

2.11

TRANSPORT



The annual average gross value added (GVA) of the transport sector in Spain over the past few years is close to 5% of total GVA. In 2007 this sector employed 696,300 people (923,400 if transport-related activities such as travel agencies are included). The transport sector is therefore of key economic importance in its own right and due to its transversal nature (as it affects the development of other sectors). It is, however, also responsible for environmental and public-health pressures.

The 2008-2012 Action Plan, which forms part of the Spanish Energy Saving and Efficiency Strategy (E4) 2004-2012, carries on and consolidates the measures undertaken as part of the previous plan. It has been estimated that transport is the sector where most energy savings will be made: 38% of the total (33.4 million tonnes of oil equivalent (TOE)). The Plan proposes as many as 15 measures to achieve this and, as was the case with the previous Plan, concentrates its efforts on those modes of transport which are least efficient and have the greatest effects on the environment (road transport). It also highlights the need to incorporate biofuels and other alternative fuels, extending the degree of participation until 2012, to a level of around 8%.

As an example of this regulatory framework, the VIVE (innovative vehicle, ecological vehicle) Plan was



| INDICATOR | GOAL | TREND |
|--|--|---|
| Total inter-city transport volume: modal distribution | Achieve a balance between transport modes, promoting the more environmentally friendly options | Road transport is in greatest demand, although air transport has grown the most |
| Atmospheric emissions of pollutants by transport | Reduce atmospheric pollutant emissions and contribute to meeting environmental targets | Transport-related GHG emissions have increased and ozone-precursor and acidifying-agent emissions have decreased, although to a lesser extent |
| Air transport | Promote a balance between rail use and air transport and minimise the impact of airports | The total number of passengers fell by 3.2% in 2008 with respect to 2007 |
| Transport waste: ELT | In this order: reduce, reuse, recycle and recover the ELT generated | Increase the integrated management of ELT and their recycling |
| Bio-fuel consumption | Ensure bio-fuels account for 5.75% of total fuel consumption by 2010 | Increase biodiesel consumption and reduce bioethanol consumption |
| Motorisation and accident rate | The number of road traffic accident deaths in 2010 should be half that in 2001 | The vehicle fleet has grown by 93.2% since 1990, whereas the number of victims has decreased by 9.9% and deaths by 45% |
| Transport's environmental efficiency | Decouple economic growth from the environmental pressures of this sector | Transport demand grows in line with GHG emissions and energy consumption |

approved in June 2008 with the aim of rejuvenating the vehicle fleet with cars that emit less than 140 g of CO₂ per kilometre. This Plan was revised at the end of the year and adapted to the country's socioeconomic environment and that of the sector itself. This Plan replaced the former Plan PREVER and will be in force until July 31st 2010. Likewise, Act 34/2007 of 15th November, on Air Quality and Atmospheric Protection, regulates the vehicle registration tax, which as of January 1st 2008 must be based on environmental criteria rather than on the vehicle's cylinder capacity. Along similar lines, the Urgent Measures Plan, which forms part of the Spanish Strategy on Climate Change and Clean Energy, proposes to modify road tax to also take into account CO₂ emissions instead of the vehicle's power and class, as well as a series of considerations related to biofuel use.

Therefore, as part of the structural reforms and measures to promote financing for small and medium-sized companies approved by the Council of Ministers on August 14th 2008, a Plan to promote freight transport by rail and improve competition and competitiveness in the sector, with estimated funding of 4717 million euros, will be presented towards the end of this year. The initial goal of this Plan is to create a basic freight transport network around structuring axes as a result of actions such as upgrading the conventional lines in those corridors which already have high-speed rail links to take freight traffic, developing high-speed lines for mixed passenger and freight traffic, building new rail links within the conventional network, increasing the existing network's capacity and reinforcing the connections between the rail network and nation's main sea ports.

In the summer of 2008 the EC presented a raft of initiatives on "ecological transport" aimed at moving transport towards sustainability. These include a strategy aimed at ensuring that transport costs better reflect the actual cost to society, with the final aim of progressively reducing environmental damage and traffic congestion; a proposal that member states should contribute to meeting this goal by introducing more effective road tolls, which should be used to alleviate the effects of transport on the environment and reduce traffic congestion; and measures to reduce the noise created by railway freight traffic.

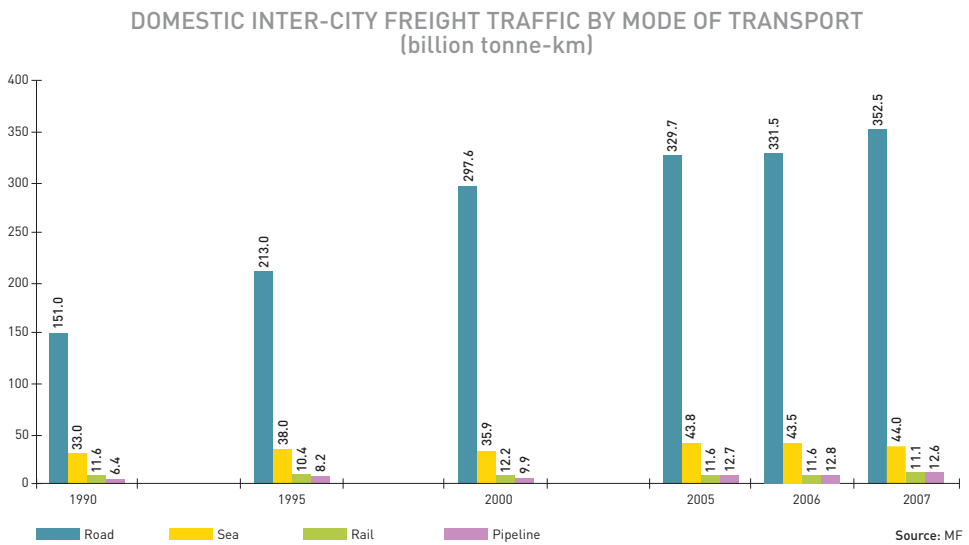
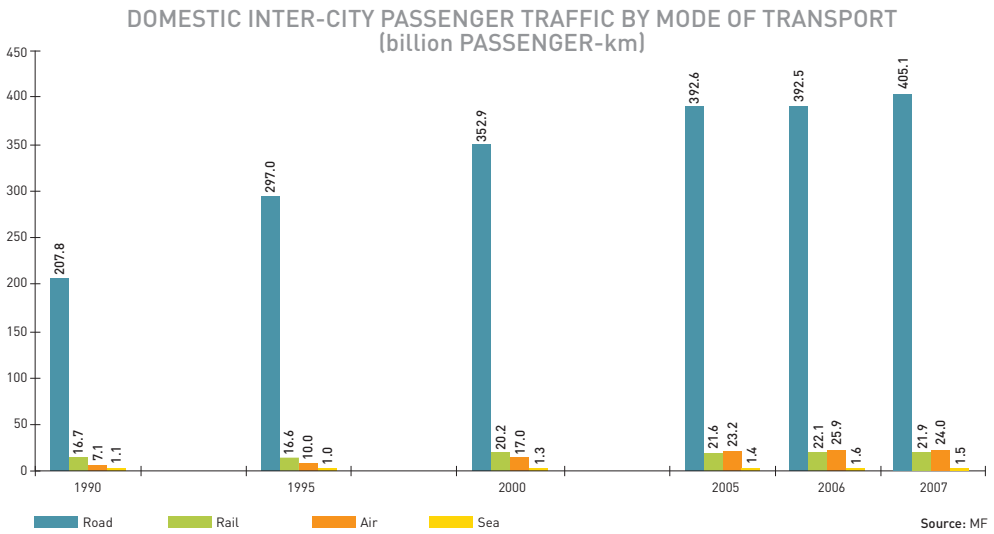
In March 2008 the European Council stressed the importance of converging towards a low-carbon-emission, safe and sustainable economy and the need to take advantage of the synergies related to energy and climate change. It also stressed the promotion of a sustainable transport system which will allow member states to implement the measures required to combat climate change within the framework of EU policy. These measures include limiting CO₂ emissions from new cars, including the aviation sector in the Community Emission Rights Trading Scheme (RCCDE), as set out in Directive 2008/101/EC, and basing annual vehicle and road taxes on the vehicle's CO₂ emissions.

The European transport ministers, for their part, renewed their commitment to develop safe and sustainable transport, with special emphasis on the marine sector, in their meeting of December 9th 2008. Thus, member states should improve the quality of their fleets and their administrations should monitor and control the fleet continually.

It should be remembered that the Commission drew up a 10-year Action Plan for the transport sector in 2001 (“White book on transport policy” COM(2001) 370 final) aimed at reconciling economic progress and the demands of a society which insists on quality and safety to promote a modern and sustainable transport system for 2010. The intermediate review in 2006 suggested that this Action Plan should include measures related to: increasing the competitiveness of railways, introducing a ports policy, developing transport systems that use advanced technologies, payment for using infrastructures, the greater use of biofuels and studying how to eliminate traffic congestion in cities.

Total inter-city transport volume: modal distribution

Road transport continued to be most in demand in 2007 (89.5% passengers and 83.9% freight), where rail use fell with respect to 2006



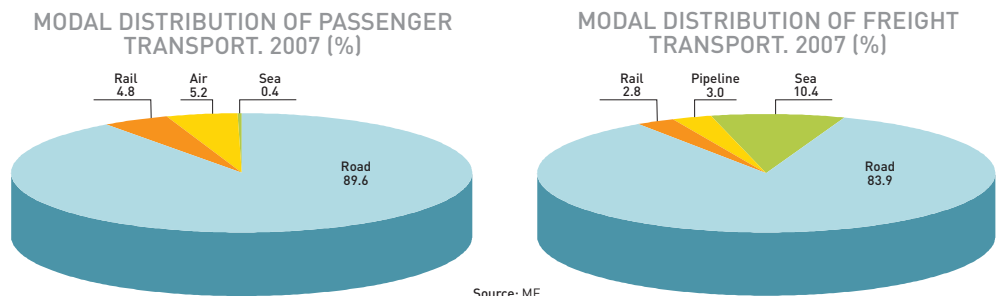
The total volume of inter-city passenger transport has grown by 94.6% (in passenger-km) since 1990, whereas freight transport has grown by 107.9% (in t-km).

Between 2000 and 2007 the increase in passenger transport demand was 15.6%, whereas that for freight transport was 18.2%. In contrast to the situation in 2006, the increase in total passenger transport was lower than that for freight transport with respect to the previous year (2.4% and 5.2% respectively).

The growth in road passenger transport demand in 2007 with respect to 2006 was 3.2% and sea passenger transport increased by 6.1%, whereas rail passenger transport fell by 1.1% and air passenger transport by 7.1%. Road freight transport grew by 6.3% and sea freight transport by 1.2%, whereas rail freight transport fell by 4.1% and pipeline transport by 1.2%.

Road transport was still the most popular in 2007, accounting for 89.6% of passengers and 83.9% of freight. As can be seen in the graphs below, the distribution of passenger transport shows that air transport is marginally more important than rail transport (approximately 5% each), whereas sea transport barely appears (0.4%).

Roads were also the principal means of freight transport in 2007 (83.9%), followed by sea transport and pipelines (mainly used for hydrocarbons). Air transport had a similarly low representation (0.2%) to previous years.



NOTES

- The unit of measurement for passenger transport is the passenger-kilometre (p-km), which is calculated by multiplying the annual number of passengers by the number of kilometres travelled on each mode of transport.
- The unit of measurement for freight transport is the tonne-kilometre (t-km), calculated by multiplying the number of tonnes transported by the number of kilometres travelled on each mode of transport.

SOURCES

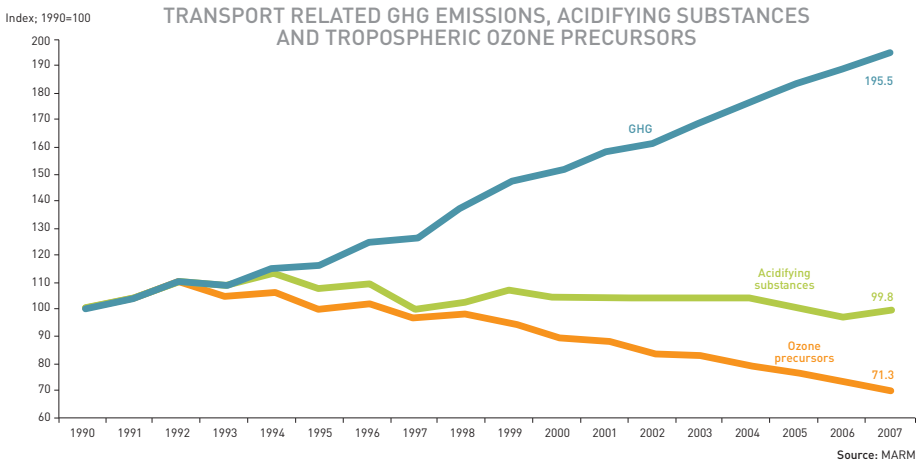
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MORE INFORMATION

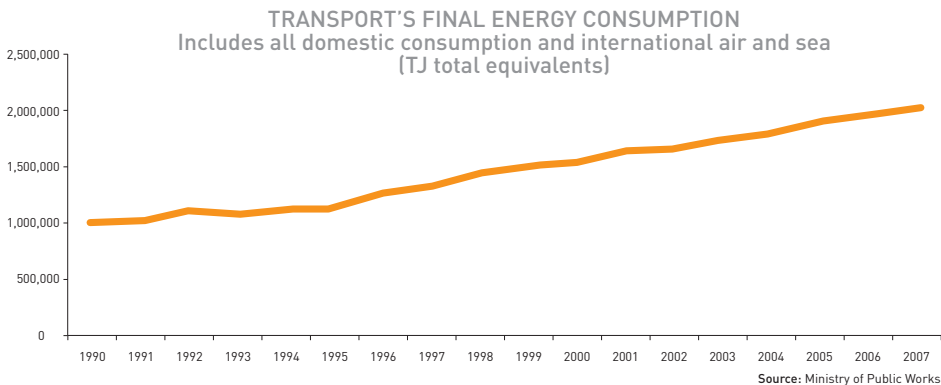
- <http://www.marm.es>
- <http://www.fomento.es>
- <http://www.eea.europa.eu>

Transport-related pollutant emission into the atmosphere

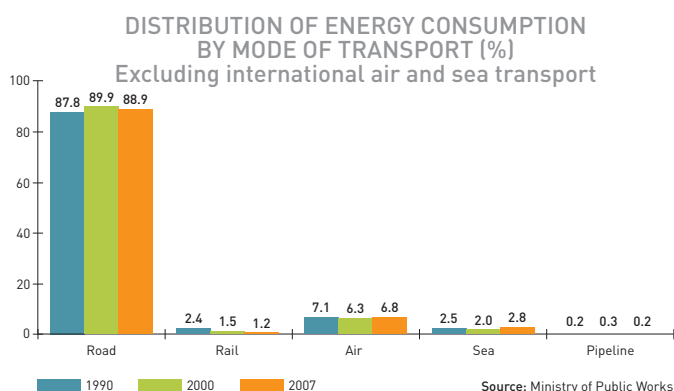
Transport-related GHG emission increased whereas acidifying-pollutant and ozone-precursor emissions decreased



Transport-related greenhouse gas (GHG) emissions in the period 1990-2007 increased by 95.3%, whereas the emission of acidifying substances remained practically unchanged, dropping by 0.2%, and tropospheric ozone precursor emissions fell by 28.7%. GHG emissions increased by 3.4% in 2007 with respect to 2006, and acidifying substance emissions increased by 2.1%. The emission of ozone precursors fell by 1.3%. These figures are notably worse than the year before, when GHG emissions grew by 2.9% with respect to the previous year and both acidifying-substance and ozone-precursor emissions fell significantly (by 2.4% and 5.4% respectively).



The transport sector remains the biggest consumer of final energy (39.3%), followed by industry (33.5%). Final energy consumption by all modes of transport grew by 103.1% between 1990 and 2007, with domestic transport increasing by 91.9% and international transport by 147.6%. Total energy consumption increased in all sectors by around 3.3% in 2007 with respect to 2006, although the increase for international transport was notably lower than in previous years. Road transport continues to consume most energy (88.9% of all the energy consumed by transport, excluding international air and sea travel), although pipeline and sea transport have experienced the highest growth over the past few years.



NOTES

- This information corresponds to SNAP group 7 (road transport), some of group 8 (08 02 rail, 08 04 02 domestic sea transport within the EMEP zone and 08 05 air) and compressors for pipeline transport (SNAP 01.05.06). Traffic on inland waters is also included (SNAP 08 03) even though it makes no contribution to emissions.
- The GHG emissions estimate takes into account CH₄, N₂O and CO₂ emissions but excludes fluorinated gases. Total emissions (index 1990=100) are obtained from annual emissions of each of the three pollutants, expressed as tonnes of CO₂ equivalent in accordance with their global warming potential: 1 for CO₂, 21 for CH₄ and 310 for N₂O.
- In estimating the total acidifying effect, expressed as acid equivalent, annual emissions of SO₂, NO_x and NH₃ are taken into account and the following weighting factors employed: 31.25 acid equivalents/kg for SO₂ (2/64 acid equivalents/g), 21.74 acid equivalents/kg for NO_x, expressed as NO₂ (1/46 acid equivalents/g) and 58.82 acid equivalents/kg for NH₃ (1/17 acid equivalents/g).
- Emissions of tropospheric ozone precursors were estimated using the tropospheric ozone depleting potential (expressed as NMVOC equivalent) of the four following precursors: nitrogen oxides (NO_x), non-methane volatile organic compounds (NMVOC), carbon monoxide (CO) and methane (CH₄). The weighting factors employed were as follows: 1.22 for NO_x, 1.00 for NMVOC, 0.11 for CO and 0.014 for CH₄. Total emissions are shown as an index (1990=100).

SOURCES

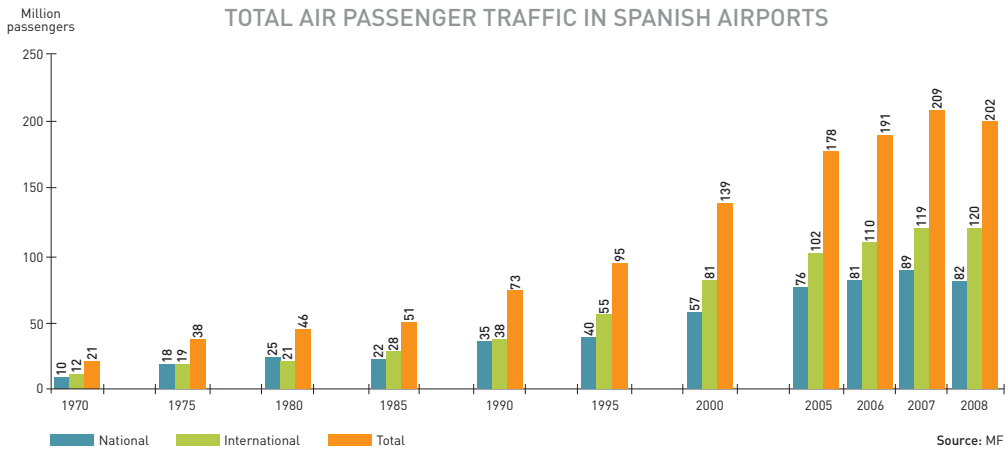
- Emissions figures: MARM, 2009. Spain's Atmospheric Emissions Inventory. Edition 2009 (series 1990-2007). Directorate General of Environmental Quality and Assessment. MARM.
- Energy consumption data: Spain's Atmospheric Emissions Inventory. Edition 2009 (series 1990-2007). Summary of GHG results (MARM) for fuels, Statistical Yearbook (Ministry of Public Works) for electric traction and Energy in Spain 2007 (Ministry of Industry, Tourism and Trade) for the energy balance for each sector.

MORE INFORMATION

- <http://www.marm.es>
- <http://www.fomento.es>
- <http://www.eea.europa.eu>
- <http://www.mityc.es>

Air transport

Total air passenger traffic grew by 176% between 1990 and 2008 to more than 200 million in Spanish airports



Spanish airports recorded a total of 203.8 million passengers, operated more than 2,400,000 flights and transported almost 630,000 tonnes of freight in 2008. The number of passengers fell by 3.2% and the number of flights by 3.9% with respect to 2007, whereas freight transport remained at essentially the same level (increased by only 0.4%). However, international passenger numbers increased by 0.4% and international freight transport increased by 4.8%.

This fall in passenger volume is due above all to a drop in domestic traffic (7.8%) as international traffic continued to grow.

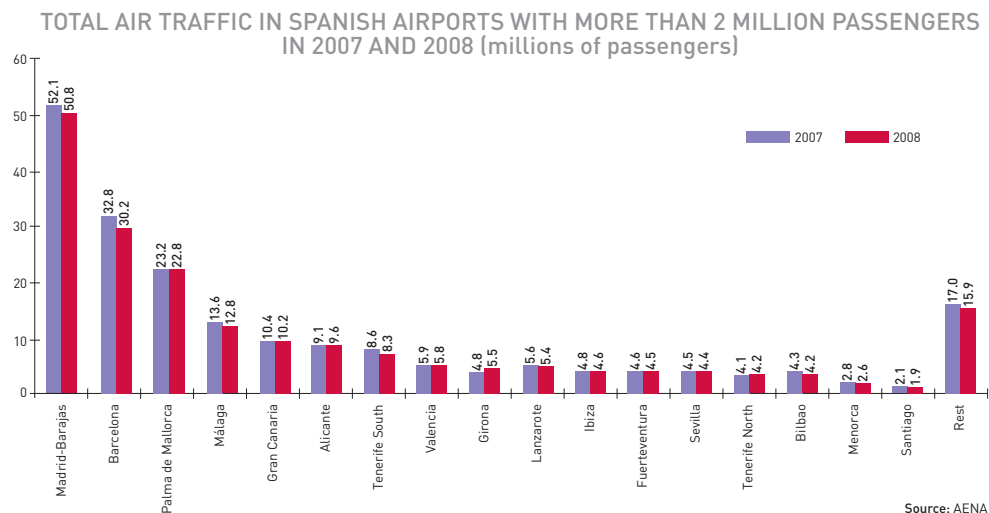
The balance up to 2008 shows that total passenger traffic has increased by 176% since 1990, with international traffic growing by 215% and domestic traffic by 133%. Total traffic has grown by 46% since 2000, a similar figure to that seen for international (48%) and domestic traffic (42%) over the same period.

Only Alicante, Girona and Tenerife Norte of the main airports have seen increases in total passenger traffic in 2008. The falls at the other main airports differ. Thus, total passenger traffic fell by 8.2% at Barcelona El Prat, 5.4% at Malaga and 2.4% at Madrid Barajas.

However, international passenger traffic has increased at the former and at the latter (20% for Barcelona and 2.6% for Madrid), therefore a fall in domestic passenger traffic is also responsible for the overall drop at these airports.

Air transport (including international) is the third largest energy consumer in the Spanish transport system behind sea and road transport, accounting for 12.2% of all energy consumed by transport in 2007. The amount of land occupied by airports, the noise generated and pollutant emissions to the atmosphere (CO₂, NO_x, water vapour and particulates) continue to be the major environmental pressures arising from air transport. Furthermore, in 2008 154 people died in an accident at Madrid Barajas during the take-off of a plane destined for Gran Canaria.

In February 2009 Directive 2008/101/EC of the European Parliament, of 19 November, which modifies Directive 2003/87/EC by including aviation activities in the European GHG emission rights trading system and which member states should transpose into their national legislation within one year, came into force. Thus, from 2012 onwards, the emissions of the majority of flights originating from, or destined for, European airports will be counted, with each member state being responsible for supervising the emissions of its domestic operators with an EC licence as well as non-EC operators the majority of whose emissions are produced in their territory. During the first year (2012), airlines will be assigned 97% of the emissions recorded for the sector between 2004 and 2006, the period which will be considered the “base year” for this sector. This is a fairly restrictive measure as it includes all airlines operating within the EU.



NOTES

- Total air traffic includes arrivals and departures for both internal (domestic) and international traffic, either regular or charter. Includes transit and other classes of traffic.

SOURCES

- Spanish Airports Authority (AENA), 2008. Annual statistical reports on Spanish airports. Report 2008 (available on web page). Ministry of Public Works.
- Spanish Airports Authority (AENA), 2008. Press release of 14 January 2009 Ministry of Public Works.

MORE INFORMATION

- <http://www.mfom.es>
- <http://www.eea.europa.eu>
- <http://www.aena.es>

Transport waste: End-of-Life Tyres (ELT)

Integrated ELT management increased, with recycling increasing the most

ELT MANAGEMENT ACTIVITIES PERFORMED BY IMS IN 2007

| | Signus Ecovalor | TNU | Total |
|---------------------------------------|-----------------|---------------|----------------|
| Collected (t) | 213,542 | 55,326 | 268,868 |
| % | 62.6 | 16.2 | 78.8 |
| Reused and retreaded (t) | 18,035 | 8,852 | 26,887 |
| % | 5.3 | 2.6 | 7.9 |
| Material recycled (t) | 123,575 | 22,684 | 146,259 |
| % | 36.2 | 6.7 | 42.9 |
| Recovered for energy value (t) | 21,960 | 23,790 | 45,750 |
| % | 6.4 | 6.9 | 13.4 |
| Total | 163,570 | 55,326 | 218,896 |

Source: PNIR. MARM

The total amount of ELT collected by both Integrated Management Systems (IMS) in 2007 was 268,868 t, some 72,132 t less than the estimated total generated in Spain (341,000 t) according to the National Integrated Waste Plan. The total amount collected in 2005 was 303,118 t, which means a growth of 12.5% over this two-year period. Material recycling stands out amongst the different ELT management activities as the one which has experienced the highest growth.

The new National Integrated Waste Plan (NIWP) 2008-2015, approved by the Council of Ministers on 26 December 2008, is intended to serve as a guide for the development of specific policies to improve waste management by reducing its generation and promoting its correct treatment, in coordination with the Autonomous Regions and local bodies. This Plan includes ELT in chapter 8, which sets specific targets concerning the correct environmental management of ELT and applies the principle of manufacturer responsibility to those responsible for putting the tyres on the market. It also establishes quantitative ELT recovery and recycling targets for 2008, 2012 and 2015.

NIWP 2008-2015: Quantitative ELT targets (%)

| | 2008 | 2012 | 2015 |
|----------------------------------|------|------|------|
| PREVENTION | | | |
| - Reduction | | | 8 |
| - Retread | | 15 | 20 |
| RECOVERY | 98 | 98 | 98 |
| RECYCLING | 50 | 52 | 55 |
| - Rubber in bituminous mixtures | 40 | 42 | 45 |
| - Steel | 100 | 100 | 100 |
| RECOVERY FOR ENERGY VALUE | 30 | 25 | 20 |

NOTES

- Two Integrated Management Systems (IMS) have been established so far: SIGNUS, which is run by SIGNUS Ecovalor S.L., legally established on 19 May 2005, and TNU, which is run by Tratamiento de Neumáticos Usados, S.L., legally established on 13 July 2006.

SOURCES

- Integrated Used Tyre Management System (SIGNUS), 2008. SIGNUS Report 2007.
- MARM, 2008. National Integrated Waste Plan (NIWP) 2008-2015.

MORE INFORMATION

- <http://www.marm.es>
- <http://www.eea.europa.eu>
- <http://www.signus.es>
- <http://www.tnu.es>

Biofuel consumption

The average bioethanol content in petrol was 2.2% in 2008, and the average biodiesel content in diesel was 1.66%

MOTOR VEHICLE FUEL CONSUMPTION IN SPAIN (kilotonnes)

| Type | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Petrol | 8,539.0 | 8,406.0 | 8,174.0 | 8,052.0 | 7,721.0 | 7,269.0 | 6,940.0 | 6,696.0 | 6,287.0 |
| Diesel | 16,847.0 | 18,073.0 | 19,234.0 | 20,755.0 | 22,132.0 | 23,282.0 | 24,585.0 | 25,772.0 | 24,822.0 |
| Bioethanol | | | | 152.0 | 168.6 | 176.5 | 178.9 | 198.7 | 180.4 |
| Biodiesel | | | | 5.8 | 9.4 | 27.0 | 62.9 | 292.6 | 586.4 |

Sources: APPA and CORES (MITT)
Bioethanol consumption for 2008 is an estimate

According to the Corporation of Strategic Reserves of Oil-Based Products (CORES), total motor vehicle fuel demand in 2008 was 31.11 million tonnes, 4.18% less than in 2007. Diesel accounted for 79.8% of the total and petrol 20.2%. Petrol consumption in 2008 was 6.30 million tonnes, 6.0% less than in 2007. This fall in petrol consumption is greater than that seen in previous years - consumption dropped by 3.5% in 2007 and 4.5% in 2006.

Total diesel consumption also fell (3.9%) with respect to 2007, reversing the trend seen in previous years (increases of 4.2% in 2007 and 2.8% in 2006). Diesel fuel consumption fell by 3.7% with respect to 2007. This is therefore the first year to see a fall in diesel consumption, due above all to the difficult economic situation rather than to a decrease in the number of cars that use this fuel. The number of diesel vehicles increased in 2007 whereas the number of petrol vehicles decreased: only 29% of vehicles ran on diesel in 1998, whereas in 2007 half of them (50.4%) did so. Similarly, in 1998 only 21% of cars ran on diesel whereas by 2007 this proportion had risen to almost half (47.1%).

The monthly average bioethanol content in petrol was 2.2% in 2008, with June having the highest proportion (3.2%). Likewise, the monthly average biodiesel content in diesel was 1.66%, with August having the highest content (2.2%).

Spanish biodiesel imports increased in 2008 to reach 71% of total consumption (51% in 2007), which meant that Spanish producers had to reduce their production to 9% of installed capacity. This meant that biodiesel production grew by only 28% with respect to 2007 whereas consumption grew by 100%. Spanish bioethanol production was 273,377 t in 2008, a 3.8% fall with respect to 2007, thus maintaining the trend observed since 2006 (production fell by 11.5% between 2006 and 2007).

Order ITC/2877/2008, of 9 October, establishes a mechanism to promote the use of biofuels and other renewable fuels for transport purposes and envisages a global target of 7% of the energy content of petrol and diesel sold for said purpose.

NOTES

- Directive 2003/30/EC, of 8 May 2003, on the promotion of the use of biofuels or other renewable fuels, sets a target of a 5.75% share of the transport market for these fuels by 2010. This commitment was transposed into Spanish legislation by Royal Decree 61/2006, of 31 January, and incorporated into the Renewable Energies Plan 2005-2010, although the target was raised to a slightly more ambitious 5.83%. The new measures adopted by the EU in 2007 set a 10% minimum obligatory target for biofuel use in transport by 2020.
- It should be noted that the ambitious Community targets for biofuel penetration seem to be contributing to stresses in world food commodity markets. These stresses are also generated by the significant increase in demand for these commodities in Asia's major emerging economies (China and India) and also, possibly, by market speculation. In order to minimise these negative effects on biodiversity and food commodities, the EU is drawing up some basic sustainability criteria for biofuels, which will be incorporated into the legislation governing fuel quality and the promotion of renewable energies.

SOURCES

- Corporation of Strategic Reserves of Oil-Based Products (CORES), 2009. *Hydrocarbon Statistics Bulletin. December 2008*. Ministry of Industry, Tourism and Trade (MITT).
- Association of Renewable-Energy Producers (APPA), 2008. Biofuel capacity, production and consumption in Spain. Current situation and outlook. APPA Biofuels.
- European Commission, 2007. "Report on the progress made in the use of biofuels and other renewable fuels in the Member States of the European Union". Communication from the Commission to the Council and the European Parliament, COM (2006) 845 final. Brussels.
- Order ITC/2877/2008, of 9 October, which establishes a mechanism to promote the use of biofuels and other renewable fuels for transport purposes. (BOE, 14 October 2008).

MORE INFORMATION

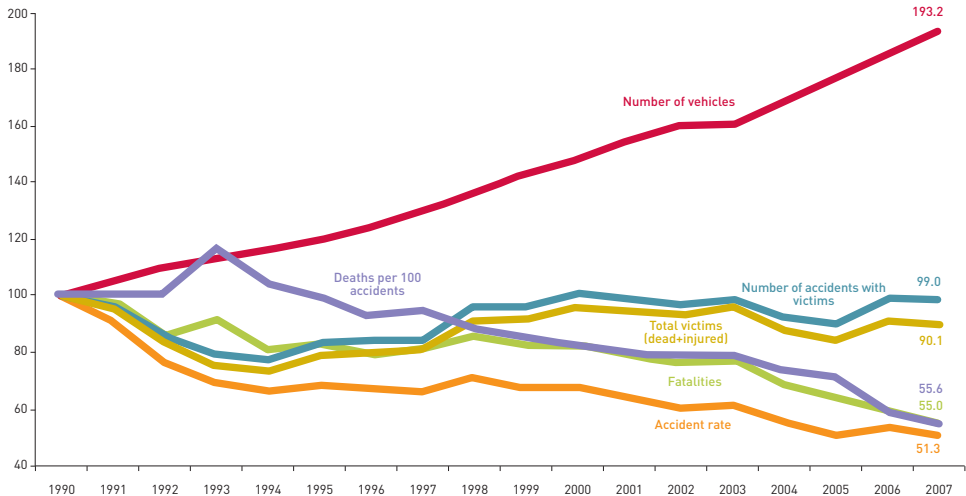
- <http://www.appa.es>
- <http://www.cores.es>

Motorisation and accident rate

Road traffic accident deaths continued to fall, although 3,823 people were still killed in 2007

Index: 1990=100

VEHICLE NUMBERS, TRAFFIC ACCIDENTS AND VICTIMS



Source: DGT

Road traffic accident deaths fell for the fourth consecutive year. The decrease between 2006 and 2007 was 7%, whereas since 2003, the last time an increase was seen and the trend observed since 2000 was interrupted, the decrease is 29%. Nevertheless, there were still 3823 deaths, 19,295 serious injuries and 123,226 minor injuries in the 100,508 road traffic accidents in 2007. These figures give a daily average of 10.5 deaths (11.2 in 2006).

Half the accidents with victims occurred on roads in 2007 and half in urban areas. The number of deaths was higher on roads (81% versus 19% in urban areas). Only 5% of deaths occurred on motorways and 15% on dual carriageways, with the highest proportion of deaths (80%, 2,465) occurring on other roads in 2007.

The total number of vehicles grew by 197.5% between 1980 and 2007, whereas the total number of victims (dead and injured) grew by 29.9% and the number of fatalities fell by 23.8%. The number of vehicles has grown by 93.2% since 1990, whereas the total number of victims has fallen by 9.9% and the number of fatalities by 45%.

The accident rate relates the number of accidents with victims (dead and injured) to total vehicle numbers. This rate has dropped by 48.7% since 1990 to 3.32 accidents

per thousand vehicles in 2007. The evolution of the number of fatalities per 100 accidents, which has trended downwards to 3.2 in 2007, should also be highlighted. In general terms, therefore, road traffic accidents produce fewer and fewer fatalities, although the number of injured, many of whom suffer from serious after-effects, decreased by less than 10% between 1990 and 2007. This situation of stability remains a genuine social problem.

Numerous initiatives from both central government and the sectors involved (preventative and information campaigns, changes to the penal code concerning road safety, introduction of a penalty points system for drivers, technological improvements to improve vehicle safety, etc.) have all led to these figures. Amongst these, the campaign undertaken by various media, with the help of the general public and various bodies and companies concerned with road safety, to signpost accident blackspots stands out. In this sense, in January 2009 the Council of Ministers approved the Treatment Plan for High-Risk Road Sections in the National Roads Network, which will remain in force until 2012 and has an assigned budget of 1.2 billion euros.

Provisional figures for 2008 from the DGT suggest that there have been 1,929 fatal road traffic accidents, with a total of 2,181 deaths in the 24 hours after the accident, 560 fewer than in the previous year. This figure would imply a fall of 20.4%, the highest seen in the period 2003-2008.

NOTES

- The vehicle fleet includes: lorries, vans, buses, passenger cars, motorcycles, industrial tractors and other vehicles (trailers, semi-trailers and special vehicles, excluding self-propelled agricultural machinery and towed agricultural machinery). It does not include mopeds.
- The accident rate is calculated by dividing the total annual number of accidents with victims (on both highways and in urban areas) by the vehicle fleet recorded at the end of each year (multiplied by one thousand). This indicator is represented by means of a reference index (1990), with percentage figures for subsequent years being given in terms of this index.
- The figures for 2008 are provisional and the number of fatalities is calculated 24 hours after the accident occurred.

SOURCES

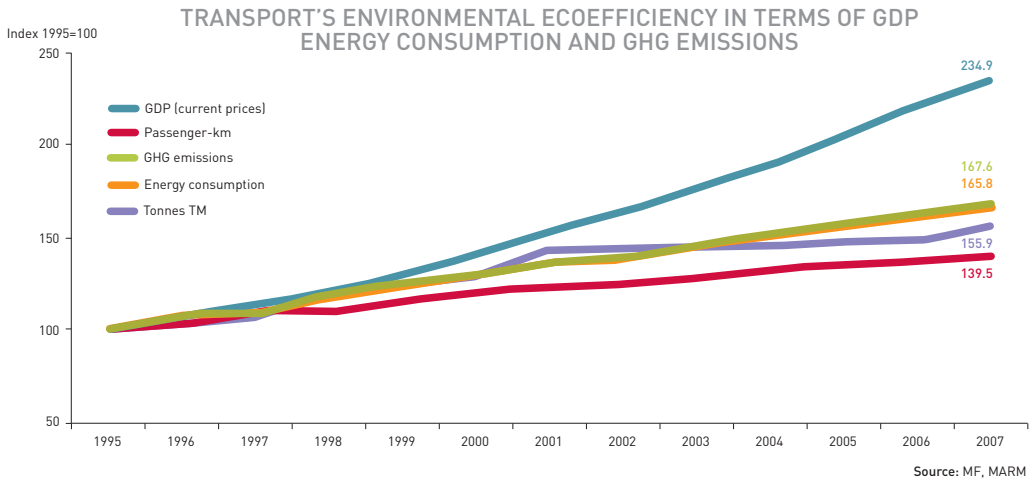
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- DGT, 2008. Blackspots. 2007. Ministry of the Interior.
- Commission of the European Communities, 2003 "European Road Safety Action Programme. Halving the number of road accident victims in the European Union by 2010: a shared responsibility. (COM (2003) 311 final, 2 June 2003).
- Commission of the European Communities, 2006 "European Road Safety Action Programme. Interim assessment. (SEC(2006) 221). Brussels, 10 February 2006.

MORE INFORMATION

- <http://www.mfom.es>
- <http://www.dgt.es>
- <http://www.etsc.be>

Transport's environmental efficiency

Transport's energy consumption appears to have stabilised since 2004, which implies a slight improvement in efficiency



Total GDP growth in the period 1995-2007 was 132.2% at current prices and 49.3% at constant prices, higher than inter-city passenger- (in passenger-km) and freight-traffic growth (in t-km; 39.5% and 55.8%, respectively). This indicates that the country's overall economic growth has been accompanied by slower growth in the demand for inter-city transport. However, the strong increase in freight transport in 2007 with respect to the overall trend since 2001 should be noted.

If this efficiency is analysed in terms of the amount transported (passenger-km and t-km) per unit GDP, a continual decrease in this ratio of 39.9% for inter-city passenger traffic and 32.9% for freight traffic can be seen at current prices. This leads to a situation of greater inter-city transport efficiency in economic terms as each unit of GDP is produced with less transport, and therefore by generating fewer pressures.

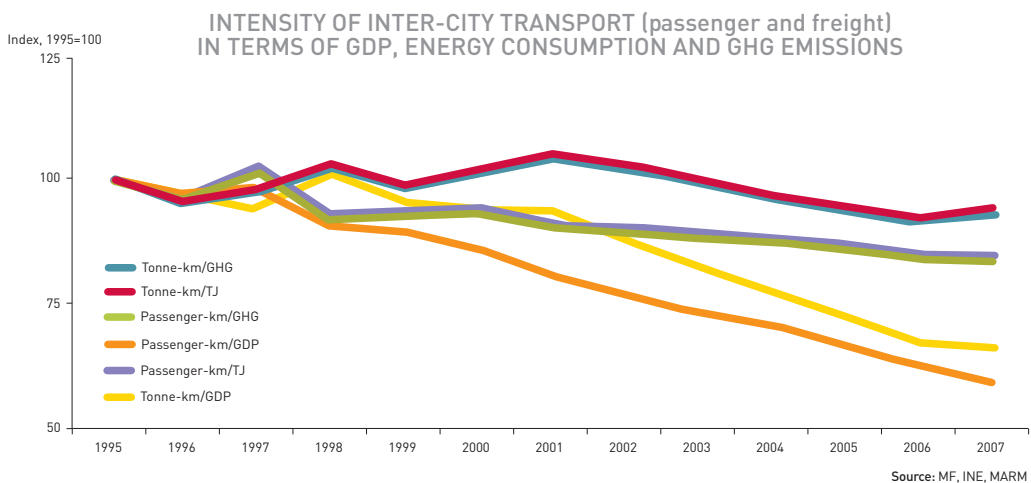
A comparison of the sector's total energy consumption with goods transported provides information about efficiency in terms of resource consumption. Energy consumption by domestic transport has grown by 65.8% since 1995 (77.5% if international transport is included). In contrast to the situation with GDP, the relationship between inter-city transport undertaken (passengers in passenger-km and freight in t-km) and energy consumed shows a trend which can be considered negative as the number of passengers per unit energy consumed has dropped. Thus, the number of passengers transported per unit energy consumed fell by 15.9%

between 1995 and 2007, whereas the amount of freight transported per unit energy consumed fell by 6.0%.

However, in 1998 and between 2000 and 2002 freight transport went through a period of greater environmental efficiency as more freight was transported per unit energy. What could be interpreted as a slight change in the trend for freight transport, which increased per unit energy consumed, occurred in 2006.

This trend should be monitored to ensure it continues. GHG emissions, which are strongly linked to trends in energy consumption, have grown by 67.6% since 1995. This value is lower than GDP growth at current prices and similar to that for energy consumption. An intensity analysis shows that both the number of passenger-km and tonne-km transported per tonne of GHG emitted into the atmosphere decreases every year, with the former decreasing to a greater extent. As was the case with energy consumption, 1998 and the period between 2000 and 2002 saw an increase in the amount of freight transported per tonne of CO₂ equivalents emitted into the atmosphere, an environmentally favourable situation. Furthermore, 2007 also saw an increase in freight transported per unit of CO₂ equivalents emitted into the atmosphere.

The following graph shows the intensity of inter-city passenger and freight transport, as calculated from the coefficient between these variables and GHG emissions into the atmosphere, energy consumption and GDP. The parallel behaviour between GHG emissions and energy consumption can be clearly seen.



NOTES

- Greenhouse gas (GHG) emissions from transport refer to those produced by group 7 of the SNAP classification (Road Transport) and part of group 8 (Other Transport Modes: rail, air and sea) and pipeline transport included in stationary sources (SNAP 01.05.06). Only CH₄, N₂O and CO₂ emissions were considered. Annual emissions of each of the three pollutants are converted into tonnes of CO₂ equivalents in accordance with their global warming potentials: 1 for CO₂, 21 for CH₄ and 310 for N₂O.

SOURCES

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MORE INFORMATION

- <http://www.marm.es/>
- <http://www.fomento.es>
- <http://www.ine.es>
- <http://www.eea.europa.eu>

