

## D SUSTAINABLE PRODUCTION AND CONSUMPTION

### Main messages

Expenditure per household increased in real terms by 8 per cent between 1989 and 1998. Almost 40 per cent of spending is on transport and recreation.

Growth in the number of households, in transport use, and in leisure activities have all increased pressure on resources and the environment.

Although energy efficiency of homes and appliances improved between 1989 and 1998, overall energy and water efficiency of households did not improve.

Farming methods led to lower pesticide residues between 1989 and 1998.

The increase in passenger travel has been accompanied by a similar increase in fuel consumption between 1970 and 1998. Road freight grew considerably between 1970 and 1998, whereas rail freight declined.

There was a large growth in overseas air travel between 1983 and 1998, which has implications for noise levels and climate change.

In 1998 almost half of the FTSE 100 companies had organisational and performance environmental targets compared with about a quarter in 1996.

### Relevance

The types of products we buy and how spending patterns are changing have important impacts on resource use, the environment and people's health, both now and in the future. Consumers need to be made aware of more environmentally friendly products, whilst producers and manufacturers should continue to consider their design and production process. We should think of more efficient use of energy and other natural resources, reduction of pollution and waste to ensure that consumption does not have detrimental effects on the environment.

This section looks at key areas for action to improve efficiency in:

- the home
- home appliances
- food and drink
- personal transport
- tourism and leisure; and
- sectoral examples of chemicals and freight distribution.

The extent to which the key objectives identified in the Strategy are being achieved, as reflected by the indicators, is illustrated in the following table.

**Key strategies**

- *A better quality of life. A strategy for sustainable development in the UK.* (6.42-6.72)
- *A new deal for transport: Better for everyone.* The Government's white paper on the future of transport<sup>1</sup>
- *Sustainable distribution: A strategy*<sup>2</sup>
- *Tomorrow's tourism.* A growth industry for the new millennium (Tourism strategy for England)<sup>3</sup>

**Some other related indicators:**

Total output of the economy (GDP and GDP per head) **(H1)**; Expected years of healthy life **(H6)**; Road traffic **(H11)**; Improving resource efficiency **(A1-A7)**; Travel **(G1-G5)**; Fuel poverty **(J6)**; Concentrations of persistent organic pollutants **(M1)**; Dangerous substances in water **(M2)**; Carbon dioxide emissions by end user **(N3)**; Concentrations of selected air pollutants **(P1)**; Water demand and availability **(Q2)**; Access to the countryside **(S8)**; Prices of key resources – fuel **(T3)**; Real changes in the cost of transport **(T4)**

<sup>1</sup> July 1998, ISBN 0-10-139502-7

<sup>2</sup> March 1999, ISBN 1-85-112111-0

<sup>3</sup> February 1999, Product code et99471111

Objective	Ref no.	Indicator	Data used	Change since		Specific targets/goals	
				1970	1990		
Give consumers better information and encourage purchasing initiatives which help to move the market	D1	Consumer information	To be developed	...	...		
Contextual indicator	D2	Consumer expenditure	1989-1998	na	na		
Take-up of best practice in key sectors	D3	Energy and water consumption by sector/Waste and hazardous emissions by sector	To be developed	...	...		
Encourage businesses to assess environmental impacts and set targets, and produce environmental reports	D4	Adoption of environmental management systems (ISO 14001) and the EU Eco-Management and Audit Scheme (EMAS)	1995-1998	...	✓	To secure over 75 per cent participation in ISO 14001 and/or EMAS among the FTSE 100 companies by 2001	
	D5	Corporate environmental engagement	1996-1998	...	✓		
	D6	Environmental reporting	To be developed	...	...	Top 350 businesses to report on major environmental impacts using common standard by the end of 2001	
<b>The Home</b>							
Need housing which is more energy efficient, uses fewer resources and creates less waste	D7	Household water use and peak demand	Peak water demand	1993-1997	...	≈	
			Household water consumption	1992-97	...	✗	
	D8	Thermal efficiency of housing stock	1987-1998	✓	✓		
Greater use of sustainable construction materials	D9	Primary aggregates per unit of construction value	1972-1998	...	✓		
	D10	Construction and demolition waste going to landfill	1997-1999	...	...	For Northern Ireland, reduce amount of construction and demolition waste going to landfill to 85 per cent of 1998 levels by 2005	
<b>Home appliances</b>							
Need more efficient appliances	D11	Energy efficiency of new appliances	1989-1998	...	✓		

Objective	Ref no.	Indicator	Data used	Change since		Specific targets/goals
				1970	1990	
<b>Food and drink</b>						
Minimise the impact of pesticides on human health	D12	Pesticide residues in food	1989-1998	...	✓	Samples should be within legally permitted Maximum Residue Levels and should not lead to exceedance of acceptable daily intake (ADI) levels
Encourage environmentally sensitive land management by farmers	D13	Area under agreement under the Environmentally Sensitive Area and Countryside Stewardship agri-environment schemes	1987-1998 and 1991-1998	...	✓	
Organic production methods	D14	Area converted to organic production	1995-1999	...	✓	
<b>Personal travel</b>						
Encourage production, marketing, purchase and use of vehicles that are more fuel efficient	D15	Energy efficiency of road passenger travel	1970-1998	≈	≈	
		Average fuel consumption of new cars	1978-1998	...	≈	
<b>Tourism and leisure</b>						
UK tourism industry to grow significantly in ways which are economically, socially and environmentally beneficial	D16	Sustainable tourism	To be developed	...	...	
Address transport issues; integrate tourism with public transport	D17	Leisure trips by mode of transport	1985/86-1996/98	...	≈	
	D18	Overseas travel	1983-1998	...	✗	
<b>Chemicals</b>						
Reduce environmental impact of chemicals	D19	Chemical releases to the environment	To be developed	...	...	
<b>Freight distribution</b>						
Develop distribution systems which support economic growth, protect the environment and benefit society	D20	Freight transport by mode	1970-1998	✗	✗	
	D21	Heavy goods vehicle mileage intensity	1957-1998	✓	✓	

Key	
✓ significant change, in direction of meeting objective	✗ significant change, in direction away from meeting objective
≈ no significant change	••• trend is uncertain or no quantitative data available
na not applicable, in cases where the indicator is for contextual purposes	

**Objective** Give consumers better information and encourage purchasing initiatives which help to move the market

**Indicator** Consumer information (to be developed) **D1**

*Relevance* Consumers' individual purchasing decisions can contribute towards the goal of sustainable development, by transforming the market for products which are produced and perform in less environmentally damaging ways. Consumers need to have more and better information about the environmental effects of the goods and services they buy, and about how they can use and dispose of products to minimise their impact on the environment.

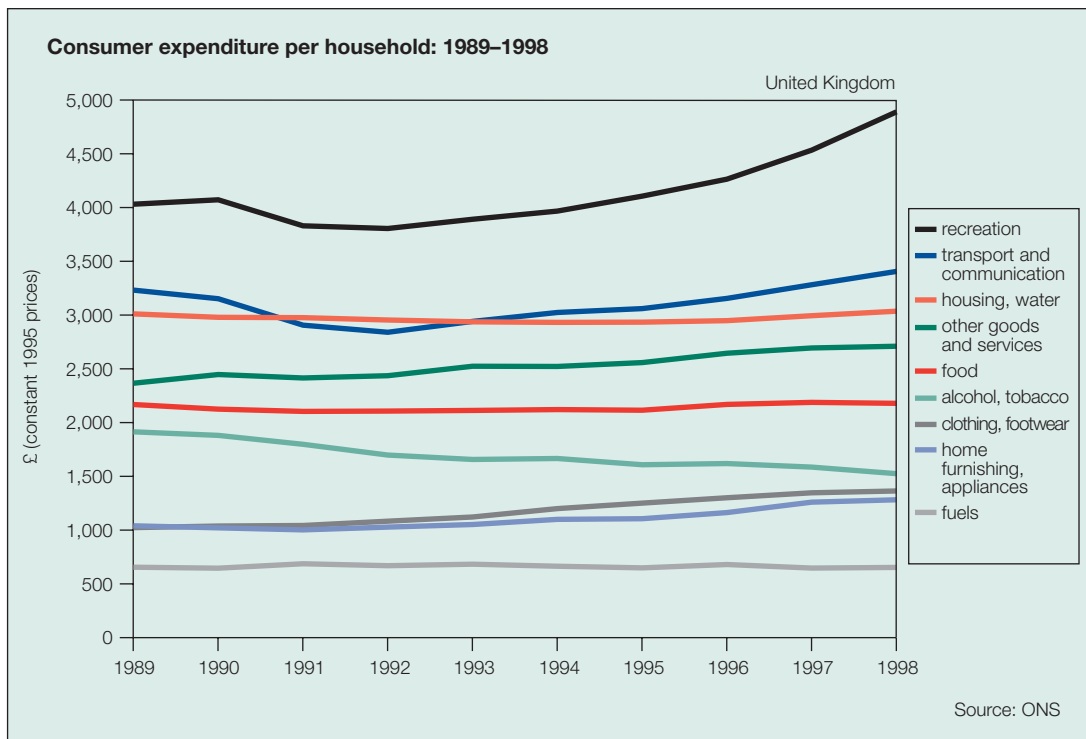
*Background* Manufacturers and retailers are required by law to display energy efficiency ratings for certain product types covered by the EU Energy Labelling scheme (eg washing machines and refrigerators) and other products, like cars and light bulbs, will start to carry standardised labels during the next few years. For other environmental information which is simply volunteered by business, the government introduced a "Green Claims Code" in 1998 to raise the quality of what consumers are being told. The Code sets out principles and examples of good and bad practice in making green claims. A revised version of the Code will be issued in early 2000 and will be based on the new international standard on environmental declarations, ISO 14021.

The indicator will illustrate the amount and the accuracy of information provided to consumers about the environmental impacts of key products. It is being developed to measure for a selection of product types (a) the frequency of environmental information provided, and (b) the quality of such information against a suitable benchmark (either the Green Claims Code or the new international standard). At this stage more work is needed on possible methodology and on how a reliable series could be built up over time.

Objective Contextual indicator

Indicator Consumer expenditure

D2



**In 1998, almost 40 per cent of all consumer spending was on recreation and transport (mainly spending on the purchase and running of cars)**

**Relevance** It is important to know what people are spending their money on and how spending patterns are changing to assess current and future pressures on resource use, environmental impacts, and people's health.

**Trends** Over the period 1989 to 1998 spending increased in real terms in all areas except spending on alcohol and tobacco. Growth in spending per household has been strongest on clothing and footwear (33 per cent increase over the period), on home furnishing and appliances (23 per cent) and on recreation (21 per cent). Spending on transport has increased by a fifth over the period 1992 to 1998.

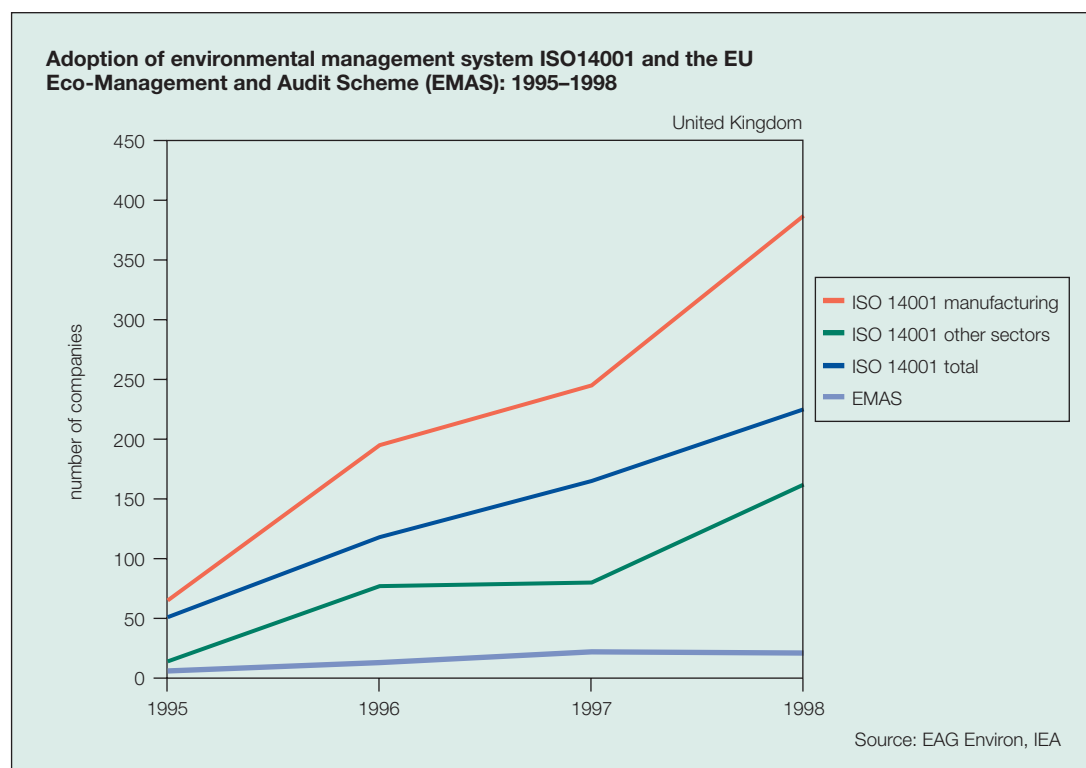
**Background** People are generally much more affluent and are spending increasing amounts on clothes, home furnishings, and leisure. Consumer spending is important for economic growth, but consumption generally means more resource use, pollution and waste generation. Products need to be designed which are more efficient in their use of energy and other natural resources, less polluting and generate less waste so that consumer spending can continue to increase without detrimental effects on the environment.

<b>Objective</b>	Take-up of best practice in key sectors	
<b>Indicator</b>	<b>Energy and water consumption by sector Waste and hazardous emissions by sector (to be developed)</b>	<b>D3</b>
<i>Relevance</i>	Individual business sectors need to play their part in the drive for greater overall efficiency by consuming less water and energy and by reducing waste and hazardous emissions.	
<i>Background</i>	<p>The purpose of this indicator would be to monitor performance of individual business sectors. The two parts of the indicator are complementary. The first measures efficiency of inputs and the second measures efficiency of outputs.</p> <p><i>Energy and water consumption</i></p> <p>Chapter 5 looks at energy and water intensity for industry and services at a broad level. It would be useful to develop measures for specific business sectors as a benchmark for measuring future progress. Work is required to identify which sectors should be monitored and what data are available or could be collected.</p> <p><i>Waste and hazardous emissions by sector</i></p> <p>Indicator A4 will be developed to show waste by sector, based on data from the Environment Agency's National Waste Survey. When detailed information is available it should be possible to look at intensity of waste production for more specific sectors of industry. Indicator D19 will be developed to cover chemical emissions, and further work will be needed to investigate whether trends in emissions for different sectors can be monitored.</p>	

**Objective** Encourage businesses to assess environmental impacts and set targets, and produce environmental reports

**Indicator** Adoption of environmental management systems (ISO 14001) and the EU Eco-Management and Audit Scheme (EMAS)

D4



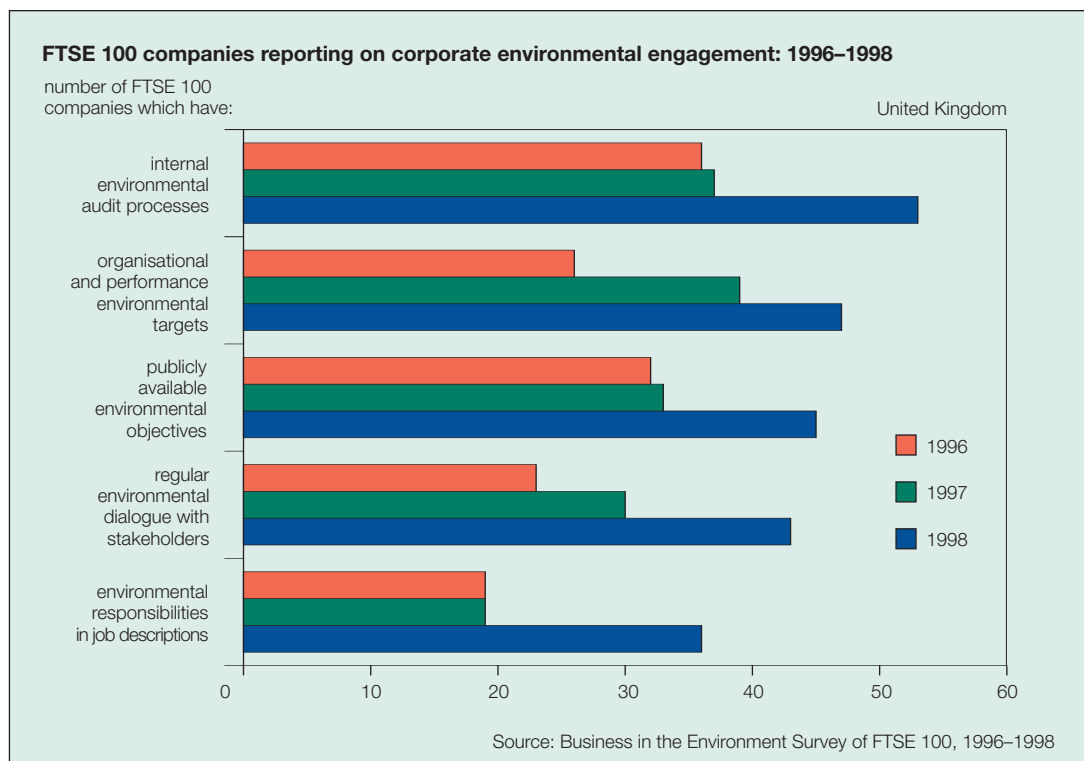
**In 1998, almost 400 companies had accredited management system ISO14001, over half of which were in manufacturing**

- Relevance** Companies have a key role in helping to protect the environment by adopting internationally-agreed standards for environment management to achieve continuing improvements in environmental performance.
- Targets and goals** To secure over 75 per cent participation in ISO 14001 and/or EMAS among the FTSE 100 companies (ie at least one certified or registered site) by 2001.
- Trends** Take-up of ISO 14001 by UK business, an international leader, has exceeded the number of EMAS registrations by a factor of 10:1. Sectors strongly in the forefront include manufacturers of electrical goods, followed by chemicals, machinery, metals.
- Background** The adoption of environmental management systems forms part of the voluntary approach promoted by government to complement the regulatory system in securing commitment to legal compliance and continuous improvement in environmental performance. The recognised systems are ISO 14001 and EMAS, both of which require external auditing by accredited independent third parties.

**Objective** Encourage businesses to assess environmental impacts and set targets, and produce environmental reports

**Indicator** Corporate environmental engagement

D5



**47 of the FTSE 100 companies had organisational and performance environmental targets in 1998 compared to 26 in 1996.**

**Relevance** Top UK companies help define the business agenda for the wider business community. The FTSE 100 covers a wide range of manufacturing and service companies. Voluntary improvement in business environmental performance, going beyond regulatory requirements, has an important role to play in increasing sustainability.

**Trends** FTSE 100 companies are doing more to integrate improvement in environmental performance into their mainstream business activities than they were three years ago. There is more emphasis on published environmental objectives and clear performance targets. Over a half of companies carried out internal environment audits of all their strategic business units in 1998, compared with around a third in 1996. The number of companies engaging in two-way communication with stakeholders has almost doubled.

**Background** Seventy-seven per cent of top FTSE 100 companies participated in the 1998 survey. FTSE 100 companies were asked by Business in the Environment to report on environmental engagement in 10 areas. Five key specific activities covering environmental objectives and target setting, environmental audits, direct employee responsibility for environmental programmes and environmental dialogue with stakeholders are shown in this indicator. These are important areas of engagement where there is scope for increased company action. Adoption by companies of environmental management systems is shown in a separate indicator.

In 1998 questions were asked for the first time of the next 250 top companies. 19% of this group participated and another 9% are working towards participation in 1999. Results show much lower levels of environmental engagement in this group of participants than in top FTSE 100 companies and substantial scope for action. Increasing participation in the survey by the next 250 companies in future years will allow a better picture of engagement in this group to emerge.

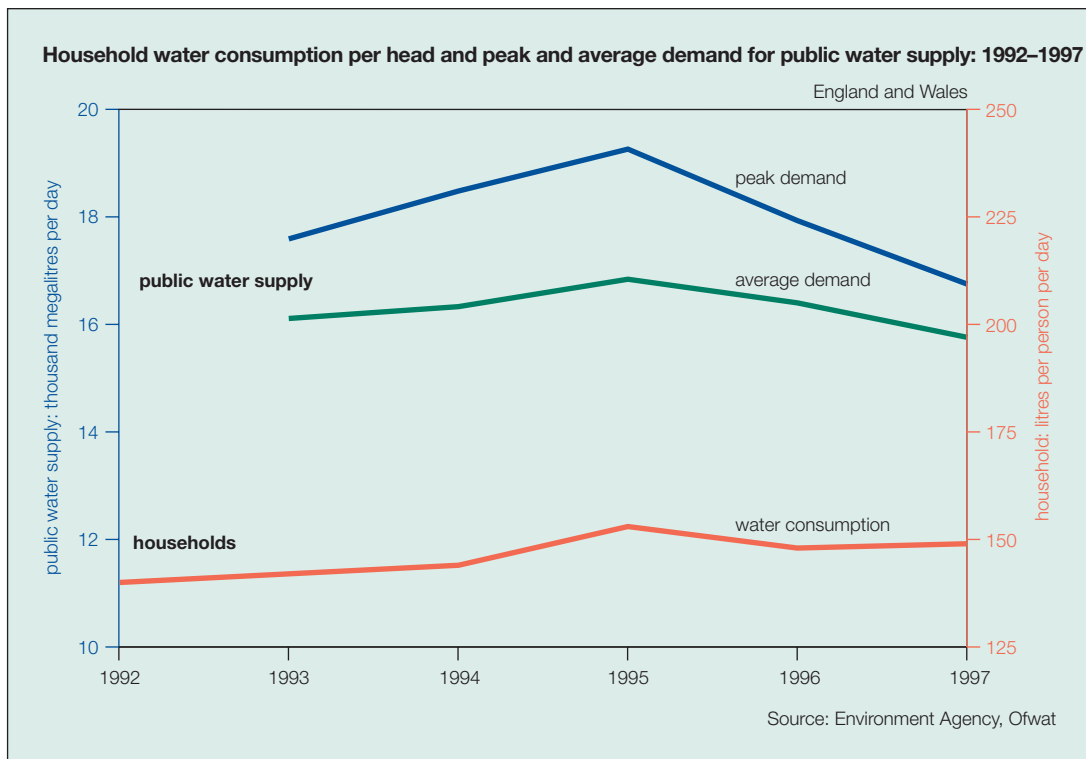
This indicator will eventually be replaced by indicator D6 on environmental reporting by businesses.

<b>Objective</b>	Encourage businesses to assess environmental impacts and set targets, and produce environmental reports	
<b>Indicator</b>	<b>Environmental reporting (to be developed)</b>	<b>D6</b>
<i>Relevance</i>	Business is responsible for more than 40% of national greenhouse gas emissions and well over half of all landfilled waste. Large businesses can set an important lead in contributing to national targets for reduction.	
<i>Targets and goals</i>	The government will put in place guidance to allow large businesses to report goals publicly to a common standard on major environmental impacts. It will look for the top 350 businesses to report to these standards by the end of 2001 and will then work to extend this to the 7000 UK businesses with more than 250 employees. To help this process, it has issued <i>Environmental Reporting: Getting Started and Environmental Reporting: Guidelines for Company Reporting on Greenhouse Gas Emissions</i> . Guidance on waste reporting is in preparation.	
<i>Trends</i>	1998 survey data from Business in the Environment (BiE) shows currently around 50 of FTSE 100 companies measure some or all of greenhouse gas emissions. Data from the Pensions Investment Research Council (PIRC) suggests fewer than 50 FTSE 350 companies report on waste. Levels of reporting are rising, but standards of measurement, completeness and public reporting are very variable.	
<i>Background</i>	<p>More companies are reporting, but there needs to be greater take-up of hard-edged quantified measures and adoption of targets for companies to be able to demonstrate that reporting reflects real action.</p> <p>This indicator is in development. Data from FTSE 100 companies will initially be gathered by BiE in conjunction with its annual survey for the Index of Corporate Environmental Engagement. Data should be available in spring 2000. BiE are to ask FTSE 100 companies whether they measure and report publicly on greenhouse gas emissions from energy use, transport and process emissions; whether they work to DETR guideline standards in doing so; and whether they measure and report publicly on their waste and water use. In future years this data-gathering would need to be extended to FTSE mid-250 companies. Some data on published information from FTSE mid-250 companies is currently provided by a survey by PIRC.</p>	

**Objective** Need housing which is more energy efficient, uses fewer resources and creates less waste

**Indicator** Household water use and peak demand

**D7**



**Water consumption per head in households increased by 6 per cent between 1992 and 1997 in England and Wales. In 1995, the average and peak demands for public water supply were higher than in other years because of the unusually hot dry weather that year, and because of progress in improving water efficiency made since then.**

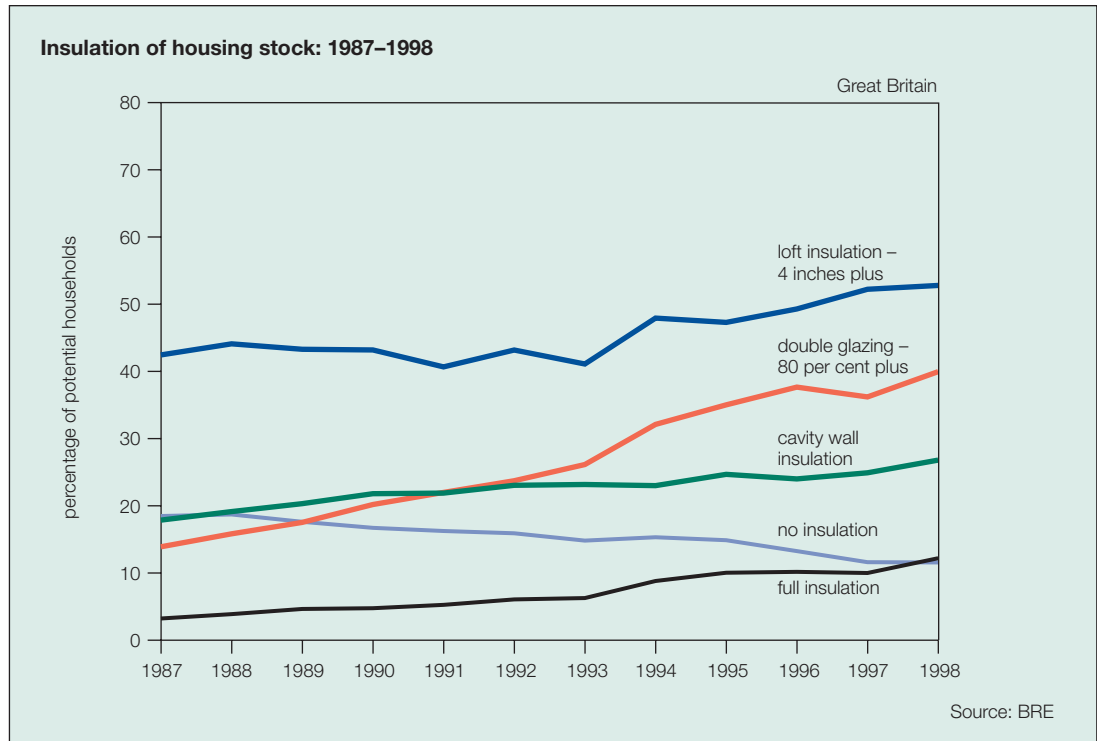
**Relevance** Water is a renewable resource which is vital for public health and the environment. Water use is growing and safeguarding our resources is essential for sustainable development.

**Background** Factors leading to increased consumption per head include increasing numbers of households; increasing use of domestic appliances; and warmer weather.

**Objective** Need housing which is more energy efficient and uses fewer resources

**Indicator** Thermal efficiency of housing stock

**D8**



**Housing insulation in Great Britain has improved over the last decade. Between 1987 and 1998 the percentage of houses with no insulation fell from 18 per cent to 12 per cent. By 1998, 40 per cent of houses had at least 80 per cent of windows double glazed.**

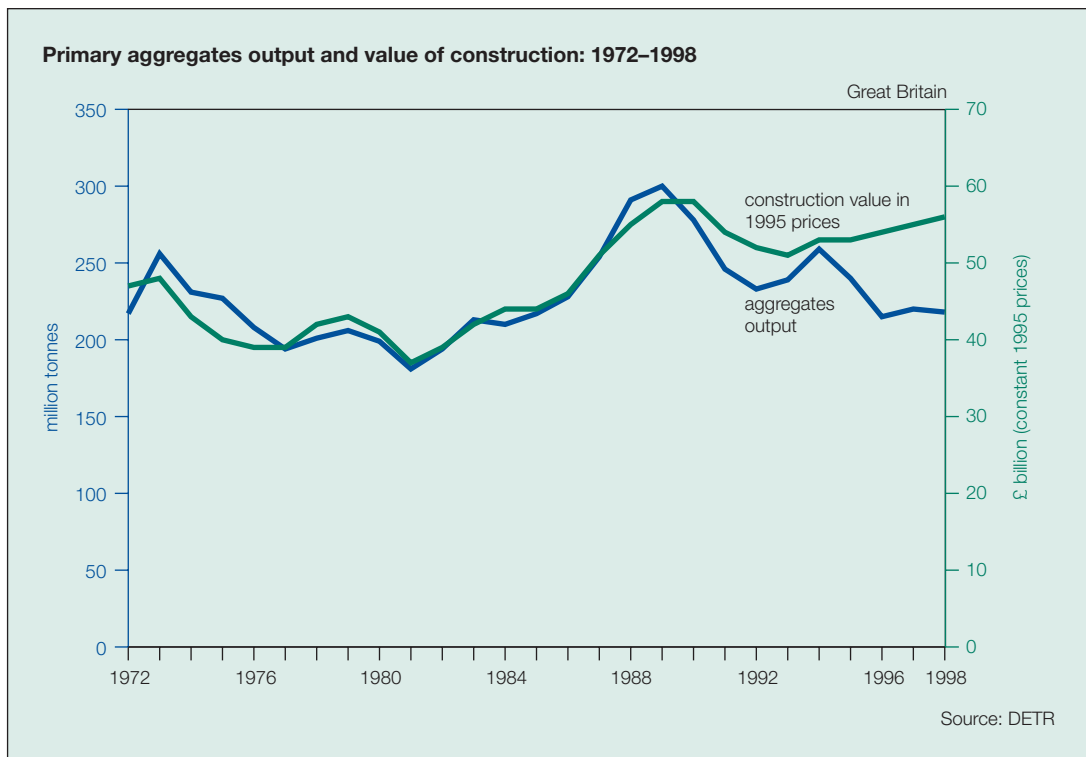
**Relevance** Energy efficient housing is essential for sustainable development. To help reduce the increase in household energy consumption, all existing and new homes need to be adapted or constructed to be energy efficient and use less resources.

**Trends** The number of homes with full insulation is increasing whilst the number with no insulation is decreasing. The number of homes with loft insulation, cavity wall insulation or double glazing has significantly increased over the last decade.

**Background** Better household insulation will help to reduce the amount of energy used for heating, which currently accounts for about 60 per cent of all household energy use.

**Objective** Greater use of sustainable construction materials

**Indicator** Primary aggregates per unit of construction value **D9**



**In 1998 around 220 million tonnes of aggregates were quarried. From 1972, till 1994, the trends in aggregates output and construction value have largely mirrored each other. In the last few years however the amount of aggregates used has fallen whilst the overall value of construction has continued to rise.**

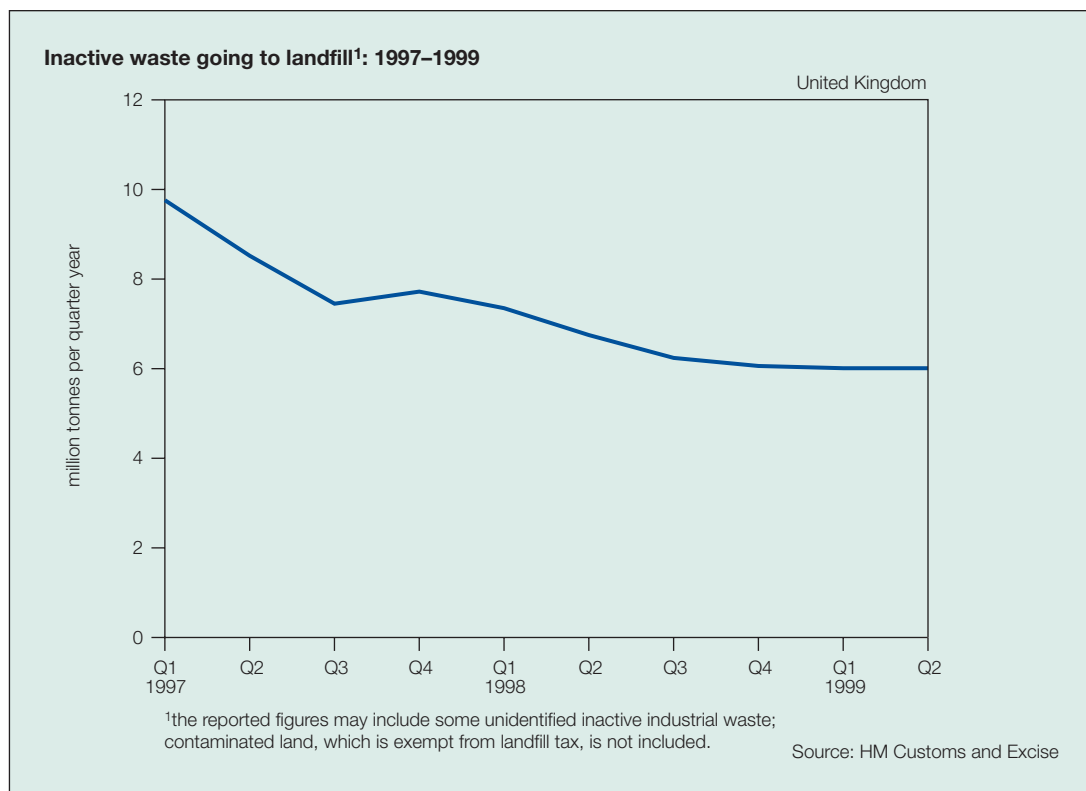
**Relevance** Extraction of materials involves balancing need against impact. Manufacturing involves pollution, final disposal may need to be to a landfill site; and each stage needs transport. Efficient use of aggregate material can save money, reduce waste for disposal, and reduce energy consumption and pollution from the supply processes. It is estimated that up to 10 per cent of national energy consumption is used in the production and transport of construction products and materials.

**Trends** There are several possible explanations for the divergence of the two lines above. The increasing use of steel and glass in the construction of buildings, the more efficient use of aggregates as well the increased use of re-cycled aggregates. Indicator S14, which compares the use of recycled and virgin aggregate, is currently under development.

**Background** A wide range of materials from a variety of sources is used in UK construction. Aggregates represent the majority of materials. The other main groups of materials used in construction are timber, steel and glass. Greater efficiency can be gained through improved construction design and better supply chain management. Alternative materials such as timber from sustainably managed forests can also be used. Currently only about 20% of the aggregate used in construction is from recycled and alternative sources including waste from other industries.

**Objective** Greater use of sustainable construction materials

**Indicator** Construction and demolition waste going to landfill D10



**In 1998, around 20-25 million tonnes of construction and demolition waste a year went to landfill. This represents around 30-40% of total construction and demolition waste. The amounts landfilled have reduced substantially since the introduction of the landfill tax in October 1996.**

**Relevance** Efficient use of construction material resources at all stages in the construction process reduces the amount of waste generated and maximises the opportunities for greater reuse and recycling. This greater resource efficiency helps to minimise the environmental impacts of construction including through lower demand for virgin material and reduced burden on landfill sites.

**Targets** For Northern Ireland, to reduce the amount of construction and demolition waste going to landfill to 85% of 1998 levels by 2005.

**Trends** Information on long-term trends is not available, but there has been a clear downward trend throughout 1997 and 1998. Most of the construction and demolition waste going to landfill is used for engineering or restoration work at sites.

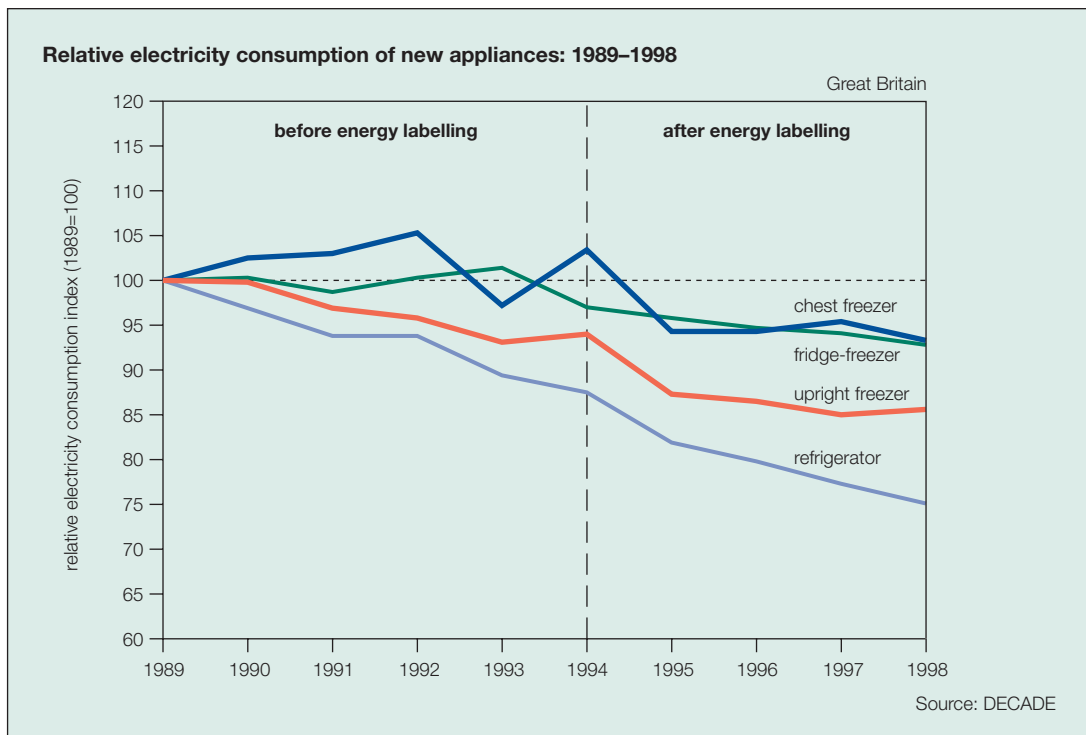
**Background** A decline in the amounts of construction waste going to landfill can reflect either a reduction in the amount of construction waste generated, an increase in the percentage of waste re-used or recycled, or an increase in unauthorised landfilling or flytipping. The landfill tax of £2 per tonne for inactive waste has encouraged producers to look for alternative uses for construction waste. The exemptions for restoring landfill sites and filling quarries introduced in October 1999 will have implications for future trends.

When information for a longer time period is available, it may be appropriate to develop this indicator to show waste going to landfill as a proportion of total construction waste arising, or as a proportion of an industry output measure.

**Objective** Need more efficient appliances

**Indicator** Energy efficiency of new appliances

**D11**



**Energy efficiency for new cold appliances improved most for refrigerators which consumed 25 per cent less electricity in 1998 than they did in 1989. Between 1994 and 1995, when energy labelling was introduced, there was a fall in relative electricity consumption for all appliances.**

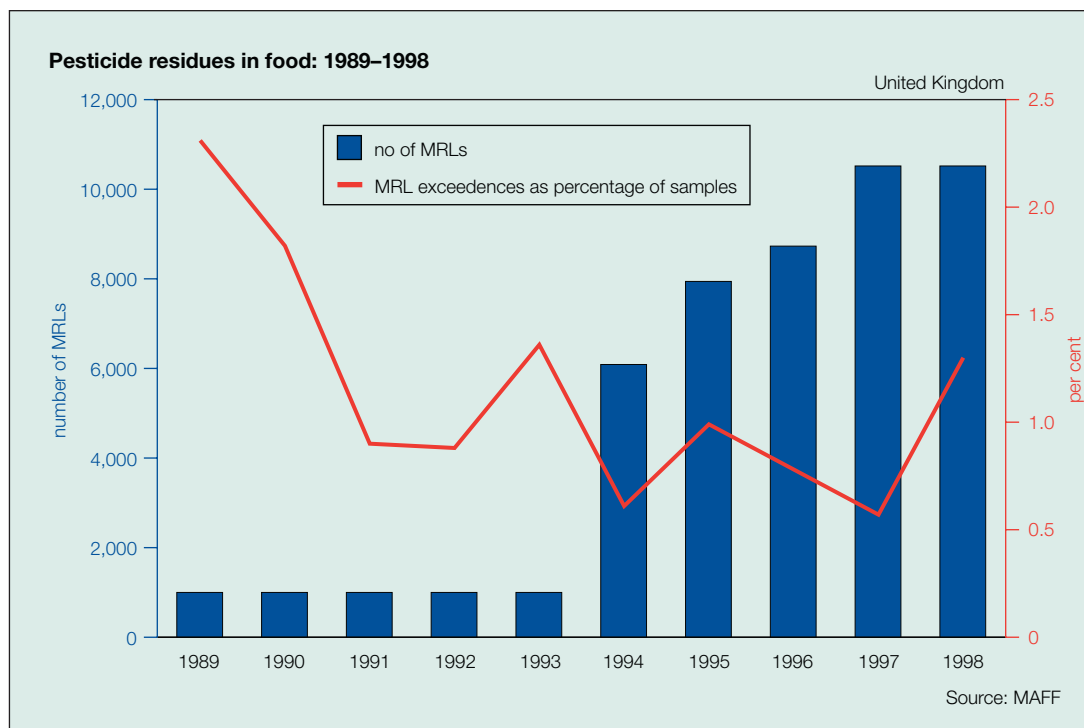
**Relevance** Home appliances make domestic tasks easier but consume energy and hence contribute to carbon dioxide emissions. In future more efficient appliances are needed together with changes in the way they are used.

**Background** Appliances such as lights, cookers, refrigerators, washing machines, computers, televisions and videos consume around a quarter of UK electricity. Cold appliances account for about a quarter of all electricity consumption by household appliances.

**Objective** Minimise the impact of pesticides on human health

**Indicator** Pesticide residues in food

**D12**



**In 1998, around 1 per cent of samples exceeded the Maximum Residue Level (MRL) for pesticides; the proportion of exceedences has fallen since 1989, despite a large increase in the number of MRLs.**

**Relevance** Achieving sustainable development means producing good quality food to protect public health.

**Targets and goals** Samples should be within the legally permitted Maximum Residue Levels and should not lead to exceedence of acceptable daily intake (ADI) levels – the maximum amount of a pesticide that can be consumed on a daily basis, throughout life, without harm.

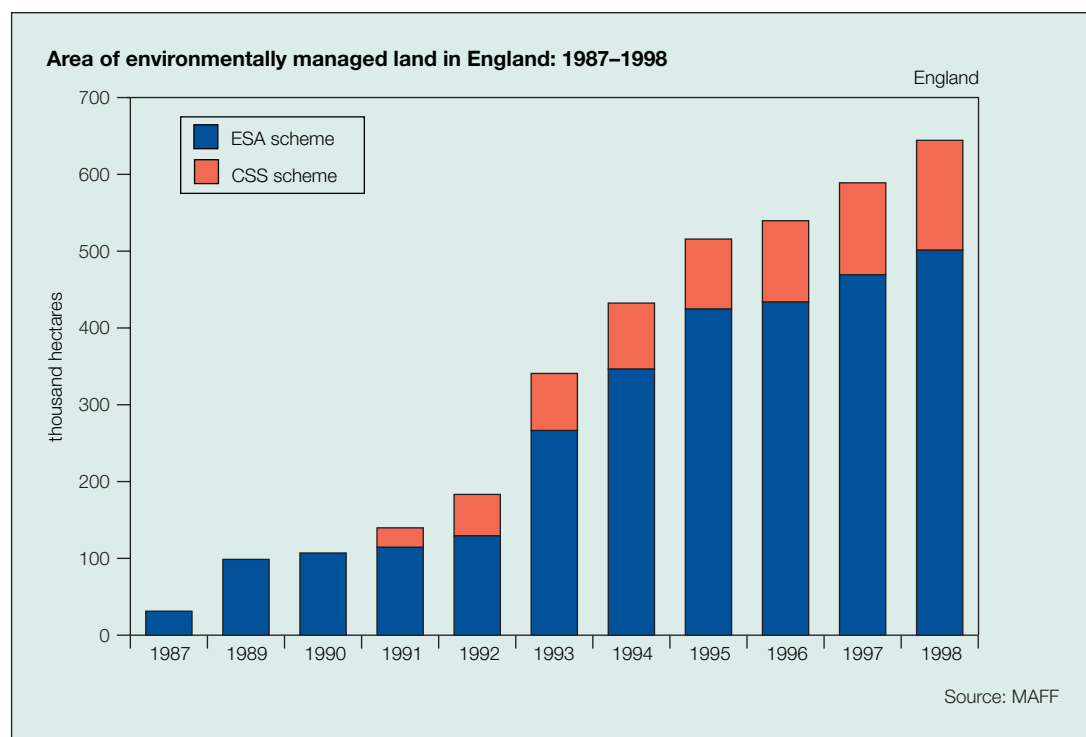
**Trends** 2.3 per cent of samples exceeded MRL in 1989, reducing to 1.3 per cent of samples in 1998. ADIs have only been exceeded in very exceptional cases.

**Background** Some 2-3,000 samples of a range of foodstuffs are taken each year, both domestically produced and imported food, to check whether MRLs are being exceeded. Over 70 per cent of samples show no pesticide residues. Only a very small percentage of samples exceed MRLs and some of these exceedences may arise from use of pesticide use overseas. The increase in exceedences in 1998 results largely from exceedences in yams – MRLs in yams are effectively zero since there is currently no import tolerance.

**Objective** Encourage environmentally sensitive land management by farmers

**Indicator** Area under agreement under the Environmentally Sensitive Area and Countryside Stewardship agri-environment schemes

D13



Since the introduction of the Environmentally Sensitive Area (ESA) and Countryside Stewardship Scheme (CSS), 650,000 hectares of land in England have been included in these agri-environmental projects. This is around 6.5% of the total agricultural area in England.

**Relevance** Agriculture is a major influence on the appearance of the countryside and has created a legacy of countryside features and wildlife habitats. Agricultural land occupies more than three-quarters of the UK's surface area. Therefore farmers have a key role in the responsible management of the countryside.

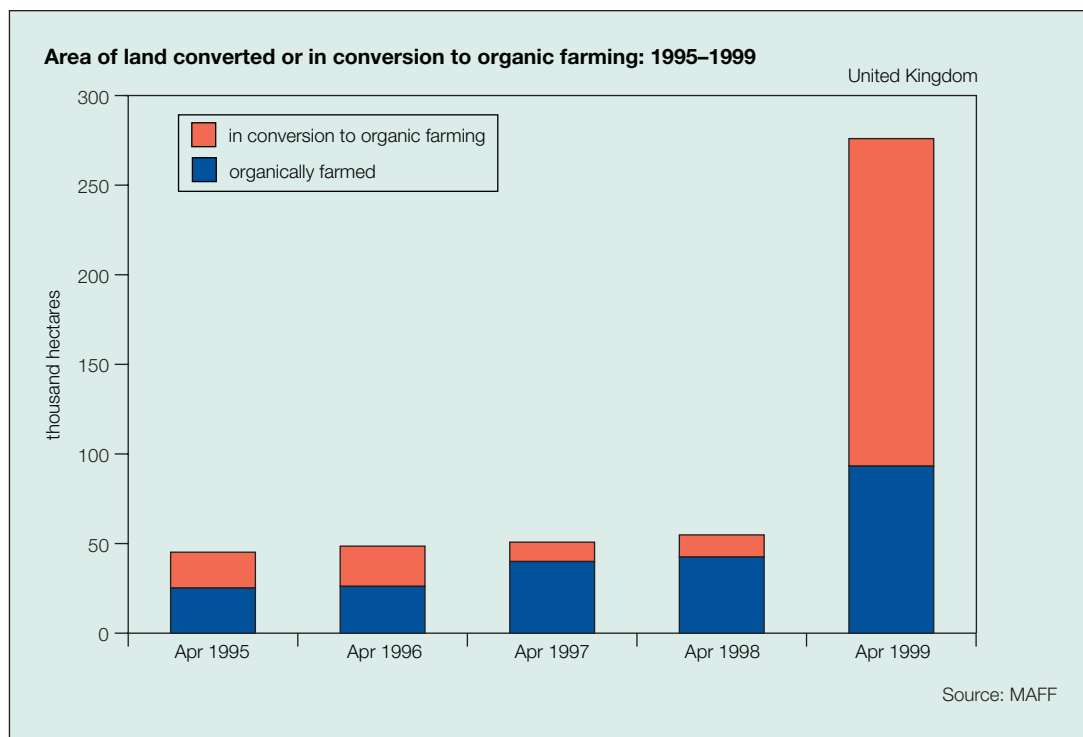
**Trends** Uptake of both schemes has been increasing fairly steadily since they were introduced in 1987 and 1991 respectively. An ESA scheme has also been in operation in Wales since 1987 and similar schemes were launched in Scotland and N Ireland in 1994.

**Background** The schemes are voluntary and offer payments to farmers to manage their land for the positive benefit of wildlife, the landscape, resource protection, historic features or public access. The ESA scheme operates in 22 areas of England (1.1 million ha) designated as being of high environmental value whilst the CSS operates throughout England and is being developed as the government's main incentive scheme for the wider countryside.

**Objective** Organic production methods

**Indicator** Area converted to organic production

D14



The area of land converted or in conversion to organic production has increased dramatically in the year up to April 1999. At that point in time, around 1.5 % of the agricultural land in the UK had been converted or was in conversion to organic farming.

**Relevance** The aim of organic farming is to create integrated, humane, environmentally and economically sustainable agricultural production systems. Particular attention is paid to maintaining soil health and fertility.

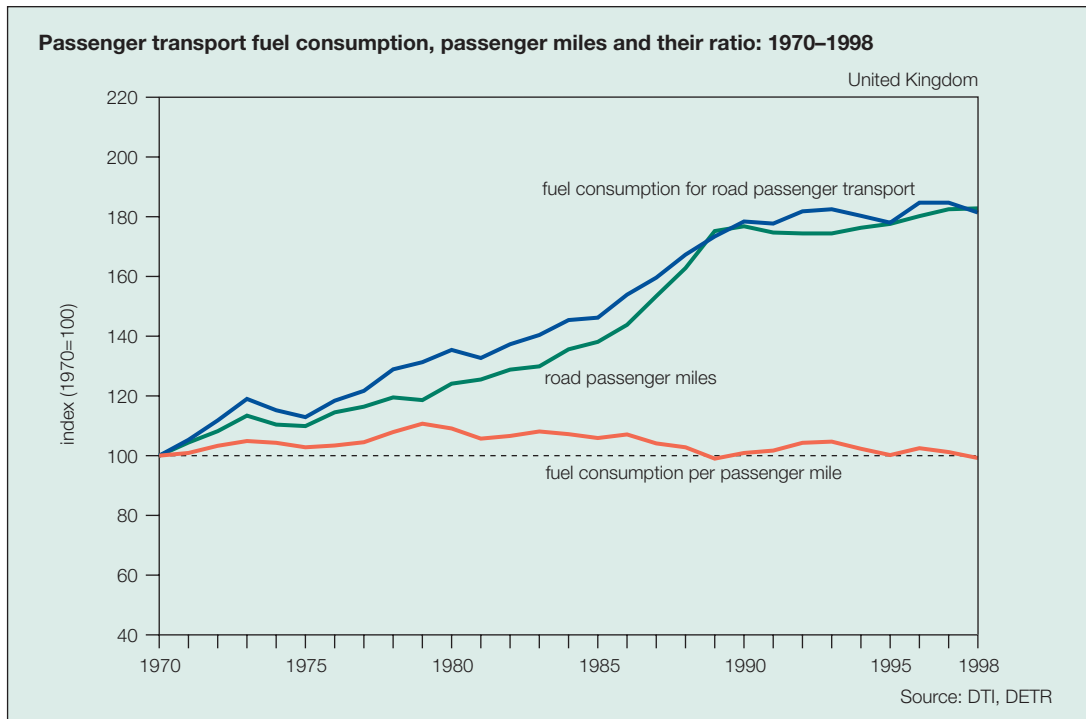
**Trends** Recently demand for organic products has been outstripping supply in many supermarkets, partly due to concerns about food safety. The year up to April 1999 has seen a very sharp increase in areas converting to organic production. This is a response to market demand and also a reflection of farmers looking to new more profitable markets at a time of difficult conditions for the agricultural sector.

**Background** In many European countries, organic agriculture is known as ecological agriculture because it involves working with natural systems rather than relying on external inputs. It normally takes up to two years to convert to organic production, depending on the type of farm and existing practices. The government in 1994 first introduced organic aid schemes. These offer financial help to those wishing to convert to organic farming. In April 1999, payments under the UK organic aid schemes increased to encourage further conversion.

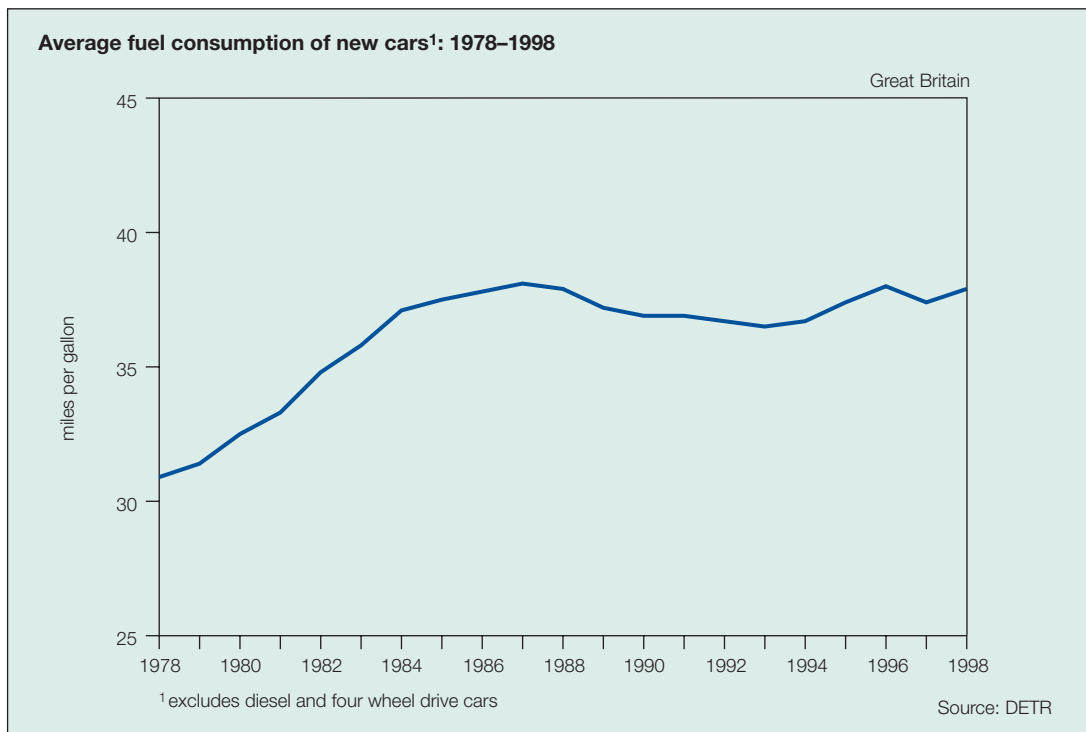
**Objective** Encourage production, marketing, purchase and use of vehicles that are more fuel efficient

**Indicator** Energy efficiency of road passenger travel/  
Average fuel consumption of new cars

**D15**



Between 1970 and 1998, fuel use by road passenger vehicles and distance travelled by passengers both increased by around 80 per cent. Fuel consumption per road passenger mile has remained constant and in 1998 was at the same level as in 1970.



The average fuel consumption of new cars improved from 31 miles per gallon in 1978 to 38 miles per gallon in 1987, and has since remained at a level of 36-38 miles per gallon.

*Relevance* Energy efficiency of road passenger travel must be improved further to reduce the increase in energy consumption and carbon dioxide emissions resulting from the projected rise in road passenger travel. Energy-efficient vehicles are needed for sustainable transport, alongside measures to influence transport use.

*Background* In recent years limited progress has been made on average fuel consumption of new cars. Trends in the vehicle market towards larger-engined vehicles, additional comfort features such as power steering and measures to improve safety and local air quality have tended to work against improvements in fuel efficiency. These factors, together with a fall in the average numbers of passengers per car and a fall in bus use, have effectively counteracted the efficiency improvements and led to an increase in fuel consumed for road passenger transport. The next few years should see significant improvements in efficiency through use of alternative fuels, better engine technology, and redesign to reduce vehicle weight.

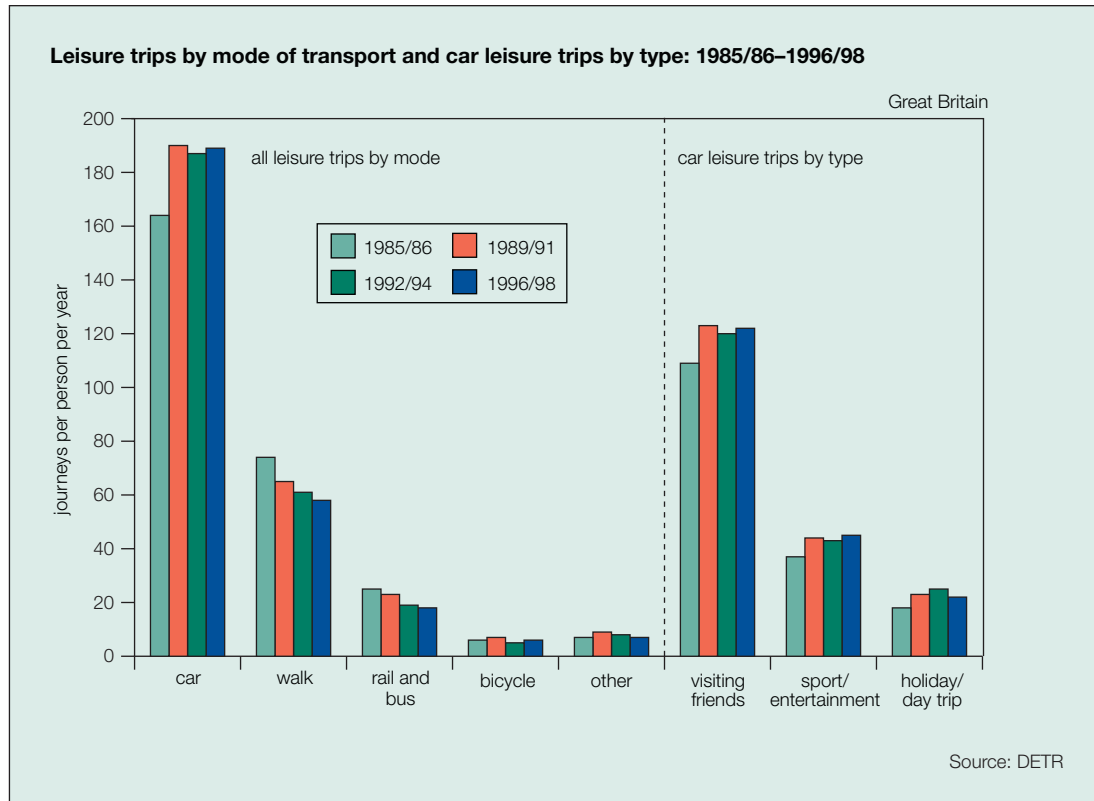
The government will begin to monitor average carbon dioxide emissions from new cars sold in the UK from January 2000 in order to monitor progress of the EU CO<sub>2</sub> from Cars voluntary agreements. Consideration will be given to using this to replace the indicator on average consumption of new cars, which has limited coverage as it excludes diesel and four wheel drive cars.

<b>Objective</b>	UK tourism industry to grow significantly in ways which are economically, socially and environmentally beneficial	
<b>Indicator</b>	<b>Sustainable tourism (to be developed)</b>	<b>D16</b>
<i>Relevance</i>	Tourism is a major industry in the UK and it is important that it is economically, socially and environmentally sustainable.	
<i>Background</i>	<p>This indicator should present key issues that reflect economic, social and environmental impacts of tourism. The Department for Culture, Media and Sport (DCMS) is developing a set of sustainable tourism indicators. These can be used to select a set of indicators for inclusion in future editions of this report. The DCMS set will also include indicators to address public transport issues in tourism (see indicator D17).</p> <p>Work done so far suggests that suitable data are currently available for the following indicators which provide coverage of key economic, social and environmental issues:</p> <p><b>Economic:</b></p> <p>Industry competitiveness</p> <ul style="list-style-type: none"> <li>● <i>Ratio of holidays taken by UK residents in the UK or overseas</i></li> <li>● <i>VAT registrations and de-registrations of tourism related businesses</i></li> </ul> <p>Quality of tourism jobs</p> <ul style="list-style-type: none"> <li>● <i>Highest qualifications held by workers in tourism-related industries compared with national average</i></li> <li>● <i>Average hourly earnings in tourism compared with national average</i></li> </ul> <p><b>Social:</b></p> <p>Access to tourism</p> <ul style="list-style-type: none"> <li>● <i>Percentage of elderly and low income residents not taking a holiday</i></li> <li>● <i>Number of accommodations recorded as accessible to disabled people</i></li> </ul> <p>Quality of tourism provision</p> <ul style="list-style-type: none"> <li>● <i>Number of blue flag beach awards in the UK</i></li> </ul> <p><b>Environmental:</b></p> <p>Contribution of tourism travel and facilities to climate change</p> <ul style="list-style-type: none"> <li>● <i>Carbon dioxide emissions by UK residents leisure travel in the UK and by travel overseas</i></li> <li>● <i>Energy consumption and carbon dioxide emissions by hotels, restaurants, sports and entertainment</i></li> </ul> <p>In addition other indicators are being considered where data are likely to become available in the future.</p> <p>Contractors to DCMS have prepared and interpreted the indicators, and assessed their suitability. DCMS will publish a baseline assessment of sustainable tourism indicators</p>	

**Objective** Address transport issues; integrate tourism with public transport

**Indicator** Leisure trips by mode of transport

D17



Leisure trips by car rose by about 15 per cent in the second half of the 1980s, but then levelled off in the 1990s. Leisure trips by public transport have fallen by about 30 per cent in the last decade.

**Relevance** A key objective is to ensure that growth in leisure and tourism is achieved in ways which are sustainable. This means ensuring that the alternatives are available to enable people to use more sustainable modes of travel.

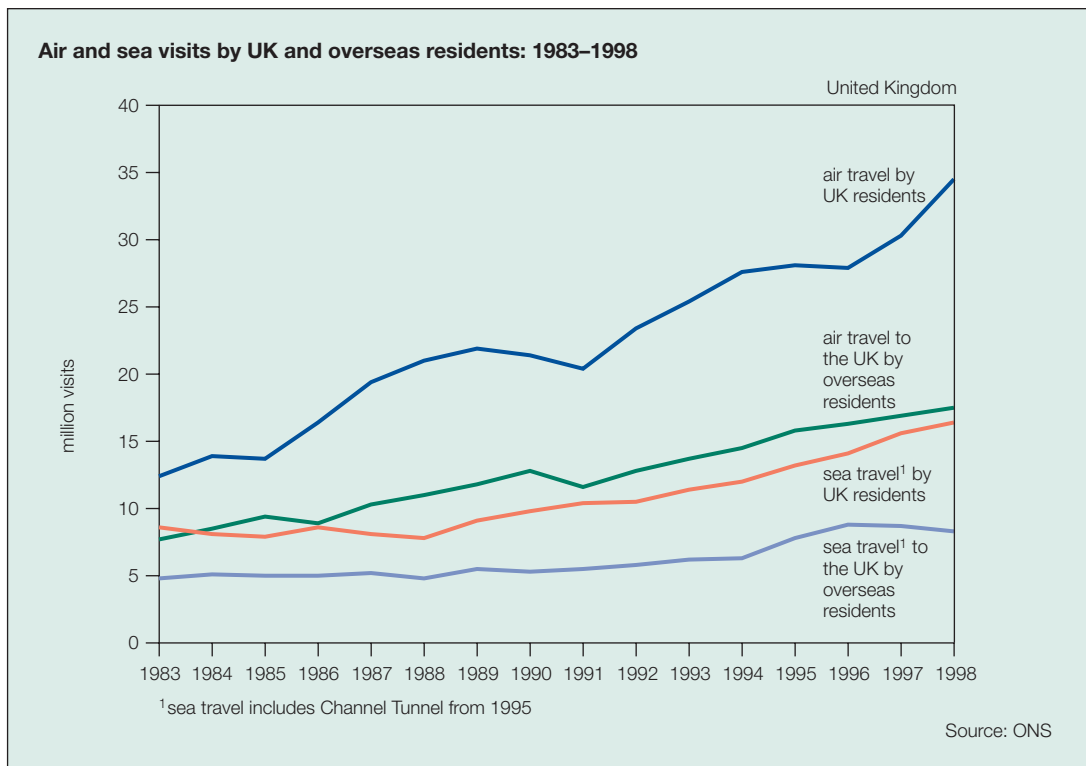
**Trends** Leisure trips by bicycle have remained at around 2 per cent over the last decade, but those on foot have fallen by a fifth. The most frequent reason for car leisure trips was to visit friends.

**Background** Leisure is one of the most significant reasons why people travel and a fast-growing aspect of transport use. The growth of leisure travel is mainly because people are choosing to travel further and more frequently to friends and places of entertainment.

**Objective** Address transport issues

**Indicator** Overseas travel

**D18**



**Visits to and from the UK by air more than doubled between 1983 and 1998. There was a greater increase in overseas travel for UK residents going abroad than for overseas residents visiting the UK.**

**Relevance** Globally aircraft emissions are currently responsible for 3.5 per cent of the greenhouse gas emissions that cause climate change and the effect could increase by a factor of nearly 4 by 2050 compared with the 1992 base year. Noise from aircraft causes significant local impacts and aircraft also contribute to local air pollution. The volume of air travel in any given year is a proxy for environmental impacts.

**Trends** World air traffic is growing at 5 per cent per annum based on 1990-2015 projections.

**Background** The number of overseas visitors to Britain is expected to increase from 25.5 million in 1997 (25 per cent for business trips and the remainder for tourism and leisure) to 27.5 million in 2000. Britain's international tourism receipts are the 4th largest in Europe and 5th in the world.

**Objective** Reduce environmental impact of chemicals

**Indicator** Chemical releases to the environment  
(to be developed)

**D19**

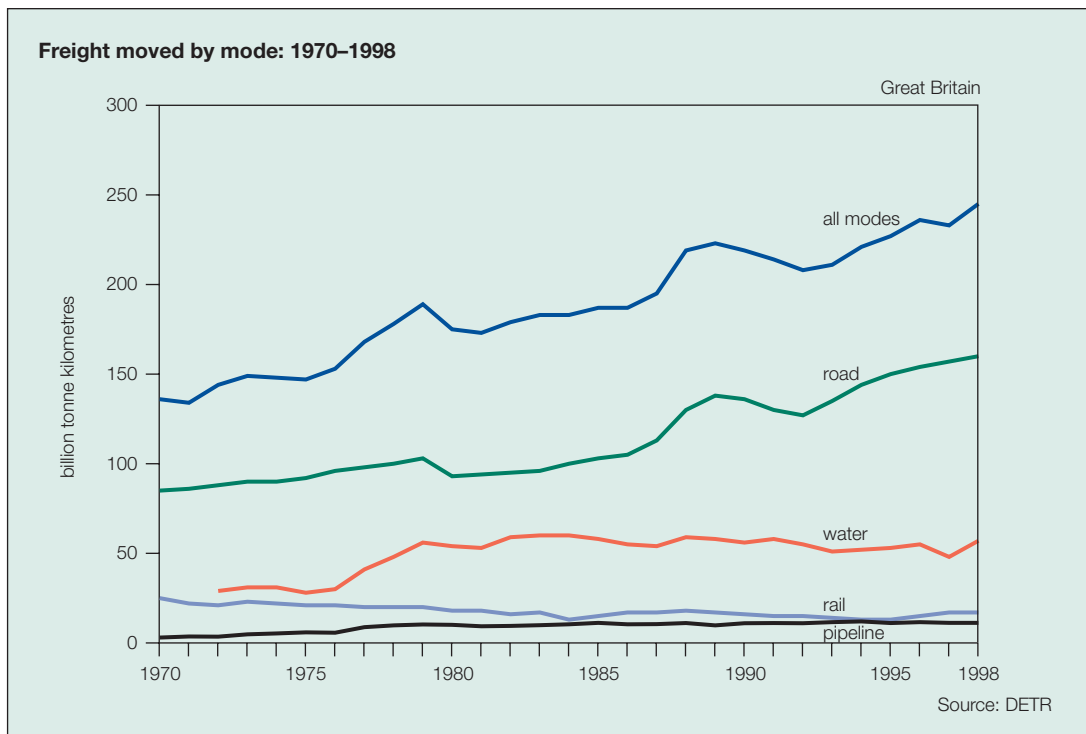
*Relevance* Chemicals are an integral part of our lives. They provide us with many of the consumer goods we have come to take for granted and the chemical industry is a vital part of the national economy. However, there are risks from the manufacture and use of certain chemicals and it is essential that we identify and manage them sustainably so that the environment is protected.

*Background* Chemicals enter the environment through marketing and use, and through emissions during manufacture or as waste. Emissions during manufacture and as waste are regulated by pollution control and waste management legislation. The incidence of certain chemicals in the environment is covered by other indicators in this report (concentrations of persistent organic pollutants (M1); concentrations and emissions of selected air pollutants (P1, P2); sulphur dioxide and nitrogen oxides emissions (P3)). The forthcoming chemicals strategy will include plans for the development of indicators of environmental exposure to hazardous chemicals, including targets for reducing overall exposure of the environment. This may draw on data from the Environment Agency’s pollution inventory.

**Objective** Develop distribution systems which support economic growth, protect the environment and benefit society

**Indicator** Freight transport by mode

**D20**



**Total freight moved increased by 80 per cent between 1970 and 1998. The proportion of freight moved by road remained around 65 per cent, whilst that moved by rail fell from 18 per cent to 7 per cent, although there has been a small recovery in recent years.**

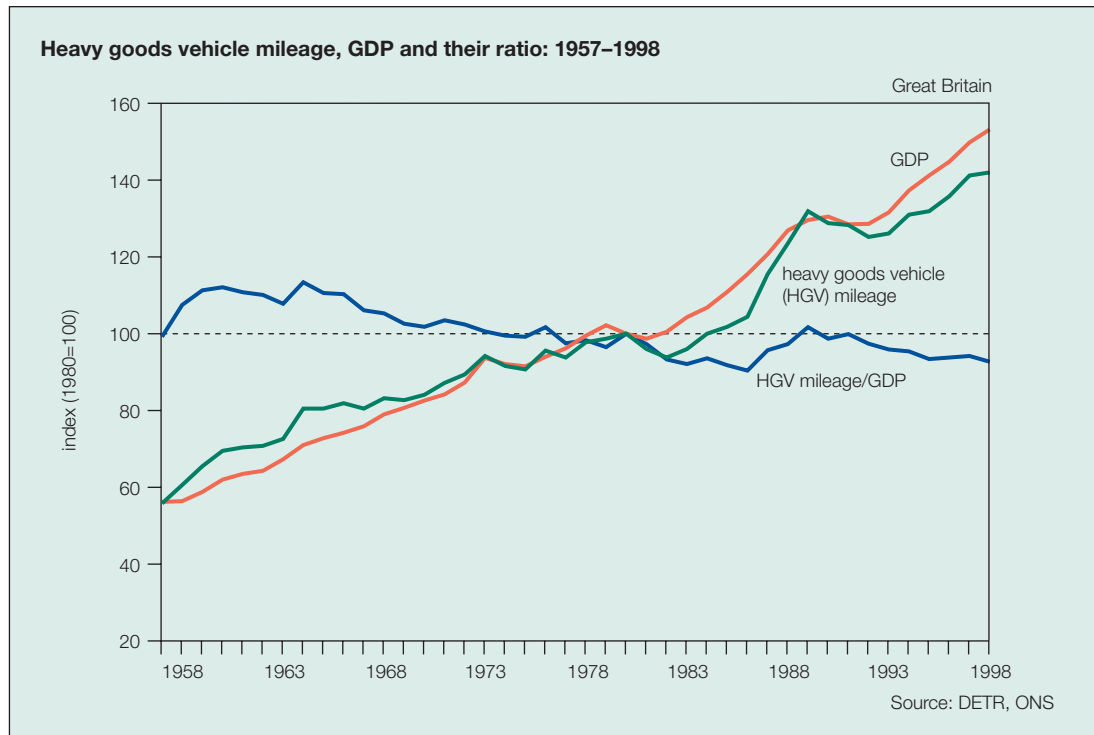
**Relevance** Freight distribution supports economic growth. More efficient use of the lorry combined with a modal shift to rail and water is necessary to reduce congestion, pollution, climate change, accidents and disturbance.

**Background** There has been a strong growth in road haulage influenced by changing patterns in logistics; in production procedures; in the use of just-in-time; and in the centralisation of warehousing and distribution facilities. It is argued that rail freight had traditionally not been able to provide the level of service required by a modern manufacturing industry or retail chain, in terms of flexibility, response time and cost.

**Objective**      Develop distribution systems which support economic growth, protect the environment and benefit society

**Indicator**    Heavy goods vehicle mileage intensity

**D21**



**Although road freight has shown a strong increase, road freight intensity as measured by Heavy Goods Vehicle (HGV) miles has tended to decline in relation to GDP since the mid 1960s.**

**Relevance**      Growth in the distribution of goods and services goes hand in hand with economic growth. Given the objective to secure continuing growth, it is vital that the efficiency of freight transport is maximised.

**Trends**            The trend in HGV mileage is the result of a shift towards the use of larger articulated vehicles, carrying a greater payload. The substantial variation about the falling trend in recent years is associated with economic cycles in the economy at large.

**Background**      Freight traffic tends to be driven by the growth in the economy. For sustainable development the link between the two needs to be weakened, as shown by a downward trend in intensity.