	19.8	17.6	25.0	22.6	22.4	22.7	*23.8*	*25.0*	*26.2*
F	17.6	20.6	23.3	22.5	21.2	18.6	21.4	19.0	18.7	18.3	*18.5*	*18.8*	*19.1*
IRL	13.6	20.8	22.6	20.7	25.2	19.2	18.8	15.4	16.1	16.2	*16.1*	*16.5*	*16.5*
I	28.9	25.6	26.1	23.4	21.7	19.1	20.3	17.8	17.8	17.6	*18.0*	*18.2*	*18.8*
L	22.7	26.8	23.4	23.1	23.3	14.5	23.5	22.8	21.7	23.6	*24.5*	*24.4*	*24.5*
NL	25.1	28.1	30.8	24.9	21.5	20.2	21.0	19.9	20.3	20.9	*21.0*	*20.7*	*20.6*
A	22.0	24.8	24.7	25.8	22.9	21.0	23.3	24.1	24.4	24.4	*25.0*	*25.5*	*26.0*
P	20.8	22.4	22.1	32.9	28.2	21.6	27.6	27.9	29.0	31.3	*32.7*	*33.8*	*35.1*
FIN	31.0	30.5	29.9	32.2	26.3	25.2	27.0	16.6	17.2	18.2	*19.0*	*19.6*	*20.1*
S	20.9	22.3	21.7	20.3	18.9	18.5	21.5	16.2	16.6	15.5	*16.5*	*16.9*	*17.5*
UK	18.9	22.2	20.1	18.7	17.1	17.7	19.9	17.7	17.6	*17.4*	*18.4*	*18.7*	*18.9*
IS	27.1	26.1	22.5	28.5	23.3	20.3	19.2	14.4	17.2	18.3	*:*	*:*	*:*
NO	26.9	0.0	28.8	35.0	29.1	26.7	21.6	19.6	20.4	22.2	*23.2*	*21.9*	*21.9*
CH	:	:	:	:	23.4	23.9	27.1	26.0	25.3	25.2	*25.5*	*25.5*	*25.5*
CY	:	:	:	:	:	:	:	19.2	19.9	18.1	17.3	16.3	:
CZ	:	:	:	:	:	:	:	32.0	31.8	30.8	28.3	26.4	:
EE	:	:	:	:	:	:	:	26.0	26.7	27.9	29.7	25.1	:
HU	:	:	:	:	:	:	:	20.0	21.4	22.2	23.6	:	:
PL	:	:	:	:	:	:	:	18.6	20.7	23.5	25.1	26.2	:
SI	:	:	:	:	:	:	:	21.4	22.6	23.5	24.6	26.9	:
JP	19.3	23.5	28.6	26.7	28.4	26.6	31.7	29.7	31.4	30.0	*28.1*	*27.1*	*27.1*
USA	17.6	19.5	17.9	16.6	18.1	18.8	16.8	18.4	19.0	*19.6*	*20.7*	*21.0*	*21.2*

Source: Eurostat

1) *After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990. Values given in Italics indicate estimates.*

Measuring Progress Towards a More Sustainable Europe

eurostat

Gross investment as a proportion of GDP
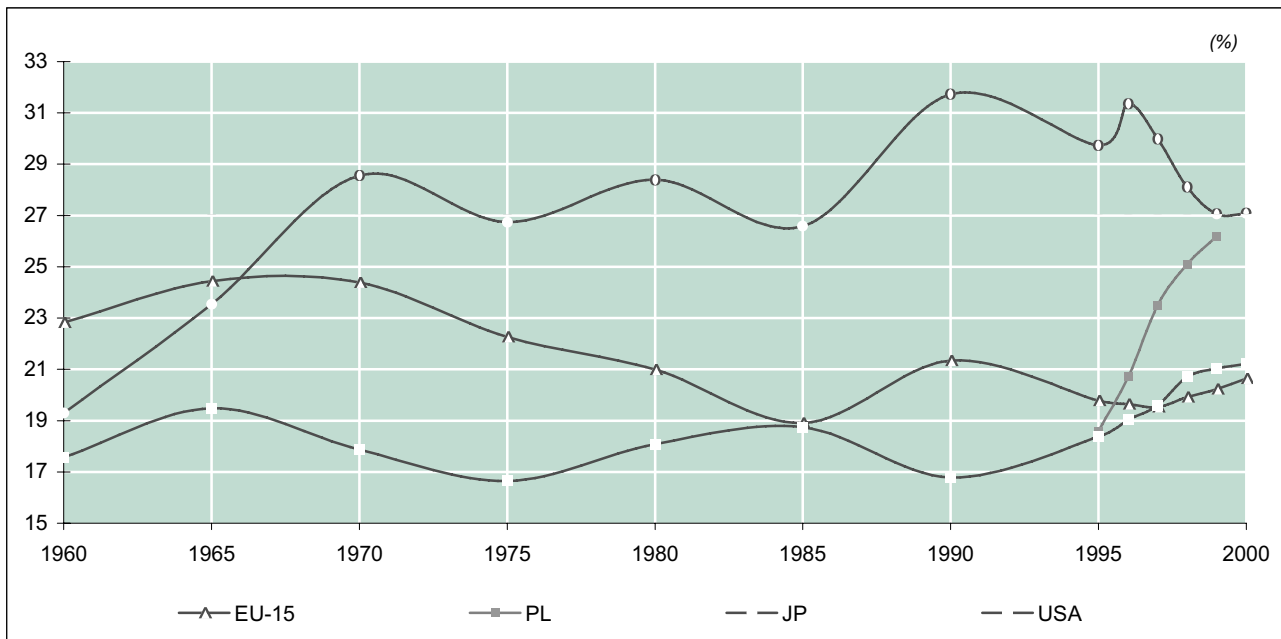
Source: Eurostat

Links to other indicators

This indicator is linked to ECON1 (per capita GDP), ECON3 (value added by branch) and, indirectly, to ECON6 (foreign investment), SOC3 (unemployment rate) and INST3 (expenditure on research and development).

Evaluation

Investment (capital goods) in EU countries accounts for between 15% and 25% of GDP. Overall the fluctuation in investment has tended to be quite small. Across the EU investment was lower in 1985, rose to a peak in 1990, fell back until 1997 and has risen slightly since then. Some types of investment - for instance in vehicles and buildings - is linked to their natural wear and tear, and these will not change dramatically from year to year. Other types of investment such as investment in new equipment is linked to confidence in the future and the level varies more over time. The graph above shows the trends in fixed investment for the major economic blocks and an Accession Country, Poland. In 2000, investment in Spain (26.2%), Greece (29.3%), Portugal (35.1%) was significantly greater than the EU average of 20.6%. An important contribution to this high level of fixed investment (as a proportion of GDP) was investment financed by EU development policies such as the Structural Funds.

Internationally Japan has tended to have a consistently higher rate of investment than both the US and the EU from the mid-60s to the present day. Investment as a share of GDP has tended to be lower in the US for most of the period since 1960 though investment rates have converged at about 20% for both the US and EU since 1996.

Data assessment

Data on investment are collected by annual or quarterly business surveys and from national accounts on public spending. The concept of investment is well understood and the data are considered to be of good quality and of high international comparability.

Indicator's place in other EU/international indicator lists

OECD ECON	EU-STRUCTURAL

Further reading: 'Economic Accounts of the European Union 1998', Eurostat, 2000.

Definition

A sector's 'value added' is its spending on wages and employment taxes plus the gross operating surplus and represents the contribution made to GDP. When expressed as a percentage it measures the change in importance of different sectors over time. The net value added is the value added less the depreciation of fixed capital. For the purposes of this indicator, the economy is broken down into six broad sectors.

Indicator relevance

During the course of economic development there is expansion initially in the size of manufacturing industry and then in the service sector. This progression arises in part because as a society becomes more developed basic needs are met and demand for more processed and value added activities increases. As the economy develops further and becomes more complex, demand for entertainment, personal and business services and financial products rise. The relative size of the public sector often depends on political factors as much as the stage of development.

Value added by sectors of the economy

(% of GDP)

	Agriculture				Manufacturing				Construction			
	1985	1990	1995	1999	1985	1990	1995	1999	1985	1990	1995	1999
EU-15	:	:	2.5	2.1	:	:	22	21	:	:	5.5	5.0
B	1.5	1.3	1.5	1.4	24	23	22	22	4.5	5.1	4.8	4.6
DK	2.9	3.1	3.2	3.3	19	18	18	16	4.6	4.7	4.1	3.9
D	:	:	1.2	1.3	:	:	24	23	:	:	6.3	5.4
EL	:	:	9.1	8.2	:	:	15	14	:	:	5.9	6.8
E	:	:	4.3	4.4	:	:	21	21	:	:	7.3	7.5
F	3.5	3.0	3.0	:	20	19	20	:	5.4	5.5	4.9	:
I	3.2	2.9	3.1	3.2	23	23	23	23	5.7	5.5	4.8	4.6
L	:	:	1.1	0.8	:	:	16	15	:	:	6.6	5.7
NL	:	:	3.3	3.1	:	:	21	19	:	:	5.0	4.8
A	:	:	2.4	2.4	:	:	22	22	:	:	7.5	7.5
P	:	:	4.8	:	:	:	21	:	:	:	6.0	:
FIN	4.9	4.2	4.2	3.5	22	22	25	27	5.8	6.0	3.6	4.1
S	:	:	2.3	2.1	:	:	23	24	:	:	4.1	3.8
UK	2.0	1.8	1.6	1.5	25	24	24	22	4.8	5.6	4.6	4.4
NO	2.5	2.5	2.5	2.2	22	24	26	25	4.3	4.3	3.4	3.4
JP	2.8	2.4	1.9	:	28	28	28	:	9.3	10.9	10.4	:

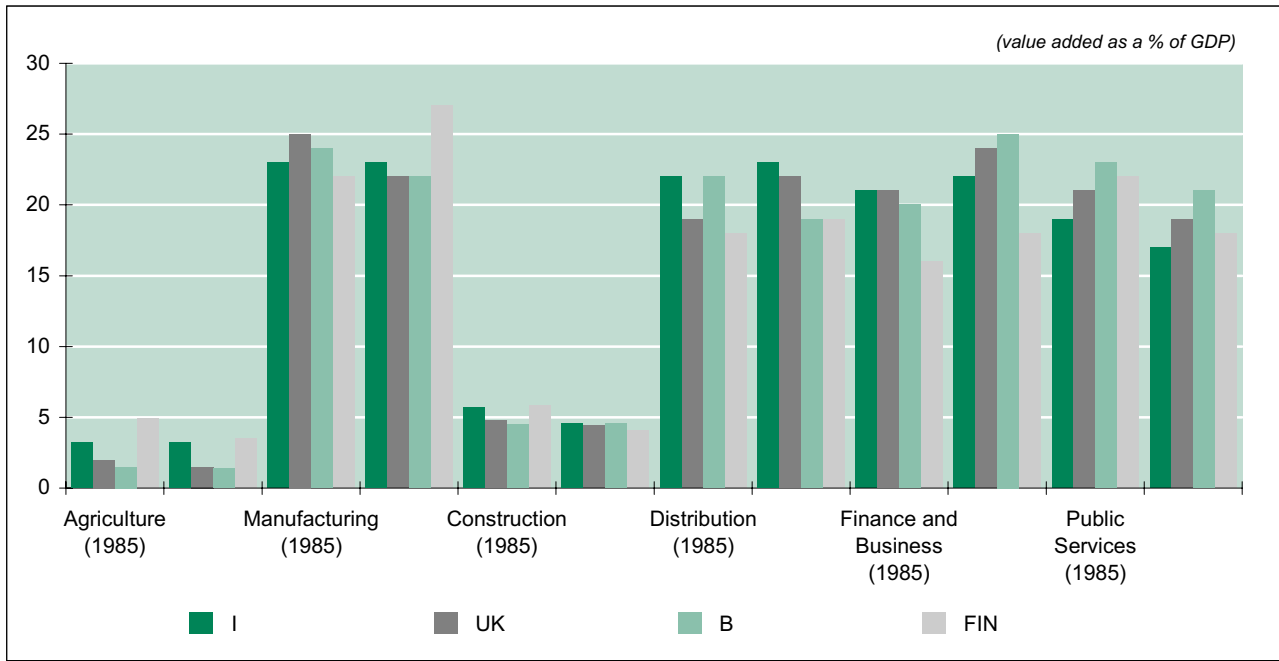|	Distribution				Finance and Business				Public Services			
EU-15	:	:	20	20	:	:	23	25	:	:	20	20
B	22	20	19	19	20	21	24	25	23	22	22	21
DK	18	20	20	21	21	22	20	21	25	24	24	23
D	:	:	17	17	:	:	25	29	:	:	20	20
EL	:	:	25	26	:	:	20	19	:	:	18	17
E	:	:	26	26	:	:	18	17	:	:	20	19
F	17	18	18	:	26	26	26	:	22	21	22	:
I	22	22	23	23	21	22	22	22	19	18	18	17
L	:	:	22	22	:	:	38	38	:	:	18	17
NL	:	:	21	22	:	:	21	23	:	:	22	20
A	:	:	23	24	:	:	20	21	:	:	21	19
P	:	:	21	:	:	:	17	:	:	:	22	:
FIN	18	20	19	19	16	17	17	18	22	21	20	18
S	:	:	18	19	:	:	22	22	:	:	23	21
UK	19	20	20	22	21	22	22	24	21	19	20	19
NO	20	20	21	22	19	19	16	16	21	22	20	19
JP	18	19	19	:	16	18	18	:	28	26	27	:

Source: Eurostat. Sector Descriptions: Agriculture ='Agriculture; forestry and fishing'; Manufacture ='Mining and quarrying; manufacturing; utilities'; Distribution ='Distribution; transport and communication'; Finance ='Financial intermediation; real estate; renting and business activities'; Public services = 'Public administration and defense; education; health and personal service activities'

Links to other indicators

This indicator can be broadly linked to ECON1 (on per capita wealth), ECON2 (on investment), ECON9 (on material consumption) and ECON14 (generation of industrial waste). Data on sectoral value added are also found in indicator ECON12 on energy intensity for different sectors.

Change in structure of example economies

(value added as a % of GDP)

Source: Eurostat

Evaluation

In broad terms the public sector, finance and business and the distribution sector each account for 20%-25% of the EU economies. Together these three (known as the service sector) represent about two thirds of the EU economies. The manufacturing sector comprises about a quarter of the economy and construction is roughly 5%. In 1999, the size of the agriculture sector varied across the EU, (between 0.8% (Luxembourg) and 8.2% (Greece) and in broad terms was negatively correlated with the per capita wealth of the country. The opposite is the case for the finance and business sector with some of the wealthiest economies (Luxembourg 38%, Germany 29%) having large sectors compared to the less wealthy countries (Spain 17%, Greece 19%).

The data show the slow rate of change, the gradual decline in the relative importance of manufacturing and the increase in the relative importance of distribution and finance and business services. A general trend towards a reduction in the relative importance of the public sector can be observed throughout Europe. However the change from public to private ownership of certain industries does not affect these data since they are based on NACE classification of industry rather than ownership or control of assets.

Data assessment

The value added data are based on the European System of Accounts 1995 so that comparability within Europe is assured. However, the time series extends back only to 1995 for most countries. The definition of manufacturing includes mineral extraction activities which are more correctly considered a primary industry. No data are currently available from EUROSTAT for the Accession Countries.

Indicator's place in other EU/international indicator lists

OECD ECON	EU-STRUCTURAL

Further reading: 'Economic Accounts of the European Union 1998', Eurostat, 2000.

Definition

The Harmonised Index of Consumer Prices (HICP) is an agreed measure of change in consumer prices that is used throughout the EU and has, since 1995, also been used in the Accession Countries. National measures of consumer prices differ in the coverage of the basket of goods they include and in the methodology used to update the weights applied to different components of the index. Inflation is not amongst the recent UN's core list of indicators but has been included in the previous broader selection.

Indicator relevance

Restricting the rate of increase in consumer prices (inflation) is a key macro-economic policy objective. Inflation reduces purchasing power, so if inflation is high, households with fixed incomes can buy fewer goods and services. It also affects savings patterns, because if the value of money is declining people may be more inclined to spend now rather than save for later. In addition, high inflation erodes the external competitiveness of an economy's products by increasing production costs, through rises in wages and interest rates and currency depreciation and by limiting productivity, through reduced investment as a result of reduced rates of saving. Price stability is one of the convergence criteria laid down in the Maastricht Treaty for countries seeking entry into the Economic and Monetary Union.

Rate of inflation of consumer prices

(% annual change in prices)

	1980	1985	1990	1995	1996	1997	1998	1999	2000
EU-15	:	6.2	5.8	3.1	**2.4**	**1.7**	1.3	1.2	2.1
B	6.7	4.9	3.4	1.5	2.0	1.6	0.9	1.1	2.7
DK	12.3	4.7	2.6	2.1	2.1	2.2	1.3	2.1	2.7
D[1]	5.4	2.2	2.7	1.8	1.4	1.8	0.6	0.6	2.1
EL	24.8	19.3	20.4	9.3	8.5	5.5	4.5	2.1	2.9
E	15.6	7.8	6.7	4.7	3.6	2.0	1.8	2.2	3.5
F	13.6	5.9	3.4	1.7	2.0	1.2	0.7	0.6	1.8
IRL	18.2	5.4	3.3	2.6	**1.7**	**1.5**	2.1	2.5	5.3
I	21.2	9.2	6.5	5.2	3.9	2.1	2.0	1.7	2.6
L	6.3	4.1	3.7	1.9	1.4	1.4	1.0	1.0	3.8
NL	7.0	2.3	2.4	1.9	2.1	2.3	1.8	2.0	2.3
A	6.4	3.2	3.3	2.2	1.9	1.3	0.8	0.5	2.0
P	16.8	19.3	13.2	4.1	3.1	1.8	2.2	2.2	2.8
FIN	11.6	5.8	6.1	1.0	0.6	1.2	1.4	1.3	3.0
S	13.6	7.4	10.5	2.5	0.5	0.5	1.0	0.6	1.3
UK	18.0	6.1	9.5	3.4	**2.4**	3.2	1.6	1.3	0.8
IS	:	:	15.5	1.7	2.3	1.8	1.3	2.1	4.4
NO	10.9	5.7	4.1	2.5	1.2	2.6	2.0	2.1	3.0
CH	4.0	3.4	5.4	1.8	0.8	0.5	0.1	0.7	:
CY	:	:	:	:	:	:	1.9	1.3	:
CZ	:	:	:	:	9.1	8.6	10.8	2.0	:
EE	:	:	:	:	19.8	9.5	9.3	4.5	4.0
HU	:	:	:	:	23.5	18.5	14.2	10.0	10.0
PL	:	:	:	:	:	**15.0**	**11.6**	**7.2**	**10.2**
SI	:	:	:	:	9.9	8.3	7.9	:	8.9
JP	7.8	2.1	3.1	-0.1	0.2	1.7	0.6	-0.3	:
USA	13.5	3.6	5.4	2.8	3.0	2.3	1.5	:	:

Source: Eurostat

1) *After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990. HICP used for Accession Countries from 1995, for EU countries from 1996 and for Norway from 1997. Values in bold are estimates.*

Measuring Progress Towards a More Sustainable Europe

Inflation rate

Source: Eurostat. The EU-15 figures prior to 1995 have been calculated considering the current 15 Member States

Targets

The European Central Bank sets interest rates with the aim of keeping inflation across the Euro countries below 2.5%.

Evaluation

There has been a substantial reduction in the inflation rates of consumer prices in developed countries over the past 20 years. Inflation in the EU-15 countries has dropped from an average of 8.3% in 1983 to 2.1% in 2000. Over the past two decades the rate of inflation has varied greatly between different countries, though these have tended to converge over the past five years as a result of both falling levels of inflation generally and, in the case of those EU Member States seeking entry into the Economic and Monetary Union, the presence of price stability as one of the convergence criteria. In 2000, the average rate of increase of consumer prices for the EU-11 (Euro-zone countries) was 2.3% (2.4% including Greece which joined the Single Currency on 1.1.2001).

Over the period 1983 to 1995 the rate of inflation within the EU was higher than that of the US, except for a brief period in 1987-88 (see graph). It is only since 1996 that this position has reversed. The Accession Countries have all had substantial decreases in rates of inflation over the past three years, in part due to measures being taken by government to bring their economies into line with those of Western Europe. In Hungary inflation fell from 23.5% to 10% between 1996 and 1998. In Estonia it fell from 19.8% to 4.5% over the same period.

Data assessment

Data on consumer price inflation is widely collected in Western Europe. However the exact definition of inflation has traditionally varied between countries. With the development of the HICP, used since 1996, there is now better comparability between EU countries. HICP is also being used in Accession Countries.

Indicator's place in other EU/international indicator lists

OECD-Econ	EU-STRUCTURAL

Further reading: 'Economic Accounts of the European Union 1998, Eurostat', 2000.

Definition

This indicator gives the net position (exports minus imports) of current account transactions between a country and its trading partners. The current account is part of the wider Balance of Pyments which also includes capital transfers. Current account transfers include expenditures on all goods and services, income from dividends and wages paid to workers that are domiciled in another country (such as migrant workers). These are then expressed as a percentage of GDP. A positive value implies the value of exports exceeds those of imports and a negative value implies imports exceed exports. Trade balances for high-tech products which include trade in pharmaceuticals, Information Technology, aerospace, electronics and telecommunications are shown in a graph.

Indicator relevance

The balance in the current account is a measure of the sustainability of the country's trading position. A persistent deficit in the account (arising either from shortfall in domestic productive capacity or an over reliance on foreign workforce or capital) is a sign of lack of international competitiveness. A short-term response to counter-balance a deficit position is to devalue the national currency in order to boost exports. There has been a sustained increase in the globalisation of the world economy over the past few decades. This expansion has taken the form of greater trade in goods and services, greater foreign investment and greater migration of workers. The latter two result in flows back to the parent economies in the form of either dividend income or repatriated wages. Until the 1970s the balance of the current account was one of the key economic indicators targeted by Governments. With the introduction of floating exchange rates there has been less explicit management of the current account. This situation changed briefly within the EU in the run-up to the creation of the Single Currency when the maintenance of exchange rates within a narrow band was one of the Maastricht criteria used to determine convergence between national economies.

Net current account

(% of GDP)

	1980	1985	1990	1995	1996	1997	1998	1999
EU-15	:	:	:	1.4	1.6	1.8	1.5	1.0
B	-5.2	-2.2	-1.6	1.4	1.4	1.4	1.2	1.3
DK	-3.7	-1.9	2.8	2.8	3.3	2.5	1.3	2.9
D[1]	1.0	4.4	5.9	2.6	2.9	3.4	3.6	3.3
EL	-9.3	-11.3	-14.5	-12.2	-13.2	-13.4	-13.3	-13.1
E	-6.3	-3.3	-6.7	-3.1	-2.7	-2.4	-3.2	-4.6
F	-3.0	-1.7	-1.7	0.4	0.7	1.7	1.4	1.0
IRL	-14.2	0.7	6.3	18.2	19.4	21.4	24.9	28.8
I	-5.2	-1.5	0.0	4.0	4.7	3.8	3.4	2.1
L	-12.8	-10.0	-12.1	-9.5	-11.4	-11.5	-10.2	-16.7
NL	-2.1	2.9	2.2	5.9	5.5	5.8	5.3	4.5
A	-8.6	-4.9	-4.6	-2.6	-2.9	-1.8	-1.4	-1.8
P	-19.2	-10.0	-12.9	-8.6	-8.5	-9.7	-11.2	-12.6
FIN	-1.4	1.8	0.7	9.6	8.9	9.5	9.7	9.1
S	-2.3	1.6	1.2	7.2	7.2	7.8	7.2	6.7
UK	0.6	-1.0	-3.4	-1.6	-1.7	-1.5	-2.4	-3.0
SI	:	:	:	-0.5	0.2	0.1	-0.8	-4.3
CY	:	:	:	-1.9	-5.4	-4.2	-7.2	-2.8
CZ	:	:	:	-2.6	-8.1	-6.9	-2.9	-2.5
EE	:	:	:	-4.5	-11.2	-15.9	-13.1	-8.6
HU	:	:	:	-5.3	-3.8	-2.3	-5.4	-5.0
PL	:	:	:	0.7	-2.5	-4.6	-5.3	-9.8
JP	-0.1	4.0	2.1	2.6	1.8	2.4	3.2	2.8
USA	-0.8	-2.9	-1.9	-2.4	-2.5	-2.4	-2.9	-3.8

Source: Eurostat

1) After 1990 data refers to the Federal Republic of Germany as constituted from 3 October 1990.

Measuring Progress Towards a More Sustainable Europe

Net exports of high-tech products in 1998

Source: EU-Commission Research Dir. Gen, Eurostat (Comext) and UN Comtrade, from 'Towards a European Research Area: Key Figures 2000' - High tech refers to: pharmaceuticals, IT, aerospace and electronic and telecommunications

Links to other indicators

This indicator is linked with ECON6 which covers capital and financial accounts, the other main component of the Balance of Payments.

Evaluation

During the eighties several EU countries experienced a trade deficit, although a general improvement in the current account net position was observed for most of the Member States. The EU surplus peaked in 1997 reaching 1.8% of GDP. In1998 and 1999, a noticeable deterioration of the overall EU position was recorded. Of the European countries only Germany has been in surplus in every year. In 1990 this current account surplus reached 5.9% of GDP. Denmark, Sweden and Netherlands have been in surplus every year except 1980. Ireland stands out for having switched from having a deficit of 14% in 1980 to a surplus of 29% in 1999. It is forecast to rise to 31.3% of GDP - indicating that exports (and repatriated income) are expected to be a large part of Irish GDP next year. The Mediterranean countries have run current account deficits every year under survey and the UK every year except 1980. In both Greece and Portugal the current account deficit is expected to rise to 14% of GDP in 2001. The US, despite its strong economic growth, has maintained a substantial trade deficit throughout the whole period from 1980. Though accounting for only 3.8% of GDP in 1998, its value of 196 billion ECU exceeded the combined surpluses of Japan and the EU. Japan has had a surplus since 1980. Five of the six Accession Countries listed have run trade deficits over the period 1995 to 1998 and in some cases deficits have been greater than 10% of the economy.

The graph shows the trade picture for *High-tech* products at EU-level in 1998. The EU trade deficit against the rest of the world amounted to 28397 Mio ECU, even though Ireland, France, Finland, Germany and Sweden show surpluses.

Data assessment

The definitions of the balance of payments are well established by the International Monetary fund (IMF) and there is a high degree of consistency in definitions between countries. The establishment of the single European market in 1992 has wrought changes in the way data on trade in goods and services are collected.

Indicator's place in other EU/ international indicator lists

OECD-Econ	EU-STRUCTURAL*

Further reading: 'Economic Accounts of the European Union 1998, Eurostat 2000.

*   Only for the high-tech exports

ECONOMIC
ECONOMIC STRUCTURE

Trade

Definition

Foreign direct investment (FDI) is a special type of capital flow, which implies that the investing firm is taking a long term and significant role in the management of a foreign firm. It takes the form of portfolio investment, outright purchase or direct investment in foreign fixed capital. The direct investor abroad must take a share exceeding 10% of the ordinary shares or voting power for it to be considered FDI. This indicator provides the stock values in terms of the overall *net position* of FDI, arising from past flows, between selected countries and the rest of the world as a proportion of GDP and in absolute values. A positive position for a country implies its firms control foreign assets of greater value than those owned by foreign companies domestically. This indicator, though not in the UN list, is included because it provides some evidence of the extent to which the EU economies are integrated in international markets and the trade performance of EU countries in high technology sectors. A second variable presented is the technology balance of payments (TBP), focussed on the income earned from the sale of intellectual property rights. Values for receipts, payments and balance are expressed in million ECU, as a share of GDP and on a per capita basis.

Indicator relevance

As the global economy becomes more integrated there is a rise not just in trade between countries but also an increased internationalisation of the ownership and control of productive assets. Over recent years companies have sought to expand their activities in new markets through mergers and acquisitions and fixed investment in plant and buildings nearer to the market. A frequent concern is that foreign firms are taking over control of domestic assets. One 'sustainable' form of international income transfer is receipts of income that depend on intellectual property rather than natural or manufactured resources. These can include payments for patents, licences and other intangibles assets which are gaining importance in the new competitiveness patterns of the world markets.

Links to other indicators

This indicator is linked to ECON2 on capital formation and ECON5, on current account.

Net foreign direct investment position

	1994	1995	1996	1997	1998 (%GDP)
EU-15	1.9	1.8	2.4	3.1	3.4
EUR-11	:	:	:	1.7	1.1
DK	1.1	0.4	2.9	:	1.5
D	2.5	2.6	3.5	4.6	4.6
E	:	:	:	10.1	8.5
F	2.8	2.6	3.2	3.5	3.9
I	2.8	3.0	2.9	3.9	5.6
NL	12.8	13.3	17.7	22.4	15.1
A	-1.9	-2.5	-2.4	*-2.1*	*-2.0*
P	:	-12.6	-12.8	-12.2	-10.2
FIN	5.6	5.0	7.0	9.0	9.6
S	17.2	17.2	14.2	14.4	15.5
UK	8.0	9.3	8.8	8.4	12.6
NO	:	:	3.1	-13.7	:
CH	23.6	27.6	29.9	42.5	40.8
JP	:	:	5.0	6.0	6.3
USA	1.8	2.2	2.6	2.2	2.4

(bil. Euro, 1998)
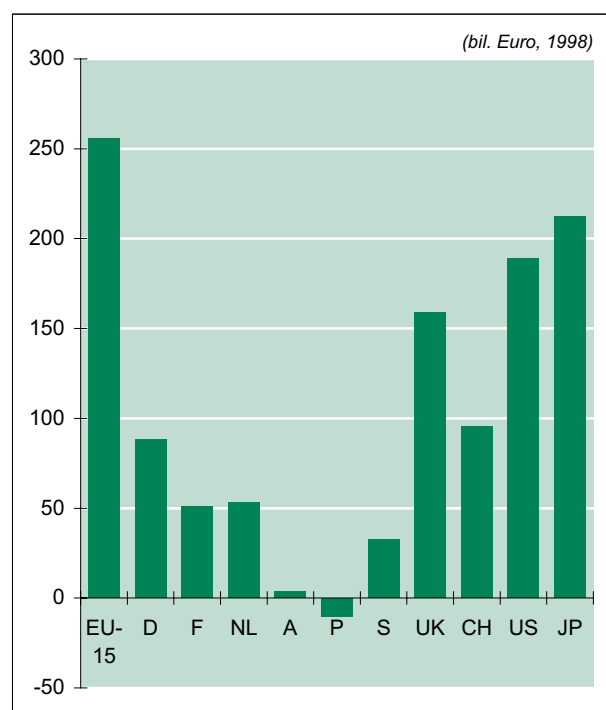
Source: Eurostat. Data refers to the end of the reference year. Values for EU-15 and EUR-11 are partially estimated by Eurostat. All EU-15 and EUR-11 values only include data for reporting countries

Measuring Progress Towards a More Sustainable Europe

Technology balance of payments (TBP)

(million ECU)

	TBP Receipts		TBP Payments		TBP Balance		TBP Receipts/ GDP	TBP Receipts/ Million Population
	1995	**1998**	**1995**	**1998**	**1995**	**1998**	**1998**	**1998**
B	2 898 [4]	4 195	2 391 [4]	3 586	507 [4]	610	1.87	411
D	8 170	11 461	10 201	13 540	- 2 032	- 2 080	0.60	140
E	61	143 [1]	849	948 [1]	- 788	-805 [1]	0.03 [1]	4 [1]
F	1 660	1 912 [1]	2 286	2 640 [1]	- 625	-728 [1]	0.15 [1]	32 [1]
I	923	1 440 [1]	1 195	1 821 [1]	- 271	-381 [1]	0.14 [1]	25 [1]
NL	4 799 [3]	:	4 745 [3]	:	54 [3]	:	1.85 [3]	316 [3]
A	102	88 [6]	407	713 [6]	- 305	-625 [6]	0.05 [6]	11 [6]
P	107	224	414	682	- 307	- 458	0.23	22
FIN	44	96	298	369	- 254	- 273	0.08	19
S	339 [3]	:	38 [2]	:	301 [2]	:	0.21 [2]	39 [2]
UK	3 225	5 430 [5]	2 699	2 833 [5]	526	2 597 [5]	0.43	92
JP	4 569	6 257	3 184	2 937	1 385	3 320	0.19	50
US	23 157	32 832	5 290	10 072	17 867	22 760	0.45	121

Source: Research DG, data from OECD's 'Towards a European Research Area: Key Figures 2000'

Since TBP data are not broken down by partner country, it is not possible to calculate an EU-15 total for its transactions with the rest of the world (i.e. excluding intra-EU payments). 1) 1997. 2) 1993. 3) 1992. 4) Break in series 1995. 5) Break in series 1996. 6) Provisional.

Evaluation

The EU-15, Japan and US all have a substantial positive Foreign Direct Investment position with the rest of the world, i.e. they all hold substantial external assets. There has been a steady expansion in the net FDI relative to GDP. Since investment per se is not rising as a share of GDP it indicates that there is a steady relocation of productive assets outside the home region. Control of foreign assets by smaller wealthy countries such as Switzerland and the Netherlands is a high proportion of their GDP (41% and 15% respectively). This reflects the success of Swiss and Dutch multinational companies in expanding outside their home markets. The same is true of the UK and Sweden, though to a lesser extent. In absolute terms, firms from Japan, the US and the UK have the largest net FDI with 212, 189 and 159 billions ECU, respectively. In 1998, Austria and Portugal both had FDI deficits, which reflects the attractiveness of these countries to foreign firms and the relative weakness of indigenous companies at international expansion.

Technology Balance of Payment (TBP) receipts, as a proportion of GDP were highest for Belgium (1.87% in 1998) and Netherlands (1.85% in 1992). The next two countries, Germany and the UK, were significantly lower. In terms of the net position Belgium (610 mio. ECU) and the UK (2 597 mio. ECU) both have significant positive balances. Germany (-2 080 mio. ECU), Spain (-805 mio. ECU) and France (-728 mio. ECU) all have large negative balances for TBP. However the USA and Japan have very positive TBP balances. In the US the technology surplus was worth around 23 billions ECU (the highest value), in 1998.

Data assessment

The Foreign Direct Investment figures are an integral, well-consolidated part of the balance of payments. Some EU countries provide only the flow values, from which stocks can be estimated. FDI stock values for the Accession Countries are under development. The OECD collects data on TBP infrequently and therefore they are not available on a complete and comparable time basis.

Indicator's place in other EU/ international indicator lists

OECD ECON	EU-STRUCTURAL

Further reading: 'Economic Accounts of the European Union 1998', Eurostat, 2000.

'Towards a European Research Area, Science, Technology and Innovation Key Figures 2000', Research Directorate General and Eurostat, 2000.

ECONOMIC
ECONOMIC STRUCTURE

Trade

eurostat

Definition

The general government gross debt is defined as the total gross debt outstanding at the end of the year. It includes the total value of borrowings by central and local government. The debt is expressed as a percentage of GDP. The definition used for the EU-15 countries conforms to that used in the Maastricht Criterion. The corresponding UN indicator places more stress on the external dimension, i.e. foreign debt, a variable more relevant for developing countries. A table is also presented on the net budget surplus or deficit for EU Member States Government sector, which includes central government, state administration, local government and social security funds.

Indicator relevance

In the long term, public sector spending cannot substantially exceed overall revenues raised by governments through taxes. In the short term (especially in times of recession) this condition is not necessarily met. However a continual rise in government debt as a proportion of GDP signals an unsustainable public finance policy. At the Madrid Summit in December 1995, the European Council stressed the need for budgetary discipline. This was reflected in the approval of the 'Stability and Growth Pact' (1997).

Targets

The Maastricht Convergence criterion requires EU Member States to avoid excessive public deficits. To this end, they must fulfill two conditions, the second of which is that the ratio of government debt to GDP must not exceed a reference value (60%) unless the ratio is diminishing sufficiently and approaching the reference value.

General Government gross debt

(% of GDP)

	1990	1995	1996	1997	1998	1999
EU-15	55	71	73	71	69	68
EUR-11	59	73	75	74	74	72
B	131	132	131	125	120	116
DK	60	72	65	61	56	53
D	44	58	60	61	61	61
EL	83	110	111	108	106	105
E	45	64	68	67	65	64
F	35	53	57	59	60	59
IRL	97	78	74	65	55	50
I	98	125	122	120	116	115
L	5	6	6	6	6	6
NL	79	78	75	70	67	63
A	58	69	69	65	64	65
P	68	66	63	59	56	56
FIN	15	58	57	54	49	47
S	44	78	76	75	72	66
UK	35	53	53	51	48	46
IS	37	59	57	53	50	:
NO	32	41	35	36	37	:
CH	12	23	24	26	29	:
CZ	:	:	14	14	14	:
EE	:	:	11	:	:	:
HU	:	86	73	64	62	:
JP	61	76	81	87	100	:
USA	55	62	61	59	57	:
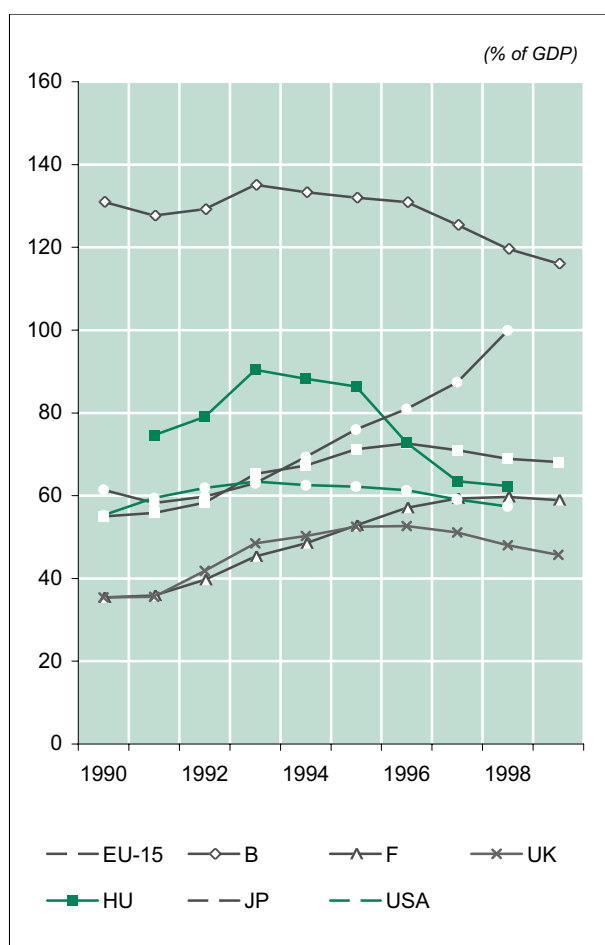
(% of GDP)

Legend: EU-15, B, F, UK, HU, JP, USA

Source: Eurostat

1) *After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990.*

Measuring Progress Towards a More Sustainable Europe

Government sector deficit[1]

(% GDP)

	1996	1997	1998	1999
EU-15	-4.20	-2.40	-1.50	-0.70
EUR-11	-4.20	-2.60	-2.10	-1.30
B	-3.77	-1.91	-0.95	-0.66
DK	-1.00	0.48	1.20	2.83
D	-3.42	-2.71	-2.06	-1.42
EL	-7.44	-4.04	-2.46	-1.76
E	-4.95	3.19	-2.58	-1.09
F	-4.08	-3.04	-2.71	-1.78
IRL	-0.16	0.71	2.06	1.86
I	-7.10	-2.71	-2.82	-1.90
L	2.59	3.43	3.74	4.39
NL	-1.82	-1.11	-0.68	0.96
A	-3.82	-1.74	-2.30	-2.14
P	-3.98	-2.62	-2.29	-2.02
FIN	-3.16	-1.51	1.26	1.92
S	-3.35	-2.02	1.85	1.86
UK	-4.35	-2.02	0.45	1.33

Source: Eurostat

1) (+) means surplus and (-) means deficit.

Evaluation

EU countries public sector debt rose substantially between 1990 and 1996 from 55% of combined GDP to 73% in 1996. Since 1996, public sector debt has dropped, partly because of the discipline imposed by the Maastricht criterion. By the end of 1999, seven countries (compared with four the previous year) had a debt below the 60% threshold, in the case of five others the figures were between 60% and 66%. The average debt was 72% for the EUR-11 countries compared to 68% for the EU-15. The scale of public sector debt varies greatly between the economies under review. Within Europe the two neighboring countries - Luxembourg and Belgium- are at two extremes, with Government debt in 1999 of 6% and 116% of GDP respectively. Of the larger European economies, the UK has the lowest proportion of Government debt (46% in 1999), followed by France (59%) and Germany (61%). Outside of Europe, the Japanese government debt has greatly increased since 1990, from 61% of GDP in 1990 to 100% in 1998. The US has brought its Government debt down since 1995, from 62% to 57% of GDP. This was made possible by a combination of a booming domestic economy and low international interest rates.

The table on the Government sector net budget position shows that the Euro-zone's deficit ratio has dropped from -4.2% of GDP in 1996 to -1.3% in 1999. This positive and significant result was observed in all relevant countries. In 1999, seven Member States had surpluses, including: Luxembourg (+4.4%), Denmark (+2.8%), Finland, Sweden and Ireland (+1.9%). The deficit ratio of the EU-15 is slightly lower than that of the EUR-11 because three of the non-members of EUR-11 have budget surpluses.

Data assessment

Since this is one of the key aspects of convergence under the Maastricht treaty there is a high degree of comparability within the EU15 and the Accession Countries. This data is generally complete and of high quality, since this is one of the major indicators of economic well being and is investigated in great detail. Data are based on the European System of National Accounts (ESA95).

Indicator's place in other EU/international indicator lists

OECD ECON	EU-STRUCTURAL

ECONOMIC
ECONOMIC STRUCTURE
Financial status

eurostat

Definition

Official Development Assistance (ODA) refers to the grants, loans or goods given to a country with the purpose of promoting economic development or welfare. Data are either quoted from the perspective of the recipient (World Bank data) or from the perspective of the donor (the OECD approach). The data below use the donor approach and express ODA as a percentage of GDP. The indicator is a measure of the scale of expenditure aimed at promoting economic development.

Indicator relevance

Inequality in income between the developed world and the developing countries is a major social and economic concern. The EU is a major player in the development sphere. It is the source of approximately half of the public aid effort worldwide and is the main trading partner for many developing countries. Its development activities cover all regions of the world. The principal aim of European Commission's development policy is poverty reduction, with a view to its eventual eradication. To this end, the Commission has decided to concentrate on six areas which have been identified on the basis of the added value of EU action and of their contribution to poverty reduction: the link between trade and development; regional integration and co-operation; support for macro-economic policies and the promotion of equitable access to social services; transport; food security and sustainable rural development; and institutional capacity-building. Attention will consistently be given to human rights, to the environmental dimension, to equality between men and women and to good governance. Community development policies and interventions are also co-ordinated with Member States policies and, as far as possible, with major international donors (e.g. the IMF and World Bank and UN organisations) and other countries.

Targets

The UN has set a target that developed countries should spend 0.7% of their GDP on development assistance.

Official Development Assistance

(% of GDP)

	1965	1970	1975	1980	1985	1990	1995	1996	1997	1998
EU-15	:	:	:	:	:	0.51	0.45	0.45	0.41	0.41
B	0.60	0.46	0.60	0.50	0.55	0.46	0.38	0.34	0.31	0.35
DK	0.13	0.37	0.55	0.74	0.80	0.94	0.96	1.04	0.97	0.99
D[1]	0.40	0.32	0.40	0.44	0.47	0.42	0.31	0.32	0.28	0.26
E	:	:	:	0.08	0.10	0.20	0.24	0.22	0.24	0.24
F	0.76	0.52	0.44	0.44	0.61	0.60	0.55	0.48	0.45	0.40
IRL	:	:	0.09	0.16	0.24	0.16	0.29	0.31	0.31	0.30
I	0.10	0.15	0.10	0.15	0.26	0.31	0.15	0.20	0.11	0.20
L	:	:	:	0.11	0.17	0.21	0.36	0.44	0.55	0.65
NL	0.36	0.62	0.74	0.97	0.91	0.92	0.81	0.81	0.81	0.80
A	0.11	0.07	0.21	0.23	0.38	0.25	0.33	0.24	0.26	0.22
P	:	:	:	0.02	0.05	0.24	0.25	0.21	0.25	0.24
FIN	0.02	0.06	0.17	0.22	0.40	0.65	0.32	0.34	0.33	0.32
S	0.19	0.35	0.78	0.78	0.86	0.91	0.77	0.84	0.79	0.72
UK	0.47	0.39	0.38	0.35	0.33	0.27	0.29	0.27	0.26	0.27
NO	0.16	0.33	0.65	0.87	1.01	1.17	0.87	0.85	0.86	0.91
CH	0.09	0.14	0.18	0.24	0.31	0.32	0.34	0.34	0.34	0.32
JP	0.27	0.23	0.23	0.32	0.29	0.31	0.28	0.20	0.22	0.28
USA	0.58	0.32	0.27	0.27	0.24	0.21	0.10	0.12	0.09	0.10

Source: Development Assistance Committee, OECD. EU-15 includes the value of aid given by Member States and the European Institutions. All EU15 figures only include data for reporting countries. After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990

Measuring Progress Towards a More Sustainable Europe

Regional distribution of European Community external co-operation funds

(million ECU)

	1986	1990	1995	1996	1997	1998
ACP	1057	1703	2287	1899	1924	1952
South Africa	3	34	46	29	60	72
Asia	138	250	369	503	528	456
Latin America	53	176	275	323	319	370
Med & M East	311	285	578	601	794	943
CEECs	3	360	941	1118	1226	1951
NIS	:	0	642	462	449	555
Unallocable	103	77	373	399	520	410
Total	1669	2886	5510	5334	5821	6710

Source: European Commission / ODI database 1999. ACP - Africa, Caribbean and Pacific States (former European colonies); CEECs - Central and Eastern European Countries; NIS - Newly Independent States (former Soviet Union)

Official Development Assistance from selected countries
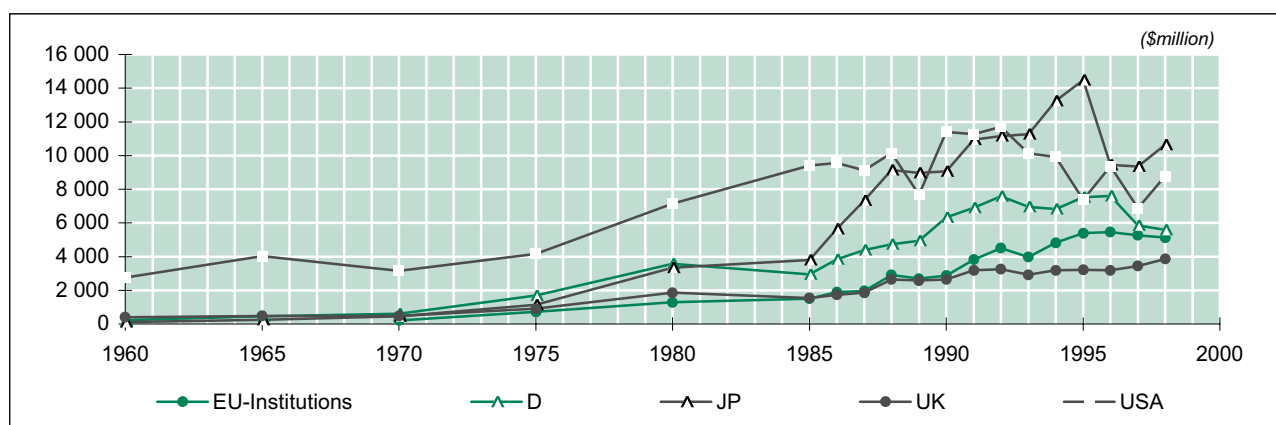
Source: Development Assistance Committee, OECD

Evaluation

In 1998 the percentage of GDP donated to developing countries varied between 0.1% for the US and 0.99% for Denmark. Within Europe the Nordic countries led by Denmark, Sweden (0.72%) and Norway (0.91%) give the highest proportion of their income in external co-operation. The larger Member States, while remaining the largest absolute donors, commit a smaller proportion of their GDP to development assistance. For example, in 1998 the expenditure on external co-operation of Italy and Germany amounted to only 0.20% and 0.26% of GDP respectively.

Over the period 1986 to 1998, the European Community's development assistance has increased four fold (in nominal terms). There has also been a substantial geographic change in where development assistance is paid. The former Soviet Union (NIS) and Eastern Europe accounted for 37% of spending in 1998, up from only 0.18% in 1986 and only 12% as recently as 1990. The share of the total EU external co-operation budget for Africa, Pacific and Caribbean (ACP) countries more than halved between 1986 and 1998, counting for 63% in 1986 and 30% (including South Africa) in 1998. However, since the collapse of apartheid and establishment of democracy, external co-operation paid to South Africa has increased greatly.

Data assessment

The OECD time series and the European Commission data are comprehensive and extend back to the 1960s. Data are available on a comparable basis for all major donor countries.

Indicator's place in other EU/international indicator lists

OECD-Oda

Further reading: Aidan Cox and Jenny Chapman, 'The European Community External Co-operation Programmes Policies, Management and Distribution,' Overseas Development Institute, London, 1999.

Definition

Material consumption is defined as all materials (fossil fuels, minerals and biomass) entering a country's economy (materials domestically extracted plus materials imported), less the materials that are exported. This is equal to the additions to material stock in buildings, infrastructure, machinery, etc. plus the materials returned to the environment (emissions to air or water, waste landfilled and materials dissipated during use). The relationship between material consumption and GDP over time shows the changes in the overall material efficiency of an economy, for example due to improved technical efficiency or shifts towards less material intensive forms of production and consumption. Another aggregate indicator - total material requirement (TMR) - includes the 'hidden flows', i.e. materials that are mobilised but not used (e.g. soil excavated during construction or mining overburden) and indirect flows of materials occurring in foreign countries due to imports.

Indicator relevance

The total quantity of resources used and efficiency in use are major issues for ensuring long-term sustainability. The material consumption indicator describes the quantitative requirements of an economic system in a summary form and is useful for tracking the changes in the structure of production and consumption and in the level and composition of material use over time. In economic terms the indicator shows the dependence on physical resources and the efficiency with which materials are used. In environmental terms, the material consumption is a background indicator for the overall environmental pressures generated by the production and consumption of goods and associated with material extraction and transformation, waste, land use, etc.

Links to other indicators

Material consumption is related to several other economic and environmental indicators, in particular ECON10 and 12 (energy use), ECON13,14 and 15 (waste generation) and ENV1, 2 and 3 (air emissions).

Material consumption in the EU, 1980 and 1997 (preliminary estimates)

	Million tonnes			Kilograms per ECU[1]			Tonnes per capita		
	1980	1997	Change(%)	1980	1997	Change(%)	1980	1997	Change(%)
EU-15	6 545	7 025	7	1.56	1.18	-24	18.4	18.8	2
B/L	184	193	5	1.37	1.06	-23	18.0	18.3	2
DK	119	145	22	1.48	1.18	-20	23.2	27.6	19
D	1 744	1 696	-3	1.72	1.17	-32	22.3	20.7	-7
EL	133	191	44	2.39	2.60	9	13.8	18.1	31
E	645	868	35	2.22	1.93	-13	17.2	21.9	27
F	1 101	1 062	-4	1.45	1.04	-29	20.4	18.2	-11
IRL	136	147	8	5.63	2.55	-55	40.0	40.3	1
I	720	791	10	1.04	0.85	-19	12.8	13.8	8
NL	229	240	5	1.27	0.91	-29	16.2	15.4	-5
A	143	158	10	1.43	1.10	-24	19.0	19.5	3
P	117	124	6	2.94	1.96	-33	12.0	12.6	5
FIN	197	182	-8	2.52	1.60	-37	41.3	35.3	-14
S	248	242	-2	1.67	1.27	-24	29.8	27.3	-8
UK	832	925	11	1.41	1.07	-24	14.7	15.7	7
Fossil fuels	1 473	1 419	-4	0.35	0.24	-32	4.1	3.8	-8
Minerals[2]	2 927	3 284	12	0.70	0.55	-21	8.2	8.8	7
Biomass	2 145	2 322	8	0.51	0.39	-24	6.0	6.2	3

Source: Eurostat and Wuppertal Institute. Differences are due to rounding

1) *GDP at constant 1990 prices.*
2) *This category includes a small amount of unallocated material flows.*

Measuring Progress Towards a More Sustainable Europe

EU-15 material consumption, 1980=100
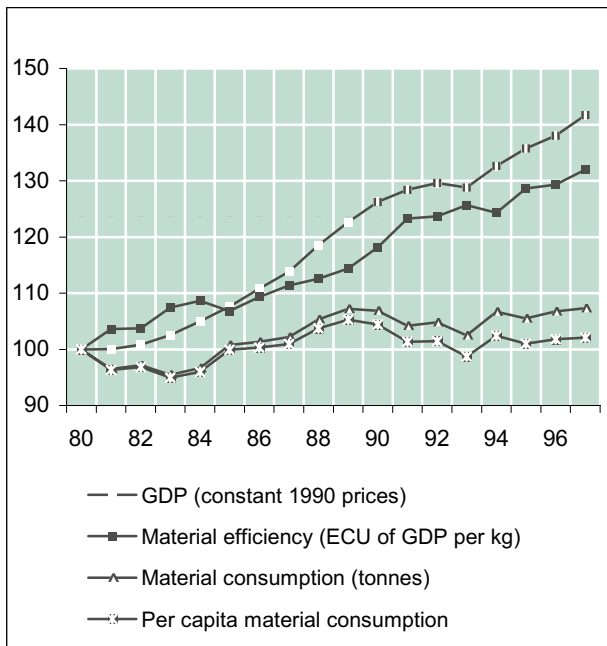
EU-15 total material requirement - 1997

EU-15 material consumption, 1980=100

- — GDP (constant 1990 prices)
- —■— Material efficiency (ECU of GDP per kg)
- —▲— Material consumption (tonnes)
- —✻— Per capita material consumption

Materials dislocated abroad due to EU imports 32%

Materials extracted in the EU 35%

Materials dislocated ('hidden flows') in the EU 25%

EU imports 8%
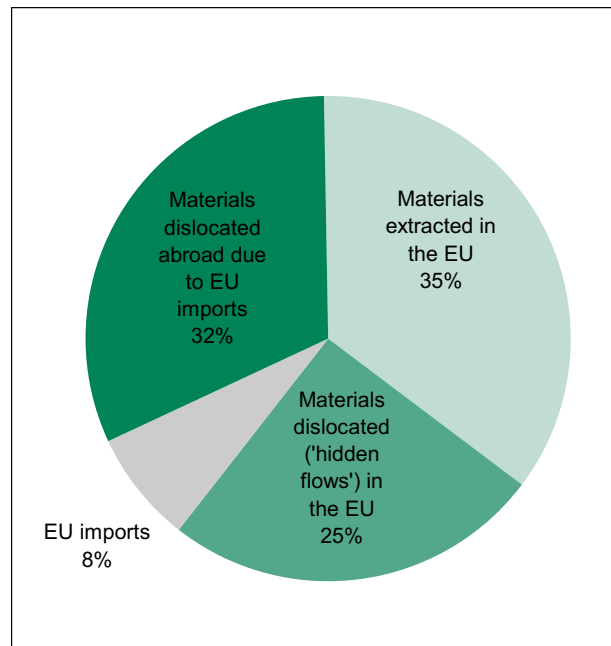
Source: Eurostat, Wuppertal Institute 2001

Evaluation

Material consumption in the EU is around 7 billion tonnes, or about 19 tonnes per capita per year. Around 47% of total material consumed are minerals (mainly for new buildings and civil engineering works), 33% are biomass from agriculture and forestry and 20% are fossil fuels. According to first available estimates, EU 15 material consumption has increased by about 7% between 1980 and 1997, and by about 2% per capita. The increase is mainly driven by increased use of minerals and biomass, whereas the weight of fossil fuels has decreased slightly (see indicator on Energy Use, ECON10, for more detail). Development over time shows a relative but not absolute de-coupling of economic growth and material use, but it is difficult to appreciate to what extent this is the result of specific improvements in resource efficiency or simply the effect of changes in the economy's structure. Over the period 1980-1997, the EU's TMR per capita (not shown in the figure) has been stable. The pie chart on the TMR composition, shows that substantial amounts of materials are moved but not used (56% of TMR). These materials may have impacts e.g. on landscape. It also shows that the EU imports have particularly high 'hidden flows' attached.

Data assessment

Compilation of material consumption indicators is still in the development stage. Data sources used include the Eurostat foreign trade statistics and various international data sources on timber and agricultural harvests, on mining and quarrying as well as specific work by the statistical services of several Member States. No comparable data is currently available for the Accession Countries and other countries. While the broad structure and trends for the EU are confirmed by detailed work in the EU and internationally, reliability and comparability of the data will improve over time so that revisions of the results are likely. The hidden flow data for TMR compilation have been estimated by the Wuppertal Institute in Germany.

Indicator's place in other EU/international indicator lists

OECD CORE ENV.

Further reading: 'Economy-wide material flow accounts and derived indicators - a methodological guide', Eurostat 2000. 'Environmental Signals', European Environment Agency, 2000.'Total Material Requirement of the EU', Technical Reports n. 55 and 56, European Environment Agency, 2001.

ECONOMIC PRODUCTION AND CONSUMPTION

Material consumption

Definition

The gross inland consumption (GIC) of energy is the total amount of primary or imported energy required to meet the needs of a country. This is considerably higher than the final energy used by consumers, as huge losses occur when fuels are burnt to give electricity. GIC is expressed in a common unit of energy (million tonnes of oil equivalent - Mtoe), and is presented on a per capita basis. The GIC is a key aggregate indicator derived from energy balances. It takes account of primary fuel production, imports, exports and changes in stock, as well as imports and exports of finished products, mainly petroleum products.

Indicator relevance

The indicator illustrates the overall pressure on energy resources. An adequate supply of energy from a variety of sources is essential to industry, services and households. The relative utilisation of different energy sources is an important factor in a move to a sustainable economy. At present, energy demand requires the extensive use of non-renewable energy sources such as fossil fuels and nuclear power. The combustion of fossil fuels is by far the largest source of greenhouse gas emissions. In the long term, energy use will be constrained by resource availability, which implies that the dominance of fossil fuels has to be reduced substantially. Efficient use and saving of energy and the proportion of renewable energy sources used all have to be increased.

Links to other indicators

Per capita energy consumption can be associated with ENV1 (Greenhouse gas emissions) and is linked to ECON1 (Per capita GDP) since GIC trends tend to reflect the level of economic growth.

Targets

The integration of the environmental dimension into EU energy programmes is one of the main strategic objectives of current policies. There are no precise targets for energy use, although Article 130 of the Treaty on European Union calls for the prudent and rational use of natural resources. This is the main policy objective of the recent Commission Communication on 'Energy efficiency in the EU - towards a strategy for the rationale use of energy', COM (1998)/346.

Gross inland consumption

(toe per capita)

	1985	1990	1995	1996	1997	1998
EU-15	3.47	3.62	3.67	3.79	3.77	3.83
B	4.4	4.8	5.0	5.3	5.4	5.5
DK	3.8	3.5	3.9	4.4	4.1	4.0
D[1]	4.6	4.5	4.1	4.3	4.2	4.2
EL	1.8	2.2	2.3	2.4	2.4	2.6
E	1.9	2.3	2.6	2.6	2.7	2.8
F	3.7	3.9	4.1	4.3	4.2	4.3
IRL	2.5	2.9	3.1	3.2	3.4	3.5
I	2.4	2.7	2.8	2.8	2.9	3.0
L[2]	8.6	9.4	8.2	8.2	8.0	7.7
NL	4.3	4.5	4.7	4.9	4.8	4.8
A	3.1	3.3	3.3	3.5	3.5	3.6
P	1.2	1.7	2.0	2.0	2.1	
FIN	5.5	5.7	5.7	6.0	6.3	6.4
S	5.6	5.5	5.7	5.9	5.7	5.4
UK	3.6	3.7	3.7	3.9	3.8	3.9
IS	8.4	8.7	8.0	:	:	:
NO	4.9	5.0	5.4	5.2	5.6	5.7
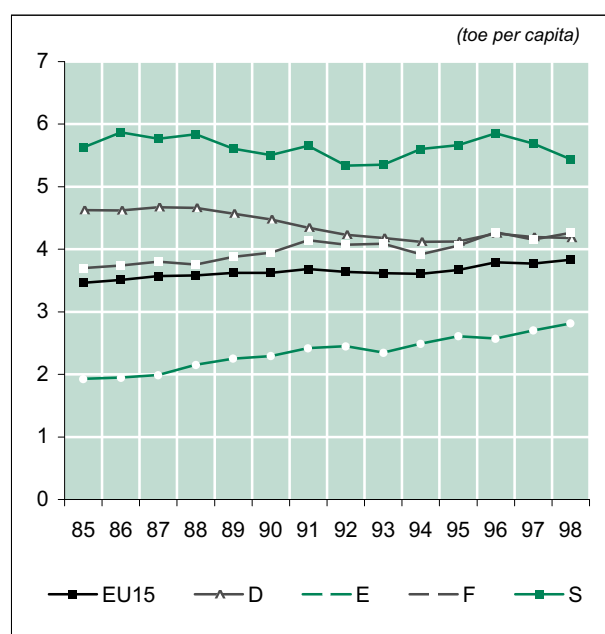
Source: Eurostat. This data differs from the presented in ECON12 (final energy consumption FEC). The major difference between the two is energy lost in transformation (for example electricity generation inefficiencies) and in distribution

1) *After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990.*
2) *Change of methodology in 1994.*

EU-15 gross inland consumption by fuel 1985-1998
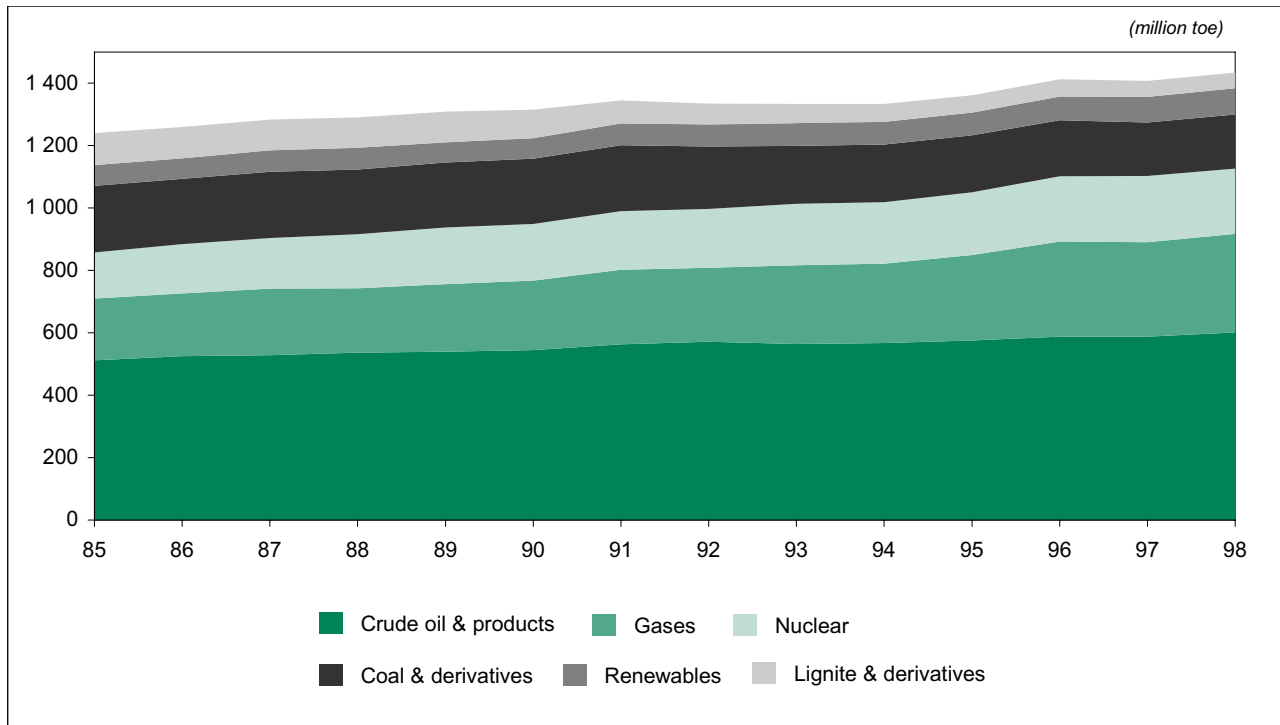
Source: Eurostat

Evaluation

Per capita energy consumption varies greatly between countries, depending on their stage in economic development, the structure of the economy and general conditions such as climate. In 1998 Swedish per capita energy consumption was 40% above the EU average while that of Portugal was 40% below. The per capita GIC for Europe as a whole has risen by 10.6% between 1985 and 1998. Periods of rise are closely associated with the economic cycle, with GIC falling in the recession of 1990-91. Portuguese per capita energy consumption rose by 85.5% between 1985 and 1998. Germany's per capita energy consumption has been highly atypical, decreasing by almost 10% over the period and reflecting the changes resulting from the reunification of the country in 1990. In Sweden and Luxembourg GIC per capita also fell, by 4%. The graph on GIC by fuel type shows the contribution of different types of fuel to energy needs. Exploitation of more 'sustainable' renewable energy sources has grown by 26% between 1985 and 1998; however it still makes up only 5.9% of all energy consumption (5.4% in 1985). Energy consumption grew by 193 Mtoe between 1985 and 1998, i.e. around three times the amount of energy supplied by renewables (around 85 Mtoe). Within the EU, oil and its refined products are the most important source of energy, and accounted for 42% of GIC in 1998. This is followed by natural gas (21%), nuclear (14%) and coal which has fallen from 17% in 1985 to 12% in 1998. This use of coal has been largely replaced by an expansion in the use of gas and nuclear energy.

Data assessment

Harmonised data are available for the EU-15 countries from 1985. Data collection for the Accession Countries is under development.

Indicator's place in other EU/ international indicator lists

HI	EPI	OECD CORE ENV.	EE

Further reading: 'Integration - indicators for energy', Eurostat, 2000. (2001 edition forthcoming). 'Energy balance sheets', Eurostat, 2000. 'Energy early statistics', Eurostat, 2000. Energy statistics CD-Rom, Eurostat, 2001.

ECONOMIC
PRODUCTION AND CONSUMPTION

Energy use

Definition

Renewable energy sources (RES) consist of energy obtained from wind, hydro, geothermal, biomass and solar sources. In this indicator energy produced from these sources is expressed in absolute values in tonnes of oil equivalent and as a percentage of gross inland consumption (GIC).

Indicator relevance

The production of energy from renewable sources is associated with much lower greenhouse gas emissions than energy produced from fossil fuels. Under the terms of the Kyoto Protocol, EU emissions of greenhouse gases must be reduced by 8% from their 1990 levels. This is to be achieved by the period 2008-12. Increasing the share of renewable energy in overall GIC will contribute towards the attainment of the Kyoto targets.

Links to other indicators

This indicator is linked to ENV1 on greenhouse gas emissions.

Targets

The 1997 White Paper on Renewable Energy Sources (COM(97) 599 Final) provides a framework for Member States to develop such sources and sets an indicative target of doubling the share of renewables in GIC sources from 6% to 12% by 2010. A specific Action Plan - 'Campaign for Take off' - has been established to promote the use of renewable energy sources in the near future. The key technologies to be promoted for the period 1999-2003 are solar, wind energy, biomass (mainly for use in combined heat and power plants), biogas and other biofuels.

Renewable energy production and gross inland consumption 1998

(toe)

	Renewables		Gross Inland	Renewables , by source				
	Output	G.I.C. *(%)*	Consumption	Biomass	Geo-thermal	Hydro	Wind	Solar Heat
EU-15	84 816	5.9	1 435 638	54 176	2 993	26 263	1 037	348
B	660	1.2	56 175	623	2	33	1	1
DK	1 768	8.4	21 139	1 519	1	2	239	7
D	8 501	2.5	343 174	6 506	10	1 511	395	80
EL	1 355	5.0	26 900	908	3	320	6	119
E	7 001	6.3	110 672	3 860	7	2 924	185	26
F	16 890	6.7	250 304	11 364	117	5 388	4	17
IRL	259	2.0	13 042	166	0	79	15	0
I	13 278	7.7	172 582	6 904	2 801	3 544	20	9
L	50	1.5	3 268	40	:	10	1	0
NL	1 454	1.9	74 681	1 384	:	9	55	6
A	6 765	23.3	29 057	3 508	7	3 192	4	55
P	3 591	15.7	22 816	2 406	45	1 116	8	16
FIN	7 247	21.8	33 193	5 951	:	1 294	2	0
S	13 734	28.5	48 141	7 311	:	6 391	27	5
UK	2 263	1.0	230 494	1 730	1	449	76	7

Source: Eurostat

Renewable energy as a percentage of gross inland consumption

	1985	1990	1995	1996	1997	1998
EU-15	5.4	5.0	5.4	5.4	5.8	5.9
B	1.0	1.4	1.4	1.2	1.2	1.2
DK	4.9	6.3	7.3	6.8	8.0	8.4
D[1]	1.6	1.6	1.9	1.8	2.2	2.5
EL	6.0	5.0	5.4	5.4	5.3	5.0
E	8.8	6.7	5.7	7.2	6.5	6.3
F	8.0	7.0	7.6	7.2	6.8	6.7
IRL	1.8	1.6	2.0	1.6	1.6	2.0
I	6.3	5.3	5.5	5.9	7.7	7.7
L	1.6	1.3	1.4	1.2	1.4	1.5
NL	1.3	1.2	1.2	1.6	1.8	1.9
A	23.9	22.5	23.2	23.3	23.3	23.3
P	25.1	15.8	13.9	17.9	16.9	15.7
FIN	20.3	18.5	21.4	19.8	20.5	21.8
S	24.2	24.6	25.6	22.7	26.6	28.5
UK	0.5	0.5	0.9	0.8	0.9	1.0
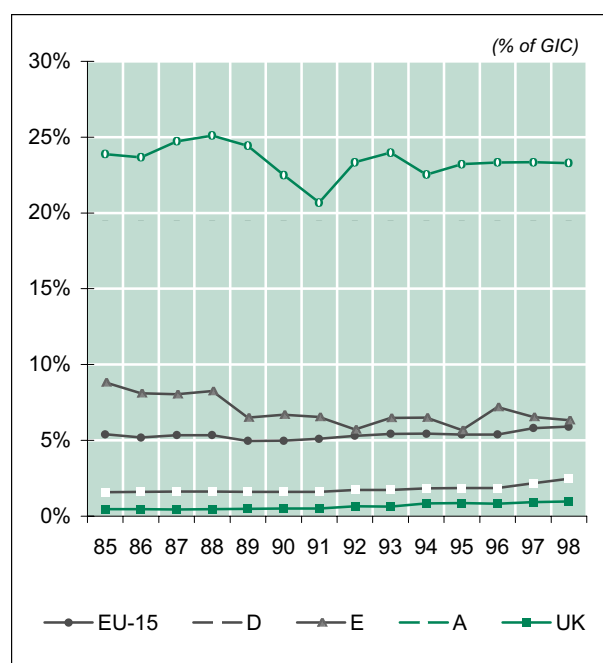
Source: Eurostat

1) After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990.

Evaluation

The proportion of gross inland consumption provided by renewable energy sources has shown a relative increase of 10% between 1985 and 1998 and now stands at 5.9%. The share of RES in GIC varies greatly between countries. At one extreme, RES makes up 28.5% of Sweden's gross inland consumption. At the other extreme, RES only contributes only 1% of the UK's consumption. Countries with a high share of RES, namely the Nordic countries and Austria have a long tradition of exploiting RES either in the form of large scale hydro or biomass. In Portugal and Spain the share of renewables declined between 1985 and 1998: from 8.8% to 6.3% in Spain and 25.1% to 15.7% in Portugal. The absolute quantity of energy from renewables has risen in both countries but this has been outpaced by the increase in GIC arising from economic development. Biomass is the most important RES in Europe and accounts for 63% of RES production. This is followed by hydro which contributes 31%. Wind power is highly developed in Germany and has increased in importance especially in Denmark and the west of Spain but is still only a minor source of energy. The potential for different countries to exploit RES depends on their natural endowments of renewable sources. The most economic wind sites tend to be in Western Europe, especially on the Atlantic coast, whereas geothermal power is largely restricted to Italy.

Data assessment

The quality of information on renewables has improved in recent years as their relevance and importance has increased. From 1999 onwards a formal data collection system based on a questionnaire has been implemented at OECD level. Data collection from the Accession Countries is in progress.

Indicator's place in other EU/ international indicator lists

HI	EPI	OECD CORE ENV	EE

Further reading: 'Promotion of Electricity from Renewable Energy Sources in the Internal Electricity Market' (COM(2000)279) 'White Paper on Renewable Energy Sources' (COM(97)599 final). 'Integration - indicators for energy', Eurostat, 2000. (2001 edition forthcoming).

ECONOMIC PRODUCTION AND CONSUMPTION

Energy use

Definition

This indicator shows the Final Energy Consumption (FEC), measured in tonnes of oil equivalent divided by an appropriate factor in order to calculate the intensity of energy use: for the total economy by Gross Domestic Product (GDP), on a sectoral basis by Value Added (VA) for services and manufacturing (not all Member States), by GDP for transport (not all Member States) and by population for households. This indicator is presented as an index (1985=100), to illustrate the trends in the base data, rather than the absolute values. The underlying assumption is that the GDP and VA figures for the covered countries (see table footnote and the data assessment) reflects the trends in the EU-15 as a whole.

Indicator relevance

According to Agenda 21 *'reducing the amount of energy and materials used per unit in the production of goods and services can contribute both to the alleviation of environmental stress and to greater economic and industrial productivity and competitiveness. Governments, in co-operation with industry, should therefore intensify efforts to use energy and resources in an economically efficient and environmentally sound manner'.*

Links to other indicators

This indicator is linked to ECON3 on value added in different sectors.

Targets

Improvement in energy efficiency is an overall goal of EU energy policies. The Multiannual Framework Programme for Community Action in the field of energy, for the period 1998 to 2002, defined as a priority objective inter alia, to promote the compatibility of the development of the energy market with environmental protection objectives. Specific programmes and actions at EU-level (SAVE, THERMIE, JOULE-THERMIE, ALTENER, Research and Development Fifth Framework Programme) are aimed at supporting the structural changes needed to enhance energy efficiency, changing the structure of energy sources and reducing the environmental impacts of energy production and use. Another recent EU-Commission Communication is focussed on 'Energy efficiency in the EU - towards a strategy for the rationale use of energy', COM (1998)/346.

Energy consumption, size of sector[1] and energy intensity

	Energy Consumption					(Mtoe)
	1985	**1990**	**1995**	**1996**	**1997**	**1998**
Total	823	862	898	935	931	946
Households	241	228	236	257	247	250
Commerce, public auth., etc.	115	115	128	135	133	134
Transport	203	254	276	283	289	299
Industry	264	265	257	260	263	262
	Sector Output					
Total *(GDP, billion Euro)*	2 938	3 419	3 653	3 717	3 817	3 920
Households *(population million)*	358	364	372	373	374	375
Total services *(VA, billion Euro)*	1 688	1 979	2 124	2 170	2 226	2 292
Transport *(GDP, billion Euro)*	2 938	3 419	3 653	3 717	3 817	3 920
Manufacturing *(VA, billion Euro)*	598	681	728	729	749	768
	Energy Intensity (Index)					(1985=100))
Total	100	90	88	90	87	86
Households	100	93	95	103	98	99
Services	100	85	88	91	88	86
Transport	100	108	109	110	110	110
Industry	100	88	80	81	79	77

Source: Eurostat

1) *GDP Data for B, D, F, I, NL, FIN, UK; billion Euro, 1995 constant prices. Value Added (VA) Data for B, D, F, I, FIN, UK; billion Euro, 1995 constant prices. After 1990 data refer to the Federal Republic of Germany as constituted from 3 October 1990.*

Measuring Progress Towards a More Sustainable Europe

Index of energy intensity by different energy users

(1985=100)
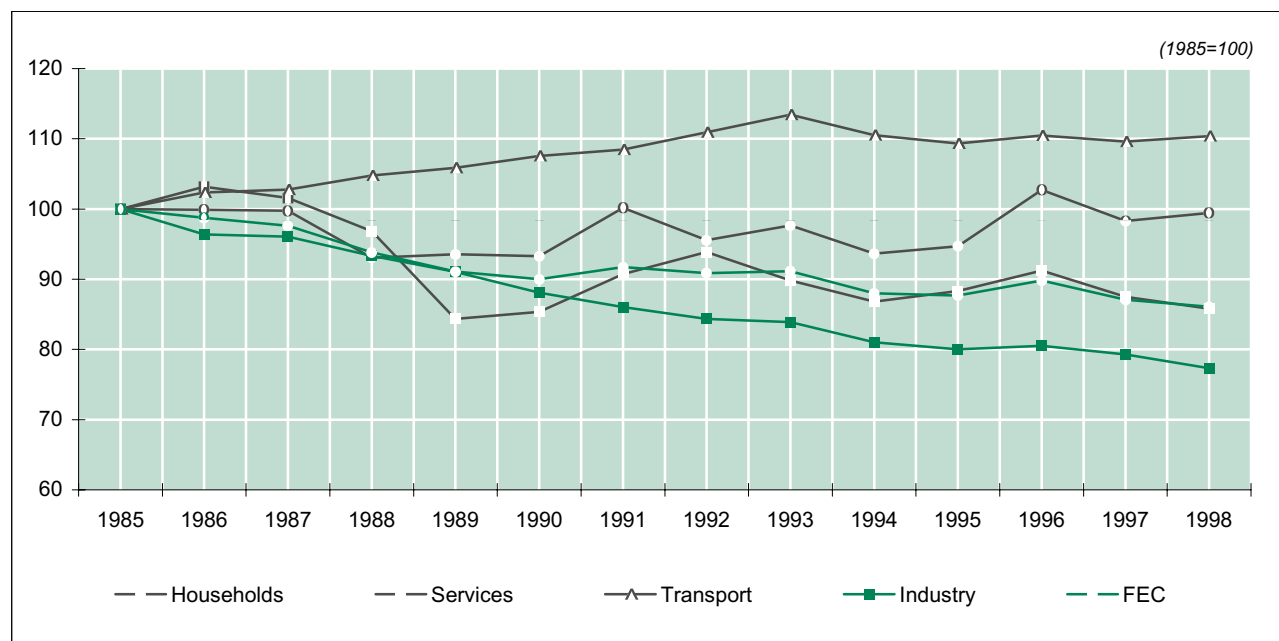
Source: Eurostat, FEC: Final Energy Consumption

Evaluation

Different sectors of the economy show markedly different paths of development of energy intensity. The energy intensity of the economy as a whole has declined - the final energy consumption (FEC) has risen by 15% over the period from 1985 to 1998, GDP has risen by 33% over the same interval. The decrease in energy intensity in developed economies is the result of several factors, including a structural shift away from energy intensive manufacturing to the less energy intensive service sector and an improvement in the energy intensity within the manufacturing and service sectors. For the EU countries covered, both the service and manufacturing sectors have shown a reduction in the amount of energy consumed per unit of value added, expressed in constant prices. In the case of manufacturing, energy consumption has remained unchanged but the value of manufacturing output has risen by 28% over the 13 year period. In the service sector, energy consumption has risen by 17%; however the value of the output has risen by 36%. The parts of the economy that have not shown a general improvement in energy intensity have been the household and transport sectors. The population of the EU-15 and the energy consumption have risen by about 4% resulting in near stable energy intensity for domestic energy consumption. Transport is the main exception. The intensity index has risen by 10% over the 1985-98 period, while total energy consumption for the transport system has risen by 47%. This rate of growth far exceeds that of the economy in general.

Data assessment

Harmonised data on final energy consumption for all the EU-15 countries are available from 1985. The same cannot be said for value added by sector where data spanning more than 15 years are only available for some countries. Because of changes in methodologies, long time series of GDP and VA by sector are not yet available on a consistent basis for all EU-15 countries. The denominators GDP or value added provide a monetary value of the sectors concerned. The use of the GDP value for transport might have some limitations given that commercial and private purposes are not distinguished.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	EE

Further reading: 'Integration -Indicators for Energy', Eurostat, 2000. (2001 edition forthcoming).

ECONOMIC
PRODUCTION AND CONSUMPTION

Energy use

Definition

This indicator presents the amount of waste collected by or on behalf of municipal authorities and disposed of through the waste management system. The bulk of this waste stream is from households (around 70%) though similar wastes from sources such as commerce, offices and public institutions are included. Disposal refers to the waste treatment methods: landfilling and incineration. The quantity generated is expressed in thousand tonnes per year. The growth rates by country and figures on waste generation per capita are also provided.

Indicator relevance

The generation of waste is a cause for concern for two main reasons: resource depletion and environmental pollution. The majority of waste in the EU is disposed of in landfills which raises a number of environmental concerns, such as: the land used (available space is a finite resource), the liquid leachate (which contains heavy metals and organic compounds damaging to the soil and groundwater) which needs careful management to prevent pollution, and gas emissions (mainly the potent greenhouse gas methane). The most common alternative to landfill is incineration which, though offering benefits in terms of potential energy recovery and mass reduction, also has drawbacks. These include toxic gaseous emissions and the need to dispose of the ash produced, usually to landfill (though it can be used as a secondary building material). Some Member States (e.g. UK, NL) have introduced taxes on waste disposal to landfill in order to encourage alternatives. The EU waste strategy prioritises waste management options in order of preference as follows; minimise the amount of waste generated, maximise reuse and recycling, and reduce the impact of waste treatment facilities.

Municipal waste collected

(1000 tonnes)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	%Growth Rate[3]	kg/ Capita[4]
B[1]	:	4 294	4 448	4 668	4 897	5 014	5 047	5 386	5 373	5 462	3.1	535
DK	:	:	:	:	2 803	2 959	3 253	3 104	3 141	:	2.9	593
D[2]	50 183	:	:	43 486	:	:	44 390	:	:	:	-2.0	543
EL	3 000	3 105	3 200	:	:	:	:	3 900	:	:	3.8	372
E	12 546	:	13 827	:	14 296	14 914	15 308	:	:	:	3.4	390
F	:	:	:	33 700	:	34 700	:	:	37 800	:	2.3	644
IRL	:	:	:	:	:	1 550	:	:	1 933	:	7.6	523
I	20 000	:	:	:	:	25 780	25 960	26 605	26 846	:	3.7	466
L[5]	224	217	196	201	196	207	209	187	184	:	-2.4	434
NL[8]	:	7 470	:	8 563	8 652	8 465	8 782	9 143	9 221	9 359	2.9	594
A[6]	4 782	:	:	5 341	:	:	5 270	:	:	:	1.6	654
P	3 000	:	3 270	3 563	3 800	3 883	4 029	4 116	4 313	:	4.6	433
FIN	3 100	:	:	:	2 100	:	:	2 510	:	:	-3.0	489
S	3 200	:	:	:	3 200	:	:	:	4 000	:	2.8	452
UK[7]	:	:	:	:	:	29 000	28 000	:	30 000	:	-3.4	508
IS	:	:	159	162	163	166	169	174	180	189	2.5	685
NO	2 000	:	2 223	2 217	2 366	2 722	2 761	2 721	2 858	2 650	3.2	596
CH	4 090	4 131	4 097	4 140	4 161	4 200	4 246	4 294	4 369	4 555	1.2	639
CZ	:	:	:	:	:	:	3 200	3 280	3 017	3 365	1.7	327
EE	:	:	:	:	:	533	565	593	557	569	1.6	394
HU	4 171	:	:	:	3 688	3 811	4 023	4 258	4 292	4 376	0.5	434
PL	11 098	10 638	10 621	10 645	11 015	10 985	11 621	12 183	11 827	12 317	1.2	319
SI	:	:	:	:	:	1 024	:	:	:	:	:	515
CY	:	:	:	368	:	:	:	:	:	:	:	516

Source: Eurostat

1) The figures are estimated by the National Statistical Institute of Belgium. Data not validated by Belgium regional authorities. 2) 1996: Preliminary data. After 1993, changes in methodology applied. After 1990, data refer to the Federal Republic of Germany as constituted from 3 October 1990. 3) The annual growth rate is based on the oldest and most recent data shown. 4) Data refer to most recent year shown. 5) Provisional data. 1995, 1996, 1997 are estimates from Administration de L'Environment. 6) Includes construction site waste. 7) 1998 data is based on a survey in England and Wales. 8) 1991: underestimation of separately collected paper.

Measuring Progress Towards a More Sustainable Europe

ECONOMIC PRODUCTION AND CONSUMPTION

Waste generat. & mgt

Municipal waste, landfilled and incinerated

(%)

Landfilled[1]   Incinerated[2]   Other[3]

X-axis: B Dk D EL E F IRL I L NL A P FIN S IS NO CH CZ EE HU PL
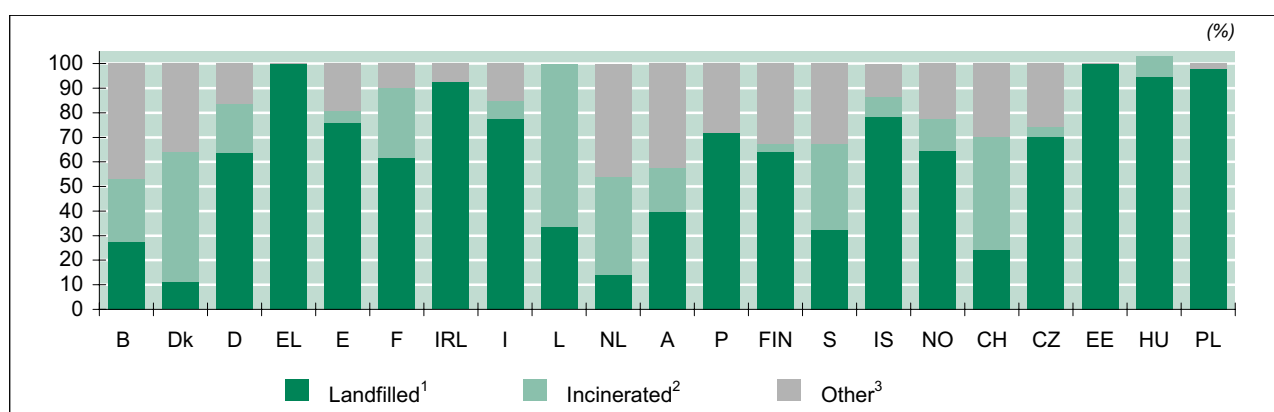
Source: Eurostat

1) Landfill includes controlled and uncontrolled.
2) Incineration includes with and without energy recovery.
3) Other corresponds mainly to recycling. For each country the most recent year with collection and disposal figures has been used.

Links to other indicators

This indicator is linked to ENV1 on greenhouse gases, ECON1 on economic wealth, ECON17 and ECON18 on recycling and treatment plants, respectively.

Targets

The Landfill Directive (99/31/EC) sets targets to reduce the amount of biodegradable municipal waste that is sent to landfill (in 2006, 75% of the amount generated in 1995, a further reduction in 2009 and 2016 to 50 and 35%, respectively). The Directive also bans the landfilling of tyres and other wastes (e.g. liquid and clinical) and co-disposal.

Evaluation

During the last decade the amount of municipal waste collected in most EU countries has increased. In 1998, none of the reporting countries was approaching the 330kg/capita target fixed for the year 2000 in the EU's 'Fifth Environmental Action Plan'. The Accession Countries generally show lower waste generation per capita but comparable growth rates. Disposal to landfill is the most common option, being particularly dominant in Greece, Spain, Ireland and Italy. Small countries with low population density have a remarkably low share of landfilling. Despite being the cheapest option, increasing concern over landfills, in combination with the key policy target of promoting recycling and reducing waste volumes, is leading some countries to introduce taxes on disposal to landfill. Incineration, normally with energy recovery is a significant disposal method in many of the EU15 Member States, particularly Luxembourg and Denmark.

Data assessment

The concept of municipal waste is complex. Improvement on the current definition (OECD/Eurostat) is needed. A break down into comparable sources such as households, commercial activities, office buildings, institutions etc. would also be useful. Due to different waste management practices the definition of municipal waste is not always correctly interpreted and applied at national level. This leads to problems of inconsistency and difficulties in the data comparability. The proposal for a Regulation on waste statistics (expected to be adopted in 2001) foresees replacing the term 'municipal waste' with the aim of focussing on 'household and similar waste'. The Regulation will establish a framework for harmonised waste statistics at EU level. This should improve the quality and quantity of the data available.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Waste generated in Europe- data 1985 - 1997', Eurostat, 2000. 'Household and municipal waste: comparability of data in EEA Member Countries'. EEA Topic Report 3/2000.

ECON14 Generation of industrial waste

Definition

This indicator shows the amount of waste generated from three activities/sectors: Mining and Quarrying (NACE 10-14), Manufacturing (NACE 15-37) and Construction (NACE 45). Further breakdown of the manufacturing sector is given by detailing waste generated by the Food-Beverages and Tobacco Industry (NACE 15-16), Basic Metal Industries (NACE 27), and Metal Products and Machinery (NACE 28-35).

Indicator relevance

Waste generated from industrial sources is a cause of concern for two main reasons. In economic terms, it represents a loss of resources that might potentially be reused or recycled. In addition the disposal options are a concern because of pollution from landfills and incinerators due to leaching of toxic substances into soil and ground water and gaseous emissions. Another concern is the lack of appropriate treatment methods for each material or compound with harmful potential for human health and ecosystems.

A decrease in the amount of industrial waste generated without a reduction in production output would indicate progress in cleaner technology, waste minimisation practices etc. The complexity and variety of industrial materials, components and processes require specific waste management solutions and techniques and this explains the need for the sectoral analysis used in this indicator.

Links to other indicators

This indicator is closely linked to indicators in the areas of industrial output and materials consumption, such as ECON 3 (value added by sector) and ECON 9 (intensity of material use).

Generation of industrial waste, by sector

(1 000 tonnes)

	Mining			Manufacturing			of which: Food & Tobacco			of which: Basic Metal			of which: Metal Fabrication			Construction		
	1990	1995	1996	1990	1995	1996	1990	1995	1996	1990	1995	1996	1990	1995	1996	1990	1995	1996
B [1]	:	618	619	:	13 240	13 779	:	:	:	:	:	:	:	:	:	:	:	:
DK	:	:	:	:	2 563	2 783	:	:	:	:	:	:	:	:	:	:	2 559	2 962
D	88 840	:	:	84 051	:	:	:	:	:	:	:	:	:	:	:	121 178	:	:
EL [9]	3 800	3 900	:	:	:	6 682	:	:	975	:	:	3 570	:	:	:	:	:	1 800
E	:	:	23 000	13 800	:	:	:	275	:	:	3 460	:	:	139	:	:	115	:
F [7]	:	:	:	:	101 000	:	:	1 139	:	:	2 157	:	:	523	:	13 700	:	:
IRL [2]	:	2 200	3 510	:	3 781	5 113	:	899	2 358	:	218	120	:	:	129	:	1 320	2 704
I [8]	:	:	350	:	22 210	22 993	:	:	4 251	:	:	3 885	:	:	2 489	:	:	20 587
L [6]	:	:	:	1 440	:	:	:	:	:	:	:	:	:	:	:	:	:	:
NL	391	:	333	7 665	:	9 779	3 277	:	3 915	525	:	1 001	803	:	779	:	:	:
A	21	:	:	12 955	:	14 284	807	383	768	2 770	507	:	458	:	:	20 946	:	25 392
P	:	4 726	7 120	:	13 316	10 989	:	2 614	:	:	:	:	:	:	:	:	11 002	7 733
FIN [3]	:	:	29 600	:	:	15 910	:	:	2 098	:	:	1 188	:	:	413	7 000	:	35 000
S	:	:	63 818	:	:	19 780	:	:	1 814	:	:	3 691	:	:	1 245	:	:	:
UK	107 000	82 000	118 000	56 000	56 000	50 000	:	:	:	6 000	6 000	6 000	:	:	:	70 000	70 000	70 000
IS	:	:	:	:	10	10	:	10	10	:	:	:	:	:	:	:	:	:
NO [7]	9 000	:	:	2 000	:	2 875	:	:	530	:	:	570	:	:	176	:	:	1 543
CH	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	3 000	:	6 393
CZ [4]	:	361	2 484	:	:	9 107	:	1 050	1 637	:	1 672	3 755	:	1 081	1 193	:	233	4 835
EE	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
HU [5]	10 630	10 123	182	30 980	6 692	2 028	4 800	:	302	3 100	:	801	860	:	249	:	:	81
PL	9 111	82 371	49 480	32 846	22 608	58 176	3 886	2 128	10 150	14 774	10 696	35 741	2 391	2 022	1 387	51	10	68
SI	:	70	:	:	:	1 212	:	:	210	:	:	89	:	:	163	:	126	:

Source: Eurostat. 1996: data refer to 1996 or latest available year

1) The figures are estimated by the national Statistical Institute of Belgium. Data not validated by Belgium regional authorities. 2) Break caused by changes in methodology applied for this sector. 3) Construction 1997 includes excavated soil. 4) Break due to new waste legislation since 1998. 5) Time break due to different coverage, 1996 figures do not include private enterprises. 6) Provisional data. 7) Manufacturing: estimates, construction 1990 refers to 1991. 8) Manufacturing 1995: may include some mining and quarrying waste. i) Includes both basic metal and metal fabrication.

Mining, manufacturing and construction waste arisings
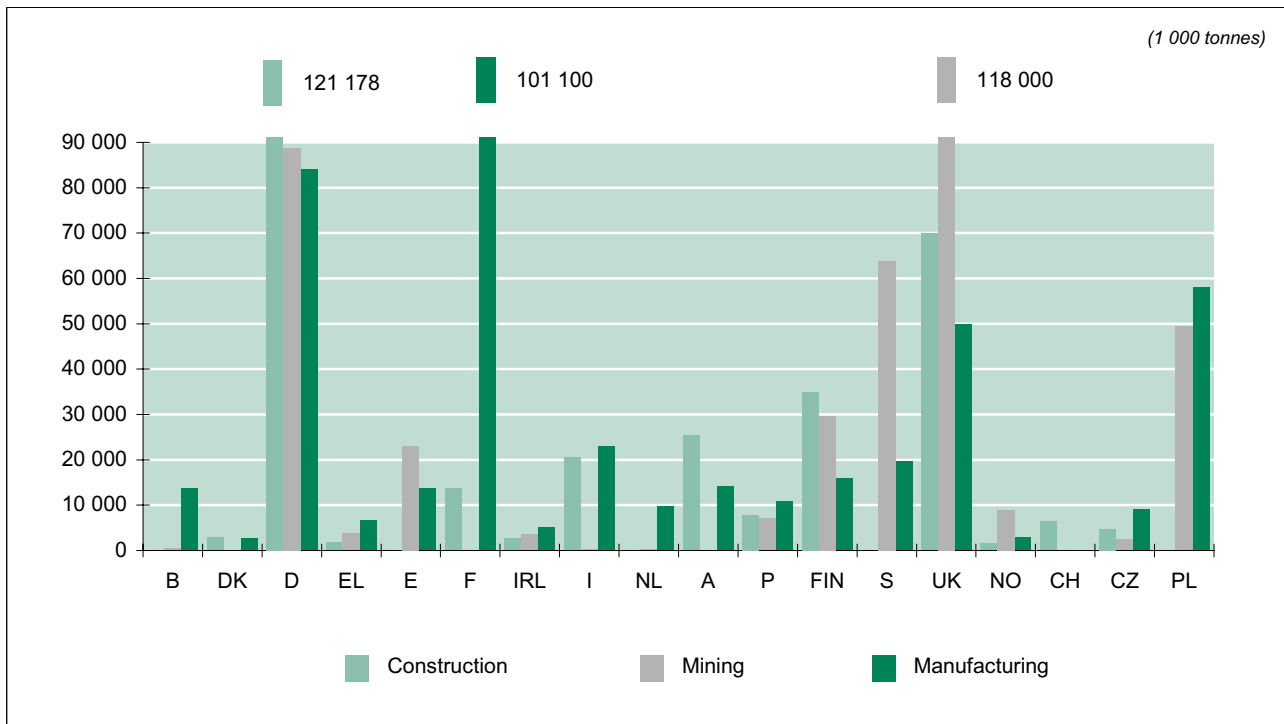
Source: Eurostat. Most recent year for each sector in each country shown

Evaluation

The generation of industrial waste differs greatly by economic activity and by country, given the characteristics of waste production specific to each sector/branch and the relative importance of a sector in the country. In addition, the waste data are influenced by the differences in the classifications of economic activities by sector. For this reason and due to the present data gaps, it is not possible to identify any clear trends at EU level. Some countries show reductions but these may be related to lower waste outputs during periods of lower economic activity. For instance, the contraction between 1990 and 1995 in the UK deep coal mining industry is reflected in its reduced waste output. Typically mining and construction sectors generate relatively high amounts of mineral waste which can be partially recovered. Construction waste reflects the growth of the construction sector, which closely follows the overall economic growth trend. Manufacturing waste reflects the extent and specialisation of industry in a country and varies depending on the type of industry (for instance, the high waste arising from the food industry in Italy and the Netherlands).

Data assessment

Data collection on industrial waste will be regularly implemented once the new Waste Statistics Regulation comes into force. At present there are many gaps in the available information. Moreover industrial waste categories vary from country to country which limits data comparability. The construction waste figures show some extremely high figures this is thought to be due to the inclusion of demolition wastes by some countries. The flat level of some of the figures (e.g. UK manufacturing and construction) suggests that estimates have been submitted and then resubmitted. Uncertainties in the data and poor data availability make comparison between countries difficult. The harmonisation of data in this area is a challenge due also to the differences in interpretation of the border line between waste and by products.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Waste generated in Europe - data 1985 -1997', Eurostat, 2000.

ECON15 Generation and disposal of hazardous waste

Definition

This indicator describes the total amount of hazardous wastes generated per year through generating activities. The data collection is based on the 18 categories of waste Convention (1993) on trans-boundary movement of hazardous waste and their disposal. However for EU-15 countries harmonised data are not yet collected according to the Basel Convention amounts are given here mainly according to specific national classifications of hazardous wa

Indicator relevance

The production of hazardous waste is unsustainable in the long term, given the risks these health and the environment. Areas of particular concern are the potential contamination of soil and pollution of fresh and ground water. The incineration of hazardous waste involves negative factors such emissions, hazardous residual slags and ashes and polluted water from flue gas cleaning, though may provide energy recovery and reduce waste volumes. If not properly managed, disposal to landf in the leaching of toxic substances into soil and groundwater and hence this option is considered to be the last resort, only to be used when all treatment possibilities have been exhausted. Reduced genera wastes may indicate either reduced industrial activities or the substitution of hazardous sub hazardous or harmless substances (e.g. phasing out of CFC gases), or introduction of cleaner processes. The EU waste strategy aims to minimise the amount generated, ensure that as waste is treated in accordance with legal standards, and encourage the recovery of materia

Links to other indicators

This indicator is linked in principle to ECON9 (material consumption) and to ECON14 (amou waste generated).

Generation and disposal of hazardous waste

(1000 tonnes)

|	Total Generated								Incinerated [3]						Landfilled					
	1990	1992	1993	1994	1995	1996	1997	1998	1993	1994	1995	1996	1997	1998	1993	1994	1995	1996	1997	1998
B [1]	:	:	:	776	:	:	:	:	71	75	97	:	:	113	440	530	527	:	:	636
DK	:	:	:	194	252	269	252	281	:	:	145	145	143	156	:	62	52	59	47	57
D [2]	13 079	:	9 093	:	:	17 421	:	:	2 034	:	:	:	:	:	3 253	:	:	:	:	:
EL	450	450	:	:	350	:	:	:	:	:	:	:	1	:	:	:	:	:	226	:
E	1 700	:	:	:	3 394	:	:	:	:	:	:	918	:	:	:	:	:	:	:	:
F [9]	7 000	:	:	:	:	:	:	:	1 022	1 210	1 193	1 288	1 238	1 361	719	728	747	693	707	803
IR L	:	:	:	:	248	328	:	370	:	:	50	53	:	71	:	:	5	33	:	41
I	3 246	:	:	:	2 708	1 572	3 401	:	:	:	112	:	374	:	:	:	643	:	791	:
L [7]	:	:	:	:	200	160	143	:	:	:	:	:	:	:	:	:	17	:	:	:
NL	1 040	1 430	867	885	1 004	1 016	1 277	1 448	149	165	182	162	149	244	188	204	173	117	146	370
A	:	398	478	513	577	606	626	868	95	99	90	106	:	:	:	:	:	:	:	:
P	:	:	:	:	668	:	595	:	:	:	:	:	:	:	:	:	:	:	:	:
FI N	:	559	:	:	:	:	485	:	:	:	:	:	101	:	:	:	:	:	:	234
S [8]	154	:	:	139	:	:	:	801	:	:	:	:	:	:	:	:	:	:	:	:
UK	:	2 452	2 077	:	:	:	:	:	185	:	:	:	:	:	931	:	:	:	:	:
IS	:	:	:	6	6	7	7	7	:	:	:	:	:	:	:	:	:	:	:	:
NO	:	:	:	640	650	650	655	655	:	:	:	:	:	119	:	:	:	:	:	:
CH	:	813	829	854	831	874	948	1 043	254	295	282	298	334	371	170	201	177	173	221	219
CZ [4]	:	:	:	:	6 005	6 669	6 436	3 399	:	:	33	33	26	16	:	:	176	131	143	406
EE	:	:	:	:	7 273	7 679	7 361	6 272	:	:	1	:	:	:	:	:	6 517	6 729	6 675	6 050
HU	4 691	:	3 895	3 338	3 424	2 585	3 630	3 915	:	1 517	1 488	1 110	:	:	:	1 424	1 397	1 035	:	:
PL [5]	:	3 444	:	3 188	3 866	5 164	4 007	1 105	:	:	:	:	:	:	:	:	:	:	:	160
SI [6]	:	:	:	:	170	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
CY [6]	:	:	:	68	50	53	52	:	:	:	:	:	:	:	:	:	:	:	:	:

Source: Eurostat

1) The figures are estimated by the national Statistical Institute of Belgium. Data not validated by Belgium regional authorities. 2) 1990 data refer to the Former West Germany. Change in methodology from 1993. 1996: preliminary data. 3) Incineration with and without energy recovery. 4) Data refer to Basel Convention. Time break due to new waste legislation. 5) Time break due to new waste survey. 6) Data refer to Basel classification. 7) Provisional data. 1990, 1993, 1994: waste landfilled includes non-hazardous waste. 8) Between 1993 and 1998, changes in methodology. 9) Incineration and landfill figures exclude internal treatment.

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Treatment of hazardous waste
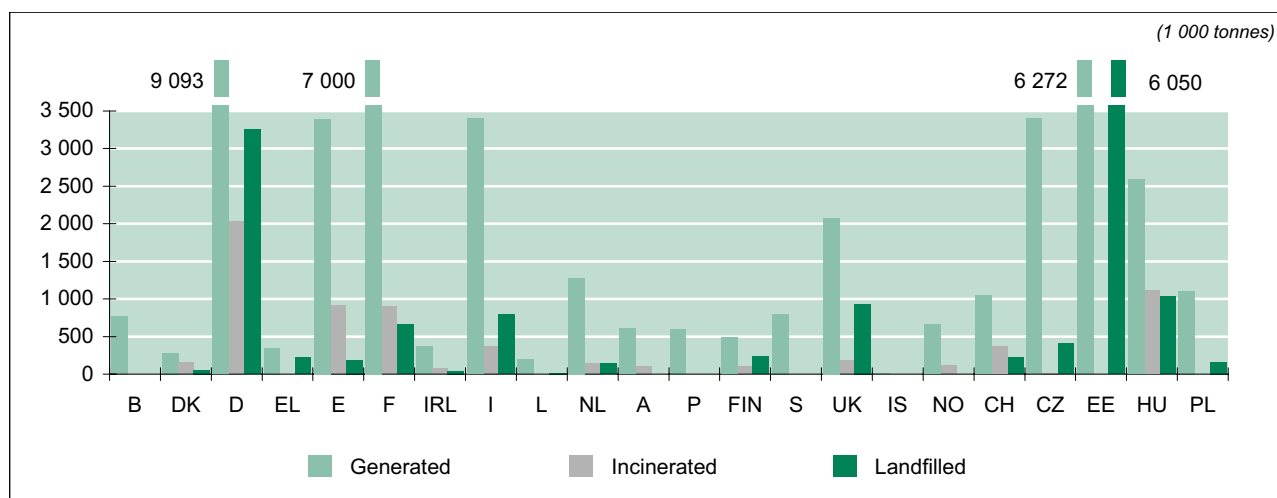
Source: Eurostat. For each country the most recent year and complete data has been used. Landfill includes controlled and uncontrolled, Incineration includes with and without energy recovery

Targets

Chapter 20 of Agenda 21 contains an overall target of preventing or minimising the generation of hazardous wastes. EC Council Regulation 259/93 lays down a policy of reducing to a minimum shipments of waste destined for disposal (proximity principle) and accepts the OECD control system, including a standard consignment note for those movements that do occur. A 1998 amendment to the Regulation prohibits all exports of hazardous waste from the 'rich world' to non OECD countries. The Commission proposal for the EU 'Sixth Environmental Action Plan' contains the target to reduce the volumes of hazardous waste generated by 20% by 2010 compared to 2000 and by 50% by 2050.

Evaluation

As the data are mostly based on national definitions, comparisons between countries are only indicative. In general, the figures for many countries reporting data (Denmark, Germany, Spain, the Netherlands, Austria) show a trend of increasing hazardous waste generation during the nineties, though some countries exhibit significant variations over time. This may be the result of one-off circumstances such as the clean up of contaminated soil. An in-depth analysis of the national lists and classifications (not developed yet) could provide a reliable tool for trend evaluation and comparison. Analysis of the specific toxic characteristics of each substance is also essential to evaluate the risks to health and the environment. Disposal of hazardous waste to landfill is a more common procedure in Accession Countries than in EU Member States. If less hazardous waste is incinerated and/or landfilled than is generated, this indicates the use of recovery operations (operations that enable waste recovery without endangering human health or causing harm to the environment such as recycling/reclaiming of metal and other inorganic products) and/or physio / chemical treatment. Discrepancies between the generation and disposal figures may also be due to from external flows of hazardous wastes.

Data assessment

The current concerns over hazardous waste data relate to its availability and accuracy. The situation should improve once the Member States produce data to fulfill the reporting obligations of the Basel Convention and/or according to the European hazardous waste list (catalogue). The Waste Statistics Regulation (expected to be adopted in 2001) will establish a framework for harmonised waste statistics at EU level.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Hazardous Waste in the EU', Statistics in Focus, Eurostat, 7/1999.

ECONOMIC PRODUCTION AND CONSUMPTION

Waste generat. & mgt

Definition

This indicator gives the annual quantities of radioactive waste generated, stored and disposed of, split into different categories, measured in cubic metres. Data refer to the volume after treatment and conditioning assuming the most likely management route. The exception is spent nuclear fuel destined for direct disposal, which is quoted as the weight in tonnes of heavy metal (tU) without any conditioning (disposed volumes are likely to be less than two cubic metres per tU).

The radioactive waste is classified as low and intermediate-level waste (LILW) for which the heat generated in the waste is negligible and does not need to be taken into account during treatment and disposal, and high-level waste (HLW) for which heat generation is significant and must be considered in all the management steps. The concentration of long-lived alpha-emitting radionuclides determines whether the LILW is classed as short-lived (SL) or long-lived (LL). In some countries spent nuclear fuel is not considered a waste stream and is routinely reprocessed in order to recycle the uranium and plutonium (as fresh fuel) and to remove the fission products (which are then vitrified and constitute the HLW stream). In the case of EU Member States, spent fuel (SF) quantities are indicated only for countries that have specified direct disposal without reprocessing as their preferred management route.

Indicator relevance

Radioactive waste is one of the main environmental problems associated with nuclear power. The vast majority of all radioactive waste from the nuclear industry is low-level and/or short-lived, and safe disposal sites for this type of waste have been in operation in numerous countries for many years. Disposal sites for HLW and other long-lived waste have not yet been built (outside of the USA) and this waste is presently being stored above ground pending the availability of a disposal option. The objective of the radioactive waste programme in Agenda 21 is to ensure that such wastes are safely managed, transported, stored and disposed of, with a view to protecting human health and the environment in the short and long-term. Such an approach is considered in other international agreements such as: the 'Joint Convention on the safety of spent fuel management', the 'Safety of radioactive waste management' (soon to come into force), the international and EU recommendations/ requirements regarding radiological protection, transport (including of transboundary nature) of radioactive waste and/or spent fuel and relevant environmental conventions and legislation.

Generation[1], storage[2] and disposal[3] of nuclear waste in 1998

(m³ or tU)

	LILW-SL	*(m³)*		LILW-LL	*(m³)*		HLW	*(m³)*		SF Power Stations Only *(tU)*		
	Gen.	Stored	Disposed	Gen.	Stored	Disposed	Gen.	Stored	Disposed	Gen.	Stored	Disposed
B	506	10 400	0	120	3 840	0	0	210	0	120	0	0
DK	20	1 000	0	1	90	0	0	0	0	:	:	:
D	6 300	72 000	54 000	1 260	19 000	0	0	663	0	480	1 440	0
EL	14	200	0	0	0	0	0	0	0	:	:	:
E	2 100	15 000	9 000	0	0	0	0	40	0	158	474	0
F	17 200	0	690 000	2 800	88 000	0	140	1 920	0	:	:	:
IRL	1	2	0	0	0	0	0	0	0	:	:	:
I	300	24 000	23	40	120	0	0	41	0	0	330	0
L	0	1	0	0	0	0	0	0	0	:	:	:
NL	400	7 200	8 700	0	0	0	0	60	0	:	:	:
A	66	1 600	0	0	0	0	0	0	0	:	:	:
P	5	75	0	0	11	0	0	0	0	:	:	:
FIN	300	3 000	2 600	0	0	0	0	0	0	70	1 010	0
S	1 080	8 000	32 000	54	950	0	0	0	0	212	3 630	0
UK	11 600	4 180	956 000	4 600	80 000	0	70	860	0	:	:	:
CY	0	0	0	0	0	0	0	0	0	:	:	:
CZ	760	4 830	5 150	0	0	0	0	0	0	48	580	0
EE	0	650	170	0	0	0	0	0	0	:	:	:
HU	400	4 500	4 850	0	0	0	0	0	0	53	450	0
PL	1 100	0	3 000	0	0	0	0	0	0	:	:	:
SI	100	2 100	0	0	0	0	0	0	0	15	265	0

Source: COM (1998)799 for E.U15, EUR19154 for Accession Countries, private communication for Cyprus

For the Accession Countries, the values for LILW combine both the SL and the LL quantities.
1) *Gen.= quantity of waste generated annually.*
2) *Stored = quantity of waste in interim storage (~1998).*
3) *Disposed = quantity of waste already disposed of (~1998).*

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These include the Espoo and Aarhus Conventions, and environmental impact assessment legislation, especially the Council Directives of 1985 and 1997. To indicate the success of measures to promote safe disposal of radioactive waste, the above table also shows the quantities of waste in interim storage and the quantities of waste already disposed of. The latter quantities correspond mainly to the amounts of waste finally disposed of in engineered and licensed repositories for radioactive waste in the various countries, though the totals include waste disposed of at sea before a moratorium on this practice was imposed in 1983.

Links to other indicators

Nuclear power is one of the main alternatives to the use of fossil fuels for electricity generation. This indicator is therefore linked to ECON10 (on energy supply) and indirectly to ENV1 (greenhouse gas emissions).

Evaluation

The precise quantity of waste that is generated within the nuclear cycle depends not only on the size of the nuclear park but also on the age and type of the technology. Some differences between countries may also arise due to differences in the classification system used in establishing national inventories. Countries with well-established nuclear programmes have generated significant quantities of radioactive waste in all categories. However, all countries generate (or have generated) radioactive waste from non fuel-cycle sources. The type of reactor technology has a significant impact on waste generation. For example, the UK's gas reactors produce significantly more waste per unit of generated electricity than equivalent light water reactors. Reprocessing of spent nuclear fuel is carried out in France and the UK and involves fuel from both domestic and foreign customers. Reprocessing reduces the total volume of high-level and long-lived waste, but will result in increased volumes of low-level waste and environmental discharges of radioactive effluents. These liquid and gaseous discharges are not included in this indicator - they are strictly controlled and subjected to limits based on potential radiological exposure to critical groups.

Data assessment

Figures for the EU Member States are taken from the Communication and Fourth Report from the Commission on 'The Present Situation and Prospects for Radioactive Waste Management in the European Union' (COM(1998)799 final). Data for the Accession Countries are taken principally from the Commission Report 'Radioactive waste management in the CEEC' (EUR19154, Sept. 1999). However, the former report uses the year 1994 as a baseline for disposed and stored quantities of waste, and therefore the quantities in the above table for the EU-15 have been estimated by extrapolation to the year 1998 using the figures for annual waste generation and a knowledge of the management practices in the countries concerned. Also, the waste quantities given in the latter report are usually quoted per waste stream rather that using the accepted LILW-HLW classification scheme, and as a result it is often impossible to separate the figures for LILW-SL and LL categories.

The Commission Recommendation (SEC(1999)1302 final, 1999/669/EC, Euratom) on a classification system for solid radioactive waste proposes a scheme for the reporting of solid radioactive waste volumes within the EU. In the case of the EU Member States, the totals in the table correspond approximately to this scheme, which is comparable with that proposed by the IAEA (Safety Series No.111-G-1.1, 1994). The Accession Countries have not yet reported waste quantities using the EU scheme. Waste quantities in these countries are less well known and the table combines both LILW-SL and LL quantities. Both EU Member States and Accession Countries will be included for the first time in the next Community Situation Reports (scheduled for 2001) thus ensuring complete data comparability.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'The Present Situation and Prospects for Radioactive Waste Management in the European Union' (COM(1998)799 final of 11/1/99). (Communication and Fourth Report from the Commission). 'Radioactive waste management in the CEEC' (EUR19154, Sept. 1999). Commission Report. The Commission Recommendation of 15 September 1999 on a classification system for solid radioactive waste (SEC(1999) 1302 final, 1999/669/EC, Euratom). Operation of Nuclear Power Stations 1993-1998, Eurostat; Radioactive Waste Management Profiles - a compilation from the Waste Management Database No. 3.; Agenda 21 Chapter 22.

Definition

This indicator shows the amount of waste that is reused or recycled in relation to the amount of material consumed. Two main waste materials are selected: paper and glass. Data are expressed as a percentage of apparent consumption, defined as the domestic production plus imports minus exports of materials. Although commonly used, this unit is not completely satisfactory because of difficulties in calculating the exact amounts of materials contained in finished products which are imported or exported.

Indicator relevance

Waste recycling is an important component for a sustainable approach to waste management. Two relevant types of recycling in relation to production and consumption can be differentiated: recycling during product-use (product recycling) and recycling after product use. At EU level, current data collection only covers recycling after product use. Materials traditionally covered by this type of recycling include metals, paper, glass and textiles though more recent additions include plastics and used oils. The greater the amount of recycled waste, the smaller is the disposal need (e.g. incineration, landfill) and overall resource extraction. Agenda 21 recommends that by the year 2000 all industrialised countries should have a national programme for efficient waste recovery and that developed countries should establish voluntary targets for the proportion of waste recycled. Several EU countries have already moved in this direction.

Targets

There are EU recommendations strengthening recycling, recovery and reuse (e.g. Council Directive 94/62/EC on packaging and packaging waste). Member States must introduce systems for the return and/or collection of used packaging to meet the following targets by 2001: recovery: at least 50% to 60% (by weight); recycling: 25% to 45%, with a minimum of 15% by weight for each packaging material.

Recycling rates in 1997[1]

(% of apparent consumption)

	Paper[1]									Glass[2]							
	1990	1991	1992	1993	1994	1995	1996	1997		1990	1991	1992	1993	1994	1995	1996	1997
B[3]	33	33	34	38	36	37	38	:	B	:	55	54	55	67	67	66	75
DK	35	35	36	46	43	44	52	50	DK	:	35	48	64	67	63	66	70
D	44	47	50	55	59	67	71	70	D[4]	54	61	60	65	75	75	79	79
EL	28	29	32	31	33	32	29	29	EL	15	22	20	27	29	35	29	26
E	39	38	37	37	36	41	41	42	E	27	27	27	29	31	32	35	37
F	34	34	34	36	36	39	42	41	F	:	41	44	46	48	50	50	52
IRL	:	:	12	12	13	11	11	12	IRL	23	23	27	29	31	39	46	38
I	27	28	28	30	28	28	31	31	I	:	53	53	52	54	53	53	34
NL	50	54	51	55	55	74	65	62	NL	67	70	73	76	77	80	81	82
A	52	54	56	68	66	66	71	69	A	60	60	64	68	76	:	:	88
P	40	39	39	38	40	37	39	40	P	27	29	31	29	32	42	42	44
FIN	43	46	48	49	43	57	:	:	FIN	36	31	44	46	50	50	63	62
S	46	46	50	50	60	59	57	62	S	:	44	58	59	56	61	72	76
UK	33	34	34	32	35	35	39	40	UK[5]	21	21	25	27	27	26	26	26
IS	10	30	:	:	:	:	:	:	IS	70	75	75	:	:	:	:	:
NO	20	23	26	29	34	37	40	44	NO	:	22	44	67	72	75	75	76
CH	49	51	54	54	58	61	67	63	CH	65	71	72	78	84	85	89	91
CZ	:	:	:	:	:	:	38	33	CZ	:	:	:	:	:	:	:	:
HU	53	60	55	53	44	55	49	:	HU	:	:	:	:	:	:	:	:
PL	46	48	42	14	13	13	13	:	PL	:	:	:	:	:	:	:	:

Source: OECD

1) Recycling rate is the ratio of the quantity collected for recycling to the apparent consumption.
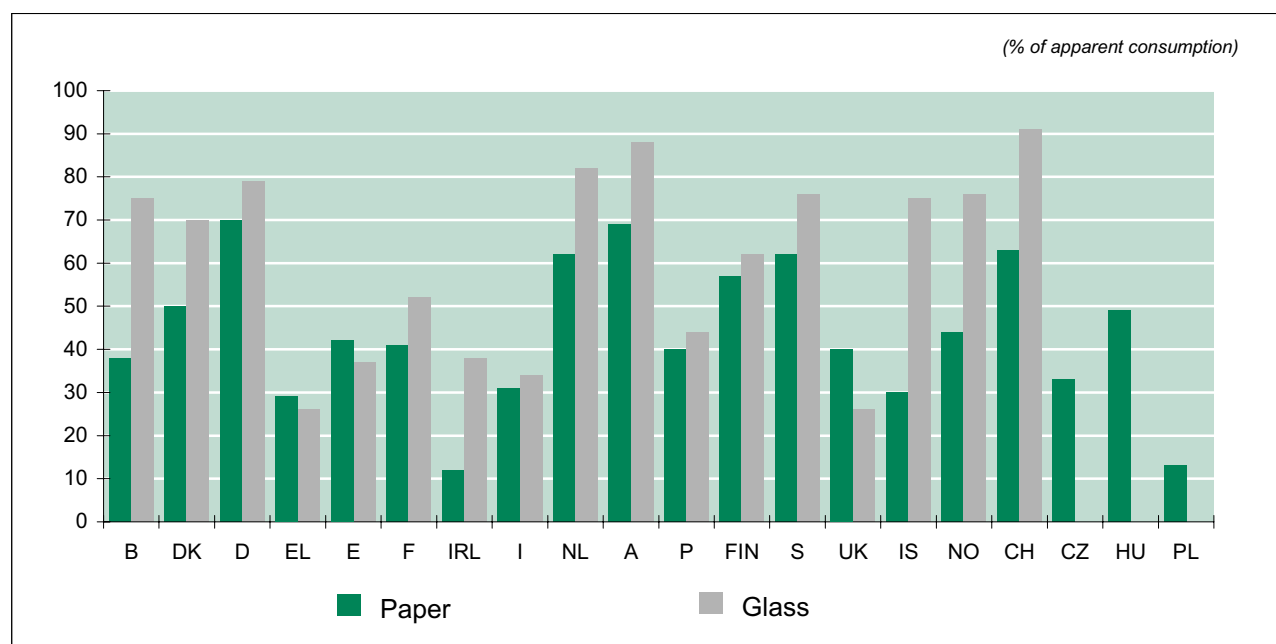*2) Glass figures exclude refillable bottles.*
3) Source Belgium: European Topic Centre /Waste.
4) D: After 1990, data refer to the Federal Republic of Germany as constituted from 3 October 1990. Recycling rate is based on total sales.
5) Excluding Northern Ireland. Glass collected in bottle banks and from industrial sources and flat glass.

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Paper and glass recycled in 1997[1]

Source: OECD

1) Or most recent year available.

Links to other indicators

This indicator is directly linked to ECON 13 (municipal waste) and partially to ECON 14 (industrial waste).

Evaluation

In general, a higher proportion of glass is recycled than paper, due to a generally more favourable and stable market. The countries with the highest percentage of paper recycling were Germany, Austria, Switzerland folowed by Sweden and the Netherlands. These countries also had the highest percentage of recycling for glass. The general trend shows a sustained increase in the percentage of these two materials recycled. The increase in the amount of recycled material will depend upon several factors: the increase in capacity of treatment facilities, the economic incentives for promoting recycling and the development of public awareness.

Data assessment

The current data situation in the EU does not allow the construction of an indicator reflecting all the different aspects of waste recycling. At present, fairly good quality data is limited to two types of waste, glass and paper (including paper board). Ideally, additional and harmonised data should be collected regarding different production sources and consumed products. For example, data on the recycling of plastic, steel, aluminium, building and construction waste and organic kitchen and garden waste could be collected.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV	OECD Hous

ECONOMIC PRODUCTION AND CONSUMPTION

Waste general. & mgt

ECON18 Waste treatment and disposal facilities

Definition

This indicator presents the number of waste treatment and disposal plants for hazardous and non hazardous wastes. A breakdown by landfill sites, incineration plants and treatment sites, e.g. composting sites and other small recovery and recycling plants, is provided.

Indicator relevance

In order to avoid over reliance on particular methods of waste disposal and to reduce total quantities it is essential to maintain an adequate level of different treatment facilities particularly for the hazardous waste stream. For this reason it is important to have an indicator which illustrates general trends in waste recovery and disposal capacity. In addition where data on waste arisings are not available an indicator on treatment facilities can be used to indirectly estimate the amount of waste that needs to be dealt with. At present such an indicator can only be partially completed and based on numbers of installations. Therefore this indicator gives no indication as to whether the facilities in question are employing the most appropriate technologies for the waste stream, for example the level of leachate control at landfill sites. The data only permit a comparison over time by country and not across countries.

Links to other indicators

This indicator is closely linked to ECON 13,14,15 and 17 (municipal, industrial and hazardous waste volumes and recycling rates). As with the other waste indicators it is also linked to ECON 9 (intensity of material use) in that more industrialised countries will tend to produce more waste.

Waste treatment facilities

	Treatment Plants					Incineration Plants						Landfill Sites[3]					
	1990	1996	1997	1998	1999	1990	1995	1996	1997	1998	1999	1990	1995	1996	1997	1998	1999
B[1]	:	71	75	79	84	:	8	8	9	9	9	:	244	244	234	224	212
DK	:	:	:	:	:	:	:	:	:	68	:	:	:	:	:	146	:
D[5]	:	:	:	:	:	347	:	154	:	:	:	222	:	2 926	:	:	:
EL[2]	4	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
E[4]	33	22	27	29	:	17	21	19	13	13	:	94	175	192	199	195	:
F	:	:	158	191	:	:	:	:	311	305	:	:	:	:	461	452	:
IRL	:	:	:	10	:	:	7	6	:	:	:	:	118	:	:	126	:
I	:	:	465	:	:	:	:	:	164	:	:	:	:	:	789	:	:
L	:	:	:	:	:	:	:	:	:	:	:	1	:	:	:	:	:
NL	:	:	:	:	:	:	:	:	:	14	14	:	46	47	44	42	38
A	47	:	28	:	:	5	:	:	9	:	:	:	:	:	:	:	:
P[2]	:	:	:	:	34	:	1	:	:	:	4	:	342	:	:	:	120
FIN	:	:	65	71	:	:	:	:	:	3	1	:	:	:	11	359	:
S	:	:	:	:	:	:	:	:	:	22	:	:	:	:	:	280	:
IS	:	:	:	:	:	:	5	5	5	5	5	:	12	14	16	19	21
NO	:	:	113	:	42	:	13	:	11	:	9	:	209	:	180	:	150
CH	:	:	:	262	262	:	:	:	:	28	28	:	:	:	:	56	56
CZ	:	:	:	246	246	:	:	327	:	82	78	:	:	464	:	344	347
EE	:	:	:	:	:	:	:	:	1	1	1	:	:	:	300	300	261
HU	217	:	:	:	:	36	:	:	:	1	1	:	602	691	726	731	729
PL	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	1 428	1 401
SI	:	413	:	:	:	:	:	:	:	:	:	:	168	:	:	:	:
CY	:	:	:	:	:	:	:	:	:	:	:	8	8	8	8	8	8

Source: Eurostat

1) The figures are estimated by the National Statistical Institute of Belgium. Data not validated by Belgium regional authorities. 2) Corresponds to hazardous waste management installations. 3) Most of the landfill sites reported are controlled. 4) Hazardous waste treatment plants are not included. 5) 1990 data refer to the former West Germany.

Measuring Progress Towards a More Sustainable Europe

Targets

Agenda 21, Chapter 20, contains an overall target of 'preventing or minimising the generation of hazardous wastes as part of an overall integrated cleaner production approach'. Directive (91/689/EEC) deals with hazardous waste and stipulates that on every site where tipping (discharge) of hazardous waste takes place the waste is recorded and identified, different categories of hazardous waste or hazardous waste and non-hazardous waste are not mixed (unless for the purpose of improving safety during disposal or recovery), and where hazardous waste is already mixed with other waste, substances or materials, separation must be effected, where technically and economically feasible. EU waste policy underlines a hierarchy in waste treatment methods (Directive 75/442/EEC) where waste prevention and recovery should be encouraged as the primary option by Member States and where incineration is regarded as a more appropriate treatment method than landfill. The Commission proposal for a 'Sixth Environmental Action Programme' defines a target for reducing the quantity of waste going to final disposal by 20% by 2010 compared to 2000 and by 50% by 2050.

Evaluation

The poor availability of data at present does not allow any specific assessment of the waste installations. In recent years, the increased amount of municipal waste collected by local authorities generally resulted in an increased number of treatment facilities. The figures show that in some European countries (Belgium, France, Austria and Portugal) the number of landfill sites is decreasing. This can be partially linked with an increase in incineration or other treatment plants, but also to the closure of small uncontrolled sites, in favour of larger regulated sites. In other countries (Spain, Ireland, Finland) landfill is increasing. Waste treatment and disposal installations have to meet specific environmental protection standards but their capacity is not restricted. Therefore the category 'incinerators' will cover a wide range of facilities, from small industrial incinerators to large municipal waste incinerators (which can treat up to 1 million tonnes a year). Other types of disposal facility can also vary in capacity depending on the availability of land and the size of the area served. Capacity restrictions also relate to factors such as limitations on waste transport or the fact that for some waste streams (particularly hazardous ones) a specialised, and therefore often centralised treatment plant is required (for example the recovery of used dry batteries). At EU level there is a clear trend towards the application of more restricted technical criteria in order to increase the specialisation and the effective operation of waste treatment and disposal facilities.

Data assessment

There are gaps in the information on waste treatment plants currently available for many of the EU Member States. This indicator gives simple figures on the number of existing installations. An improvement is expected as a result of the proposal for a Regulation on Waste Statistics (expected to be adopted in 2001) which includes requirements for reporting on the number and the potential capacity of waste treatment and disposal installations. This should enable a better evaluation of the waste disposal system in the near future.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.

Further reading: 'Hazardous waste in the EU' Statistics in Focus, Eurostat. 7/1999.

ECONOMIC PRODUCTION AND CONSUMPTION

Waste general & mgt

eurostat

Definition

This indicator represents one main determinant of transport demand, the volume of passenger transport. It also provides an indication of the modal split of the transport system and the trend over time. The unit is the passenger-km, that is one passenger travelling a distance of one kilometre. Data have been normalised according to the population of each country. Separate data is provided for the principal modes of transport.

Indicator relevance

As economies develop, the demand for mobility and hence passenger transport increases. This also reflects lifestyle patterns of individuals, for work and leisure purposes. As well as an increase in distance travelled, the mix of travel modes also evolves over time, resulting in a changing picture with regard to environmental impacts. Passenger cars and air transport consume more energy, and produce more air emissions, per kilometre travelled than (high occupancy) bus and rail. Emissions of greenhouse gases from road transport already account for about 30% of total GHG emissions (see ENV1) and this share is steadily increasing.

The EU strategy for transport aims at improving the intermodality of the transport system, as well as the development of high-speed railways, even if quantified targets for modal shares have not yet been set-up at EU-level. The Commission's 'Transport and Environment Reporting Mechanism' (1988) is the most important monitoring tool on the integration of environmental concerns into EU and national transport policies.

Passenger transport

(passenger-km/per capita)

	Passenger Car				Buses and Coaches				Rail				Air		
	1970	1980	1990	1998	1970	1980	1990	1998	1970	1980	1990	1998	1980	1990	1998
EU-15	4 661	6 492	8 924	10 176	823	1 026	1 057	1 109	637	712	752	773	460	727	1 247
EUR-11	4 533	6 475	8 712	10 181	762	1 022	1 071	1 136	671	759	804	824	386	631	1 117
B	5 110	6 639	8 101	9 409	967	922	1 089	1 176	785	707	656	696	493	760	1 503
DK	6 756	7 437	9 300	11 035	933	1 425	1 809	2 094	721	881	984	1 048	611	918	1 122
D	5 078	6 665	8 576	9 025	871	1 149	914	846	732	805	782	811	269	528	920
EL	978	2 867	4 801	6 466	1 072	1 620	1 744	2 016	174	152	195	171	525	764	814
E	2 286	4 606	6 675	8 936	619	752	859	1 168	444	397	431	480	396	569	826
F	6 001	8 398	10 329	12 037	693	984	1 015	999	807	1 014	1 124	1 096	558	754	1 267
IRL	3 729	5 175	5 163	7 693	1 119	1 323	1 112	1 539	256	303	350	378	602	1 195	1 745
I	3 938	5 742	9 214	11 240	595	1 025	1 481	1 549	648	761	851	874	228	337	618
L	6 192	7 415	10 475	12 315	885	1 067	1 080	1 093	604	676	545	741	180	663	1 141
NL	5 085	7 569	9 109	9 588	851	933	869	923	614	628	740	940	994	1 765	3 647
A	4 419	6 332	8 073	8 479	1 219	1 298	1 126	1 597	862	1 005	1 130	1 009	148	365	902
P	2 013	4 198	6 568	11 386	502	778	1 041	1 404	409	622	572	461	351	691	939
FIN	5 145	7 093	10 268	10 342	1 520	1 778	1 705	1 514	468	673	668	655	444	944	2 079
S	6 888	8 026	10 515	10 733	684	878	1 052	1 073	592	866	723	802	565	:	1 008
UK	5 339	6 888	10 427	10 655	1 082	927	803	731	550	540	580	599	783	1 160	2 014
IS	:	:	:	:	:	:	:	:	0	0	0	0	2 693	6 487	13 557
NO	4 698	7 690	9 528	:	961	1 042	917	959	406	586	496	:	:	:	:
CH	6 769	9 782	10 916	:	491	690	835	:	1 321	1 453	1 648	:	1 714	2 360	3 944
CY	:	:	:	:	:	:	:	:	:	:	:	:	:	2 659	3 620
CZ	:	:	:	:	:	:	:	843	:	1 133	1 285	682	:	196	256
EE	:	:	:	:	:	3 853	:	1 562	:	1 056	962	163	:	:	:
HU	:	3 974	4 455	:	:	2 216	2 071	1 050	:	1 368	1 081	878	:	142	248
PL	:	:	:	:	:	1 383	1 221	880	:	1 302	1 319	664	:	:	:
SI	:	:	:	:	1 382	2 458	3 043	1 059	868	755	715	325	:	:	208

Source: Eurostat

Distance travelled - EU-15
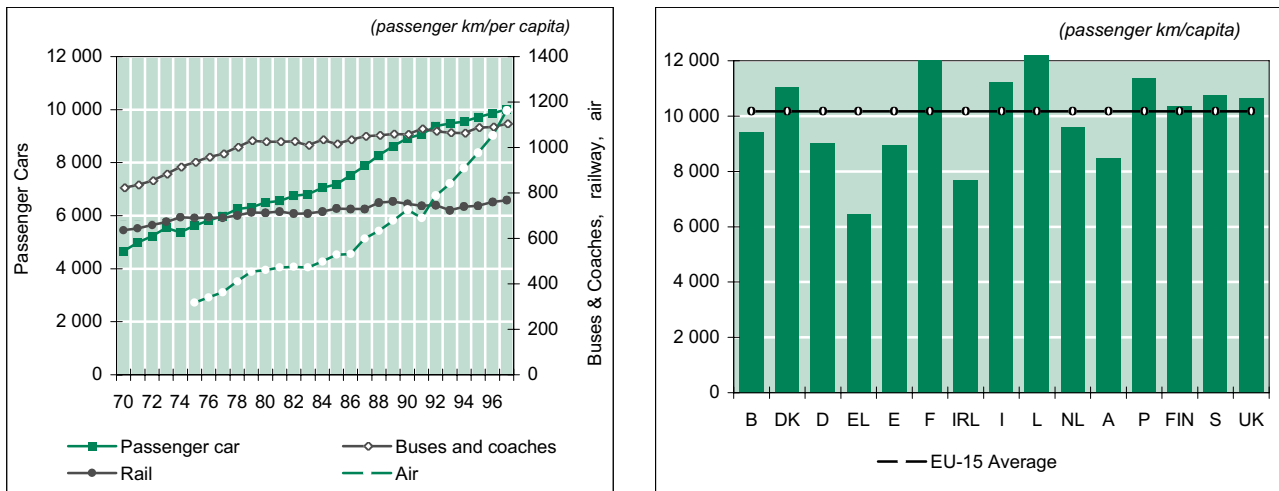
Source: Eurostat

Links to other indicators

This indicator is linked to ECON21 (freight transport). It is also linked to ENV1 (greenhouse gas emissions), ENV3 (air pollutants in urban areas) and ECON12 (energy use by road transport). Demand for travel is also associated with ECON1 (per capita GDP).

Evaluation

Since 1970 there has been a sustained and continuous rise in demand for passenger transport in the 15 EU countries. Between 1970 and 1998 car use increased by 118% (from 4,661 to 10,176 km per capita), bus use by 35% (from 823 -1,109 km) and rail use by 21% (from 637 to 773 km/per capita). Cars, already the most important means of personal mobility in 1970, have further increased their share. There are marked differences in the usage of cars across Europe. In 1997, the highest use was in Luxembourg, France, Portugal, Italy and Denmark. The lowest per capita usage was in Greece and Austria. There are many reasons for the difference in vehicle usage including wealth (and hence car ownership), sparsity of population, hence greater journey distances, availability of good public transport alternatives, etc.

Over the same period, travel by publicly provided rail and bus and coach services have not increased so quickly, only 21% and 34% on per capita basis, respectively. Relevant growth in bus and coach use has been observed in Italy and Portugal (almost three times more), Greece and Denmark (almost doubled) and Spain (+88%) and Sweden (56%). In the UK bus use has been in decline (-23%). The growth in rail use has been much more uniform across Europe (+21% on average) suggesting greater wealth does not cause people to cease to use the train. For air transport there has been a marked increase of +171% in usage over the 18 year period between 1980 and 1998, from 460 to 1,247 km travelled per capita.

Data assessment

Passenger transport data are collected via specific annual surveys at national level. The data quality differs by mode. Passenger cars have considerable uncertainties, due to lack of complete information on vehicle-kilometres (traffic counts) and the occupancy rates. Rail figures are good even if not all the railways are included. Figures on buses and coaches are reliable. Air transport figures include only the major carriers. Data for Accession Countries are only available for the period 1993 to 1998.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	TERM

Further reading: 'Are we moving in the right direction? Indicators on transport and environment integration in the EU' European Environment Agency, Copenhagen, 2000. 'Transport and Environment' - Statistics for the TERM for the EU- Eurostat, 2000.

ECONOMIC
PRODUCTION AND CONSUMPTION

Transport

eurostat

Definition

This indicator is defined as the number of tonnes of freight transported multiplied by the distance transported, by different modes of transport. The most important modes of freight transport have been selected, that is road, rail and short sea shipping. Other significant freight modes are inland waterways (rivers and canals) and pipeline. These other two modes are included in the graph.

Indicator relevance

Integrated and global markets are associated with an increase in the transport of freight. The move towards Just in time distribution systems has also increased the number of vehicle movements. The transport of freight gives rise to several environmental concerns, most importantly concerning the emissions of greenhouse gases (freight accounts for about a third of road transport's emissions) and particulates. Freight transport heavily contributes to traffic congestion problems. The different modes have significantly different impacts. Water transport and pipelines are more efficient in energy terms than rail which is in turn more energy efficient than road. On the other hand, if one considers the delivery time road still remains the most efficient mode. The trend towards containerisation of freight has speeded up the transfer of freight from one mode to another. Europe's freight strategy focuses on the promotion of intermodal and combined transport, the revitalisation of shipping, railways and inland waterways. The EU initiative for a 'Trans-European Transport Network' is a main element of the strategy.

Freight transport

(billion tonne-km)

	Total Transport				Road				Rail				Short Sea Shipping			
	1985	1990	1995	1996	1985	1990	1995	1998	1985	1990	1995	1998	1985	1990	1995	1996
EU-15	1 867	2 289	2 635	2 636	683	929	1 145	1 255	275	255	221	241	736	919	1 070	1 070
B	70	94	109	104	18	25	37	35	8	8	8	8	38	54	58	55
DK	28	33	40	41	12	14	15	15	2	2	2	2	14	15	20	21
D	389	421	514	510	147	183	280	316	122	102	69	74	56	63	85	86
EL	50	68	78	79	9	11	15	17	1	1	0	0	39	57	63	63
E	146	187	225	219	58	79	95	103	12	12	10	12	73	92	114	110
F	260	355	401	398	104	191	233	245	55	51	48	54	68	86	92	91
IRL	12	15	18	18	5	5	5	6	1	1	1	0	7	9	12	12
I	285	361	397	402	144	178	195	220	17	19	22	22	115	152	168	171
L	1	2	3	3	1	1	2	2	1	1	1	1	0	0	0	0
NL	124	157	175	177	24	32	42	47	3	3	3	4	60	80	89	89
A	31	33	37	38	12	13	15	16	12	12	13	16	0	0	0	0
P	27	37	43	41	9	12	13	14	1	1	2	2	17	23	28	26
FIN	100	119	134	138	20	26	23	27	8	8	10	10	72	84	101	104
S	59	69	78	80	21	27	29	33	17	19	19	19	21	24	30	30
UK	284	339	382	390	99	133	147	160	16	16	13	17	157	179	211	213
IS	:	:	:	:	:	:	:	:	0	0	0	0	:	:	:	:
NO	:	:	:	:	:	:	:	15	2	2	2	2	:	:	:	:
CH	:	:	:	:	:	:	:	:	:	9	:	:	:	:	:	:
CY	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
CZ	:	:	:	:	:	41	31	34	:	:	23	19	:	:	:	:
EE	:	:	:	:	:	:	2	4	:	7	4	6	:	:	:	:
HU	:	52	28	:	:	:	10	13	:	17	8	8	:	:	:	:
PL	:	:	:	:	:	40	51	70	:	84	68	61	:	:	:	:
SI	:	:	:	:	:	5	2	2	4	4	3	3	:	:	:	:

Source: Eurostat

Goods transport - EU-15
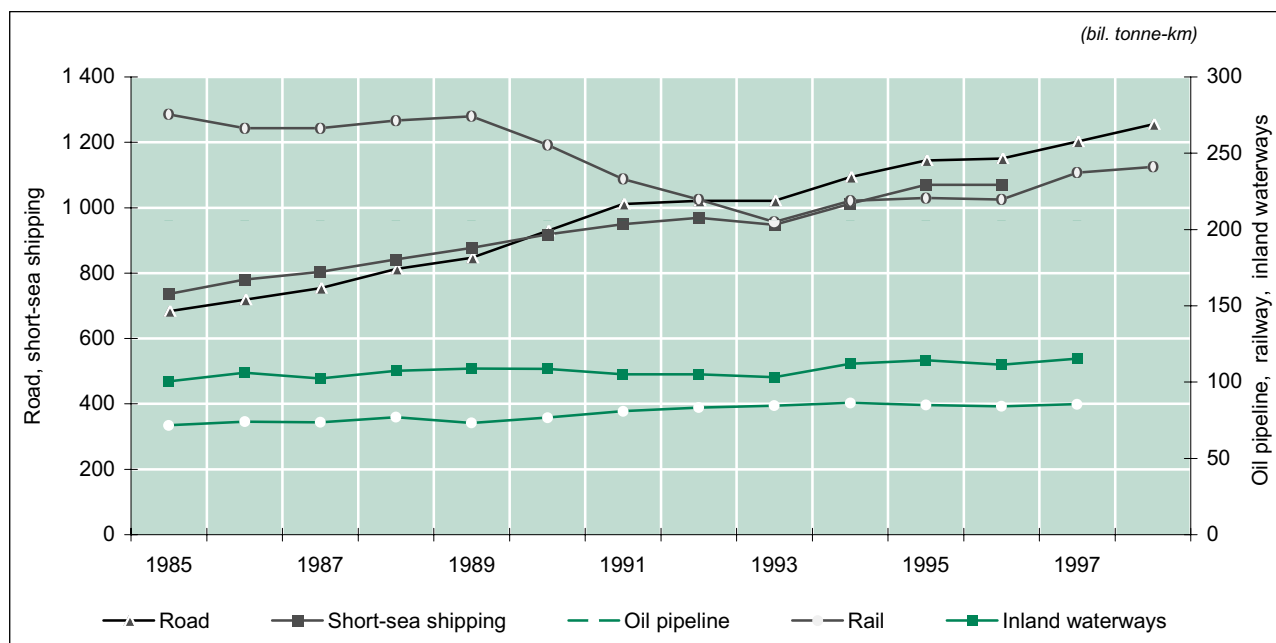
Source: Eurostat

Links to other indicators

This indicator is linked with: ECON20 (passenger transport), ECON1 (per capita GDP), ECON5 (foreign trade). It is also associated with ENV1 (greenhouse gases) ENV3 (air pollutants in urban areas) and ECON12 (intensity of energy use).

Evaluation

The total freight transported within the EU, in terms of tonne-km, has risen considerably between 1985 and 1996. The increase has arisen mainly in road freight (+ 84% between 1985 and 1998) and short sea shipping (+45% between 1985 and 1996). This parallel growth is in part linked to the trend towards containerisation and roll-on roll-off which allow better integration of these modes in particular. The use of rail fell dramatically between 1985 and 1993, but then rose again slightly till 1998 recording an overall fall of 13%. This was driven almost entirely by the fall in rail freight in Germany following the reunification and the subsequent loss in manufacturing output in the Eastern Länder. However, at country level there have been some increases in rail use in the period 1985-98, for example, in Italy (+33%), Sweden (+10%) and UK (+8%).

Data assessment

Freight transport data is generally complete and of a high quality, since this is one of the major indicators of national economic well-being and is investigated in great detail. Data collection for Accession Countries is under development.

Indicator's place in other EU/international indicator lists

HI	EPI	OECD CORE ENV.	TERM

Further reading: 'Are we moving in the right direction', European Environment Agency; Transport and the Environment Reporting Mechanism, Eurostat & European Commission. 'Transport and Environment' - Statistics for the TERM for the EU- Eurostat, 2000.

ECONOMIC
PRODUCTION AND CONSUMPTION

Transport

Definition

Environmental expenditure refers to the economic resources aimed at reducing the pressures on the environment arising from different sources, e.g. air emissions, waste water discharges, waste streams generation, noise etc. Resources devoted to meet technical or health and safety requirements or for pure economic profit are not considered here as environmental expenditure. Environmental expenditure statistics cover all sectors of the economy that finance the expenditure: public sector, enterprises and households, and are broken down by the different environmental areas or domains of intervention (such as air, waste, soil etc). The total money spent by one sector is the sum of three different types of expenditures:

End-of-pipe investments are specific machinery and equipment used only for environmental protection. Their purpose is to take care of and treat pollution already generated. Examples include waste containers, filters, sewage treatment plants, etc.

Integrated process investments include adaptation of existing equipment and the extra cost for the purchase of cleaner technologies or products. Their purpose is pollution prevention. Examples include closed loops and processes and adaptation of machinery to enable the use of more environmentally friendly inputs.

Current expenditure includes operating costs of the environmental equipment e.g. operation and maintenance of sewage treatment plants, general administration costs including environmental management and certification, and all services bought in from the market such as payments to waste collectors or environmental consultants.

Indicator relevance

Environmental expenditure is a response indicator. It provides information on the intervention or remedies undertaken to reduce the environmental impacts of human activities or to prevent negative environmental consequences. Moreover, information on expenditure for different sectors or detailed industries is the basis for analysis of the appliance of the polluter-pays principle and for evaluating the effects environmental policies and regulations have on enterprise competitiveness. The data can be used for cost-effective analysis of proposed new regulations and policies. Expenditure data also show the demand for environmental goods or services and can thus be used to estimate, for example, the turnover and employment of the 'environment industry' (in total or by specific segments) that produces these goods and services.

Links to other indicators

Capital environmental expenditure is linked to ECON2 (Investment Share in GDP).

Environmental expenditure (investments + current expenditure)

(% of GDP)

	B	DK	D	EL	E	F	I	IRL	L	NL	A
Public sector	(97) 0.59	(99) 0.52	(97) 0.60	(95) 0.16	(96) 0.93	(98) 0.79	(92) 0.16	(98) 0.53	(97) 0.73	(97) 1.46	(98) 1.55
Industry	(96) 0.17		(97) 0.42	(95) 0.09		(98) 0.77		(98) 0.22		(97) 0.42	(98) 0.57
Total	0.76		1.02	0.25		1.56		0.75		1.88	2.12

	P	FIN	S	UK	IS	CH	CZ	EE	HU	PL	SI
Public sector	(98) 0.84	(98) 0.56	(91) 0.85	(90) 0.40	(98) 0.33	(92) 1.04	(99) 0.60	(99) 0.72	(99) 0.52	(99) 0.90	
Industry	(99) 0.31	(98) 0.46	(97) 0.45	(97) 0.53		(93) 0.60	(99) 0.90	(99) 0.46	(99) 1.14	(99) 1.49	(98) 0.38
Total	1.15	1.02	1.31	0.93		1.63	1.50	1.18	1.66	2.39	

Source: Eurostat. Please note the reference year in brackets. Public sector, B: Net of receipts from by-products; CZ and HU: Investments only; EL and S: ESA 79 for GDP. Industry: B and CZ: Investments only, EL: ESA 79 for GDP, F: Total business sector, PL: Current expenditure for total business sector

Measuring Progress Towards a More Sustainable Europe

Environmental expenditure - industrial investment by environmental domains

(%)

Legend: ■ Water ■ Waste ■ Air ■ Others

	Water	Waste	Air	Others
B 96	35	14	48	3
D 97	35	14	46	6
EL 95	32	2	61	5
F 98	40	15	17	28
IRL 98	35	5	23	36
NL 97	13	10	56	21
A 98	24	7	44	25
P 99	27	14	46	13
FIN 98	40	14	36	10
S 97	19	7	66	9
UK 97	1	12	51	36
CH 93	19	18	46	17
CZ 99	20	9	68	3
EE 99	17	17	52	14
HU 99	23	11	41	25
PL 99	16	6	77	1
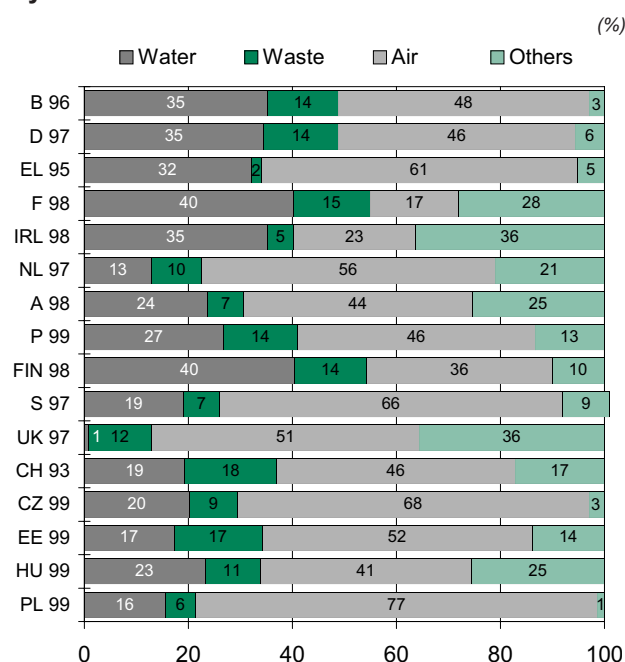
Environmental expenditure by types of industrial investment

(%)

Legend: ■ End-of-pipe ■ Integrated technologies

	End-of-pipe	Integrated technologies
B 96	40	60
EL 95	96	4
NL 97	59	41
A 98	66	34
P 99	69	31
FIN 98	61	39
S 97	44	56
UK 97	71	29
EE 99	89	11
HU 99	63	37
PL 99	68	32

Source: Eurostat
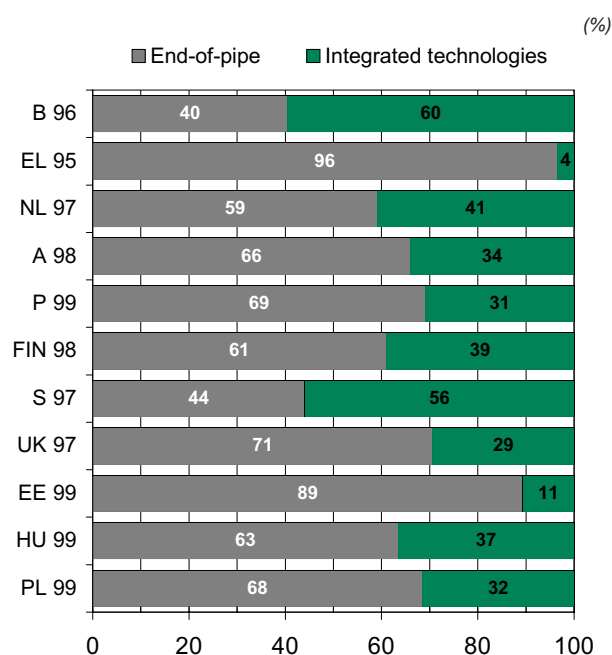
Evaluation

Although available data show some significant gaps, recent Eurostat estimates suggest that in 1998 the EU total environmental expenditure was at least 120 billion ECU or 1.6% of GDP. About 40% of the total spending was on waste water treatment, 35% on waste management and 10% on air protection. Much of the air protection expenditure is in the form of investments in industry, while labour and other current expenditure dominate for waste management, which is often the responsibility of the public sector. However the table and graphs above show that there are considerable variations between countries. In most countries industry spends more on traditional end-of-pipe technology than on integrated process investments although it should be pointed out that the latter is more difficult to measure. A few specific industries often dominate the total industrial environmental expenditure in one country, although the composition varies among different countries depending on the industrial profile. For instance, the chemical and rubber industries invested the most in Belgium, the Netherlands, the United Kingdom and the Czech Republic. The pulp, paper and printing industry dominated investments in Finland and Sweden while refineries were important in Greece and Poland.

Data assessment

Environmental expenditure statistics are under development and the coverage and quality of the data still varies considerably between countries, with consequent limitations for data comparability and effective interpretation. However, there is less variation in coverage for the specific sectors and variables presented in this publication. The data produces an indicator of the economic resources spent, but the integration of environmental concerns in many policy areas and in many investment decisions makes it difficult to estimate all expenditure items exactly. It should be noted that high levels of spending could be a result of more strict policies in a country where much has already been done to reduce pollution and where the marginal cost is high, or it could result from long periods of underspending. As a complement, a further analysis, focused on the links to physical data (size of emissions, amounts of waste etc), would also be needed.

Indicator's place in other EU/international indicator lists

OECD CORE ENV.

Further reading: 'Environmental Protection Expenditure in Member States' Eurostat Nov. 1998. SERIEE European System of Recording Information of the Economy on the Environment - Version 1994.

ECONOMIC
PRODUCTION AND CONSUMPTION
Env. expenditure

eurostat

INSTITUTIONAL DIMENSION

INSTITUTIONAL DIMENSION

Definition

Sustainable development cannot be achieved if the institutional framework does not allow full participation of government and the society as a whole in a national sustainable development strategy complementing the international policy instruments (Conventions, etc).

On the one hand, implementation strategies and international co-operation are two key factors if governments are to achieve some results towards sustainability and if the policy structure is in place. On the other hand, the institutional capacity of each country affects the potential success of implementation in terms of providing the necessary tools and allowing stakeholder participation: level of information access, communication infrastructure, government support to science and technology research and natural disaster preparedness and mechanisms.

The UNCSD 2000 core sustainable development indicators as presented in this publication deal with 2 broad themes:

1. Institutional Framework,

2. Institutional Capacity

These themes are divided into sub-themes, each dealing with one specific aspect of the institutional issue. The institutional framework is linked to national strategic sustainable development implementation and international co-operation to achieve sustainable development goals. Institutional capacity is in turn influenced by the population's level of information access, the communication infrastructure, the degree of science and technology support, and natural disaster preparedness and response. The related UNCSD indicators reflect the specific socio-economic and technical features which influence the society openness and capacity to change.

Adaptation of the indicators

Most of the UNCSD core indicators were kept with some relevant modifications in the definition in order to adapt the indicators to the situation of developed countries:

Internet access (INST1) *where internet users per 100 population is presented instead of the number of radios or internet accounts per 1 000 population.*

Risks to natural and human capital (INST 4) *replaces natural disaster preparedness and response.* No additional indicator was selected.

Institutional framework: Sub-theme 'Strategic implementation' - National Sustainable development strategy: the measurement of progress in relation to the preparation of national sustainable development strategies could not be quantified and has been addressed by asking those Member States who took part in the UNCSD indicator testing exercise (e.g. Austria, Belgium, Finland, France and Germany) to prepare short commentaries on their experience with sustainable development indicators and the main achievements in terms of national political frameworks for sustainable development. Although these written contributions cannot be considered as quantitative indicators, they constitute a first step to define such an indicator in the future. Not only does the reported information contribute to the analysis of this dimension, it also sets the scene for the future of SDI development in some of the EU Member States. Hence, the reports are presented as a separate Annex to this chapter.

Indicators omitted from the UN list

The following UN institutional indicator has been omitted:

Institutional framework: International co-operation - Implementation of ratified global agreements: the unclear definition of this indicator and the lack of quantified data led to the decision not to compile this indicator. The implementation of international agreements is left to the signatories and is a long-term process which is - for the time being - difficult to quantify.

Definition

Internet access is quantified as the total number of Internet users per 100 population, in terms of established accounts, including both domestic and professional users with Internet access at work and/or at home. Access growth rates are calculated as the annual percentage change in total Internet users. The measurement is based on users' surveys, declaring the number of connection sessions (monthly or weekly) to the Internet, as simple numbers of Internet accounts can only provide a partial picture of the actual degree of access (connections to the Internet) by individuals.

Indicator relevance

The take-up of the Internet and the associated technologies has become an important source of employment, and economic growth in the new context of the 'E-economy'. Sustainable development involves the participation of all groups within the society and access to the Internet can help connect every part of the world to available information channels. Benefits in terms of education, distant-learning, teleworking and flexibility measures for the disabled are potentially high. In the EU, the availability of Internet access from work and home are equally significant in terms of access to information. An individual's Internet access at work or at home is relevant in terms of information gains/flows to the whole society and allows the measurement of the level of direct access to information by the citizens. The potential for economic growth and societal change related to the use of the Internet is significant and forms one of the motivations behind the EU's 'eEurope 2002 Action Plan'. Actions include the promotion of cheaper, faster and secure Internet access, investing in the development of Information Technology skills and employment for the young ('eLearning') and stimulating the use of Internet ('e-commerce', government online, health, intelligent transport systems, etc). Moreover, a Communication on 'Job Strategies in the Information Society' (COM/2000/48) complements the EU Employment Strategy.

Linkages to other indicators

This indicator is linked to GDP (ECON1), expenditure on research and development (INST3) and telecommunication structure (INST2).

Internet access

(number of Internet users per 100 population)

	1998 *(Users per 100 inhabitants)*	1999 *(Users per 100 inhabitants)*	1998-1999 *(Access Growth Rate)*
EU-15	13	16	51
B	8	14	79
DK	22	41	87
D	12	20	66
EL	5	7	55
E	6	10	63
F	9	15	77
IRL	9	14	64
I	9	16	81
L	13	24	80
NL	22	39	76
A	15	23	50
P	5	9	71
FIN	34	42	24
S	33	44	34
UK	21	23	9
CY	7	9	0.2
CZ	4	3	0.5
EE	10	13	0.4
HU	3	6	:
PL	4	6	0.3
SI	10	13	0.6

Source: European Commission, Information Society Promotion Office (ISPO), European Survey of Information Society Projects and Actions (ESIS) 2000. Accession Countries: 1998 data from the International Telecommunication Union (ITU) and 1999 data from ISPO

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Internet access and 1998-1999 access growth rates- EU-15
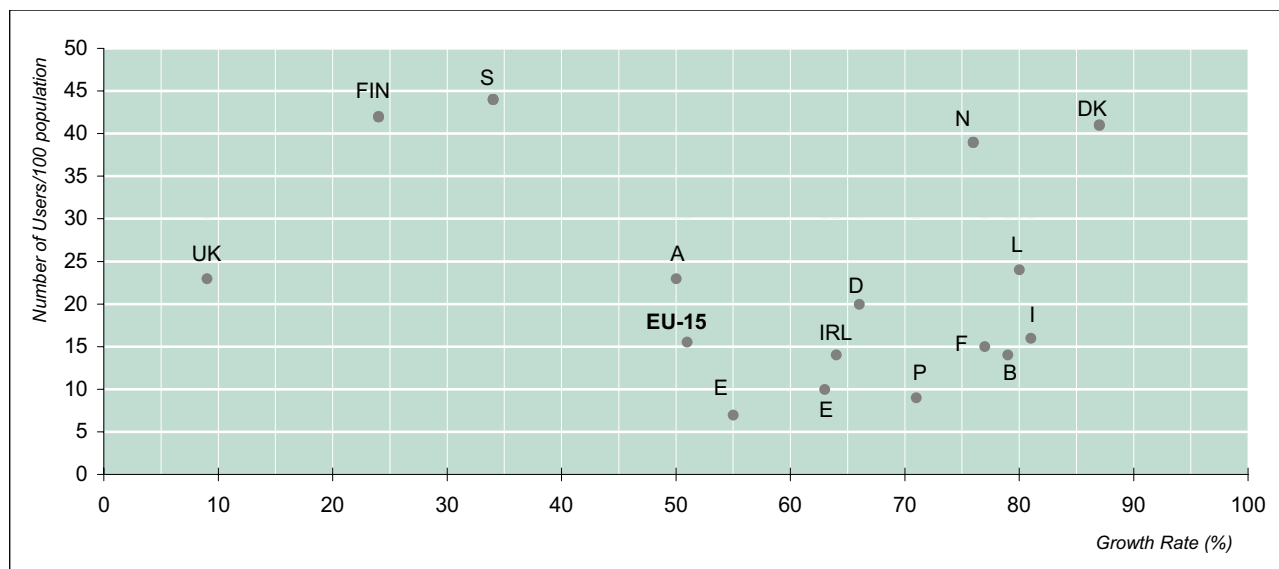
Source: European Commission, ISPO, ESIS data, 2000

Evaluation

At EU-level, as a whole, internet access rates increased from 13% to 16% of the population within one year (1998-1999), showing therefore a sharp growth of about 51%. The access growth rate was significant in all the Member States where access was relatively low in 1998 such as Belgium, France, Italy, Luxembourg and Portugal (70-80% growth in 1998-1999). Relatively slower increases have been registered in Member States with high access rates in 1998 such as Sweden (34% growth), Finland (24%) and the UK (9%). However, access continues to grow at a fast pace in Denmark and the Netherlands despite high access rates in 1998. In Accession Countries, Internet access increased between 1998 and 1999 but at relatively slower rates than the EU. In most countries, the access growth rate was close to 0.5%. As of 1999, 13% of the population had Internet access in Estonia and Slovenia, 6% in Hungary and Poland and 3% the Czech Republic.

Data assessment

For the 15 EU countries data on access are provided within the framework of the 'European Survey of Information Society' (ESIS) launched in 1997 by the Information Society Promotion Office (ISPO) of the European Commission, and covering the 1997-1999 period (ESIS I). The survey's objectives are to build an inventory of projects and a database on promotional activities undertaken by public authorities and private actors at European, national, regional or local levels, to monitor and to analyse new regulatory developments in the field of telecommunications and Information Society as well as to present a mapping of the actors, notably the public or private network facilities offering Information Society infrastructure, services and applications. In March 1999, ESIS was extended until 2001 (ESIS II) to Central and Eastern European and Mediterranean countries and areas so that Accession Countries 1999 data comes from the same source as for the EU countries (different data source for 1998, ITU). An update of ESIS I is on-going. Overall, the comparability and quality of data relies on the fact that internet accounts are used both by individuals and businesses and offered by numerous providers which makes the accounting complicated, especially because it grows on a monthly basis.

Indicator's place in other EU/international indicator lists

EU STRUCTURAL	OECD Hous.	UN AGENDA 21

Further reading: 'Statistics in Focus' on Information Society Statistics, Theme 4: Industry, Trade and Services, 6/2001, Eurostat, 2001; 'Information Society Indicators in the Member States of the European Union', ESIS, ISPO, European Commission, 2000.

INSTITUTIONAL — **INSTITUTIONAL CAPACITY** — *Communic. structure*

Definition

The communications infrastructure of the economy comprises both the Internet and the telecommunication systems, both fixed (main/conventional telephone lines) or mobile (cellular phones). An estimate of the overall level of telecom infrastructure can be provided by the number of main lines and cellular phone subscriptions per 100 population (also defined as penetration rates, shown as % of the population). It is important to note that one person can have several subscriptions.

Indicator relevance

Telecommunications development is critical to support sustainable development, as the network enables environment-friendly exchanges of information that can help save lives, educate or secure a job. A comprehensive telecommunications infrastructure ensures broad participation in society, even for inhabitants of remote areas. Although main telephone lines and radio connections are the parameters selected in the UN indicator list (in line with Agenda 21's chapter on 'Information for decision making'), it seems more -relevant for an EU indicator to include mobile telephones rather than the widely available radio connections.

The main element of EU Telecom policy is the further liberalisation of telecommunications services and networks (e.g. mobile services, satellite services and equipment) to ensure Europe's full participation in the growing Information Society. EU Telecom policy is based on the Open network provision (ONP) which seeks to ensure open access to publicly available telecommunications networks and services (e.g. availability of good quality telephone services in the context of Universal Service), according to harmonised conditions. Internet use is now fully integrated into the EU Telecom policy (consumer protection, privacy, and competitive tariffs under the broader Information Society policy).

Linkages to other indicators

This indicator is linked to Internet Access (INST1).

Main telephone lines & cellular phone subscriptions

(per 100 population)

	1980		1985		1990		1995		1996		1997		1998		1999	
	Main	Cellular	Main	Cellular	Main	Cellular	Main	Cellular	Main	Cellular	Main	Cellular	Main	Cellular	Main	Cellular
EU-15	27	:	35	:	42	0.9	49	5.7	50	9.0	52	14.1	53	24.1	54	39.1
B	25	0.01	31	0.04	39	0.4	46	2.3	47	4.7	49	9.6	50	17.2	50	31.3
DK	43	:	50	0.90	57	2.9	61	15.8	62	25.1	63	27.4	66	36.5	68	49.9
D	26	:	33	0.00	40	0.3	52	4.6	54	7.1	55	10.0	57	17.0	59	28.6
EL	24	:	31	:	39	:	49	2.6	51	5.3	52	8.9	53	19.6	53	31.4
E	19	:	24	:	32	0.1	39	2.4	39	7.6	40	11.0	41	17.9	42	31.2
F	30	:	42	:	50	0.5	56	1.8	57	4.2	58	9.9	58	19.1	58	36.3
IRL	14	:	20	0.01	28	0.7	36	4.4	38	8.0	41	14.6	43	25.6	47	37.5
I	23	:	31	0.01	39	0.5	43	6.9	44	11.2	45	20.4	45	35.6	46	52.6
L	36	:	42	0.01	48	0.2	57	6.6	59	10.9	67	16.1	69	30.8	72	48.7
NL	35	:	40	0.03	47	0.5	53	3.3	54	5.2	57	11.0	60	21.4	61	43.8
A	29	:	36	0.13	42	0.9	47	4.3	47	7.0	49	14.4	49	28.4	48	52.5
P	10	:	14	:	24	0.1	36	3.4	38	6.7	38	15.2	41	30.9	42	46.8
FIN	36	0.49	45	1.38	54	5.2	55	20.4	56	29.4	56	42.1	55	57.3	55	66.8
S	58	:	63	0.88	69	5.4	68	23.0	68	28.2	68	35.8	67	46.4	67	57.9
UK	31	:	38	0.09	44	2.0	50	9.8	52	12.1	54	15.2	56	25.2	55	40.4
IS	37	:	43	:	51	3.9	56	11.6	57	17.3	58	24.4	66	33.6	68	62.6
NO	29	:	42	1.52	50	4.6	56	22.6	56	28.9	53	38.2	66	47.7	71	61.7
EEA	27	:	35	:	42	0.9	49	5.9	51	9.2	52	14.4	53	24.3	54	39.3
CH	45		51	:	59	1.9	64	6.4	65	9.4	66	14.7	68	23.6	70	42.1
CY	:	:	:	:	:	:	47	6.0	50	10.0	59	14.0	54	16.0	54	19.0
CZ	:	:	:	:	:	:	23	0.0	27	2.0	32	5.0	36	9.0	38	19.0
EE	:	:	:	:	:	:	:	2.1	:	:	:	:	:	:	:	26.8
HU	:	:	:	:	:	:	21	3.0	26	5.0	30	7.0	33	10.0	36	16.0
PL	:	:	:	:	:	:	15	0.0	17	1.0	20	2.0	23	5.0	26	10.0
SI	:	:	:	:	:	:	31	1.0	33	2.0	36	5.0	37	10.0	38	31.0

Source: Eurostat. 1980-1990 EU figures only include reporting countries for any given year

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eurostat

Cellular phone subscriptions, EU-15 & Accession Countries, 1995-1999

(cellular phone subscriptions per 100 population)

Legend: ■ 1995   ■ 1999
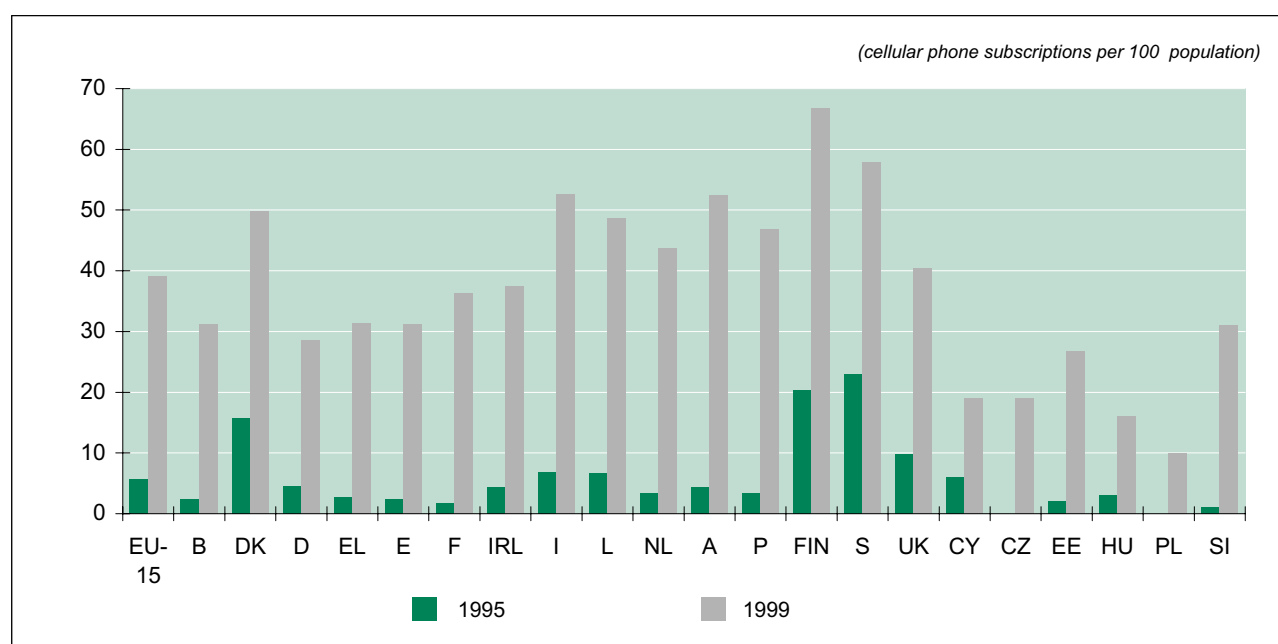
Source: Eurostat

Evaluation

The number of main conventional phone lines increased from 27 lines per 100 population in 1980 to 54 in 1999. In most Member States, the rate increased slowly by 2% on average between 1997 and 1999. The number of cellular phone subscriptions has increased rapidly since 1990 due to the telecom market liberalisation, technical progress and declining tariffs. Between 1990 and 1999, in the EU as a whole, the number of mobile subscriptions increased from 0.9 to 39 per 100 population. In 1990, in most Member States, except Finland, less than 1% of the population had a cellular phone subscription. In 1995, 2 to 7% of the population in most Member States had a cellular phone subscription and close to 20% in the Nordic countries. As of 1999, about 60% of the population had a mobile phone subscription in Finland (67%) and Sweden (58%), and 40-50% in Italy, Austria, Denmark, Ireland, Luxembourg, Portugal, the Netherlands and the UK. Since 1990, the largest increases have been registered in Portugal, Spain, Italy, Greece, Germany and the Netherlands. In 1995, the number of cellular phone subscriptions in Accession Countries ranged from less than one per 100 population in the Czech Republic and Poland to 3% in Hungary and 6% in Cyprus. Fastest growth was registered in Slovenia (+30%), the Czech Republic (+19%) and Estonia (+12%). As of 1999, cellular subscriptions covered 10% of the population in Poland, close to 20% in Cyprus, Estonia, Hungary and the Czech Republic and up to 31% in Slovenia.

Data assessment

Data on telecommunications are developed jointly by Eurostat and the International Telecommunication Union and are fully comparable. The rapid development of cellular phones, and in particular, the recent and fast take up of pre-paid cards without subscription makes the accounting more difficult. The present data only includes subscriptions and not pre-paid cards which underestimates the overall penetration rate of mobile phones.

Indicator's place in other EU/international indicator lists

EU STRUCTURAL	OECD Hous.	UN AGENDA 21

Further reading: Statistics in Focus (Industry, Trade and Services) 'Business Statistics in the Telecommunications Sector' No 19/2000, Eurostat.

Communic. structure

INSTITUTIONAL
INSTITUTIONAL CAPACITY

eurostat

Definition

Gross domestic expenditure on research and development (GERD) includes all the related expenditures devoted to R&D -capital and current- within the statistical unit. A breakdown is presented according to the institution/ sector in which the R&D activities are carried out:

the **Business Enterprise sector** (BERD) which includes all business enterprises/organisations/institutions whose primary activity is the market production of goods & services and private non-profit institutes serving these business enterprises;

the **Government sector** (GOVERD) which includes all departments/offices and other bodies, which provide all administrative common services other than higher education and the non-profit institutes controlled/financed by the government; and

the **Higher Education sector** (HERD)which includes all universities/colleges of technology and other post-secondary education institutes - whatever their source of finance or legal status- all research institutes, experimental stations and clinics operating under the direct control of/administered by/associated with higher education establishments.

R&D expenditure as a percentage of GDP represents the R&D intensity. This indicator also provides some information on two important related developments: the high-tech sector (covering R&D intensive activities such as Aerospace, Computers, Office Machinery, Electronics-Communications, Pharmaceuticals, Scientific instruments, Motor vehicles, Electrical machinery, Chemicals, Other transport equipment and Non-electrical machinery) and the knowledge-intensive service sector (KIS) (covering services with highly skilled employees NACE 61, 62, 64-67, 70-74, 80, 85, 92).

Indicator relevance

As acknowledged by Agenda 21, science can help support sustainable management of the environment and human development. For example, research and development in the fields of climate change, resource consumption (e.g. eco-efficiency), population trends and environmental degradation produce valuable information to devise long-term strategies for sustainable development. The role played by national governments to finance and actively promote such activities in all sectors of the economy is a response indicator that can be complemented by the R&D impact on the economy as a whole, e.g. employment in innovative sectors such as the high tech and KIS sectors.

Linkages to other indicators

This indicator is linked to the global investment ratio (ECON 2), the value added by sector (ECON 3), international competitiveness (ECON 6) and educational attainment levels (SOC15).

Research and development intensity by sector of performance

(% of GDP)

	GERD/capita PPS at 1990 prices		GERD/GDP		BERD/GDP		GOVERD/GDP		HERD/GDP	
	1990	1998	1990	1998	1990	1998	1990	1998	1990	1998
EU-15	291	292	**2.0**	**1.9**	**1.3**	**1.2**	**0.3**	**0.3**	**0.4**	**0.4**
B	256 [1]	312	1.6	*1.8*	1.1 [1]	*1.3*	*0.1* [1]	0.1	0.4 [1]	*0.4*
DK	249	364	**1.6**	**1.9**	**0.9**	1.2	**0.3**	**0.3**	**0.4**	**0.4**
D	469	384	2.7	**2.3**	1.9	1.6	0.4	**0.3**	0.4	**0.4**
EL	32 [1]	48	0.4	0.5	0.1 [1]	0.1	0.2 [1]	0.1	0.1 [1]	0.3
E	93	121	0.8	0.9	0.5	0.5	0.2	0.2	0.2	0.3
F	389 [1]	377	2.4	*2.2*	1.5	*1.4*	0.6 [1]	*0.4*	0.4 [1]	*0.4*
IRL	94	234	0.9	1.4	0.5	1.0	0.2	0.1	0.2	0.3
I	193	169	1.3	*1.0*	0.8	*0.6*	0.3	*0.2*	0.3	*0.3*
NL	319	357	2.2	2.0	1.1	1.1	0.4	0.4	0.6	0.6
A	219	314	**1.4**	**1.8**	0.8	0.8	0.1	0.1	0.4	0.5
P	47	67	0.5	0.6	0.1	0.1	0.1	0.2	0.2	0.3
FIN	287	488	1.9	2.9	1.2	1.9	0.4	0.4	0.4	0.6
S	447 [1]	653	2.9 [1]	*3.8*	1.9	*2.9*	0.1 [1]	*0.1*	0.8 [1]	*0.8*
UK	316	303	2.2	1.8	1.5	1.2	0.3	0.2	0.4	0.4
CY	:	:	0.2 [1]	0.2	:	0.3	:	:	:	:
CZ	52	53	2.2	1.3	:	0.7	:	:	:	:
EE	:	:	:	0.6	:	0.6	:	:	:	:
HU	40	29	1.6	0.7	:	0.3	:	:	:	:
PL	12	23	1.0	0.7	:	0.3	:	:	:	:
SI	128	115	1.8	1.4	:	0.8	:	:	:	:

Source: Eurostat. Values in bold are estimates. Data in italics are provisional. L not included in EU-15 average. D - Ex GDR not included in 1990 data. A - BERD, GOVERD, HERD 1989 figures instead of 1990 and 1993 figures instead of 1998. B, EL, NL, P - 1997 figures instead of 1998. IRL - 1997 figures for GERD/capita, GERD, BERD, and HERD. Accession Countries: break in series in 1990, GERD per capita in Mio ECU at current prices and current exchange rates
1) 1991 figures instead of 1990.

Employment in high tech and Knowledge Intensive Sectors, EU-15, 1999

(% of employment in High tech and KIS sectors of total

Legend: ■ High tech ■ KIS
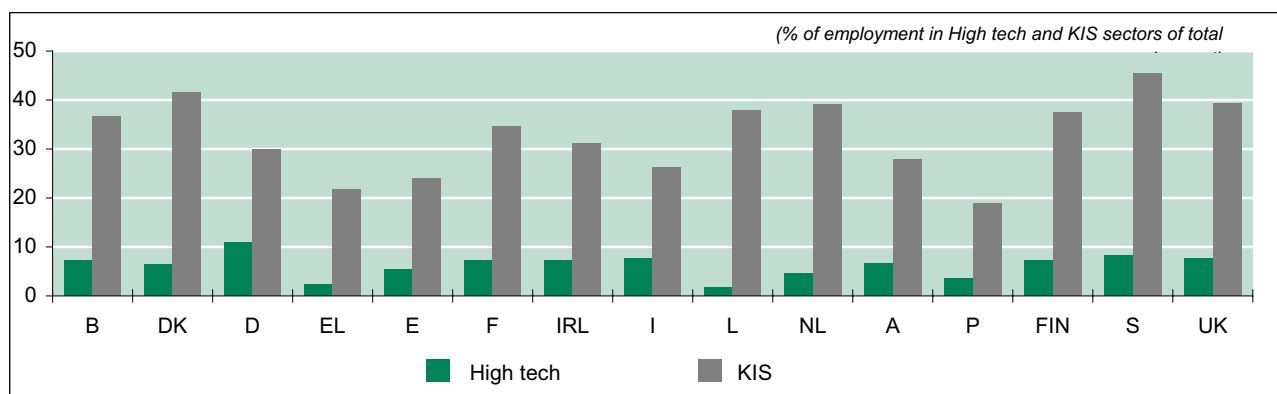
Source: Eurostat. EL - 1998 instead of 1999

Evaluation

Between 1990 and 1998, gross domestic R&D expenditure (GERD) per capita for the EU as a whole remained practically constant (from 291 ECU to 292 ECU/ capita). As a % of GDP, EU-GERD decreased slightly, from 2% in 1990 to 1.9% in 1998. In the same year, the R&D intensity in the US and Japan was much higher (around 3%). In 1998, R&D intensity ranged from 0.5% (Greece) to 3.8% of GDP (Sweden). Over the period, EU- R&D expenditure intensity in institutional sectors remained stable: government (0.3%), businesses (1.2%) and higher education (0.4%).). However some significant changes occurred at national level, mainly as a result of developments in the business sector. Between 1990-1998, R&D intensity increased by between 0.1 to 0.5 percentage points in Greece, Spain, Portugal, Austria and Ireland. On the other hand, it decreased slightly in Italy, France and the UK. Important increases in the BERD were recorded in Ireland, Sweden, Finland and Denmark, while significant decreases were registered in the UK, Italy and Germany. In Accession Countries, GERD as a % of GDP varies from 0.2% (Cyprus, 1998) to 1.4% of GDP (Slovenia, 1997). Employment in the High Tech sector represented between 7-10% of total employment in most Member States in 1999. In 1999, the knowledge intensive service sector accounted for more than 40% of total employment in Denmark and Sweden, and around 35-40% in Belgium, France, Finland, Luxembourg, the Netherlands and the UK. Employment in the High Tech sector represented between 7-10% of total employment in most Member States in 1999. In 1999, the knowledge intensive service sector accounted for more than 40% of total employment in Denmark and Sweden, and around 35-40% in Belgium, France, Finland, Luxembourg, the Netherlands and the UK.

Data assessment

Eurostat methodology for R&D surveys is based on the OECD methodology (Frascati Manual). Accession countries have introduced the OECD methodology, compatible with the EU methodology, only since 1994 or 1995. Hence the 1990 figures - based on different classifications of R&D - include activities other than R&D as defined by the Frascati Manual and are not fully comparable with 1994-1998 data. They should be seen as purely indicative of R&D intensities at that time. However, accession country data on gross domestic expenditure and the business sector for 1994-1998 period is comparable with the EU data. Coverage of the performance of other sectors will be extended in the future.

Indicator's place in other EU/international indicator lists

EU STRUCTURAL	OECD Hous.	UN AGENDA 21

Further reading: 'Statistics on Science and Technology in Europe', Eurostat, 2001; 'R&D and Innovation Statistics in Candidate Countries and the Russian Federation' Data 1996-97, Theme Research & Development', Eurostat, 2000; 'R&D Expenditure and personnel in Candidate Countries and the Russian Federation in 1998', Statistics in Focus Theme Research & Development', 03/2000, Eurostat. 'Towards a European Research Area Science, Technology and Innovation, Key Figures 2000', European Commission and Eurostat, 2000.

Definition

Risks to the human and natural capital are measured by the extent of damage to human beings and ecosystems caused by human activities. Current damages, per year and averaged over the period of time, include the number of major industrial accidents (linked to storage and processing activities of hazardous substances covered[a]) by the EU Seveso Directive) involving fatalities in the Member States.

Forest fire is measured as the number of fires per year and the forest area burnt in hectare. Forest is defined as land with a tree crown cover of more than 10%, area of more than 0.5 hectare and includes both open and closed forest formations, young natural stands and all plantations for forestry purposes. Other wooded land include land either with a tree crown cover of 5-10% of trees able to reach a height of 5 m in situ or a crown cover than of more than 10% of trees not able to reach 5 m height. These two types of land, included in forestry data, are regrouped under 'Forest and other wooded land (FOWL)'.

Indicator relevance

This indicator replaces the UN indicator on economic and human loss due to natural disasters identifying two sources of potential (but preventable) threats, e.g. major industrial accidents and forest fires. The policy response to such damage is difficult to measure at present. Nevertheless, this damage has significant economic, social and environmental impacts in the EU. Major industrial accidents can cause fatalities in the workplace and in residential areas nearby, long-term health hazards, environmental pollution from hazardous substances and economic loss for the companies. Forest fires have become a real concern in the southern Member States, causing considerable damage in terms of loss of human life and in environmental terms through soil erosion (and landslide) and fauna and flora destruction. They also have serious economic implications: destruction of habitats, timber production loss, lower tourism value and costs of fire-fighting. Among the main causes (arson, negligence and natural) arson appear to be predominant. Natural factors such as droughts (notably in the Mediterranean area), wind speed and topography, which influence the spread of fires and govern devastating effects also affect the scope of the damage.

Linkages to other indicators

This indicator is partly linked to the forestry (ENV 7) and biodiversity (ENV 15/16) indicators.

Fires on forest and other wooded land (FOWL)

(number of fires)

	1992 Number	1992 Surface	1993 Number	1993 Surface	1994 Number	1994 Surface	1995 Number	1995 Surface	1996 Number	1996 Surface	1997 Number	1997 Surface
EU-15	:	370 535	:	417 261	58 500	674 249	73919	383 987	73100	210 624	:	:
B	26	16	36	108	43	53	40	66	185	1 450	35	280
DK	2	277	14	11	6	1	6	2	14	60	7	10
D	3 012	4 908	1 694	1 493	1 696	1 114	1 237	592	1 748	1 381	1 467	599
EL	2 582	71 410	2 406	54 049	1 763	57 908	1 438	27 202	1 508	25 310	3 113	52 373
E	15 895	104 592	14 254	89 332	19 263	437 635	25 827	143 484	16 772	59 824	22 479	88 285
F	4 008	16 605	4 765	16 695	4 633	24 996	6 563	18 137	6 401	11 400	7 230	20 500
IRL	156	569	123	540	149	275	143	461	143	461	143	461
I	14 545	105 695	15 380	203 143	8 669	68 828	7 377	22 631	9093	23 813	11 408	65 783
L	8	2	15	8	7	2	4	1	3	3	:	:
NL	76	174	83	104	51	275	77	233	77	164	68	224
A	165	132	178	112	94	57	64	32	41	28	66	39
P	14 954	59 071	13 919	49 963	18 104	77 323	28 044	169 612	29 078	83 045	24 429	26 068
FIN	852	1 081	286	580	1 173	1 659	1 093	668	1 289	919	1 125	1 046
S	:	5 808	:	1 000	2 500	3 100	1 100	400	6 240	2 181	3 280	1 894
UK	328	195	61	123	349	1 023	906	466	508	585	375	332
NO	892	1 370	253	224	471	232	181	113	246	514	510	626
CH	111	52	99	42	52	293	56	438	61	233	77	1 932

Annual average

	Number	FOWL lost %
EU-15	65 095	0.28
EL	2 135	0.11
E	19 082	0.74
F	5 600	0.59
I	11 079	0.75
P	21 421	2.24
Rest of EU-countries	5 778	0.01

Source: ICP Forest; International Cooperative Programme on the Assessment and Monitoring of Air Pollution Effects on Forests, UN-ECE. Annual report published commonly by DG Agriculture, European Commission, Brussels and UN-ECE/FAO, Geneva. 1997 data are provisional

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[a] 96/82/EC Directive on Major Accident Hazards of certain industrial activities

Major industrial accidents with fatalities, EU total, 1988-1998

(Total number of major industrial accidents with fatalities)
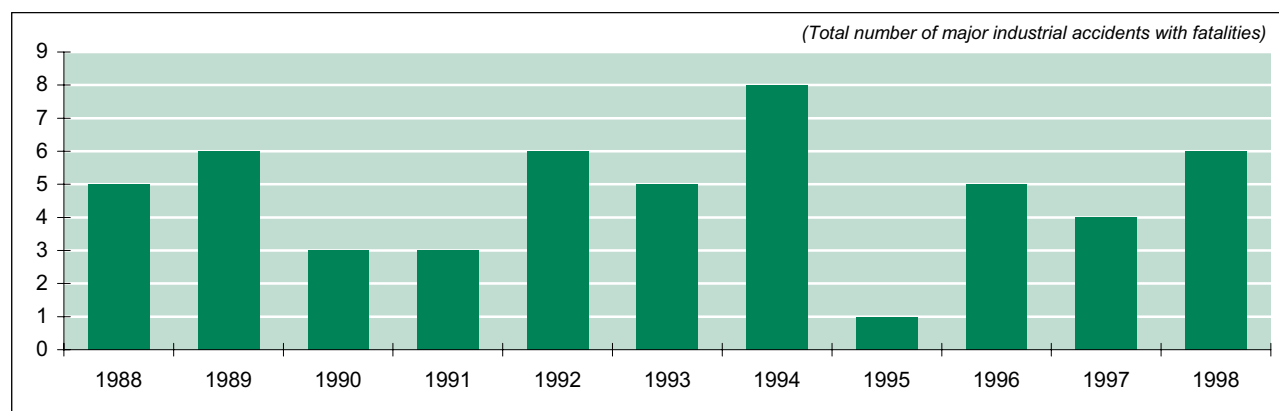
Source: European Commission, Major Accident Reporting System. EU figures only include reporting countries. No major accident reported by Belgium in 1988-1992, nor from Spain and Portugal in 1993-1998. FIN and A not included causing a break in time series since 1995. 1992: incomplete reporting (see data assessment)

Evaluation

On average, over 65 000 forest fires occurred each year in the EU between 1992 and 1997. On average over 385 000 hectares of forest and other wooded land (FOWL) were destroyed each year, e.g. 0.28% of the total FOWL area. Compared with the annual average of 6 640 hectares lost in other Member States, the southern Member States experienced significant damage to their forest land, ranging from 18 056 hectares per year in France to 153 859 hectares/year in Spain. The annual forest damage accounted for 2.24% of the total FOWL area in Portugal and 0.74% in Spain, against 0.01% in other EU Member States.

In total, 52 major industrial accidents falling under the Seveso Directive were reported in the EU and caused human fatalities over the 1988-1998 period. Because the numbers of accidents are so small no real trends can be inferred.

Data assessment

The data on forest fires is based on the results of both national and transnational surveys, conducted within the framework of the UN-ECE International Cooperative Programme and the EU forest protection scheme[b]. Due to current lack of harmonisation of national forest fires statistics, the comparability across countries is limited. In addition to fires on forest and other wooded land (FOWL), most countries include fires on other type of land, e.g. heathland, waste land or agricultural land adjoining or enclosed by forest land. In southern Europe, burnt areas on other land, as reported in the current statistics, may even exceed burnt areas on FOWL. Hence, the data should be seen as basic and partial information on the fire events. The data collection, jointly carried out by the European Commission and the UN-ECE, will be extended to Accession Countries in the future. The Major Accident Hazard Bureau collects information from Member States on any major industrial accidents, which have occurred within their territory under the Seveso Directive (Major Accident Reporting System database or MARS). Sweden, Austria and Finland are not included in the current dataset as reporting for these countries started only in 1997. Transition to the Seveso Directive II reduced the quality of reporting in 1992 and was only fully implemented in 1998. MARS is currently being extended to Accession and EFTA countries.

Indicator's place in other EU/international indicator lists

EU STRUCTURAL	OECD Hous.	UN AGENDA 21

Further reading: 'Forestry Statistics Data 1995-1998', Detailed Tables, Eurostat, 1999; 'Statistics in Focus (Agriculture and Fisheries), Theme 5, N 17/2000; Forest Fire Statistics 1995-1997, UN-ECE, Geneva; 'Forest Condition in Europe', DG Agriculture, European Commission and UN-ECE/FAO, 2000.

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[b] Council Regulation (EEC) of 17 November 1986 on the protection of the Community's forests against atmospheric pollution

Natural disaster prep.

INSTITUTIONAL CAPACITY / INSTITUTIONAL

Annex
Institutional Dimension

Theme: *Institutional Framework*

Sub-theme 'Strategic Implementation' National Sustainable Development Strategy

NATIONAL SUSTAINABLE DEVELOPMENT EXPERIENCES

REPORTS BY AUSTRIA, BELGIUM, FRANCE, FINLAND AND GERMANY

Sustainable Development Indicators in Austria

The political framework

Various concepts and initiatives for sustainable development exist in Austria both at federal and regional levels. Sustainable development is laid down as a guiding principle in the Coalition Government's agreements of 1996 and 2000. One example for such a national plan for sustainable development, covering both environmental, social and economic impacts, is the Austrian National Environmental Plan (1995). Through its adoption, the Austrian Government and Parliament established a long-term perspective for the environmental dimension of sustainable development. A National Strategy for Sustainable Development including indicators will be elaborated in 2001.

Consequently, regional environmental plans and sustainability guidelines were prepared at the '*Länder*' level. These regional environmental plans stipulate action programmes and measures for various sectors (e.g., industry, transport, regional planning) as well as evaluations which include indicators.

Main achievements in the area of sustainable development in Austria

- The **Austrian National Environmental Plan**, adopted in 1995, established sustainability guidelines for environmental policy. With respect to the need to integrate environmental concerns into sectoral policies, it stipulates guidelines for the following target sectors: energy, industry and manufacturing, transport, agriculture, forestry, tourism and recreation as well as consumers. Eco-efficiency at both micro- and macro-economic levels is treated as a key theme. Internalisation of environmental costs is a guiding principle, especially in the energy and transport sectors, and the social dimension is considered strongly.

- The **Austrian Council for Sustainable Development**, comprising members from all ministries, the Länder, cities, towns, interest representations and NGOs as well as scientific institutions, was set up 1997 following the Rio conference its implications.

Other major initiatives, both at federal and regional levels, include:

- The **Conference of Regional Environment Ministers** appointed **Sustainability Co-ordinators** for each 'Bundesland' (federal province). These co-ordinators are to prepare a harmonised environmental policy, incorporating sustainable development, which attempts to integrate environmental concerns into sectoral policies. This board is a policy-consultation forum that shall support the co-ordination between the federal provinces and federal level. Recently it was mandated to focus on environmental quality guidelines including indicators to monitor the development of both the state of the environment and the integration of environmental concerns into sectoral policies. It is foreseen that this co-ordination mechanism will also take up the issue of the environmental evaluation of European structural funds.

- The '**Round Table Sustainable Austria**' was established in 1998 to network the numerous initiatives launched on sustainable development. This forum brings together public administrations, scientific institutions and interest groups.

Results from the Sustainable Development Indicator development process

Based on the UN-CSD indicator list, the most important selection criteria used were the relevance of each indicator for Austria and national data availability. First drafts of the analysis were prepared by a small working group chaired by the Ministry of the Environment and made up of representatives of the major data-collecting institutions in Austria. The Austrian Council for Sustainable Development was asked to comment on them. Some indicators from the UN list were slightly modified, mainly because of data availability. In addition, a few indicators were added. For example, an original UN indicator consisted of the number of existing biosafety regulations or guidelines. As those regulations or guidelines mostly cover applications for mainly medicinal or pharmaceutical purposes and applications on humans, it does not seem relevant to measure environmental effects. However, taking into account that deliberate releases affect the environment, Austria decided to change this indicator to the 'Number of applications for deliberate releases of GMOs (LMOs) and number of actual deliberate releases of GMOs including products' *(see box below)*.

Our discussions on testing the UN-CSD indicators showed that a correct interpretation of an indicator implies the consideration of different factors behind the described phenomenon. For example, an increase in the total amount of waste collected may have various causes: population growth, better collection systems, improved awareness, rise in consumption, growing number of households, etc.

Measuring Progress Towards a More Sustainable Europe

Therefore, the Ministry of the Environment published the brochure 'Eco-efficiency' ('Ökologisch wirtschaften') showing diagrams on selected issues (the economy as a whole, municipal waste, energy, agriculture, industry and transport) which illustrate the development of various parameters as an index. The development of selected economic, social and environmental parameters into an index underlines their inter-links illustrating the sustainability impact of each issue.

In response to Austria's UN test reports, which are available on the Internet, a series of enquiries from interested members of the public were registered. In particular the brochure 'Eco-efficiency' was received positively as a valuable contribution for the analysis of inter-linkages between social, economic and ecological aspects in the selected sectors.

Austria-specific indicators

- In terms of Chapter 16 of AGENDA 21 'Environmentally sound management of biotechnology', the Austrian list uses the 'Number of applications for deliberate releases of GMOs (LMOs) and number of actual deliberate releases of GMOs including products' instead of the existence of biosafety regulation proposed by the UN.

- 'Direct material input' is used as an indicator to describe the relation between economic development in terms of GDP and its natural resource base.

- 'Expenditure on noise abatement'.

Ongoing and forthcoming projects and co-operative actions with the UN

In order to provide a comprehensive approach, the Ministry of Environment is currently analysing the relation between environmental and social aspects with the aim of selecting suitable indicators. As this field is very broad we are trying to develop a modular concept. Specific attention will be given to psycho-social aspects.

Further reading: For further information, please consult:
http://www.bmu.gv.at/u_umwelt/nachhalt/nachhaltigkeit/un_nachhaltigkeitsindikatoren.html
http://www.bmu.gv.at/u_umwelt/nachhalt/nachhaltigkeit/index_e.html

The political framework

Within the framework of the Act of 5 May 1997, which coordinates the federal sustainable development policy, the first Federal Report on Sustainable Development was published in 1999 and the first Federal Plan for Sustainable Development (2000-2004) was approved by the Federal Government in September 2000. Both of these documents define the sustainable development strategy in Belgium. The Federal Plan for Sustainable Development sets out 4 key actions, each action being divided into specific policy areas *(see box 1)*.

Within the Plan, indicators are used to formulate some of its thematic objectives while additional indicators are proposed to monitor the implementation of the Plan. According to the Act, the first Federal Report describes the existing situation for the three dimensions of sustainable development *(see box 2)* on the basis of about 100 indicators of sustainable development. Since responsibility for environmental policy remains with the Regions, the Regional Governments deal mainly with environmental indicators.

Box 1: Main achievements in the area of Sustainable Development in Belgium

The Federal Plan for Sustainable Development (2000-2004), adopted in September 2000 defines the federal sustainable development strategy in Belgium. The Plan presents the principles, themes and strategic objectives to be achieved by 2003. The strategy relies on **four key areas for action**, each comprising 2 to 4 specific policy areas:

1. **Actions on Patterns of Consumption and Production;**
2. **Actions on Poverty and Social Exclusion/Over-indebtedness/Environmental health;**
3. **Actions on Agriculture/Marine Environment/Biodiversity; and**
4. **Actions on Energy/Transport/Ozone/Climate Change.**

For each domain of action and its strategic objectives, the development of an adequate set of **indicators** according to **the economic, social and environmental dimensions of sustainable development** is foreseen. *(see the examples in box 2).* The Plan also defines the means of implementation (international, science, fiscal policies, information for decision-making) and measures to promote the strengthening of the role of major groups (women, young people and children, foreigners and refugees). These are complemented by a set of guidelines for Sustainable Development policy including political responsibilities, future prospects for Belgium, a multi-disciplinary approach, public participation and indicators.

An **Interdepartmental Committee for Sustainable Development** created by the Act of 5 May 1997 is in charge of giving guidelines for the elaboration of the Federal Plan carried out by the **Task Force Sustainable Development** at the Federal Planning Bureau. The Committee also co-ordinates the implementation of the Plan. Every two years the Federal Bureau carries out an assessment of the state of play of sustainable development in Belgium, published, along with indicators, in the Federal Report on Sustainable Development.

Results from the Sustainable Development Indicator development process

The testing of the UN-CSD list of indicators for sustainable development (SDIs) took place within two very different frameworks:

First, a technically-oriented testing phase focused on the UN environmental indicators was carried out in a new working group established in June 1996 by the Interministerial Conference on the Environment. The working group first analysed the availability of data for the 57 environmental SDIs of the UN-CSD list. Then, for the 21 indicators for which data were, in principle, available in Belgium, the working group analysed the UN-CSD methodology sheets. Secondly, an analytical phase, led by the Task Force Sustainable Development of the Federal Bureau, took place within the framework of the Act of 5 May 1997. The preparation of the first Federal Report comprised the development of more than 100 indicators to describe the current situation for the 3 key dimensions of sustainable development *(see box 2)*. This analysis was mainly used to test data availability and

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a) The main legal frameworks regarding environmental strategies for sustainable development include the Nature Report and Plan in the Flemish Region, the Environmental Plan for Sustainable Development and the Walloon State of Environment in the Walloon Region, the Regional Development Plan and the Report on the State of the Environment in the Brussels-Capital Region

eurostat

the policy relevance of the UN set of social and economic indicators to the Belgian sustainable development strategy. Among the selected national indicators, 34 were similar to the UN-CSD list. Regarding the political phase, the drafting of the first Federal Plan was the subject of a public enquiry. Consultation proved that some part of the population was not indifferent to indicators and had a relatively good knowledge of the subject.

Box 2. Belgium's specific indicators: *Examples of the main indicators used in the first Federal Report on sustainable development not included in the UNCSD list[b]*

Economic Dimension: Action 1: Changing Consumption patterns	- Household consumption expenditure per type of good in percentage of the household budget for the entire population and per income quartile; - Household saving rates per income category; - Average meat consumption per day and per inhabitant; and - Number of km-passenger per mode of transport.
Social Dimension: Action 2: Eradication of Poverty	- Index of human poverty (developed by UNDP); - Net income gap between the first 3 deciles and the tenth decile; - Indebtedness rate per income categories; and - Number of people with a limited physical functioning per income categories.
Environmental Dimension: Actions 3: Protection of Seas and Coastal Areas	*Protection of seas and coastal areas:* - Emissions of heavy metals (mercury, cadmium, lead); - Atmospheric emissions of dioxins; and - National fish catches (tons/year).
Actions 4: Protection of the Atmosphere	*Protection of the atmosphere:* - Number of days where the tropospheric ozone concentration exceeds the health protection standards applied inside the EU; and - Emissions of tropospheric ozone precursors by sector.

Two other regional and local indicator initiatives are worth mentioning. Within the framework of the EUROREGIO-project[c] between Belgian, British and French border regions, a set of indicators for air quality, biodiversity and sound pollution from transportation was developed. At a local urban level, a project led by the Brussels Institute for the Environment (IBGE) developed a set of composite indicators for sustainable urban development in collaboration with a network of 6 Belgian cities.

Ongoing and forthcoming projects and co-operative actions with the UN

The first Plan should help develop the work on indicators inside the different federal departments given that the Plan includes some measures to encourage the use of indicators by the government departments to monitor the implementation of the Plan (for example, the appointment of a focal point for indicators within each department). Still within the framework of the Act of 5 May 1997, the second Report on Sustainable Development expected in 2002 will describe indicators of sustainable development for a larger number of themes of Action 21. However, the themes to be covered are yet to be defined.

Further reading: Federal Planning Office, 'First Federal Report on Sustainable Development', 1999. Interdepartmental Committee for Sustainable Development, 'Federal Plan for Sustainable Development, 2000-2004', 2000. Federal Planning Bureau, 'Report of the Second International Workshop of Ghent: Launching the Testing of Indicators of Sustainable Development', 1996. Gouzée N, 'Implementation of the Rio Agreements: Indicators of Sustainable De-velopment - An Institutional Approach', Working Paper n°1-96, Federal Planning Bureau, 1996. (http://www.plan.be/fr/pub/wp/detail_wp.stm?pub=WP9601).

For further information, please consult: http://www.plan.be, http://www.cidd.fgov.be

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[b] Since it was not possible to present all the indicators used in the report, we selected some of them according to two criteria: their importance in the report and their complementarity to the UN-CSD indicator list

[c] Funded by the European Regional Development Fund. This project concerns Wallonia, Brussels Region, Pas de Calais, Kent and Flanders

Sustainable Development Indicators in France

The political framework

In 1997, the French Government adopted a National Sustainable Development Strategy. The Ministry of Spatial Planning and Environment (MSPE) is in charge of implementing this strategy and carrying out the French Sustainable Development Commission's (CFDD) administrative duties. At a national level, the IFEN (the French Institute for the Environment) working under the authority of the MSPE, undertakes and co-ordinates the collection, processing and dissemination of statistics and data on the environment. The IFEN is responsible for developing environmental performance and sectoral indicators and sustainable development indicators (SDI).

Sub-national authorities (at regional, département and local levels) are increasingly involved in projects linked to sustainable development. Such projects include defining and implementing local Agenda 21s, and setting up the 'Towns and Sustainable Development Network', co-ordinated by the MSPE.

Results of the 'twinning initiative' with Tunisia (1997-1998)

Within the framework of the UN SDI testing exercise, the IFEN, following a request by the MSPE, offered technical and financial support to the Tunisian Environment and Sustainable Development Observatory with collaboration from the Blue Plan (Mediterranean Action programme). The main results of this collaboration include the testing of 120 selected indicators and the compilation of 70 indicators. Data were provided either for the UN indicators, or for similar ones used in Tunisia. The partnership involved significant participation of national institutions in Tunisia.

Box 1: Main achievements in the area of Sustainable Development in France

The **French Sustainable Development Commission (CFDD),** an independent government advisory body, was created in 1993. Its role is to consult, advise, propose broad policy directions and motivate the public debate towards sustainable development. In 1999, its membership was renewed.

In 2000, the CFDD set up three working groups to advise on the following sets of issues:

- Education, culture, information and sustainable development;

- The possibility of patenting living organisms, GMOs and sustainable development; and

- Energy and sustainable development.

At a local level, a mechanism to assess the environmental, social and economic aspects of **local development programmes** was put in place under the Spatial Planning and Sustainable Development Policy Act of 25 June 1999 and contract-based partnerships between the State and sub-national authorities. This measure complements the sub-national authorities' initiatives for Local Agenda 21 and participation in national sustainable cities networks.

At an international level, a co-operation project on sustainable development indicators between France (IFEN) and **Morocco** (National Observatory on the Environment) started in September 2000 *(see 'on-going projects' below).*

Results from the Sustainable Development Indicator development process

Co-ordinated by the Ministry of the Environment, the UN testing process was led by IFEN and consisted of two phases: (1) a technical test involving 50 experts to appraise 126 indicators out of the 134 UN indicators and (2) a policy relevance assessment involving 20 experts. The technical appraisal included an evaluation of the ability of the French statistical system to compile the UN-CSD indicators, a comparative exercise between national calculation methods and UN specifications and an evaluation of the quality of the methodology sheets. The policy relevance assessment focused on analysing the relevance of the indicators in the national context and their usefulness for decision-makers.

In conclusion, the level of data availability was assessed to be high (53 indicators routinely compiled and published in France, 55 indicators not compiled but for which data is available), but that there were many

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methodological differences. Moreover, many UN indicators appeared not to be suited to the French level of development (notably regarding Education, Health, and the institutional framework). It was found that some priority issues at national level such as transport, tourism, consumption and production patterns, urban issues and technological hazards were not (sufficiently) addressed by the UN list.

Since 1996, and in parallel to the UN testing phase, IFEN has been developing its own national SDI programme following a request from the MSPE. A methodological framework has been elaborated to integrate the various components of sustainable development. This framework is divided into 10 modules (or themes), each of which is homogenous and specific *(see box 2)*. In 1998/1999, more than 50 national experts, decision-makers and scientists collaborated in the IFEN SDI programme. Following this methodological exercise, a selection process took place in 2000 to prepare a technical document containing a list of about 200 national SDIs (available in early 2001) which mainly differ from the UN list.

Box 2: France's specific indicators: *The Modular Approach in the French SDI Programme (with examples of selected national indicators*

1. Efficiency of the economy *(Energy consumption per unit of GNP)*
2. Critical pollution and overexploitation *(Recycling rate of raw materials)*
3. Natural Heritage Management *(Number of endemic species, landscape diversity map)*
4. Spatial distribution and inequities *(Spatial concentration of pollutants)*
5. Globalisation and governance *(Ecological footprint*)*
6. Income access, inequities and exclusion *(Life expectancy per social categories*)*
7. Satisfaction, preferences and participation *(Number of environment-related conflicts per year*)*
8. Responsibilities and the precaution principle *(Number of local Agenda 21 in implementation, R&D expenditures linked to sustainable development)*
9. Resilience, adaptability, flexibility *(Number of natural and technological disasters*, Time lag between scientific evidence and policy decision*)*

(*) = Specific to France.

Ongoing and forthcoming projects and co-operative actions with the UN

The data compilation phase under the national SDI Programme will be carried out in 2002. In addition, the IFEN is carrying out an extensive study, which is looking to define the concept of 'critical natural capital' within the French context[a]. A survey on the importance of critical natural capital from the point of view of economic activity and the overall community was carried out among national administrations, local authorities, associative organizations, private companies and research centres at the beginning of year 2000. It appeared that water resources, ecosystems and landscapes were considered to be the most critical resources due to their economic and strategic importance (75% of the responses), vulnerability (62%), the absence of substitute or at a high cost (60%) and irreversibility (54%). This approach will be soon tested in one or two pilot regions.

The co-operation project between France (IFEN) and Morocco (National Observatory on Environment) launched in 2000 has just started. It aims at compile and analyse a set of 130 SDIs which were proposed by the Mediterranean Commission of Sustainable Development, under the recommendations of the Contracting Parties to the Barcelona Convention. At a Mediterranean level, the exercise is co-ordinated by the Blue Plan (Mediterranean Action Programme). All 20 Mediterranean countries are participating to this exercise.

Further reading: IFEN, 'Indicators of Sustainable Development: a synopsis of work abroad and key points for discussion', Coll. Etudes et Travaux n°8, June 1997. IFEN, 'Testing United Nations Indicators of Sustainable Development', Coll. Etudes et Travaux n°17, June 1998. IFEN, 'Sustainable Development Indicators for France - Methods and Perspectives', Coll. Etudes et Travaux n°24, October 1999. *(Only available in French).* IFEN, 'Critical Natural Heritage and Sustainable Development: Bibliography analysis and Consultation of experts', Etudes et Travaux n°32, Forthcoming, 2001. IFEN, 'Sustainable Development Indicators for France', Forthcoming, 2001.

For further information, please consult: http://www.ifen.fr, http://www.environnement.gouv.fr, http://www.planbleu.org

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[a] Critical natural capital is used to designate the categories of natural resources or natural capital, which should be preserved as priority because their disappearance would cause economic, social and ecological problems

The political framework

The Finnish Government's Programme on Sustainable Development was completed in 1998 and has been the subject of a 'decision of principle' by the Cabinet. The programme sets strategic targets and provides guidelines for planning, decision-making, and actions on sustainable development at Government level. The programme does not necessarily imply obligatory actions on the part of other parties or individual citizens, but it forms a basis for dialogue between different interests and a framework for similar planning carried out elsewhere.

The Government's Programme on Sustainable Development is aimed at achieving ecological sustainability and creating the necessary economic, social, and cultural conditions that foster such development. In terms of ecological sustainability, the primary goals of the programme are to reduce the use of non-renewable resources, to preserve nature's generative capacity and ecological values, and to generally improve the condition of the environment. The programme also proposes lines of action for solving far-reaching environmental problems through international co-operation. Improving the condition of the natural environment and the environments in which people live also has beneficial consequences for human health.

Main achievements in the area of Sustainable Development in Finland

- In 1995, the Finnish Government completed a **National Programme on Sustainable Development**, which sets the national sustainable development strategy and targets, as well as guidelines for implementation.

- The Programme acknowledges that **economic sustainability** relies on adequate levels of competitiveness and employment in the national economy. At the same time, it aims to promote changes in production and consumption patterns to lessen their environmental impacts. In the **social and cultural spheres**, the Programme seeks to develop the information and skills of citizens that help meet the challenges of sustainable development, so as to safeguard citizens' well being. The Government will review the Programme's success at regular intervals. Indicators are one of the agreed assessment tools.

- The **Finnish Commission for Sustainable Development** was set up in 1993 and launched a national sustainable development indicator selection process in 1998 under the responsibility of the **'Indicator Network'** working group *(see below)*. In 2000, the Commission accepted the final set of national Finnish indicators for sustainable development. These are structured around the three sustainable development dimensions (ecological, economic and social) and divided into 20 specific issues *(see diagram below)*.

Results from the Sustainable Development Indicator development process

The national indicator development process led by the Finnish Commission for Sustainable Development started in 1997 in parallel with the UN CSD indicator testing exercise in which Finland participated. Although the UN-CSD sustainable development indicators (SDI) were not used as a formal basis for the national SDI exercise, the experience gained from the UN-CSD testing process certainly influenced the national indicator analysis and selection. After the completion of the UN testing phase in 1999, Finland also participated in the further development of the original UN-CSD list towards a core set of SDIs announced in 2000. As a final result of this co-operation, a considerable degree of consistency between the Finnish and the 2000 UN core indicators has been reached. The main differences between the Finnish list and the UN list relate to those indicators that appear to be more relevant for developing countries than industrialised countries (e.g. mortality and health indicators). Moreover, some SDIs on the Finnish list are specific to Finland (e.g. the ice-breaking date of the River Tornio and number of reindeers).
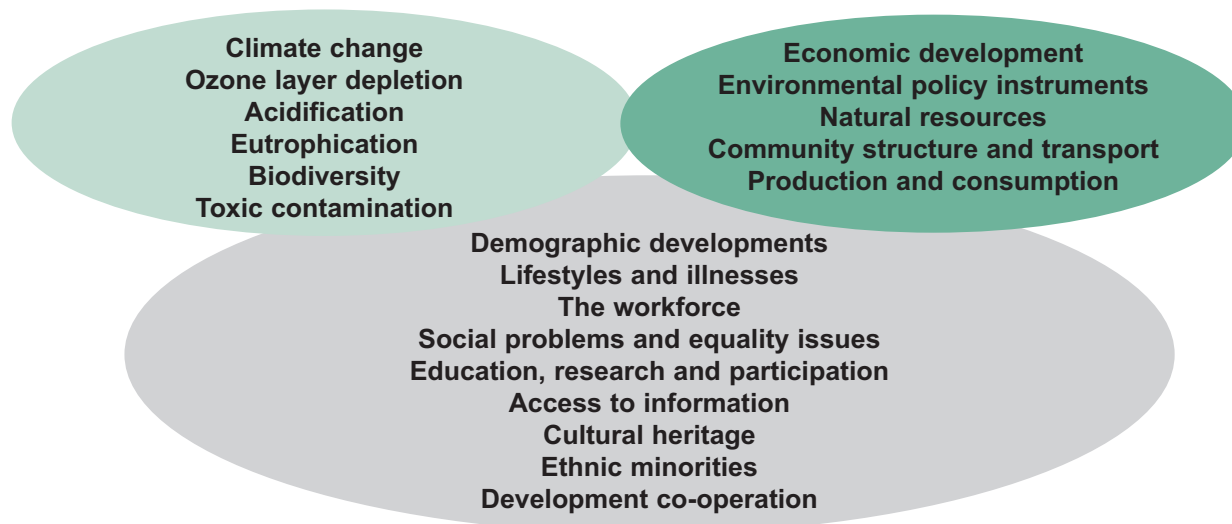
In 1998, the Secretariat of the Finnish Commission on Sustainable Development requested experts from various Ministries, associations, environmental, economic and social institutes[a] to assist with the preparation of a proposal of SDIs for Finland. Under the name of 'Indicator Network', the Working Group started its work at the beginning of 1998. The indicator system was structured according to the different dimensions of sustainable development i.e. the ecological, economic and socio-cultural dimensions. In the first phase, the most important issues and key subject areas of each dimension were defined *(see diagram below)*. The actual indicators were chosen in the work's second phase. The first draft indicator list was ready in January 1999 and was widely circulated for comments. The revised proposal was discussed at a seminar organised

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[a] Ministries of the Environment, Agriculture and Forestry, Interior and Foreign Affairs, Transport and Communications, Trade and Industry, Social Affairs and Health, Education, and Labour, and also those from Statistics Finland, The Government Institute for Economics Research, the Association of Finnish Local and Regional Authorities, and the Finnish Environment Institute

⊞ eurostat

by the Finnish Commission for Sustainable Development in October 1999, attended by around 50 experts from various ministries, research institutions and NGOs. After taking on board the results of the seminar, the proposed set of indicators was finalised and accepted for publication[b]. The following figure shows the 20 issues chosen as the backbone of the Finnish indicator list. About two-thirds of the indicators are the same or very similar to the indicators on the current core UN list (2000 version). Some more country-specific indicators include the ice break-up date of the river Tornio, the number of grey seals and reindeers, the dioxin levels in breast milk, taxes per CO_2-content in fuels, holiday air travel, dependency ratio, suicide rate, young people neither studying nor working, internet users, visits to museums, classes taught in Saami (indigenous language in Lapland), and development aid to countries near Finland. On the whole, the national SDI list has received positive reactions in Finland and they have raised public discussion about the nature and meaning of sustainable development *(see projects below).*

Finland's specific indicators for Sustainable Development 2000: Selected Issues:

Climate change
Ozone layer depletion
Acidification
Eutrophication
Biodiversity
Toxic contamination

Economic development
Environmental policy instruments
Natural resources
Community structure and transport
Production and consumption

Demographic developments
Lifestyles and illnesses
The workforce
Social problems and equality issues
Education, research and participation
Access to information
Cultural heritage
Ethnic minorities
Development co-operation

Source: Signs of Sustainability: Finland's indicators for sustainable development, 2000

Ongoing and forthcoming projects and co-operative actions with the UN

The Finnish media has shown interest in the national indicator set: the largest newspaper Helsingin Sanomat has started a weekly indicator column based on the final Finnish SDI list. A major ongoing project by FEI is providing support to the newspaper publishing the indicators each week. At the same time, the Finnish Environment Institute is running a study on the impact of indicators on a selected group of the Finnish Parliament members and civil servants. The first stage of the project seeks to acquaint decision-makers with the national SDIs and to gather their views on their use. At a later stage, the 'impact study' will assess the impacts of the 'weekly indicator column' on citizens.

The latter half of 2001 will be used to improve the interpretations of the national SDI list. This work will be used in Finland's report to Earth Summit 2002 in South Africa. During 2002 the national SDI list will be reviewed and developed further. The indicators will be published mainly on the Internet and a shorter overview will be printed. Finland will continue to assist the indicator development process, according to the next programmes and needs which will be identified at UN (and EU) level.

Further reading: Rosenström, U. & Muurman, J, 'Results from Testing CSD Indicators of Sustainable Development in Finland' 1997, Finnish Environment Institute, 1997
(http://www.vyh.fi/eng/environ/sustdev/indicat/csd/csdtext.htm).
Ministry of the Environment, 'Finnish Government Programme for Sustainable Development, Council of State Decision-in-Principle on the Promotion of Ecological Sustainability', The Finnish Environment, 1998.
(http://www.vyh.fi/eng/environ/sustdev/english.htm)
Rosenström, U. & Palosaari, M. (Eds.), 'Signs of Sustainability. Finland's Indicators for Sustainable Development 2000', Ministry of the Environment, Finnish Environment 404e, 2000
(http://www.vyh.fi/sve/politik/hu/indikato/indi2000.htm)

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[b] The final Finnish set of SDIs was translated into English and Swedish after its publication in April 2000. The translation and publication of the Swedish version was completed in December 2000 and the Internet pages for the Swedish version were opened in January 2001

The political framework

The German Government has decided to develop a National Sustainable Development Strategy within the next few years. Work on this started in 2000. A 'Green Cabinet' consisting of State Secretaries from the responsible ministries has been established and the German Chancellor convened a National Sustainability Council in February 2001. In addition to the overall National Strategy for Sustainable Development there will be a focus on key themes: Energy and Climate Change; Sustainable Mobility; Agriculture, Environment and Health.

Within this wider context there is a strong call for a national set of Sustainable Development indicators (SDI). At present, a set of 6 environmental indicators with specific targets for major environmental areas is published every year in the 'German Environmental Barometer' *(see box 1).*

Germany has volunteered to participate in the CSD testing phase. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety was in charge of the entire political co-ordination of the testing of UN-CSD indicators. The co-ordination within the Federal Government was ensured by an Interministerial Working Group (IMA), supported by the Federal Environmental Agency and the Federal Statistical Office. Dialogue with interest groups within wider society took place through a National Indicator Committee and scientific advice was provided by an Expert Team.

The fact that the entire CSD concept had to be evaluated against the background of the country's specific situation was a key motivating factor for Germany's participation, introducing the testing experiences of an industrialised country. With regard to the further development of the CSD concept, missing indicators in the CSD list had to be identified, as well as the methodological questions investigated further. The German Report to the CSD is an elaborated set of reviewed and amended indicators as well as newly developed SDIs.

In participating in the testing phase, Germany has pursued a range of objectives:

- To support the international CSD initiative for the development of sustainability indicators, with the aim of harmonising and co-ordinating international activities in this area and ensuring a pragmatic approach;
- To analyse the list of CSD indicators vis-à-vis their political relevance, usefulness for Germany and practical implementability (in particular, the availability of data and preparation of time series);
- *To encourage a national debate on the development and application of sustainability indicators as a basis for a national system of sustainability indicators; and*
- To promote dialogue with community groups on sustainability indicators.

The participation resulted in enhanced awareness of SD strategies as well as indicator use and led to a proposal for a basic set of 218 SDIs that meets the needs of industrialised countries.

Box 1: Main achievements in the area of Sustainable Development in Germany

To assist with the development of the national sustainability strategy, two new structures were established:

1) The National Sustainability Council (2001) consisting of 16 representatives of relevant stakeholders in society;

2) The 'Green Cabinet' at the State Secretary level (2001).

Major Sustainable Development Indicator initiatives include:

A Sustainable Development Indicator System, to be included in the National Sustainable Development (SD) Strategy, will be developed during the coming year as a result of the UN testing phase and the related analysis on data availability. Decisions for changes have to be made within the process of the establishment of the first national SDI set.

The 'German Environmental Barometer' including 6 key indicators for the main environmental areas:

- CO_2-emissions;
- Aggregated emissions of SO_2, NO_x, NH_3 and VOCs;
- daily increases in built-up area;
- Percentage of flowing water bodies in Chemical Quality Class II for important pollutants;
- GDP in relation to energy; and
- GDP in relation to non-renewable raw materials consumption.

An ongoing **discussion process** with the Länder and statistical/scientific bodies through established fora. The debate is currently mainly focussed on the structures of the SDI sets and harmonisation of indicators.

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Results from the Sustainable Development Indicator development process

The outcome of the testing phase is a complete set of 218 indicators, as a result of the negotiations towards indicator selection between all participants from 1997 to 1999. The process of developing the German CSD-Sustainability indicator report considerably raised the sustainability consciousness throughout the administration and established a good foundation for the development of a national sustainability indicator set.

Box 2: Germany specific issues and new sustainable development indicators (examples)

CATEGORY: SOCIAL		CATEGORY: ECONOMIC		CATEGORY: ENVIRONMENTAL		CATEGORY: INSTITUTIONAL	
Issue	*Indicators*	*Issue*	*Indicators*	*Issue*	*Indicators*	*Issue*	*Indicators*
Chapter 3: Combating poverty/ **General social development**	*Homeless people per 1,000 inhabitants*	**NEW: General economic development**	Budget deficit as a percentage of GDP / government debt as a percentage of GDP	**NEW: Promoting sustainable, environmentally sound transport development**	Modal split / choice of transport modes	**Chapter 35:** Science for sustainable development	*Staff and funds for:* *- Environmental research* *- Socio-ecological research*
	Number of private households heavily in debt	***NEW: Chapter 30: Strengthening the role of private industry***	*Expenditure by private industry on environ-mental protection*		*Specific fuel consumption* *>> All cars* *>> New cars*		*Staff and funds for:* *- Peace and conflict research*

Ongoing and forthcoming projects and co-operative actions with the UN

In order to develop a Sustainable Development Strategy, Germany is developing a set of sustainability indicators to allow the implementation of the strategy to be monitored *(see box 1).* The indicator set should be available by mid 2002 and has to be established in parallel to the development of the strategy. The organization of the national SDI selection process is based on the experiences of the CSD testing phase as well as on international experiences.

In parallel to this process, additional and more detailed indicator sets will be developed for the first main issues of the sustainability strategy 'Climate Change' and 'Sustainable Mobility'.

Germany is willing to provide its experiences in any ongoing processes of the development of SD indicators by the UN. Decisions regarding those processes are expected to be made at the next CSD 9 session.

Further reading: To receive a copy of 'Testing the CSD Sustainability Indicators in Germany', a report by the Federal Government, please send requests to: Bundesumweltministerium, Referat Öffentlichkeitsarbeit, Alexanderplatz 6, 10178 Berlin Germany, Fax +49-30-285 50 43 75;
For further information, please consult:
'The Environment Barometer/German Environment Index (DUX)' (http://www.umweltbundesamt.de/dux/)
German Environmental Agency, 'Sustainable Development in Germany'
(http://www.umweltbundesamt.de/uba-info-e/sustgerm.htm)