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**ECONOMIC COMMISSION FOR EUROPE**

**COMMITTEE ON ENVIRONMENTAL POLICY**

**Ad Hoc Working Group on Environmental Monitoring**

(Third session, 29-30 August 2002)

(Item 3 (b) of the provisional agenda)

**KIEV ASSESSMENT: A SUMMARY OF RECENT FINDINGS ON MEMBERS  
OF THE EUROPEAN ENVIRONMENT AGENCY (EEA)**

Submitted by EEA<sup>1</sup>

**I. THE SITUATION TODAY**

1. The general answer to the question “how is the environment doing” is still mixed for the issues covered in the 2002 edition of *Environmental signals*, showing no major changes since the first edition in 2000. However, to a certain extent, the conditions for changes are emerging.
2. In many cases reductions in pressures have been produced by relatively large decreases in only a few countries or specific sectors. This is very apparent for the issue of climate change. Restructuring of the energy-supply sector and changes in fuel for power generation have led to large one-off reductions in carbon dioxide emissions in Germany and the United Kingdom. However, nine of the European Union (EU) member States<sup>1</sup> have increased their emissions and are moving off the linear track to Kyoto targets.
3. Comparable stories can be told for waste and water pollution: while a few countries have made major progress towards minimizing landfilling of waste, consumer and commercial behaviour is resulting in increases in the generation of municipal waste, including packaging waste. And while significant progress has been made by industry and government administrations in providing waste-water treatment, the agriculture sector has lagged behind in reducing nitrogen pollution, as illustrated by more or less constant nitrogen concentrations in surface waters.

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<sup>1</sup> This document is a summary of the 2002 edition of *Environmental signals*. In United Nations documents the term “ton” refers to metric tons, i.e. 1000 kg.

<b>Environmental issue</b>	<b>Indicator</b>	<b>Assessment</b>
<b>Tackling climate change</b>		
Emissions of greenhouse gases	Trend in emissions and distance to 2008-2012 Kyoto target	☺
<b>Nature and biodiversity – protecting a unique resource</b>		
Forest resources	Annual tree fellings	☺
Land resources	Land take and fragmentation of large habitats	☹
Emissions of acidifying substances	Trend in emissions and distance to 2010 EU target	☺
<b>Environment and health</b>		
Emissions of ozone precursors	Trend in emissions and distance to 2010 EU target	☺
Urban air quality	Urban air quality: ozone, fine particles, sulphur dioxide and nitrogen dioxide	☹
Freshwater pollution	Concentration of phosphate and nitrate in rivers	☹
<b>Sustainable use of natural resources and management of wastes</b>		
Material consumption	Total material requirement (versus GDP)	☹
Fish stocks	Spawning stock biomass of the North Sea cod stock	☹
Urban waste generation	Trends in levels of municipal waste collected	☹
Water use	Water exploitation index	☹
Land take by development	Trends in built-up area, population and road network density	☹

4. Although several significant pressures are declining, time lags and high background concentrations due to historical emissions and emissions elsewhere mean that their impacts are still of concern. In particular, despite reductions in air emissions, a substantial proportion of the European urban population is exposed to high concentrations of ground-level ozone, nitrogen dioxide and fine particles, and large areas of habitats and agricultural land are still exposed to acidification, eutrophication and ground-level ozone above accepted thresholds. Symptoms of eutrophication in coastal waters still show little sign of improvement. By contrast, pressures on natural resources have increased, as illustrated in particular by fisheries; while the EU fishing fleet has decreased in tonnage and power, continued overfishing is putting European fisheries at high risk of collapse.

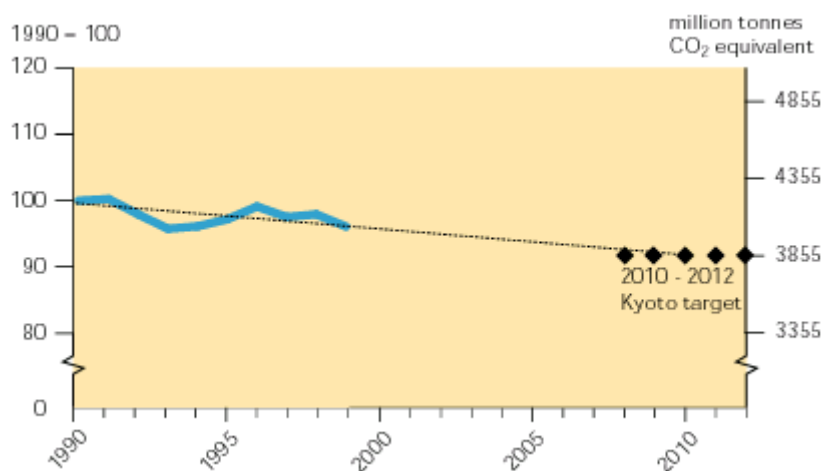
5. Land resources are also the subject of significant ongoing pressures, including urban sprawl and the expansion of transport infrastructure. This has resulted in the sealing of an increased area of land, fragmentation of habitats and the loss or disturbance of natural areas.

6. While the area of forests is increasing and annual fellings are considered sustainable, forest condition, as indicated by the defoliation of tree species, remains a concern, with almost a quarter of sample trees damaged.

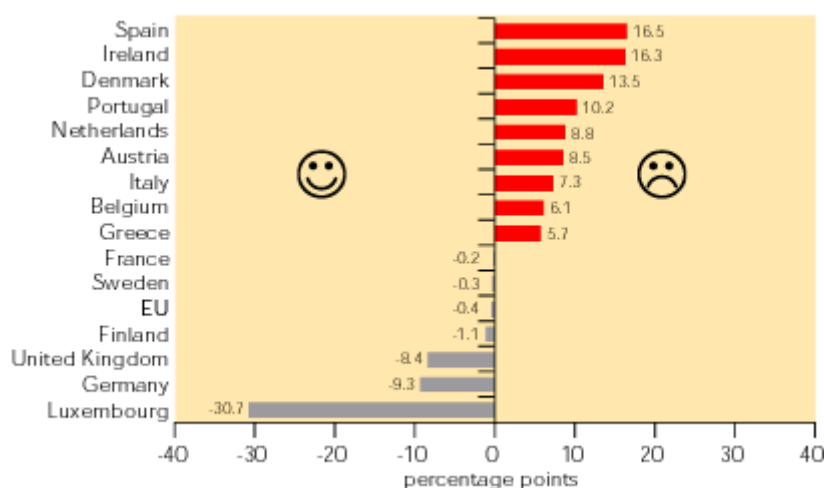
7. However, assessing the status of biodiversity in Europe is hindered by a lack of information. Being affected by the pressures on natural resources, the conditions for reversing the trend in the loss of biodiversity by 2010 appear not to happen yet.

## II. KEY INDICATORS

**Figure I. Greenhouse gas emissions, EU**



**Figure II. Emissions of greenhouse gases: Distance to the linear target lines, 1999**



**Figure III. Emissions of ozone precursors, EU**

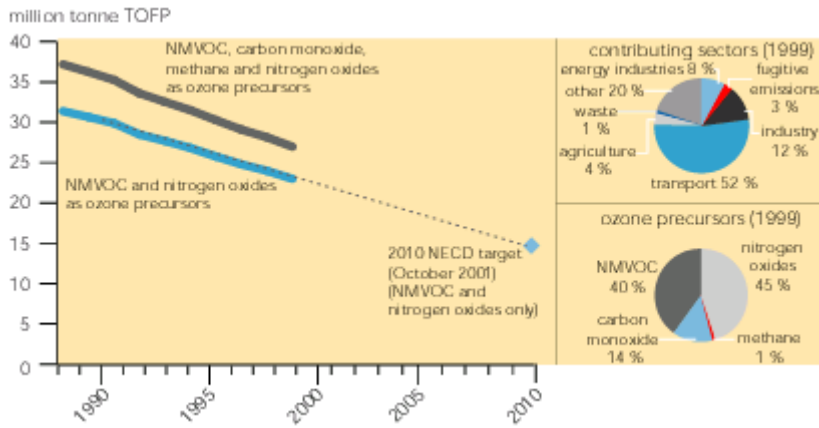


Figure IV. Urban air quality, EU

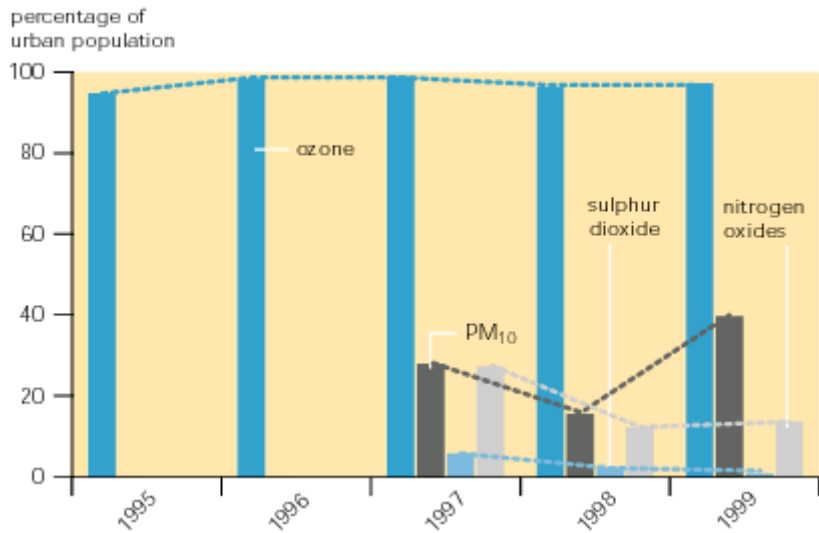
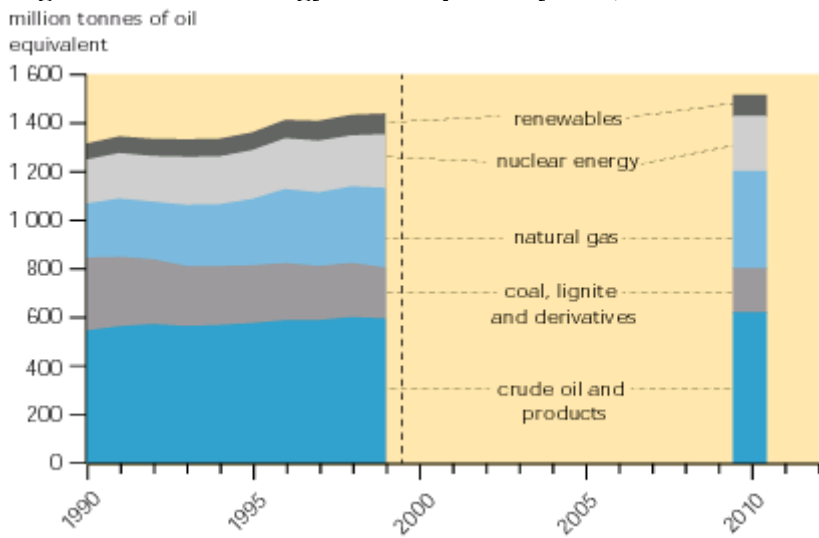


Figure V. Total energy consumption by fuel, EU



III. PROGRESS IN ECO-EFFICIENCY: POLICY CHALLENGES

8. Eco-efficiency is the relationship between economic activity and the associated negative environmental effects. A major goal of sustainable development is to break, or 'decouple', this link.
9. Eco-efficiency is improving, though to different levels, in the transport, energy and agriculture sectors. Progress is relatively slow and some of the improvements to date have been outweighed by continued growth in these sectors. In the household sector, little progress has been made in reducing environmental impact, while in fisheries the number of overfished stocks of commercial importance in European waters has increased.
10. The link between economic growth and energy consumption is not declining sufficiently rapidly to prevent growth in energy use, which may lead, in turn, to increased energy-related pressures on the environment.
11. The transport sector is a major contributor to environmental pressures, particularly through its use of energy. Although energy efficiency in the passenger transport sector has improved slightly, as a result of advances in technology, energy efficiency in the freight transport sector has shown no sign of improvement.
12. The discrepancy between improvements in technology and actual energy efficiency gains is the result of changes in transport conditions (e.g. heavier and more powerful vehicles, low occupancy rates and load factors) and continued growth in road and air transport at the expense of rail and other less damaging modes. Transport volumes have grown dramatically and are closely linked to economic growth. As a consequence, carbon dioxide emissions from the transport sector continue to grow rapidly.
13. However, it should be noted that environmental regulations aimed at decreasing air-polluting emissions from transport, through fuel quality and vehicle emission standards, have been relatively successful. Falls in emissions of acidifying and ozone precursor substances mean they have been 'decoupled' from transport growth.
14. While the energy supply sector's economic and physical output increased during the 1990s, polluting emissions to air fell. This was mainly due to the increased use of abatement techniques, and the switch from coal to gas. However, the current rate of improvement is not sufficient to counter predicted economic growth - and especially the forecast increase in electricity consumption - or to reach emission targets.
15. Policies and initiatives aimed at increasing the use of renewable energy have been successful in some EU member States. However, since overall electricity consumption has increased, the share of renewable energy in electricity generation remained almost constant during the 1990s.
16. There has been some improvement in agricultural eco-efficiency. Energy use and irrigation increased during the 1990s in line with productivity, although the trend is now more or less constant. While there has been some reduction in the use of fertilizers and pesticides, nitrate pollution and eutrophication remain serious concerns. Emissions of greenhouse gases, acidifying substances and ground-level ozone precursors have fallen except for emissions of ammonia.

17. There are some indications that total waste generation is increasing more slowly than growth of GDP as a result of lower generation of mining waste. Industrial waste generation also appears to be stabilizing. For municipal waste generation (around 14% of total waste), all EU member States have reached a similarly high level of waste production, with some minor differences explained by lifestyle and consumption patterns.

#### IV. PROGRESS IN ECO-EFFICIENCY: FACTS AND FIGURES

18. The progress is as follows:

☺ Technology improvements, such as three-way catalysts, and cleaner fuels have made vehicles less polluting.

☺ Emissions to the air from the energy supply sector have fallen, even as the sector's economic and physical output increased between 1990 and 1999.

☺ Agricultural eco-efficiency is improving slowly. Rates of fertilizer and pesticide use continue to be a concern, as do emissions of acidifying substances (agriculture contributes 31% of total EU emissions of these), particularly ammonia (94%).

⊗ 1990-1999 saw increases in household energy use (+10%), waste generation (+14%) and car ownership (+17%) in line with rises in the number of households (+9%) and household expenditure (+19%).

☺ Household water consumption slightly decreased during the 1990s.

☺ Carbon dioxide emissions from the household sector in 1997 were close to the 1990 level with an increase in the number of households largely offset by improvements in energy efficiency and a switch from coal and oil to natural gas.

⊗ Carbon dioxide emissions from the transport sector are continuing to grow as a consequence of the sector's high growth and a shift to road and air transport. Passenger transport continues to be dominated by the car (75% of total passenger-kilometres), but air transport is now the fastest growing mode. The share of the more environmentally friendly modes (i.e. bus/coach, rail and tram/metro) has declined slightly.

⊗ There is no sign as yet of a shift in freight transport from road to rail (rail's share dropped from 10.4% in 1991 to 8% in 1999). Road haulage and short sea shipping remain the main freight transport modes, with shares of 43% and 42% in ton-kilometres respectively.

⊗ With the exception of industry, none of the EU economic sectors has decoupled their economic/social development from their energy consumption sufficiently to stop the growth of their energy consumption.

⊗ In the past decade, passenger transport volume has grown at the same pace as the economy, while freight transport growth has outstripped it.

⊗ Despite continued growth in both total energy and electricity obtained from renewables, on current trends they will fall short of the indicative EU targets for renewables.

⊕ Renewable energy sources contributed 14% to EU gross electricity consumption in 1999. Projected growth rates for electricity consumption to 2010 mean that the rate of growth in renewable electricity supply will need roughly to double if the indicative EU target is to be met.

⊕ Although the share of combined heat and power (CHP) in electricity production rose from 9% to almost 11% between 1994 and 1998, this rate of growth is not sufficient to achieve the EU indicative target to derive 18 % of all electricity production from CHP by 2010.

⊕ Almost 3% of the EEA area is now farmed organically and the proportion of land under organic farming is predicted to rise substantially in the future.

⊕ The exploitation of European water resources has remained relatively constant over the past 20 years. In Southern Europe around one quarter of the available water resource is exploited, while it is around 12% in Central Europe and 1% in the northern countries.

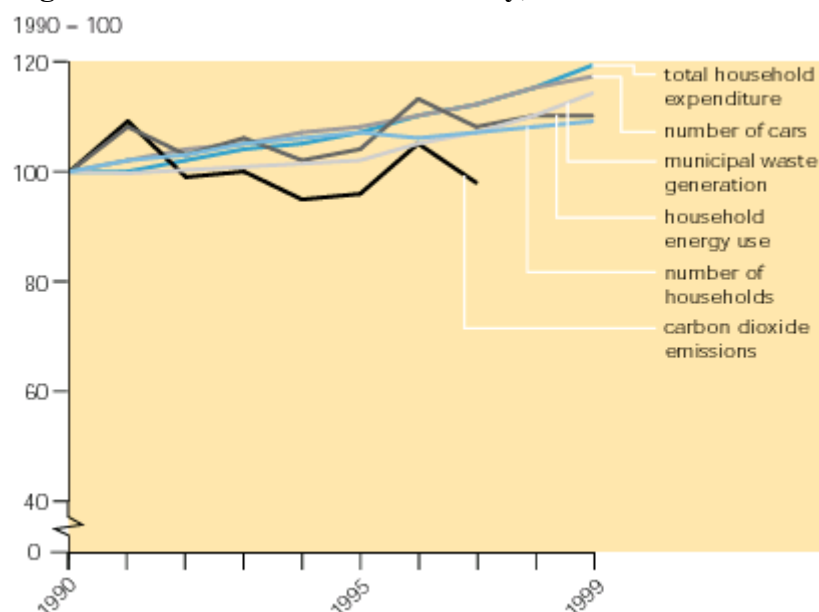
⊕ The area of forests is increasing in EU and accession countries (AC). However, the benefits of afforestation must be evaluated against resulting gains and losses in biodiversity.

⊕ Soil sealing, as a result of urban development and the provision of transport infrastructure, continues to increase at a faster rate than population growth.

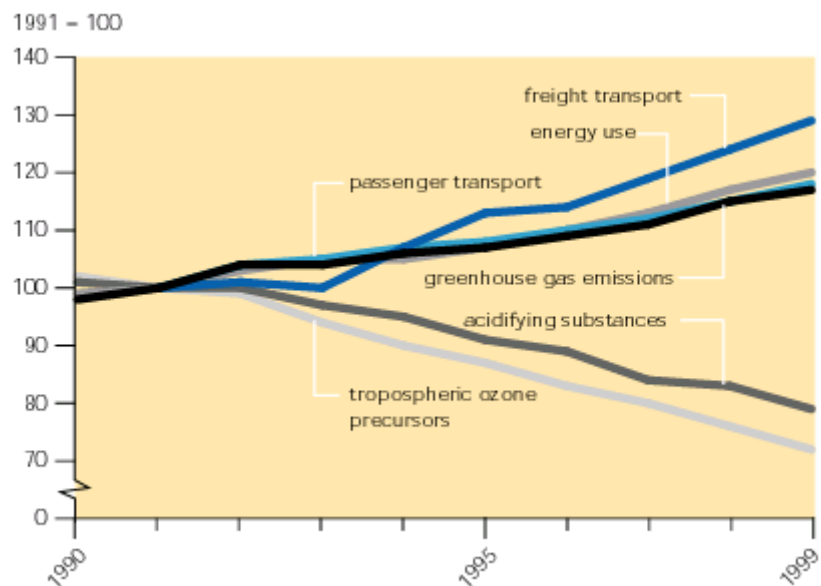
⊕ Around 70% of municipal waste collected originates from households and the total amount of municipal waste collected in the EU rose from 479 kg per person in 1991 to 545 kg per person in 1999, an increase of 14%.

## V. PROGRESS IN ECO-EFFICIENCY: INDICATORS OF ECO-EFFICIENCY

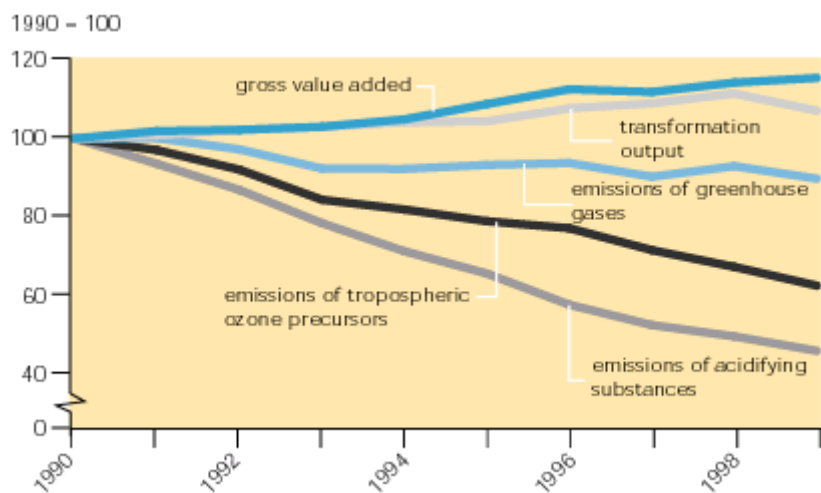
**Figure VI. Households eco-efficiency, EU**



**Figure VII. Transport eco-efficiency, EU**

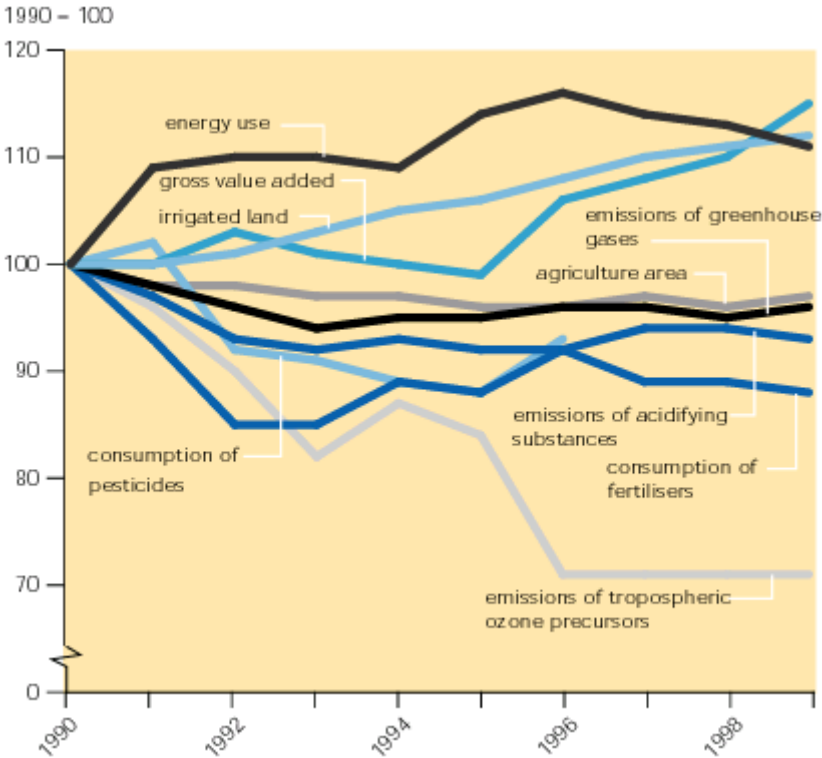


**Figure VIII. Eco-efficiency of the energy supply sector, EU**

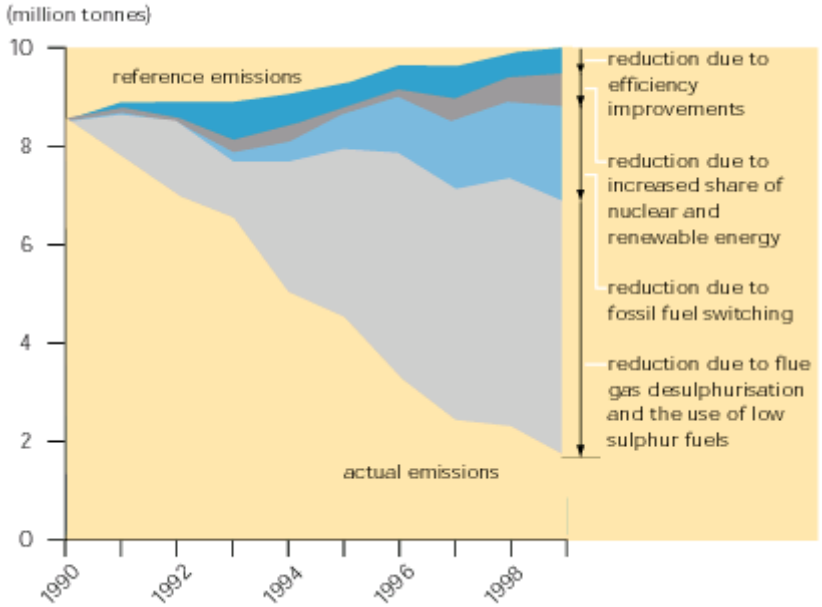




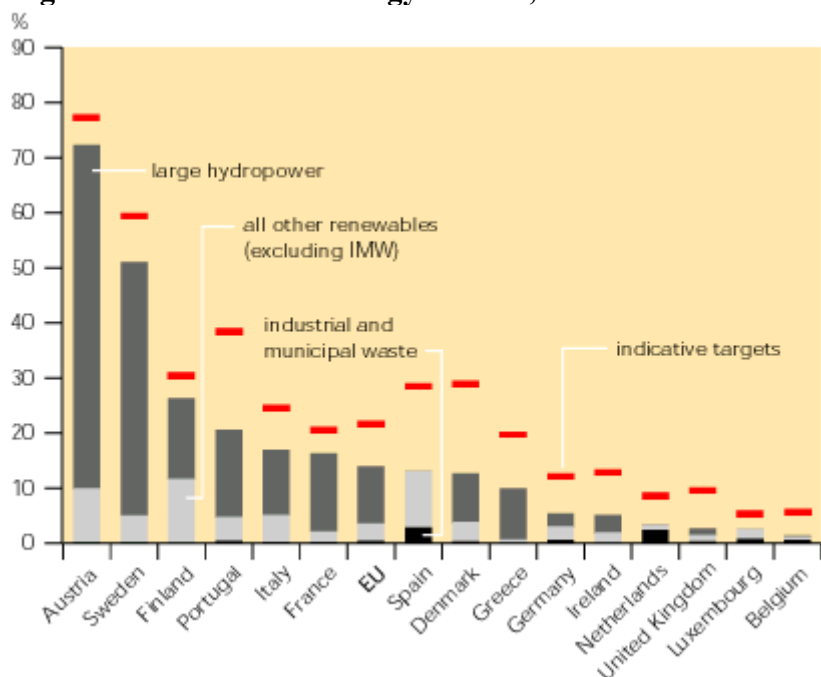
**Figure IX. Agriculture eco-efficiency, EU**



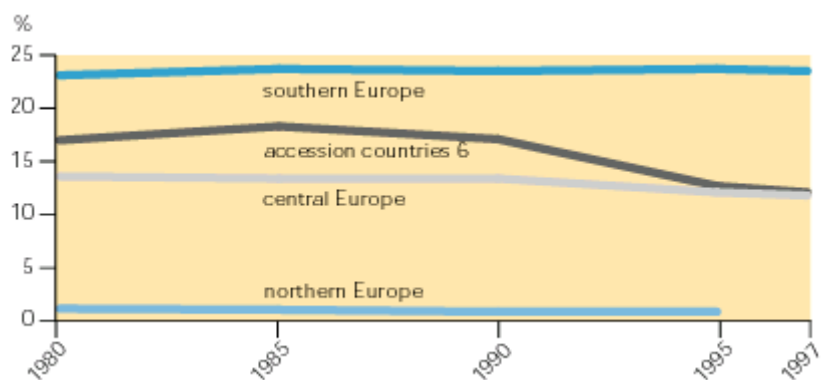
**Figure X. Sulphur dioxide emissions from electricity generation, EU**



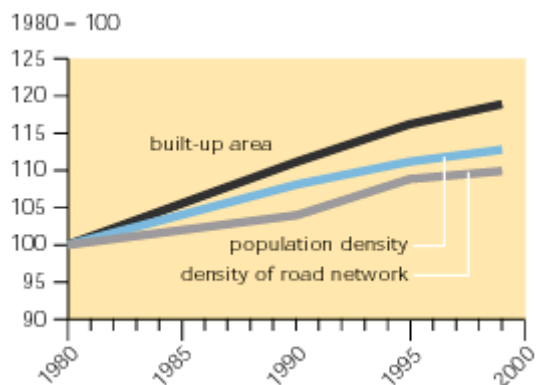
**Figure XI. Renewable energy sources, 1999**



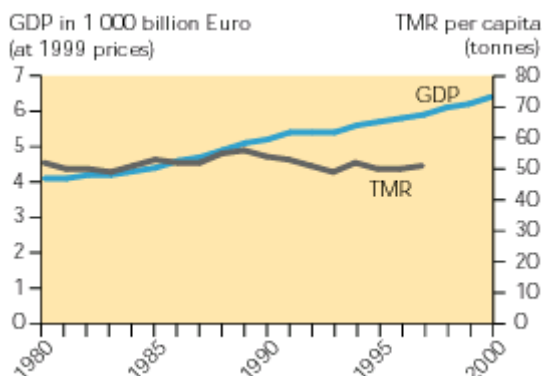
**Figure XII. Water use**



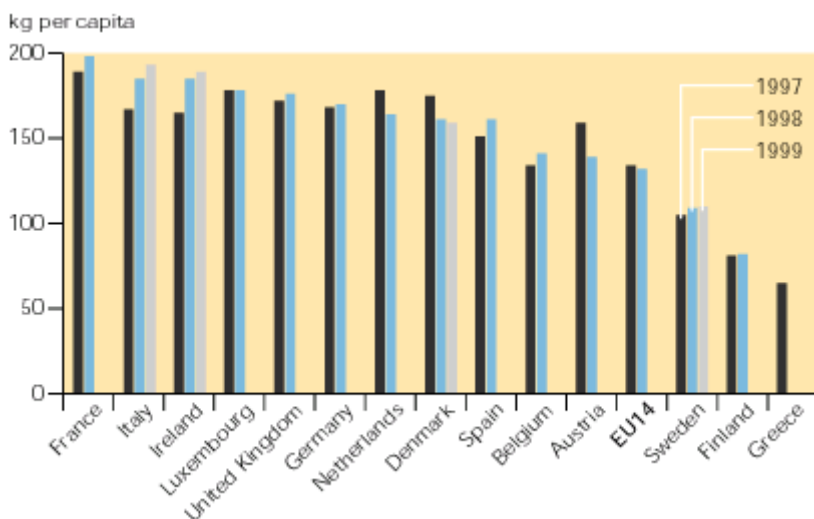
**Figure XIII. Land take by development, selected European countries**



**Figure XIV. Total material requirement (TMR), EU**



**Figure XV. Packaging material put on the market**



## VI. Delivering integration: policy challenges

19. The integration of environmental considerations into economic policies, as called for by Article 6 of the Amsterdam Treaty, has progressed slowly. Initiatives such as the ‘Cardiff process’ for integrating environmental concerns into various sectors have the potential to accelerate change.

20. Integration policy is aimed primarily at dealing with/mitigating the driving forces behind environmental degradation rather than the symptoms of environmental decline. The integration of sustainable development and environmental concerns into sectoral policies can be encouraged through a variety of measures including legislation and regulations, fiscal measures, voluntary agreements and provision of information. In practice, a combination of instruments and measures tends to be employed (the ‘right mix’).

21. Several Member States have begun to introduce fiscal measures with the aim of improving the quality of the environment and reducing the burden of distorting taxation on the economy. In half of the EU Member States carbon dioxide taxes are being applied and overall, many new tax

systems appeared in the second half of the 1990s. There are some indications of effectiveness of environmental taxes but evaluative studies are generally lacking.

22. In this context, the March 2002 European Council summit in Barcelona acknowledged the intention of the European Commission to accelerate work on the preparation of a framework directive on infrastructure charging to ensure that by 2004 different modes of transport better reflect their costs to society. The Council also expressed the wish to adopt a directive on increasing and extending environmental taxation on energy products before the end of 2002. With respect to fisheries, of the funds allocated in the 1994-99 programme under the Financial Instrument for the purposes of fleet-oriented aid, 60 % went into adjustment of the fleet and 40 % to its modernisation. This aid has led to an overall decline in fleet capacity in the EU. However, in some countries modernization has led to a decrease in total power of the fleet, but a slight increase in tonnage.

23. Additionally, advances in technology and design have meant that the pressure on fish stocks has not diminished. The current harvest is in most cases not sustainable for roundfish and only in some cases sustainable for flatfish; several deep-sea species show signs of overexploitation as well. Almost all cod and hake stocks are close to collapse.

24. Households are often overlooked in integration policies. As levels of consumption continue to rise in parallel with disposable income, the need to help consumers to make informed choices becomes increasingly important. Eco-labelling and information dissemination (e.g. campaigns to encourage energy savings) are increasing but their use remains marginal.

25. The proposal for a EU Integrated Product Policy singles out reduced sales tax on eco-labelled products as a key instrument for tackling unsustainable patterns of consumption.

## **VII. Delivering integration: facts and figures**

26. These are as follows:

☉ An increasing number of environmental taxation systems are being introduced throughout the EU with the aim of improving environmental quality in an efficient way and reducing the burden of taxation on labour and other production factors.

⊗ Energy prices generally remained low, or even fell, between 1985 and 2001, offering little incentive to reduce energy consumption.

☉ There are a growing number of regulations, initiatives and programmes to protect forests, at national, European and international level.

☉ The share of environmental taxes in total tax revenue in some Member States is between 5% and 10% of total tax revenue. It increases slowly overall.

☉ Fuel tax differentiation has been successfully applied to promote the use of cleaner fuels.

⊗ The inflation-corrected EU average price of road fuel in early 2002 was lower than in the first half of the 1980s. This trend does not encourage fuel-efficient driving.

⊖ Since 1995 indications of ecological tax reform (shifting part of the tax basis from labour to environment) have emerged in several Member states.

⊖ Although the EU fishing fleet declined between 1989 and 2000 in terms of vessel numbers (-10 %), tonnage (-6 %) and power?? (-13 %), the decrease has not led to a corresponding improvement in the status of fish stocks. Most commercially important fish stocks in European waters have unsustainable status.

⊖ The North Sea Cod stock is overfished in the North Sea and adjacent waters. The mature part of the stock is calculated to have been below the critical limit for the last 17 years and reached a historic low in 2001.

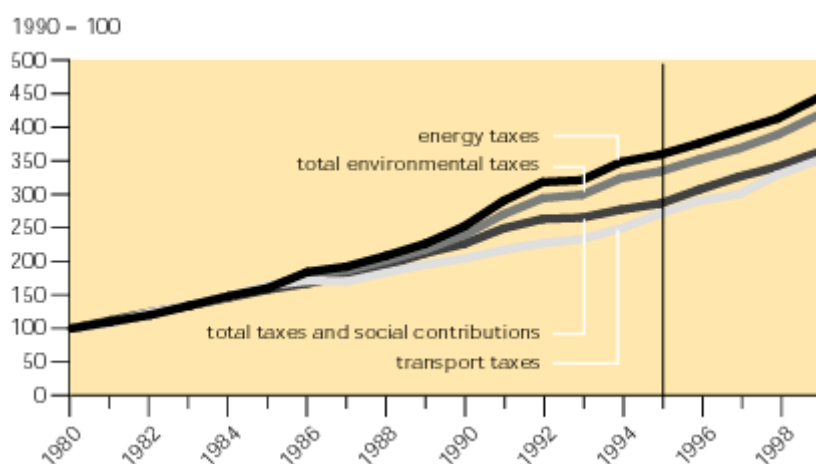
⊖ The number of products awarded the EU Flower ecolabel is low and the awards to date are concentrated in only a few product groups and a few Member States.

⊖ The northern and western European countries have a high proportion of treated wastewater and continuous improvements in treatment level. Southern countries and the Accession Countries have only around half of the population connected to wastewater treatment plants but the level of treatment has also improved during the past 15 years.

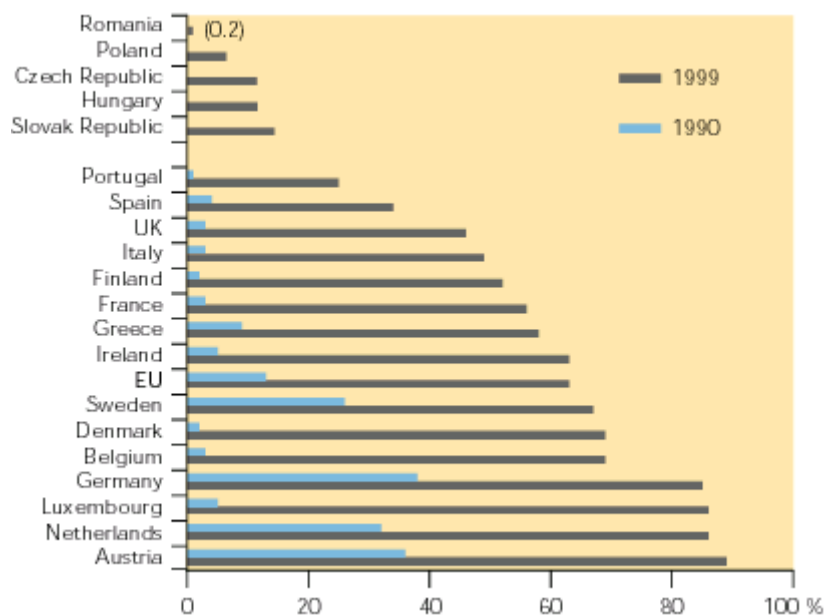
⊖ Substantial progress has been made in introducing environmental elements into the common agricultural policy (CAP) (e.g. via agri-environment schemes). However, persisting environmental pressures necessitate further CAP reform to strengthen the economic incentives for farmers to manage their land in an environmentally sustainable way.

## VIII. Delivering integration: key indicators

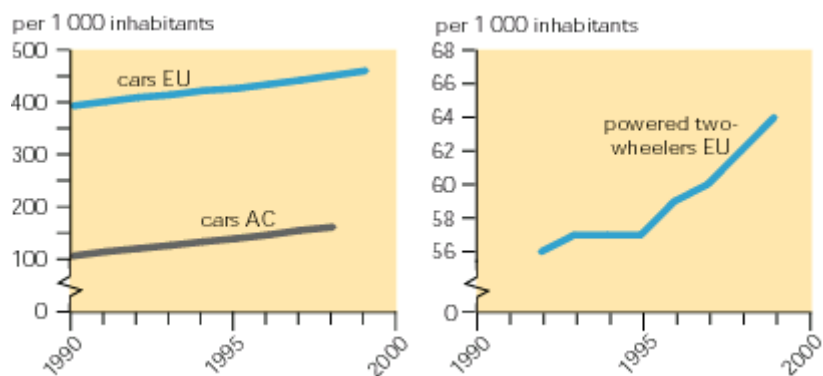
### Revenue of environmental taxes, compared with total taxes and social contributions, EU



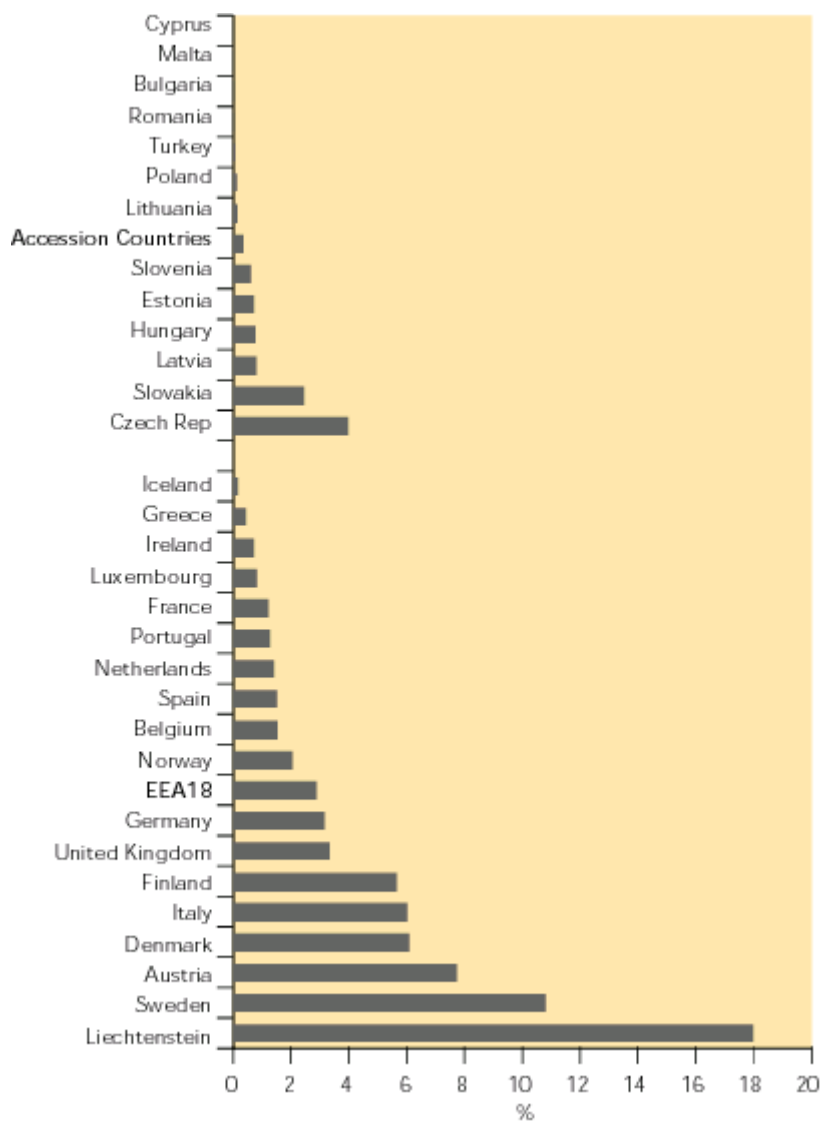
### Uptake of catalytic converters



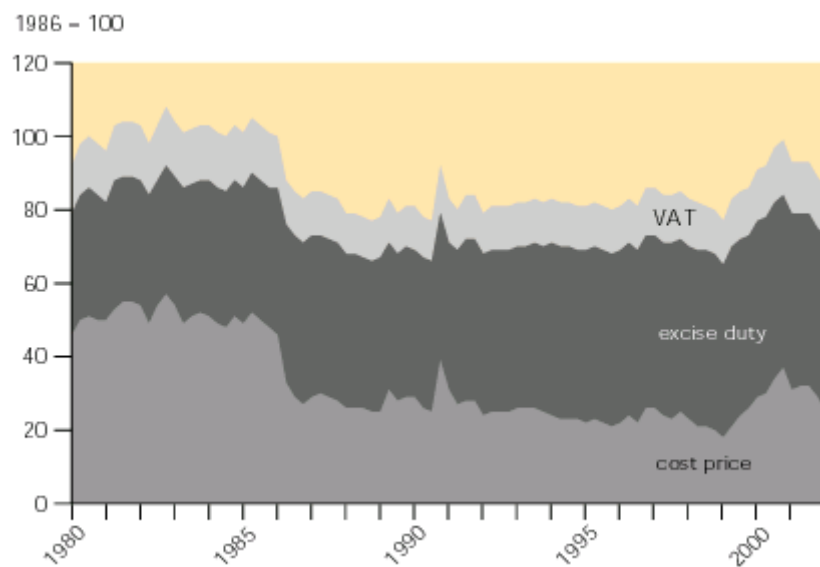
### Car ownership



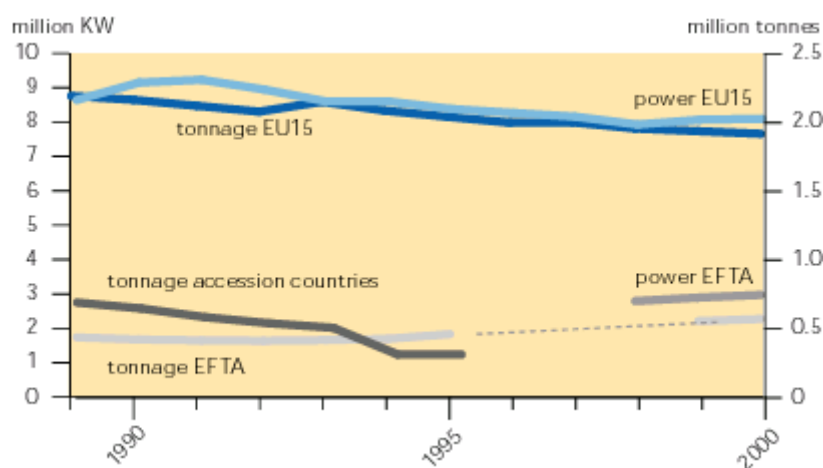
### Organic farming, 2000



**Real price of motor fuel, EU**

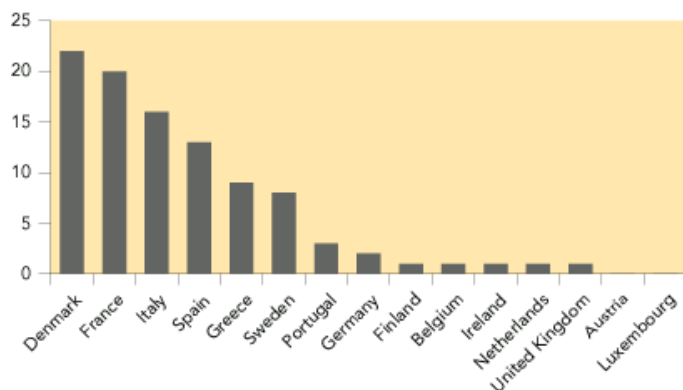


### European fishing fleet capacity



### Eco-labelling - Number of EU Flower awards, 2002





### Agri-environment scheme expenditure

