FACTS AND FIGURES
the links between EU’s economy and environment
The state of the European Union’s economy and the condition of the environment affect the lives of all European citizens. Throughout the Union citizens wish to enjoy economic prosperity and a healthy environment.

Economic and environmental objectives are often perceived as being contradictory. It is believed that a choice must be made between one and the other and that both cannot be achieved concurrently. The facts and figures in this brochure show that they can.

The EU eco-industry has grown to become one of Europe’s biggest industrial sectors. It contributes to EU economic growth and employment while leading to a cleaner environment. It has an annual turnover of over €227 billion or about 2.2% of the EU’s Gross Domestic Product (GDP). Pollution management — with technologies and services in waste management, air pollution control, soil remediation, and recycling — and resource management — renewable energy plants and water supply — are the industry’s two most important sectors.

Member State turnover

Germany and France are the two largest producers of environmental technologies in the EU. They account for 49% of the EU’s total turnover. The 10 new Member States represent 6% of turnover.

The share of the eco-industry significantly differs between EU Member States. The turnover of eco-industries as a percentage of GDP is highest in Denmark and Austria. There is no considerable difference in the importance of the eco-industry between old and new Member States.

Production trends

With annual growth of up to 5%, the eco-industry was one of the most dynamic sectors of the EU’s economy in the 1990s. More recently, the more mature sectors of the industry — such as pollution abatement — have stayed fairly constant in size as increased demand is met by improved efficiency. Growth occurs mainly in smaller resource management sub-sectors where new technologies such as solar and wind energy have made remarkable progress.
The eco-industry is only one element in a much wider trend. The long-term trend in the EU is towards environmentally-friendly production where eco-innovation and eco-products such as cleaner cars, energy-efficient light bulbs and resource-efficient production techniques are becoming more prevalent.

Make-up of the eco-industry

Economic activities in the European eco-industry are concentrated within two sectors, pollution management and resource management. Pollution management is the larger of the two. Its annual turnover is about €145 billion and is dominated by air, waste and wastewater treatment. Under resource management, the dominant activities are water supply, materials recycling and renewable energy production. These activities represent a turnover of €82 billion a year.

Total employment in the eco-industry

The eco-industry accounts for 1.7% of total paid employment in Europe or about 1.4 million full-time job equivalents. This is substantially more than prominent sectors such as car manufacturing or pharmaceuticals.

Employment in the sector grew at around 5% per year in the 1990s. Since 2000, growth has originated from the smaller but more dynamic sub-sectors.

Environmental policy contributes to a structural shift in employment towards jobs associated with cleaner, more efficient products and processes. The eco-industry itself is an important source of new jobs. Environmental policy is overall a net creator of jobs. There are no examples of environmental policy causing concentrated job losses or regional difficulties.

Total employment in the eco-industry

Employment in pollution management

The pollution management sector alone accounts for 2.35 million full-time job equivalents. Its share of the workforce is highest in Austria where it represents more than 3% of the total workforce. It is followed by Denmark, Estonia and Slovenia.

Source: Ernst & Young, Eco-industry, its size, employment, perspectives and barriers to growth in an enlarged EU, August 2006 for eco-industry; Eurostat, EU Labour Force Survey for other industries.
The number of jobs linked to the environment goes beyond the eco-industry itself. According to studies on Wales, if the number of jobs linked to the environment such as tourism were to be included in Wales’ employment figures the share of total environment-linked jobs would be 12% of total employment. Indirect or multiplier effects would increase that figure to 17% of employment.

Employment in environment sectors

The manufacturing and maintenance of wind turbines employed 25,000 in 1998. This grew to 72,000 in 2002. The increase in the number of jobs in the wind and photovoltaic energies sectors is a direct result of the record growth experienced by these two sectors. For example, wind power generation capacity increased by nearly 19% in 2006 and photovoltaic solar power capacity shot up by 57%. The technology for wind energy is now competitive. Its costs have decreased by around 3% per year over the last 15 years. For solar photovoltaic cells, unit costs have fallen tenfold over the past 15 years. This is a direct result of economies of scale and technological and process breakthroughs.

Employment in the renewable energies sector is predicted to increase quickly as the shift towards clean energy production. It is expected that the sector will have up to 2 million additional jobs by 2010 taking into account jobs lost in the conventional energy sector.

A success story: the renewable energies sector

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The absolute costs in the manufacturing sector increased by 3% between 1995 and 2002. During the same period manufacturing production grew by 25%. This resulted in the cost of environment protection decreasing from 2.1% to 1.8% of Gross Value Added (GvA, a measure of the sector’s distribution to the economy) between 1995 and 2002. Some of these technological investments also contribute to financial benefits not factored into the figures shown.

Costs for the manufacturing sector

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Environmental regulation can foster economic productivity, but it may also involve financial costs for industry. In the absence of environmental policies the costs resulting from pollution are met by society at large. With environmental protection policies in place the financial burden shifts to those firms or individuals at the source of the pollution.

Environmental protection expenditure in EU-15 (2002), as percentage of GvA

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percentage of GvA</th>
</tr>
</thead>
<tbody>
<tr>
<td>All manufacturing</td>
<td>1.8%</td>
</tr>
<tr>
<td>Manufacturing: textiles, leather production</td>
<td>1%</td>
</tr>
<tr>
<td>Manufacturing: pulp and paper, printing</td>
<td>1.5%</td>
</tr>
<tr>
<td>Manufacturing: chemicals, plastic, rubber</td>
<td>3%</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>1.5%</td>
</tr>
<tr>
<td>Electricity, gas and water supply</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Source: Eurostat, New Cronos Database
The costs to society and business increase as environmental problems are allowed to deteriorate. The EU’s economy will suffer excessive disruptions and financial costs if environmental problems like climate change are not tackled. To efficiently overcome environmental problems they must be addressed early on.

**COST OF INACTION**

**Marine environment**
The sinking of the vessel Erika in 1999 cost more than €800 million, half of which was borne by the tourism industry. The estimated cost to the fishing and tourism industries of another sunken vessel — the Prestige — is estimated at about €5 billion.

**Transport**
The environmental and accident-related impacts of transport are estimated to cost up to 7.3% of GDP. Road transport accounts for more than 83% of these costs, followed by air transport which represents 14% of total costs.

**Poorly assessed chemicals**
The total environmental damage in the EU-25 from the now banned polychlorinated biphenyls (PCBs) is estimated at €15 billion.

**Health impacts**
In the EU the health costs from air pollution are estimated to be between €275 billion and €790 billion a year. This includes 369,000 premature deaths and the loss of 347 million working days a year. Belgium and Hungary are the most affected. Air pollution leads to more than one death per 1,000 inhabitants and costs more than €2,700 per person in both Member States compared to an average of €1,600 per person in the EU-25.

**Environmental and accident costs of transport by source (2000), as a percentage of total costs**

<table>
<thead>
<tr>
<th>Source</th>
<th>Air transport</th>
<th>Railways</th>
<th>Waterways</th>
<th>Road transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU 25</td>
<td>14%</td>
<td>2%</td>
<td>0.4%</td>
<td>83%</td>
</tr>
</tbody>
</table>

**Source:** AEA Technology Environment, CAFE CBA: Baseline Analysis 2000 to 2020, April 2005 / Eurostat Database

**Deaths due to air pollution (2000), as a percentage of total population**

**Health costs due to air pollution (2000), in euros per inhabitant in each Member State**

Climate change

In 2004, climate change related disasters caused economic losses of more than €86 billion around the world. The Stern Report published in 2006 estimates that climate change would cost between 5 and 20% of world production if it were to run its course without preventive action. Action to fight climate change, the report suggests, would only cost 1% of GDP.

A study by the German Institute for Economic Research suggests that a temperature rise of 4.5°C by 2100 would cause €330 billion worth annually in damages from climate change related disasters. Adaptation measures in Germany alone would cost €170 billion. It is estimated that the cost of a rise in sea-level in the EU would be as high as €5 billion a year in 2020 and up to €42 billion a year in 2080.

Electricity production can cause environmental damages and health problems that vary significantly on how and where the electricity is generated. At present, the greater part of these damages and health problems are not factored into the pricing system of electricity production and are thus considered as external costs. In 2004, the damages from climate change, the impacts on health from air pollutants, and the social costs from electricity production was estimated to cost society at least 1.8 cent per kWh produced in the EU-25 and as much as 5.5 cent per kWh in Poland. These costs have been on a downward trend since the 1990s.

Floods

Since 1973 the frequency and impact of floods in Europe has dramatically increased. Preventive measures can mitigate the risks and decrease the number of deaths and the economic damages caused by floods. Floods can have severe consequences. In 2002, for example, the floods in Austria, Czech Republic, Germany, Hungary and Slovakia caused economic losses of about €25 billion.
European environmental policy is increasingly being implemented through economic instruments such as environmental taxes and the emissions trading scheme. These instruments use market mechanisms to send the right price signals and to achieve environmental objectives effectively. This leads businesses to seek innovative and efficient ways to control emissions. Correcting market failures creates a level playing field with common standards and fosters fair competition across the EU’s single market. EU environmental standards have an impact beyond the borders of the Union as they are often adopted by non-EU countries and sometimes become accepted world standards.

Environmental taxes

The biggest source of environmental tax revenue comes from petrol and diesel (energy charges). Tax revenues from pollution and resources — such as environmental charges from water use or landfills — generally contribute a very small share of tax revenue.

Sources of tax revenue in EU-25 (2004)

- Consumption & Capital: 48%
- Other: 7%
- Transport: 2%
- Labour taxes: 45%
- Energy: 5%
- Pollution / resources: 0.3%

Environmental taxes by Member State (2004), as a percentage of total revenue from taxes and social contributions

The EU Emissions Trading Scheme helps Member States achieve compliance with their commitments under the Kyoto Protocol. The scheme covers over 11,500 energy-intensive installations — representing nearly half of the EU’s emissions of carbon dioxide (CO2). Recent studies conclude that the targets can be achieved at an annual cost of €2.9 to €3.7 billion, less than 0.1% of the EU’s Gross Domestic Product. One of these studies concluded that without the Emissions Trading Scheme costs would reach €6.8 billion.

Subsidies

Subsidies can create positive and negative market distortions. Energy subsidies amount to €29 billion annually in the EU-15. The level of subsidy in the EU attributed to renewable energies is less than the amount of subsidies allocated to coal production. In Germany, for example, subsidies given to coal production are on a downward trend but remained at €2.7 billion in 2005, or about €75,000 per mining job.
The administrative costs of environmental policy

The administrative cost of environmental policy is relatively low. These costs arise from information reporting obligations that businesses and other organisations must fulfil to comply with environmental legislation. A Danish study on the administrative cost of implementing policies in a number of areas found that environmental policy amounted to 3 per cent of all administrative costs. Studies in other Member States also confirm that environmental policies represent a relatively small portion of total administrative costs.

## INTERNATIONAL COMPETITIVENESS

### Competitive distortion

On the whole, developed countries have similar levels of environmental protection. The EU, the United States and Japan all spend about 2% of their Gross Domestic Product on environmental protection.

Air quality target values of pollutants such as carbon monoxide (CO), ozone (O₃) and particulate matter (PM) are similar in the EU and the United States, but standards for heavy-duty vehicles are more stringent in the United States.

Environmental costs tend to be relatively marginal when businesses decide on a production location. Cost of capital, fiscal regime, wages and exchange rate fluctuations and proximity to market are usually more important.

In fact, environmental protection can be a big market opportunity. The global market for eco-industries is worth about €600 billion a year. The EU holds about one third of the world market in environmental goods. It is a net exporter of environmental goods. It has a trade surplus of about €750 million with many European producers benefiting from ‘first-mover advantages’ as their technologies are adopted abroad.

There is no evidence to suggest that environmental policy has a negative impact on international competitiveness. On the contrary, many Member States and regions such as Sweden, Finland, Denmark and to some extent the USA (California) which are leading the move to higher environmental standards are also leaders in economic growth and competitiveness.
Eco-industries are also a growing market. Particularly strong export markets include China and other developing countries, all of whom are trying to ensure that their economic growth is sustainable. More than 3 billion people in Asia live in countries that have adopted EU emission standards for cars.

Good environmental performance can also be good for economic competitiveness. EU companies are in general more efficient in their use of resources — including oil — than many of their international competitors. This can be seen in the steadily decreasing intensity of energy consumption by companies in the EU.

In the EU, Denmark and Austria are the most efficient energy users. They have energy intensity figures as low as Japan, which is the world’s leader in this field. With a high turnover as a percentage of their national GDP, Denmark and Austria also have the highest energy intensities with figures higher than or similar to that of the US.
Environmental policy can serve as a driver for innovation. The high standards advanced by EU environmental policy encourages European companies to innovate in a bid to maximise the efficiency of the resources they use. Doing so leads to greater profitability and an improved brand and corporate image.

By burning waste fuels the cement producer Lafarge has cut its emissions of Co2 by 12.75% per unit of production compared to 1990 levels and reduced its energy consumption by 22%.

The German railroad company Deutsche Bahn reduced its CO2 emissions by 25.9% between 1990 and 2002. Thirteen percent of the company’s current energy use comes from renewable sources. An additional €700 million have been saved through efficient driving measures.

From January 2005, 30% of SwissRe’s energy requirements in Zurich have been met from renewable energy sources. This will be raised to 100%.

The energy company BP cut greenhouse gas emissions by 10% between 1990 and 2001, nine years ahead of schedule. It will save around £400 million over the life of projects designed to increase operational efficiency.

British Telecom, a provider of communications services, reduced energy-related CO2 emissions by 71% between 1991 and 2004. £1.1 billion was saved between 2002 and 2005 through lower bills. In 2006, 42% of its total waste was recycled.

UK businesses use 4 times the volume of water they need and could save €4.5 billion per year.

About 90% of the electricity used by the British mortgage and savings provider HBOS comes from renewable energies. Between 2001 and 2004 the company cut CO2 emissions by 13% per full-time equivalent employee and saved €12.9 million from energy conservation and emission reduction measures for a total of £3.6 million invested.
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A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (http://europa.eu).

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