Environmental Profile of Spain 2010

Indicator-based Report

2011

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INTRODUCTION

The Spanish Ministry of the Environment and Rural and Marine Affairs (MARM) has acknowledged the need to develop an information policy that is consistent, transparent and fully accessible to the wider public if it is to achieve its goal of effectively raising awareness about environmental issues. The *Environmental Profile of Spain, an Indicator-based Report* exemplifies this commitment. Now in its 7th edition, it demonstrates the MARM's vocation to provide ongoing information to the public.

In line with this commitment to providing environmental information, it is worth remembering that it was in 2004, when Spain ratified the Aarhus Convention, that the decision was made to produce a report providing an overview of the environmental situation and the general trend in Spain and its various autonomous communities. In parallel, the project aimed to portray the most significant advances in environmental policy in Spain, while taking into account the situation in the EU and worldwide and following the roadmap drawn up by the international community to meet the challenge of achieving sustainable development established at the Rio conference of 1992.

The methodology chosen was to present the information in the form of indicators featuring figures, graphs, explanatory texts and details of the sources used. Its sole purpose was to raise awareness about environmental issues by providing the best data available and the most up-to-date information collected from local, regional and national government and other public and private institutions. This task has been made possible by the work carried out by the EIONET network, which reports to Spain's Directorate-General for Environmental Quality and Assessment, in its capacity as Spain's National Focal Point reporting to the European Environment Agency (EEA), and which comprises a multitude of experts and contributors.

I mentioned the Aarhus Convention because the *Environmental Profile of Spain* fulfils many of the pledges signed by the contracting parties on its ratification. The Aarhus Convention defines environmental information as, "any information in written, visual, oral, electronic or any other material form on: (a) the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites including wetlands, coastal and marine areas, biological diversity and its components, including genetically modified

organisms, and the interaction among these elements." To this list we should also add, "factors, such as substances, energy, noise, radiation or waste, including radioactive waste, […] measures (including administrative measures), such as policies, legislation, plans, programmes, environmental agreements, and activities affecting or likely to affect the elements and factors referred to".

Article five of this Convention, on the compilation and dissemination of information, stipulates that the government should provide the public with information on the environment with the maximum possible transparency. This information should also be accessible, where possible, via public telecommunication networks. Specifically, this article states that annual or multi-annual reports on the state of the environment should be made available, as is the case with this publication comprising sixteen chapters and eighty-five indicators.

In this respect, it is worth highlighting that the MARM has long been disseminating an increasingly broad and up-to-date range of information via its website. This provides the public with information on all of the Ministry's departments and on the policies launched within its areas of responsibility, as well as on its day-to-day work in the public sphere. The *Environmental Profile of Spain 2010* and all previous editions are available for download from this website.

In this Introduction, I would like to highlight the MARM's work on two of the environmental themes addressed in this report — a) biodiversity conservation and environmentally friendly use of natural resources, and b) crop and livestock farming or, in other words, sustainable development of the rural environment within the context of imminent reform of the Common Agricultural Policy.

As regards the first theme, 2010 was International Year of Biodiversity. Through this initiative, the United Nations intended to raise awareness about the need to reduce and halt ecosystem degradation. The 10th Conference of the Parties to the Convention on Biological Diversity was held in Nagoya (Japan) from 18 to 29 October 2010 and was attended by 193 countries. It resulted in a series of pledges that match the goals proposed by Spain in the EU setting. One of its achievements was creation of the Convention's Strategic Plan 2011–2020. This plan, which is balanced, realistic and places particular emphasis on strengthening the cross-cutting nature of biodiversity policy, sets the objective of reducing the rate of natural habitat loss by at least 50%. In line with this commitment, the MARM has been working intensely to finalise Spain's Strategic Plan for Natural Heritage and Biodiversity 2011–2017, as established in Law 42/2007, since the consultation period ended in March. Based on a study of the situation and clarification of the goals and objectives, a series of concrete steps has

been defined and will be progressively put into practice, and appropriate budget estimates have been made to fund them.

In Spain, biodiversity conservation is achieved through the country's Protected Areas and the sites included in the Natura 2000 network that, when all the various protection categories are combined, cover 13.7 million hectares, 27.7% of Spain's national territory. Moreover, marine protected area, which should be added to the aforementioned figure, is estimated to stand at over a million hectares. All of these data, based on the most recent information available, are presented in this edition of the *Environmental Profile of Spain*. The report also shows that Spain now has 1,446 Sites of Community Importance (SCIs) and 595 Special Protection Areas (SPAs) for wild birds.

The country's wetlands also merit special protection. This is not only provided for the most emblematic ones, like Doñana or the Tablas de Damiel (which is receiving significant assistance from the MARM to re-flood it), but also for all of those listed in the Ramsar Convention. The total number has now risen to 73, following the recent inclusion on the register of five new wetlands from various parts of Spain, covering a total area of 296,572 hectares.

Our commitment to protecting biodiversity extends to marine ecosystems, as stated in Law 41/2010, of 29 December, on protection of the marine environment, the aim being to make its use compatible with species conservation. In this regard, it is worth mentioning the INDEMARES project. Over 2009–2013, a comprehensive range of studies will be carried out to support demarcation of 10 marine areas that should be protected in the future and added to the Natura 2000 network in Spain. This project will receive investment totalling €15.4 million, half of which will be funded by the European Commission.

Following the International Year of Biodiversity in 2010, 2011 is the International Year of Forests, during which the MARM will carry out a series of activities. In Spain, forest area, comprising forests, scrubland and non-wooded areas, covers 27.5 million hectares (55% of the country's surface area), of which more than 18 million hectares are forests. The most common species within these areas are holm oak and Aleppo pine. Spain's wooded area has increased substantially in recent years. Between 2000 and 2010, it expanded by 0.7% per annum and became a significant form of land use, gaining ground at the expense of cultivated area. Forests play an essential role in the environment and will make an increasingly vital contribution in the future to climate change mitigation and adaptation. Looking after them translates as more available resources and fewer greenhouse gases.

Our commitment to protecting biodiversity goes much further than simply listing figures, however important they may be. Spain now has one of the greatest ranges of

biodiversity and one of the biggest areas of land classified as protected anywhere in the European Union. We are firmly committed to this cause, particularly since I, as representative of the Kingdom of Spain, have been appointed President of the Governing Council of the United Nations Environment Programme. All of our efforts are focused on making significant progress towards conserving ecosystems in the short, medium and long term. The UN's Rio+20 Conference on Sustainable Development, scheduled to take place in 2012, will include a review of the policies implemented since 1992 by all of the Convention's delegates.

As regards sustainable development of the rural environment, as mentioned earlier, I would like to draw attention to the link between direct biodiversity protection and the much wider and complex, but less specific, issue of protecting Spain's rural environment. Law 45/2007, of 13 December, on the sustainable development of the rural environment, constituted a major step in this direction. The rural policy implemented in Spain in recent years has followed the guidelines laid down by the European Union. In this respect, in my first appearance before the Congress of Deputies in November 2010, I highlighted the prime importance to the MARM of adopting a clear stance on the reform of the Common Agricultural Policy that seeks to benefit sustainable development of the rural environment, crop and livestock farmers, and all of Spain's agri-food industry. Following wide European debate in which Spain's government and farmers' associations and unions participated, the European Commission published a Communication entitled *The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future*.

The Communication analysed the three challenges that need to be addressed:

– Firstly, food security, meeting growing global food demand and complying with quality requirements;

– Secondly, the environment, highlighting the role that agriculture plays in conservation, without forgetting that it also exerts enormous pressure on biodiversity and water's ecological status;

– Thirdly, territorial balance, as many rural areas are still very dependent on crop and livestock farming, though they may also provide the basis for other activities, such as rural tourism.

These three challenges must be tackled simultaneously and the order in which they are listed does not imply any type of hierarchy or priority.

The proposed reform of the CAP must be incorporated into the roadmap drawn up under the EU 2020 Strategy and contribute towards its implementation. To accomplish this, and in accordance with the classic sustainable development paradigm, farming

will have to expand in an intelligent way. On the one hand, this means increasing resource use efficiency and improving competitiveness through application of innovative technology and training. On the other, it means guaranteeing appropriate land management, protecting biodiversity, comprehensively developing rural areas and increasing employment and income for their inhabitants. In short, it means simultaneously advancing economically, socially and environmentally.

The MARM fully endorses the broad thrust of the reform and will defend those measures that most benefit the sector. These include maintaining a Common Agricultural Policy and providing subsidies for farmers, as opposed to dismantling this policy and gradually withdrawing income support, as suggested by some sectors. The objectives that the European Commission aims to achieve by reforming the CAP, namely agricultural competitiveness, sustainable management of natural resources and balanced territorial development, are also Spain's objectives.

I wish to point out that, in accordance with Law 45/2007, our Sustainable Rural Development Programme 2010–2014 (PDRS) is already well under way. Implementation of the PDRS takes into account all aspects of sustainable development — economic activity and employment, which aim to support agriculture and diversify labour in the countryside; basic amenities that guarantee quality of life for the rural population, including energy supply and information and communication technology; and lastly, management of natural resources within a wider context of sustainability, a criterion that is now an unwavering component of all of our policies.

Spain's rural environment is geographically extensive, but its population has been shrinking since the mid-20th century. Moreover, the population is ageing and new generations are not coming forward to take over family-run farms. The PDRS, which affects 22.92% of the Spanish population (spread across the 219 districts in which the programme is being applied through Rural Area Plans), will indisputably help to revitalise these areas and improve the quality of life and the resources available to its inhabitants. Several indicators, such as number of jobs created in 2010 in crop and livestock farming, already suggest the Programme is accomplishing its aim. It is highly likely that with initiatives like these, including those that the proposed reform of the CAP will instigate in the medium term, the Spanish countryside will be considered once more as one of the economy's strategic sectors and vital to the conservation of Spain's wealth of biodiversity.

Although I have predominantly focused upon these two issues — biodiversity, because of its current relevance in the context of conserving ecosystems and developing a sustainable economy, and reform of the CAP, because of what is at stake for the agricultural sector in that reform — the indicators in the *Environmental Profile of Spain 2010* put more emphasis on the trends in the environment in Spain. Among

other things, the report shows the advances that we have made as regards greenhouse gases, which will ultimately assist us in fulfilling our Kyoto Protocol commitments.

This edition of the *Environmental Profile of Spain* comprises 85 indicators providing information on 16 different themes. These reveal the successes and failures to date and highlight the subtler points that need to be borne in mind when performing a full diagnosis of the environment. I can assure you that this report contains the most up-to-date and relevant information available to the Ministry of the Environment and Rural and Marine Affairs.

Rosa Aguilar Rivero
Minister of the Environment and Rural and Marine Affairs

FOREWORD

The quest in recent years to find ways to resolve the environmental issues facing us, and the routes taken to put those solutions into practice, has never been less than exhilarating. Faced with great challenges, we have established goals that could initially have been considered overly ambitious, but which we are nonetheless steadily moving closer to achieving. As regards climate change, following the Copenhagen and Cancun Summits the UN member states expressly agreed that to avoid drastic climate change the global temperature must not rise to more than 2 ºC above pre-industrial levels. We are well aware that if we do not make a concerted effort to change our ways, the temperature will have risen by 2 ºC by as early as 2050 and by at least 4 ºC by 2100. We cannot leave our children that legacy.

The United Nations Environment Programme (UNEP), the Governing Council of which has been presided over by Spain's Minister of the Environment and Rural and Marine Affairs for two years, is preparing to announce its plan of action. Its recent report on the green economy, which would improve human welfare and social equity, while significantly reducing environmental hazards and ecological scarcity, emphasises the need to start the global transition to this new economic model. Among the measures listed, it proposes investing, over the next 40 years, 2% of global GDP in sectors considered fundamental to achieving this goal — agriculture, construction, energy supply, fishing, forestry, industry, tourism, transport, waste and water. The United Nations' forthcoming Rio+20 Conference should serve to set worldwide efforts on the environment on course to achieving a more sustainable, safe and just world.

In Europe, awareness about environmental issues appears to be more advanced. The European Council has agreed the target of reducing greenhouse gas emissions in the EU to 80–95% of 1990 levels by 2050. This will be Europe's long-term contribution to combating the risk of climate change. We should also be aware that these approaches are not only intended to reduce risk, but also to bring benefits. Developing a low-carbon economy in Europe may require extra investment over the next forty years equivalent to 1.5% of European GDP.

Investment in clean technology, infrastructure (such as smart grids) and environmental protection will create added value in the EU,

decrease our dependency on energy imports and our vulnerability to fluctuations in their prices, generate new jobs, and reduce air pollution, which will improve citizens' health, and so reduce health expenditure. Among the positive steps taken already, I would like to highlight that in 2009, GHG emissions in the EU-27 were 17.3% below 1990 levels.

In March, the European Commission also adopted a comprehensive strategy, Transport 2050, which aims to cut carbon emissions by transport by 60% between now and 2050. Its key goals are to remove conventionally fuelled cars from cities; achieve 40% use of sustainable low-carbon fuels in aviation; reduce shipping emissions by 40%; and shift 50% of medium-distance inter-city passenger and freight journeys from road to rail and waterborne transport.

In Spain, one of the swiftest changes has been in greenhouse gas emissions. In 2009, these fell by 9.0% on the year before, to 126.8% above the 1990 base-year level set under the Kyoto Protocol. Our investment in renewable energy has grown rapidly, to the point where for the first time, in 2010 renewable sources produced the greatest proportion of Spain's electricity. We have the chance to become leaders in energy efficiency, and this report not only clearly indicates the downward trend in energy intensity in the Spanish economy, but also shows that it is falling faster than in other EU countries.

Nevertheless, the green economy will not emerge or develop by itself. To ensure that markets prioritise the environment and adopt environmentally responsible criteria, strong legislation that translates environmental criteria into economic measures needs to be in place. Market mechanisms have an important role to play, provided sufficient collective political will exists to lead the transition to a low-carbon economy.

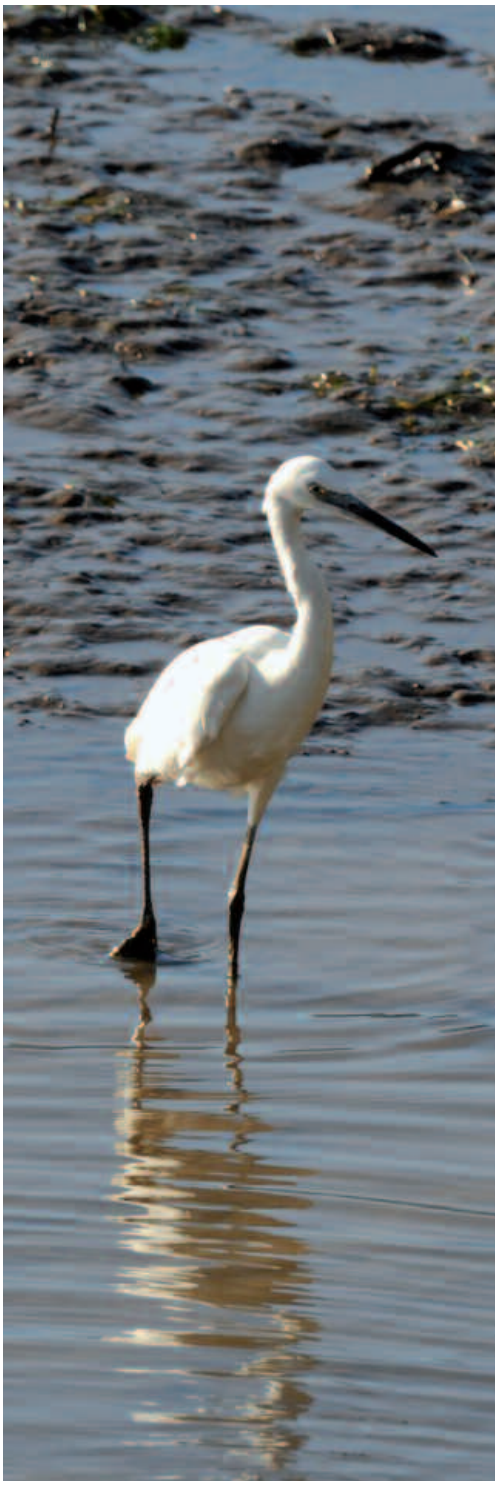
This 2010 edition of the *Environmental Profile of Spain* retains the basic structure of the six preceding publications — 16 chapters containing, in this case, 85 indicators, which provide an overview of the environmental situation in this country. Overall, it shows a decrease in pollutant emissions; lower water consumption; greater protection of the marine environment; less waste generation; more land dedicated to organic farming; less energy consumption; a drop in fishing fleet catches; and a rise in tourism. However, road transport is still increasing, as are the number of households and urban sprawl, resulting in land fragmentation, more roads and a greater volume of traffic.

Moving away from specific figures and sectors, this seventh snapshot of the situation in Spain's environment reveals an encouraging general trend — the majority of the

policies applied and the structural changes made are bringing us closer to achieving our goals. Nevertheless, the situation clarifies our need to be much more demanding — developing a sustainable economic model still requires significant changes in our production and consumption patterns, and in our use of natural resources, changes we will have to define between us in the years ahead.

There is one piece of data that does not figure in the report's indicators that is nonetheless worth mentioning. This report, as was the case with previous editions, is the product of close co-operation between many people and departments. Our organisational structure is complex and requires continual agreement. Once again, the Spanish EIONET network, which operates to the guidelines issued by the European Environment Agency, has clearly demonstrated the results that can be achieved by co-operation between the various ministries and levels of government, and particularly between the MARM and the governments of Spain's autonomous communities. I am convinced that this partnership will continue in future editions and that Spain will continue to fulfil its commitment to making environmental information available to the public and to the institutions of which we form part.

Teresa Ribera Rodríguez
Secretary of State for Climate Change
Ministry of the Environment and Rural and Marine Affairs



Summary

SUMMARY

SOCIO-ECONOMIC CONTEXT

On 1 January 2010, Spain had over 47 million inhabitants, 16.1% more than in 2000 (representing average annual growth of 1.6%). Of this number, 12.2% were non-Spanish nationals.

Population density was below the average in both the European Union (EU) and neighbouring countries (92.9 inhabitants/km^2 in 2010), while the proportion living in cities with more than 10,000 inhabitants stood at over 78%. Of the approximately 750 municipalities in this category, 62 had more than 100,000 inhabitants. The rural population accounted for just 18% of the total and was spread throughout 6,694 municipalities.

The international economic crisis has affected the Spanish economy, which is highly dependent on the service sector (particularly on tourism) and the construction industry. Together, these two sectors accounted for 81.6% of the country's Gross Value Added (GVA) in 2010. Unemployment stood at 20.1% in 2010 and gross domestic product (GDP) went from rising in 2006 (4%) and 2007 (3.6%) to decelerating in 2008 before decreasing by 3.7% in 2009. Nevertheless, in 2009, in terms of purchasing power parity, GDP per inhabitant was above the EU average (103; EU-27=100).

AIR

Emissions of greenhouse gases (GHG) over the period 1990–2009 increased until 2007 (though there were some intermediate drops) before falling drastically in 2008 and 2009 (by 7.6% and 9.0% respectively). In 2009, emissions were 26.8% above the Kyoto Protocol base year (1990) figure. Under Spain's 2nd National Emission Rights Allocation Plan 2008–2012, the Kyoto target will be met provided emissions do not exceed the base year figure by more than 37%.

Over 1990–2009, there was a continued decrease in emissions of acidifying and eutrophying gases (49.4%) and ozone precursors (18.1%). There was also a sharp decrease in emissions of primary

particulate matter, with PM_{10} falling by 24% and $PM_{2.5}$ dropping by 23%. This decrease was particularly pronounced from 2007 onwards.

The mean of the mean concentrations of SO_2, NO_2 and PM_{10} remained below the limit values set for each of these pollutants. As regards ozone, in 2009 the mean concentration of the annual mean of the two regulated values was still above the target value, although it is getting closer to it.

WATER

2010 marked the tenth year since the entry into force of the Water Framework Directive, which aims to achieve good ecological and chemical status for all Community waters by 2015. This regulation has been the driving force behind an extensive adaptation process, completely renewing water management to achieve the targets of preventing and reducing pollution, promoting sustainable water usage, protecting the environment, improving aquatic ecosystems and mitigating the effects of floods and droughts.

In 2008, the quantity of water delivered to urban public supply networks totalled 4,941 hm^3, 1.2% less than the previous year. Water consumption also fell in both households and the economic sectors.

Reservoir water levels in 2010 continued their upward trend in both the Atlantic and Mediterranean watersheds, registering a 29.7% increase on 2009. Similarly, natural water resource levels rose to 346.99 l/m^2, well above the average of the past 60 years.

In 2010, Spain produced 1.71 hm^3 of desalinated water per day and operational desalination capacity increased to 2,959,341 m^3/day.

The figures for nitrate pollution of groundwater vary widely between river basin districts due to the differing levels of pressure exerted within them by crop and livestock farming. Over 2007–2009, salinisation of groundwater bodies also varied between the river basin districts in the Atlantic watershed, which were hardly affected by this phenomenon, and those in the Mediterranean watershed, which were the most affected.

In 2010, the data on organic pollution of rivers showed similar biological oxygen demand values to 2009, while mean ammonium concentration levels in the intermediate ranges increased.

As regards treatment of urban wastewater, in 2009 treated pollutant load compliance reached 83%.

The quality of inland bathing waters continued to increase in 2009, with just 1.1% of waters being classified as not suitable for bathing.

LAND

The Corine Land Cover (CLC) 2006 survey revealed a significant increase in artificial surfaces in Spain compared to the data from CLC 2000. This rise was also evident on the coastal strip, where artificial surfaces increased by 11.2% in the 10-km-wide strip, and by 7.9% in the 1-km-wide strip.

As soil is one of the environmental media most vulnerable to pollution, Royal Decree 9/2005, of 14 January, established a list of potentially soil-polluting activities and the obligations to be fulfilled by those engaging in such activities. As a first step in the process of compliance with these criteria, Spain's regional governments continue to receive Preliminary Situation Reports.

The National Soil Erosion Inventory was again updated in 2010. This year's survey added data on areas at risk from erosion in the provinces of Leon, Valladolid and Zamora, increasing the number of autonomous communities included in the inventory.

NATURE AND BIODIVERSITY

The United Nations declared 2010 as the International Year of Biodiversity. Throughout this key year, a series of significant events and meetings took place, at which representatives from Spain played an important role, particularly during the Spanish Presidency of the European Union.

In 2010, Protected Areas covered 11.9% of Spain's land area, while 27.1% was designated part of the Natura 2000 Network. Taking into account that these two categories often overlap, 27.7% of Spain's territory was protected in 2010.

Spain's forest area covers over 27.5 million ha, 55% of the county's total land area. In terms of forest health, assessed by the extent of defoliation, there was a recovery in comparison with previous years. In 2010, 111 new units were added to the Spanish National Catalogue of Basic Material to take the total to 7,280.

In 2010, the moderate increase in bird populations in forest environments was maintained, while populations in agricultural environments continued to decline.

The number of administrative and criminal offences reported by the Nature Protection Service stood at 134,155, up 2.8% on the previous year. Of the total number of offences, 96.9% were administrative, only 2.9% were criminal and the remaining 0.2% were classified as minor.

COASTS AND MARINE ENVIRONMENT

In 2010, Law 41/2010, of 29 December, on the protection of the marine environment, set out the legal framework governing adoption of the measures needed to achieve or maintain the good environmental status of the marine environment, transposing the Marine Strategy Framework Directive into Spanish law.

In May 2010, Spain's 97 marine areas assigned Site of Community Importance (SCI) status covered a total of 7,926 km^2, making Spain the country with the fifth-biggest such area in the EU. Spain also had 1,034 km^2 of marine Special Protection Area (SPA) included in the Natura 2000 network, positioning it 12th in the EU ranking.

Under Spain's Shores Law, demarcation is the administrative procedure used to mark the boundary of the publicly owned shoreline. This declares the existence, length and boundaries of the assets within the publicly owned shoreline on a particular section of coastline. In 2010, 94% of Spain's coastline was demarcated.

Large swarms of gelatinous planktonic organisms continue to be found along Spain's coastline, particularly during summer months.

In 2010, the quality of coastal bathing waters remained at similar levels to the previous bathing season, with waters not suitable for bathing staying at 0.5%.

GREEN ECONOMY

Following the increase in the amount of energy used per unit of GDP over the period 1996–2004, the trend has subsequently been reversed. In 2008, Spain's energy intensity decreased on the previous year. Moreover, the drop was greater than in the EU, Japan or the USA.

In Spain, consumption of materials increased by 61.3% between 1995 and 2007, rising from 12.98 t/inhab to 20.94 t/inhab.

The report *Green Jobs: Empleos Verdes en España 2010* by Spain's EOI states that the number of people employed in Spain's green economy climbed to 319,942 in 2010.

Examining the percentage that environmental taxes contribute to GDP shows that Spain is ranked last among the EU countries at only 1.6%, while the EU average stands at 2.4% of GDP.

WASTE

In 2009, the downward trend in urban waste generation began in 2003 continued. The figure stood at 547 kg/inhabitant, 2.15% lower than in 2008, which put Spain in ninth position in the EU in the ranking by amount of urban waste generated *per capita*. The EU average was 513 kg/inhabitant.

In line with the trend across the EU, landfill of urban waste decreased and incineration increased, although in both cases this was to a lesser extent than the EU average. In 2009, 285 kg/inhabitant were landfilled and 48 kg/inhabitant were incinerated.

In 2009, 39.1% of waste was recycled, while 52.1% was disposed of in landfill sites and 8.8% was incinerated. During the period 1995–2009, the total quantity of recycled waste multiplied by 5.9, rising from 36 to 214 kg/inhab.

In 2009, the proportion of used paper collected in Spain for recycling stood at 74.4%, the same level as found in the most advanced European countries. The recycling rate stood at 73.9%, slightly below the 2008 figure (74.9%), maintaining the deceleration that began the previous year when the strong growth recorded between 2005 and 2007 came to an end.

The glass recycling rate was 67.1%, positioning Spain in line with the European average.

In 2008, Spain was ranked fifth in the EU in terms of packaging waste generation with over 8 million tonnes. Its recycling rate was 59.1% and the recovery rate was 65.4%.

Generation of sewage sludge in treatment plants continued to rise, as did its use as an agricultural fertiliser, resulting in a fall in the amount sent to landfill sites.

AGRICULTURE

The Common Agricultural Policy (CAP) continues to evolve, establishing and attaining a strong, dynamic and sufficiently resourced agricultural policy capable of adapting to the constant changes and challenges that face the agricultural sector.

In 2010, Spain's total irrigated area decreased slightly, while the gradual shift towards more efficient irrigation systems continued. This was partly due to sustained application of policies designed to modernise irrigation practices and raise their efficiency.

In 2009, for the second consecutive year, Spain had the greatest number of hectares of organic farmland in the European Union. The country was also the world's sixth-biggest producer of organic products, with 1.6 million hectares dedicated to this form of agriculture.

Growth in organic livestock farming continued in 2009 with a 19.2% increase in the number of organic livestock farms.

According to provisional data, in 2009, fertiliser consumption totalled 78.7 kg/ha, while the downward trend in phytosanitary product consumption started several years previously accelerated.

ENERGY

Spain's energy policy aims to guarantee supply, reduce dependence on foreign sources, develop connection infrastructure and minimise pollutant emissions. Spain is characterised by its high level of energy dependence (77% in 2009) and the large volume of greenhouse gases emitted by the transport and electricity generation sectors.

Spain's energy intensity, defined as the ratio between total primary energy consumption and GDP, continues to decrease at a rate comparable to that recorded in the EU as a whole. Between 2000 and 2008, energy intensity fell by around 10% in both economies. This was the result of implementation of energy saving and efficiency policies, meaning the same output is now being produced with less energy. In the last two years analysed, Spain's energy intensity decreased by 4.06%.

In 2009, by sector, transport again recorded the highest final energy consumption (41.3%). It was followed by industry, which accounted for 28.5%; the residential and

service sectors, which registered slight rises to 16.6% and 9.8%, respectively; and agriculture, which remained more or less stable, with 3.4%.

In 2009, the breakdown of total primary energy consumption by energy source showed increases in some sources and decreases in others. Thus, primary energy derived from oil increased slightly to account for just over half the total (50.6%), while that derived from coal dropped to 9.5% and that from nuclear fission to 10.9%.

Energy-related CO_2 emissions intensity (calculated as the ratio between total emissions and GDP) fell sharply. Total emissions dropped from 121,631 kilotonnes of CO_2 equivalent in 2007 to 88,328 kilotonnes of CO_2 equivalent in 2009, while GDP decreased by 2.73% in 2009. As a result, the indicator fell by 25.23% in just two years.

Spain's National Renewable Energy Action Plan 2011–2020 (PANER) seeks to consolidate and improve this situation and meet the target set by Directive 2009/28/EC of generating 20% of all energy, and 10% of the energy used in the transport sector, from renewable sources. In 2009, and for the first time in Spain, renewable energy exceeded all other sources used in electricity production to stand at 32.3%, up from 25.1% the year before. In contrast, the amount of electricity produced from coal, gas and oil decreased.

INDUSTRY

In a context marked by an overall downturn in economic activity, the industrial sector's 2009 production and employment statistics show historic falls, a factor that has had an effect, albeit to varying degrees, on the various indicators contained in this chapter.

In terms of atmospheric emissions by industry, the downward trend in CO_2 emissions started in 2008 continued and intensified, falling by 14.47% in 2009. It is worth noting that industry's CO_2 emissions accounted for 25.13% of total emissions of this gas in 2009. Similarly, there were decreases in emissions of NO_x (10.82%) and non-methane volatile organic compounds (NMVOCs), which fell by 13.33%. In contrast, SO_2 emissions increased (11.02%), with this gas accounting for 44.94% of total emissions in 2009.

Likewise, in 2009 industry's final energy consumption decreased by 12.95% on 2008 and drops were recorded in use of all conventional energy sources (coal, natural gas and petroleum products). Meanwhile, the decrease in consumption of renewable energy sources was much smaller (4.54%).

The downturn in economic activity also resulted in a decrease in waste production. The amount of non-hazardous waste generated dropped by 17.51%, while that of hazardous waste fell by 22.47%. Nevertheless, industrial companies continued to invest in environmental protection, raising total expenditure on this item by 3.88%, though the extent of the rise was smaller than in previous years. Industry's overall GVA decreased by around 5%, though it fell particularly sharply in the manufacturing sector (by 14%) to a level last seen in 2004–2005.

FISHERIES

Between 1998 and 2009, the number of vessels in the Spanish fishing fleet decreased by 35.8%, tonnage (GT) dropped by 22.8%, and power (kW) by 26.2%. In general, this was above the average decrease in the European fishing fleet in the same period.

The total catch landed by the Spanish fleet in 2009 was 21.5% lower than in 2008. Catches in the Mediterranean remained stable, while they increased slightly in the Bay of Biscay and dropped in the fishing grounds in the Canary Islands and the Gulf of Cadiz.

Aquaculture has developed from mainly comprising small family-owned farms to huge industrial-scale undertakings that make a major contribution to national economies. In Spain, aquaculture's total output in 2009 was 14.4% higher than in 2008, principally due to the rise in mussel production.

Over the last ten years, the Spanish fishing fleet's power, tonnage and number of vessels have all decreased. Catches have also fallen over that period, though annual figures have fluctuated significantly. Nevertheless, GVA (at current prices) showed a slightly upward trend.

TOURISM

In a context marked by a recovery in international tourism, in 2010 Spain received 52.7 million tourists, just over 1% more than the previous year and a figure close to the 2000–2007 average. Although tourist numbers rose, the parallel increase in the number of inhabitants meant that the number of foreign tourists per inhabitant remained the same as in 2009 (1.12).

In 2010, 87.6% of foreign tourists visited the Spanish coast. This represented an increase of 1.7%, and an average of 5,860 tourists per kilometre of coast. Catalonia

tripled the national average with 18,851 tourists per kilometre of coast and was followed in terms of popularity by Valencia, Andalusia, the Balearic Islands and the Canary Islands. The autonomous communities on the Cantabrian and Galician coasts received two million foreign tourists, equivalent to 843 tourists per kilometre of coast.

The number of overnight hotel stays and the Tourist Population Equivalent increased by 15.8% in the ten most popular destinations (all of which were on the coast, with the exception of the Pyrenees). The most significant rises were on the Barcelona coast (25.2%) and the island of Fuerteventura (25.9%), while there was a slight decrease on the Costa del Sol (2.1%). The island of Majorca recorded the highest number of overnight stays (37.7 million).

The total number of visitors to National Parks fell by 5.6% to 9.5 million, compared to 9.9 million the previous year. Nevertheless, despite this overall trend, the Tablas de Daimiel National Park received 398,742 visitors, three times as many as the year before.

In 2010, the increase in accommodation and capacity in the rural tourism sector continued, though the number of visitors and overnight stays fell slightly (by 1.76% and 3.11% respectively). In 2010, rural tourism employed 21,811 people and it is now regarded as a growing source of green jobs.

According to statistics provided by the INE, tourism's contribution to GDP increased significantly until 2008 before dropping by 8.5% in 2009.

TRANSPORT

Road transport is the mode used most widely to carry passengers and freight. Over the period 1990–2009, internal passenger traffic in Spain grew by 94.8%, although between 2008 and 2009 the volume barely increased. In fact, only road transport rose (by 1.1%), while the other modes of transport recorded decreases (14.8% for air transport, 1.6% for rail and 1.9% for maritime). Over this period, freight transport grew by 74.4%, despite a 10.4% fall year-on-year in 2009. After decreases in 2008 and 2009, in 2010 air passenger transport grew by 2.7% and air freight transport increased by 15.5%

In 2009, the transport sector was responsible for 25.7% of all greenhouse gas emissions, making it the most pollutant sector in Spain. Since 1990, emissions by transport have increased by 71.4% (a percentage much higher than that of total

emissions). Nevertheless, and largely due to the economic crisis, 2009 was the second consecutive year in which this trend was reversed, recording a significant 6.8% decrease following a 5.2% drop in 2008.

Emissions of acidifying substances by transport fell by 32.2% over 1990–2009, dropping particularly sharply from 2007 onwards. In fact, in the last year of the period alone they fell by 19.7%. The reduction in emissions of ozone precursors, which decreased by 50.2% over the period 1990–2009, was even more significant.

The increase in economic growth in Spain was coupled to a rise in energy consumption, although the volume of inter-city transport (of both passengers and freight) increased below this rate and fewer GHGs were emitted.

HOUSEHOLDS

The household sector consumes a large proportion of the goods and services produced by the economy (estimated at 60% of the EU's GDP). In Europe, the number of households has risen steadily, while the number of members per household has fallen. Between 2001 and 2009, Spain's population rose by 14.36% and the number of households climbed by 26.73%.

A large proportion of households have access to an automobile, although in 2009 there was a slight year-on-year decrease (0.7%) in the size of the national fleet. The number of passenger cars per household stood at 1.3, a figure similar to previous years due to the balance witnessed between the rising number of both cars and households.

The total amount of urban waste collected decreased by 6.8% between 2008 and 2007 to stand at 26.3 million tonnes. In total, 1,572 kg of waste were generated per household per year, of which volume separately collected waste accounted for 315 kg.

In 2009, energy consumption per household decreased for the fourth consecutive year, with the largest drops occurring in 2008 (7.2%) and 2009 (7.9%). Consumption for electrical usage totalled 3,580 kWh/household in 2009, while consumption for heating and hot water amounted to 0.597 toe/household.

Overall, households emitted a total of 17,368 kilotonnes of CO_2, 7.1% less than in 2008, which works out at just over a tonne per year per household. Between 1990 and 2009, the sector's emissions increased by an average of 1.9% per year.

In 2008, water consumption decreased by 0.2% on the previous year to stand at 2,540 hm^3, with each household consuming 152 m^3 per year, or 154 litres/inhabitant/day. Bearing in mind the increase in both population and number of households in recent years, as well as the relatively stable consumption levels, the figures indicate that the resource is being managed more efficiently, although losses in the network remain high (1,210 hm^3).

In 2008, average gross income per household rose to €42,029, an increase of 3.09% on 2007. Per capita income stood at €15,433. Over the period 2000–2008 (2002=100), gross income per household increased by 32.3%. In 2008, households in eight autonomous communities exceeded the national average, as did those in the autonomous cities of Ceuta and Melilla.

Between 2000 and 2009, the environmental pressure exerted by households increased — the sector grew in size, it emitted more CO_2, it consumed more energy and it generated more waste. Until 2008, households' gross disposable income also rose. Nevertheless, the figures per household have either decreased or remained stable.

URBAN ENVIRONMENT

In 2010, population pressure continued to increase in urban centres with over 10,000 inhabitants to stand at 17.95% above the 2001 level. Nevertheless, the annual increase was smaller than that of the previous year.

In 2010, average air quality in Spanish municipalities with over 50,000 inhabitants was below the regulatory limit (limit values for NO_2 and suspended particulates smaller than 10 microns, and target values for ozone).

In Spain's large urban conurbations, an estimated 8,130,800 people are affected by noise from road and rail traffic, airports and industrial facilities, while the number of people affected by them outside these conurbations stands at 2,520,500

Data from 2009 show a slight increase in the number of sites classified as being of cultural interest. The figure rose to 15,904 (55 more than the previous year).

In 2008, half of Spain's population lived in metropolitan areas served by Public Transport Authorities (PTAs). These covered a total of 930 municipalities and served a population of over 23 million people. From 2000 onwards, there was a noteworthy

increase in the number of rail travellers, which reflects major government investment in this mode of transport.

In 2010, public participation in environmental policy continued to grow, with more municipalities and inhabitants covered by the Network of Sustainable Local Development Networks and the Spanish Network of Cities for Climate.

NATURAL AND TECHNOLOGICAL DISASTERS

2010 saw the second-highest number of natural disasters worldwide (after 2007) since 1980. In total, 950 natural disasters occurred, resulting in 295,000 fatalities.

The magnitude of the disasters that occur in Spain is insignificant compared to that of those that occur elsewhere in the world, but every year a varying number of people are affected and killed by these events.

In 2010, storms significantly damaged infrastructure and facilities and brought down numerous branches and trees. Overall, they caused 6 deaths. Meanwhile, torrential rainfall caused vast floods, resulting in 12 fatalities.

In 2010, avalanches were responsible for 11 deaths in Spain.

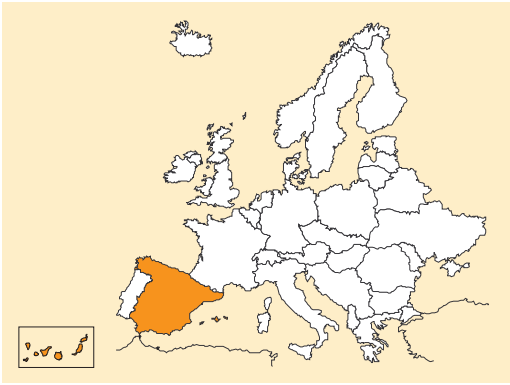
Although the forest area affected by forest fires in 2010 was 63.3% below the average for the preceding decade, nine people died as a result of such fires.

In 2009, there were 47 accidents during the transport of dangerous goods by road causing possible environmental damage. In addition, seven accidents occurred in industrial activities covered by the Seveso Directive.

1. Background

- Territory and climate
- Administrative structure
- Current population
- Economic and industrial development
- Advances in adoption and implementation of environmental protection legislation
- Plans and programmes: sustainable rural development and biodiversity protection

Territory and climate



Spain's total land area of 506,030 km^2 makes it one of the world's 50 largest countries and places it second in terms of size in the European Union. If river estuaries are included in the calculation, its coastline totals 10,099 km. As regards topography, 57.7% of Spain's territory stands at over 600 m above sea level, making it the second-highest country in Europe.

Spain has a variety of climates, including the ocean, continental and Mediterranean types. Temperatures vary greatly between inland areas, which have cold winters and hot summers, and the periphery, where the winters are mild, particularly along the Mediterranean coast.

Autumn and spring see heavy rainfall, while rain is scarce in the summer. Marked contrasts between areas also exist in terms of rainfall — the north and north-west of Spain are very rainy and do not have a clear dry season, while the rest of the country is predominantly dry, although some areas may receive exceptionally high rainfall. In parts of the south-east, rainfall is very scarce, creating a semi-desert landscape.

Administrative structure

Spain is a constitutional monarchy with a parliament comprising two houses — the Congress of Deputies and the Senate. The 1978 Constitution establishes the right to autonomy of the nationalities and regions that comprise the Spanish nation. Thus, Spain consists of 17 distinct regions, known as autonomous communities, and 2 autonomous cities (Ceuta and Melilla). This makes Spain one of the most decentralised countries in Europe.

In administrative terms, government comprises three tiers — the General State Administration, which is responsible for Spain's entire territory; regional government, which is responsible for each respective autonomous community; and local government, which comprises municipal councils, provincial councils and the island councils of the Canary and Balearic Islands.

Current population

According to the Municipal Register as at 1 January 2010, Spain had 47.021 million inhabitants, 16.1% more than in 2000, representing an average annual increase of 1.6%. Of the resident population, 5.7 million were non-Spanish (12.2%), the provenance and population size of which are shown in the following table:

SPAIN: NON-SPANISH POPULATION BY COUNTRY OF ORIGIN

EU-27	2,346,515	41.1
Other European countries	226,379	4.0
Africa	1,048,909	18.4
The Americas (North, Central and South)	1,769,429	30.9
Asia	314,701	5.4
Other countries	3,007	0.2
TOTAL	5,708,940	100.0

Source: INE. Advance figures for the Municipal Register as at 1 January 2010 (press release, 29/04/2010)

Spain's population is distributed very unevenly and the most densely populated areas (with the exception of the Autonomous Community of Madrid) lie on the periphery. The four most highly populated autonomous communities are Andalusia (8.4 million people), Catalonia (7.5 million), Madrid (6.5 million) and Valencia (5.1 million) which, between them, account for over half (58.4%) of the population despite only occupying barely 30% of the country's territory. More than 78% of Spain's population live in towns and cities with over 10,000 inhabitants. There are around 750 municipalities of this size, 62 of which have over 100,000 inhabitants.

The population living in Spain's rural environment is noteworthy for its low density. Moreover, the rural population as a share of the overall population is declining steadily and has shrunk by approximately 1.6% since 2000. The rural population stands at 8.2 million and is spread among 6,694 municipalities, of which number 59% have fewer than 5,000 inhabitants.

Economic and industrial development

The economic and financial climate since 2007, which has had a dramatic effect on the international economy, has also had a major impact on the Spanish economy, halting the growth that Spain had enjoyed in recent decades. In 2010, the unemployment rate in Spain stood at 20.01%. The figures provided by the INE reveal the changes in GDP between 2006 and 2009, as shown in the table below.

GROSS DOMESTIC PRODUCT: ANNUAL GROWTH IN TERMS OF VOLUME

Year	Updated series
2006 (definitive)	4.0%
2007 (provisional)	3.6%
2008 (provisional)	0.9%
2009 (advance estimate)	-3.7%

INE. Spanish National Accounts. 2000 base. Update of the 2006–2009 accounting series (press release of 25/08/2010)

In 2009, factors such as the credit crunch, the price of raw materials, the slump in construction and the weak state of international trade all contributed to the decline witnessed in almost all of the productive sectors. Those most affected were industry, energy and building, while the service sector only declined by an average of 1%. Primary industry (agriculture, livestock farming and fishing) was the best-performing sector with a moderate 1.0% increase in GVA.

However, the rest of the industrial sector, which registered a drop of 13.6% on 2008,

suffered most, principally due to the fall in external demand and the situation in the building industry, which accounts for a large part of the sector's business. The biggest decreases were recorded in durable consumer goods.

Several steps were taken to try to deal with this situation. As well as the reforms planned under Spain's Strategy for a Sustainable Economy (which include the Sustainable Economy Law, reform of the labour market and implementation of a new R&D and Innovation strategy), the Social and Economic Agreement for Growth, Employment and Pension Sustainability is intended to instil confidence in investors, workers, businesspeople and citizens. In addition, the Spanish Economy and Employment Stimulation Plan (Plan E) includes over 100 economic policies and has allocated significant public resources to tackling the economic crisis.

The energy sector, which is strongly dependent on industry, also saw a slump of 6.4%.

However, on a positive note, in 2009, and for the first time in Spain, renewable energy exceeded all other energy sources used in electricity production.

Meanwhile, the fall in activity in the building sector (6.2%) resulted in job losses and moderately lowered house and land prices.

GROSS DOMESTIC PRODUCT AT MARKET PRICES AND ITS COMPONENTS
CURRENT PRICES 2000–2009
(million €)

	2000	2002	2004	2006	2007	2008(P)	2009(A)
Agriculture, livestock farming and fishing	24,984	26,586	27,365	24,471	27,201	26,494	25,955
Energy	15,802	17,193	20,330	23,219	24,905	28,360	28,208
Industry	103,415	111,846	119,555	132,633	138,774	141,310	121,917
Construction	47,584	62,452	80,480	105,823	112,040	113,511	105,522
Services	378,775	443,440	508,939	590,680	641,904	686,336	698,097
Total gross value added	570,560	661,517	756,669	876,826	944,824	996,154	979,699
Net tax on products	59,703	67,689	84,373	107,458	108,713	92,113	74,215
GDP (at market prices)	630,263	729,206	841,042	984,284	1,053,537	1,088,124	1,053,914

Source: INE. Spanish National Accounts. (P): Provisional; (A): Advance estimate

Although sufficient data are not yet available to make a definitive analysis, according to some organisations, which had predicted Spain's GDP to fall by around 0.5%, the economy performed better than expected in 2010. In the third quarter of 2010, GDP increased by 0.2%, while in the fourth it rose by 0.6%. Nevertheless, for the year as a whole it remained 0.1% below the 2009 figure.

In 2010, exports of goods and services increased by 10.3% on the previous year, well above the rise in imports, which grew by 5.4%.

Tourism recovered from the downturn in 2009 and the number of tourists even increased by just over 1%, while revenue from tourism climbed by 2.5%.

Advances in adoption and implementation of environmental protection legislation

Law 2/2011, of 4 March, on the sustainable economy

At the end of 2009, the Spanish Government submitted the Sustainable Economy Bill to Parliament. It was adopted in March 2011 as Law 2/2011, of 4 March, on the sustainable economy (BOE no 55, of 5 March). With this initiative, the Spanish Government intends to change the country's economic model and direct it towards more economically, socially and environmentally sustainable parameters.

The law, under its Preliminary Title, defines a sustainable economy as a growth model that, as well as balancing economic, social and environmental development, is able to guarantee respect of the environment, rational use of resources and "meet the needs of the present without compromising the ability of future generations to meet their own needs." In terms of environmental sustainability, the law lays the foundations for a new energy model based on supply security, efficiency and respect for the environment, and includes the European Union's targets for 2020.

The Sustainable Economy Law's articles emphasise the scope of the environment-related areas covered (which are detailed in Title III). Its four sections are devoted to the sustainable energy model; emissions reductions; sustainable transport and mobility; and restoration and housing. Finally, the nineteenth additional provision announces the drafting of a Sustainable Mobility Law that "will lay the foundations to improve sustainable accessibility and mobility, increase road safety for passenger and freight traffic and reduce greenhouse gases."

Law 41/2010, of 29 December, on protection of the marine environment

Law 41/2010, of 29 December, on protection of the marine environment (BOE no 317, of 30 December 2010) transposes Directive 2008/56/EC, of 17 June 2008, known as

the Marine Strategy Framework Directive, into Spanish law and establishes the general planning framework for ensuring the good environmental status of the marine environment. There are three key elements in this law: Marine Strategies as planning instruments; creation of the Network of Marine Protected Areas; and mainstreaming of environmental criteria into use of the marine environment.

Since many human activities take place in the marine environment and since it is subject to many significant pressures and impacts, the goal of the law is to achieve good environmental status for the sea through coherent planning of the aforementioned activities. The Marine Strategies will be the instruments used to achieve this goal. These consist of a list of consecutive tasks that should be completed for each of the five areas that make up the marine environment in Spain. The Marine Environment Protection Law places particular emphasis on discharges, which are regulated. This means that authorisation by the relevant authority and a favourable preliminary report will be required from Spain's Ministry of the Environment and Rural and Marine Affairs to determine whether the discharges comply with the marine strategy for each particular area.

One of the most noteworthy aspects of Law 41/2010 is the creation of the Network of Marine Protected Areas. This network comprises the protected areas in Spain's marine environment that characterise the country's marine natural heritage, regardless of whether they are included in other EU or international protection networks. Areas categorised under regional legislation are also included in the network. The network consists of various areas, such as those explicitly declared Marine Protected Areas, Special Areas of Conservation and Special Protection Areas for Wild Birds (Natura 2000 Network), and Marine Reserves regulated by Law 3/2001 on state marine fisheries.

Plans and programmes: sustainable rural development and biodiversity protection

Sustainable Rural Development Programme 2010–2014

Law 45/2007, of 13 December, on sustainable rural development, laid the foundations for a State policy adapted specifically to Spain's circumstances. The PDRS (*Programa de Desarrollo Rural Sostenible* – Sustainable Rural Development Programme) is the instrument employed to put the principles into practice and meet the targets stipulated in the policy. The PDRS was adopted by Royal Decree 752/2010, of 4 July, pursuant to Law 45/2007.

The PDRS was drawn up in partnership with regional government, local authorities and other stakeholders in the rural environment. The PDRS, designed as the main means via which to plan economic activity in the rural environment, encompasses the sectoral goals, plans and measures to be taken by national and regional government.

After completing an in-depth study of the rural environment focusing on demographic, economic, environmental and funding issues, the programme required an assessment of the rural environment's strengths, weaknesses, opportunities, and threats (SWOT analysis) to determine the circumstances to bear in mind when formulating the strategy to achieve the targets set out in Law 45/2007.

The strategy adopted is based on a model that prioritises multi-sector action plans and endeavours to create synergies through co-ordinated and planned operation. These actions will be carried out in a way agreed on by local, regional and national government and will involve participation by the sections of the public affected.

This strategy puts particular emphasis on defining lines of action. Firstly, it deals with economic activity and employment. Secondly, with infrastructure and basic facilities. The third line of action concerns services and social well-being, while the fourth focuses on environmental planning, management of natural resources and hydrological and forest restoration.

The rural areas in each autonomous community included in the PDRS are listed in chapter four, according to the following breakdown:

Type of area	Number of areas	Population (inhabitants)	Area (km^2)
Regeneration areas	105	3,001,840	253,828
Intermediate areas	84	5,411,589	136,883
Peri-urban areas	30	2,165,852	35,360
PROGRAMME TOTAL	219	10,579,281	426,071

Source: Royal Decree 752/2010, of 4 June. Annex (BOE no 142)

Rural areas are defined as groups of rural municipalities with fewer than 30,000 inhabitants and a population density of less than 100 inhabitants per km^2, or smaller local authorities. These 219 areas account for 84.41% of Spain's national territory and are home to 22.92% of its total population. Each of these will have a Rural Area Plan, which will transfer the measures and actions defined in the PDRS to the local environment and respond to each area's particular needs and potential. The PDRS also defines the types of agreement possible between national and regional government to create and implement each area's plans.

Strategic Plan for Natural Heritage and Biodiversity 2011–2017
(Currently under development. Public consultation ended 05/03/2011)

Law 42/2007, of 13 December, on natural heritage and biodiversity, establishes the basic legal framework for the conservation, sustainable use, improvement and restoration of Spain's natural heritage and biodiversity and encompasses the regulations set out in the United Nations Convention on Biological Diversity. In 2010, the period established by the Parties to the Convention within which to halt biodiversity loss came to an end with the acknowledgement that although major measures had been taken, the underlying causes of biodiversity loss had not been addressed sufficiently and that the loss had not been significantly reduced, thereby necessitating adoption of new strategies.

In this context, and as established in Law 42/2007, Spain has drafted a Strategic Plan for National Heritage and Biodiversity that has already been through public consultation and will soon be passed. The Plan features an analysis of biodiversity in Spain and reviews the most significant issues and the commitments undertaken to ensure its conservation and sustainable use. The Plan establishes a series of specific Goals, Targets and Actions for government to fulfil:

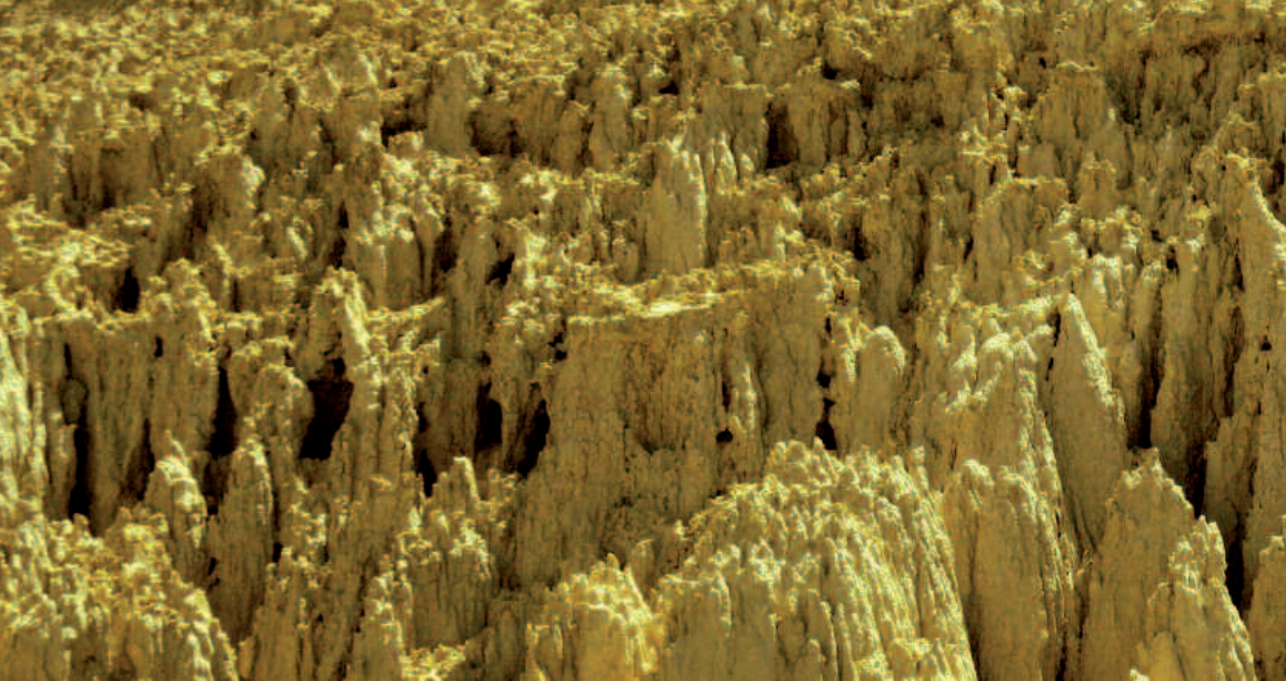
- The Goals are the strategic medium-to-long-term objectives that will ensure consistency across biodiversity conservation policy beyond its implementation period. The overall goal is to halt biodiversity loss and the decline of ecosystem services, then restore them to their former state. Of the nine goals set, the following are particularly significant:

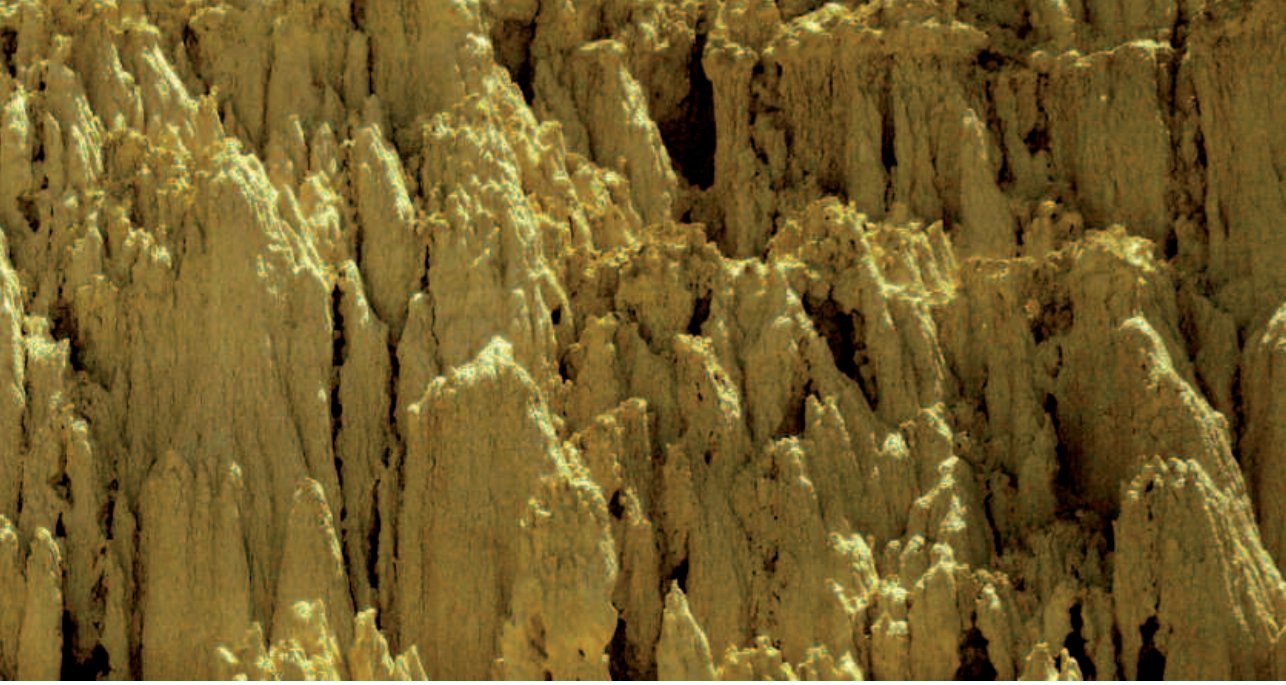
  – Acquire the knowledge needed to ensure conservation and sustainable use of biodiversity;
  – Encourage mainstreaming of biodiversity issues in agriculture, tourism and the management of inland and marine waters;
  – Reduce the impact of invasive alien species;
  – Inform the public and raise awareness about biodiversity issues and encourage public commitment to biodiversity conservation; and
  – Design a biodiversity conservation policy, taking into account biodiversity's economic value and the needs of climate change adaptation.

- The Targets are the objectives to be met during the Plan's six-year term. These are measured via the associated indicators and success criteria defined in the monitoring programme. Each goal contains targets and indicates the priority area.

- The **Actions** comprise specific measures to be taken to achieve the targets and should be carried out by the pertinent government bodies. These also contain an estimated budget and are rated according to a priority index based on the repercussions of achieving the targets and the urgency with which they should be implemented.

The Strategic Plan for Natural Heritage and Biodiversity will be applicable for six years from the date of adoption. Over this period, its implementation and the extent to which the targets are attained will be monitored. Implementation of this Strategic Plan may be modified, if considered appropriate, to adapt to situations arising in the future. At the end of the Plan's six-year term, a final assessment and proposed revisions will be produced.





2. Indicators: themes and sectors

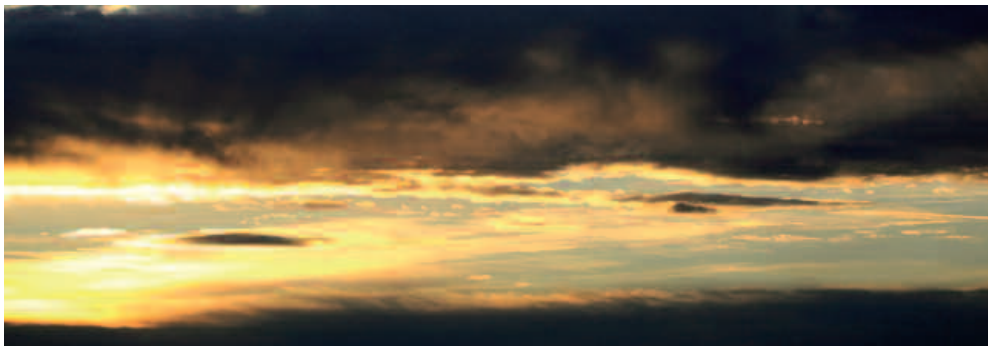
2.1 AIR

The Cancun summit held in December 2010, which laid the foundations on which to build an international climate change regime, was a major advance. The summit's outcome, backed by nearly all of the countries signed up to the United Nations Framework Convention on Climate Change (UNFCCC), signified a milestone as regards commitments to reduce GHG emissions and strengthened multilateral co-operation to resolve problems associated with climate change.

The definitive approved text serves as a reference for the two negotiation processes (Long Term Co-operative Action and the Kyoto Protocol) and seeks to make advances in the five areas of negotiation — mitigation, adaptation, finance, technology and deforestation and forest degradation. It also includes, for the first time, the environmental objective of keeping global warming to less than 2 ºC above pre-industrial levels, as well as including the possibility of revision in 2015.

Within the European context, the Europe 2020 Strategy incorporates the objective of reducing GHG emissions by at least 20% compared to 1990 levels, and by 30% if conditions permit, while promoting smart, sustainable and inclusive growth.

The fight against climate change centres on mitigation (halting GHG accumulation in the atmosphere by



reducing emissions and using sinks to capture already-emitted gases) and adaptation (minimising risk and impact and taking advantage of new environmental conditions whenever possible).

Spain's geographic position and socio-economic characteristics make it highly vulnerable to climate change. As a result, the global goal to reduce CO_2 emissions is a constant and consistent priority within the country's environmental policy. In this regard, Law 13/2010 of 5 July extended the general emissions trading scheme to

INDICADTOR	GOAL	TREND
Emissions of greenhouse gases	Reduce GHG emissions to comply with both Kyoto Protocol objectives and those laid down in the Sustainable Economy Law for sectors not subject to the European emissions trading scheme	In 2009, the downward trend in emissions begun in 2007 continued
Emissions of acidifying and eutrophying gases and tropospheric ozone precursors	Meet the objectives of the National Emissions Ceiling Directive by 2010	In 2009, the decrease in emissions was sustained, bringing Spain closer to the objectives established
Emissions of particulate matter	Meet the objectives of the National Emissions Ceiling Directive by 2010	In 2009, the downward trend in particulate emissions begun in 2008 continued
Regional background air quality for the protection of health and vegetation	Meet the objectives for ambient air quality set down in the legislation (recast by Directive 2008/50/EC of 21 May and RD 102/2011 of 28 January)	Mean concentration of mean annual ozone levels is nearing the 2010 target value

include aviation, and in December 2010 Law 40/2010 on geological storage of carbon was passed.

As regards GHGs, the Spanish Climate Change and Clean Energy Strategy (EECCEL) Horizon 2007–2012–2020 defines a series of actions intended to combat climate change. It refers to two key horizons — 2012 (when the Kyoto Protocol's first term ends) and 2020 (the reference year for the strategic objectives).

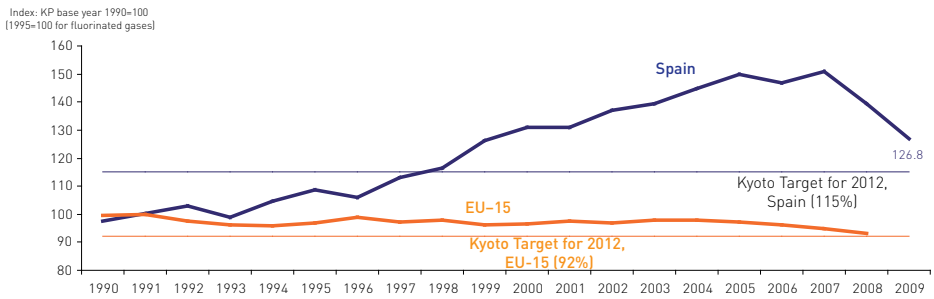
Meanwhile, the legal framework governing acidifying and eutrophying gases and tropospheric ozone precursors is provided by Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants. The National Emissions Reduction Programmes and their respective Action Plans propose specific measures and lines of action to reduce emissions by certain sectors.

Finally, it should be noted that overall air quality in Spanish towns and cities of over 50,000 inhabitants is analysed in the chapter on the urban environment, while this chapter offers information on regional background pollution at points far from pollutant sources.

Emissions of greenhouse gases

In 2009, GHG emissions decreased by 9.0%, exceeding the fall registered in 2008

TOTAL GREENHOUSE GAS EMISSIONS (CO_2 EQUIVALENT)



Source: EEA and MARM

GHG emissions between 1990 and 2009 were marked by sustained growth until 2007 (except in isolated years like 1993, 1996 and 2006) followed by sharp declines in 2008 and 2009 (7.6% and 9.0%, respectively). The Kyoto Protocol stipulates that over the five-year period from 2008–2012, emissions figures must be no higher than 15% above the 1990 level. Since approval (in 2006) of Spain's 2nd National Allocation Plan (2008-2012), the country looks likely to meet its Kyoto Protocol target, namely to keep overall GHG emissions at no more than 37% above base year level (1990).
This total is reached by adding together the 15% increase established by the Kyoto Protocol, an additional 2% attributable to removal by sinks, and acquisition of the equivalent of the remainder (less than 20%) in carbon credits via the Kyoto Protocol's flexibility mechanisms. After the decreases in recent years, in 2009 GHG emissions levels stood at 26.8% above the base year level.

In 2009, CO_2 was the largest contributor to GHG emissions (80.8%), followed by CH_4 and N_2O (9.9% and 7.1%, respectively). CO_2 emissions were also those that fell most drastically in 2009 (-11%).

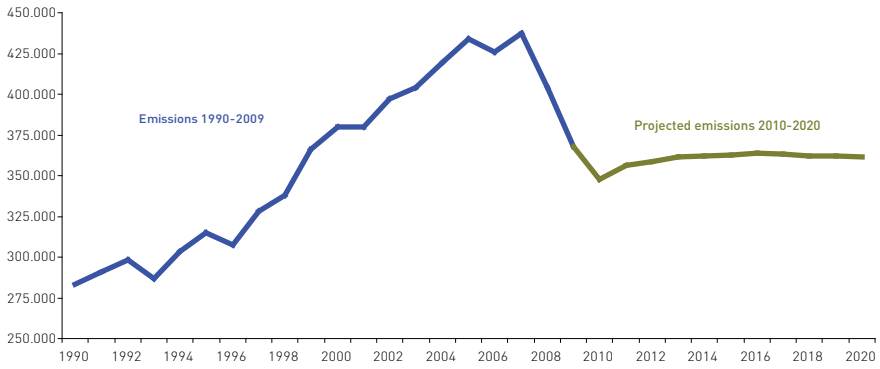
By economic sector, energy (including transport) and agriculture accounted for the highest GHG emissions in 2009 (77.0% and 10.5%, respectively). Meanwhile, the greatest drop in these emissions was registered in industrial processes (-15.3%).

In 2008, emissions per inhabitant in Spain continued to be among the lowest in the EU-27 — Spain recorded the ninth-lowest emissions level (8.96 tonnes of

CO_2-equivalent). Likewise, Spain had the eleventh-lowest emissions level per unit of GDP in 2008, with 0.373 kg of CO_2-equivalent/€. In both cases these values were below the 2007 levels. As regards total emissions, in 2008 Spain was responsible for 8.21% of the EU-27's emissions, contributing slightly less than in 2007 (8.71%).

The GHG emissions projections drawn up in accordance with the inventory for the 1990–2009 period (2011 edition) incorporate all of the measures approved to date, including the commitments set out in the Sustainable Economy Law (Articles 78.2 and 88) to ensure compliance with the GHG-reduction targets assumed by Spain under the current breakdown of the 2020 reduction target. These measures stipulate a collective 10% reduction on 2005 emissions levels in those sectors not subject to the European emissions trading scheme (diffuse sectors/non-ETS sectors).

INVENTORY 1990–2009 AND GHG EMISSIONS PROJECTIONS TO 2020 (kt CO_2-eq)
(EXCLUDING FLEXIBILITY MECHANISMS AND REMOVALS BY SINKS)



Source: MARM

NOTES

- This indicator presents total emissions of the six main greenhouse gases (CO_2, CH_4, N_2O, HFCs, PFCs and SF_6), expressed jointly as CO_2 equivalent (index 1990=100 and 1995=100 for fluorinated gases).
  The Kyoto Protocol of the United Nations Framework Convention on Climate Change sets out developed countries' commitments to reduce emissions of these gases, regulates emissions trading among countries and establishes mechanisms to help less developed countries meet their emission reduction commitments. Within this framework, the EU has undertaken to reduce its greenhouse gas emissions by 8% in relation to 1990 levels within the period 2008–2012. Each EU member state has different obligations in relation to the Community's overall commitment to reduce emissions. Spain has to stabilise GHG emissions at 15% above 1990 levels.

- The figures are for gross emissions and exclude net sink (capture minus emissions) for "Land use, changes in land use and forestry".

- The figure taken as the reference value (base year) when examining the changes over time in aggregate emissions (without including emissions and absorption attributable to "Land use, changes in land use and forestry") is the officially approved value used to calculate the quantity allocated to Spain when evaluating its Kyoto commitments.

- Spain's national GHG emissions projections are calculated according to the guidelines provided by the Intergovernmental Panel on Climate Change (IPCC), Decision No 280/2004/EEC, the application provisions under Decision No 2005/166/EC, the recommendations of the EU Committee on Climate Change and the guidelines of the Geneva Convention.

- Decision No 406/209/EC establishes an emissions limit for 2020 for those sectors not included under Directive 2009/29/EC in the post-Kyoto period, as well as a route to compliance over 2013–2020 specifying the maximum levels for these sectors. The 2020 emissions limit for Spain is set at 90% of the emissions that in 2005 were attributable to sectors not included under Directive 2003/87/EC (Annex 2 of Decision No 406/209/EC, which establishes a 10% reduction for Spain in 2020 in relation to 2005).

SOURCES

- MARM, 2011. *Inventario de Gases de Efecto Invernadero de España. Años 1990–2009*. Directorate-General for Environmental Quality and Assessment.
- MARM, 2011. *Proyecciones de emisiones de contaminantes atmosféricos en España*. Directorate-General for Environmental Quality and Assessment.
- European Environment Agency, 2011. EEA greenhouse gas data viewer (on website).
- European Commission, 2010. Commission Communication: Europe 2020: A strategy for smart, sustainable and inclusive growth. COM(2010) 2020.

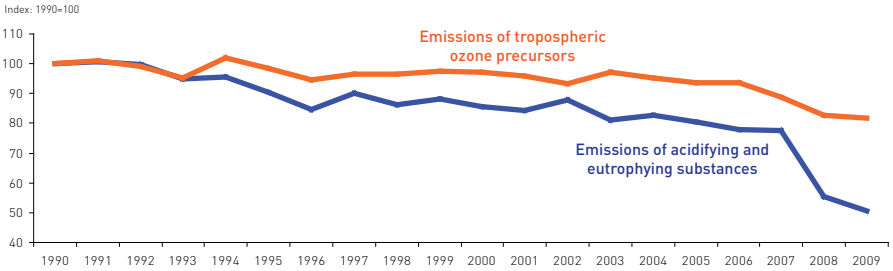
FURTHER INFORMATION

- **http://www.marm.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/**
- **http://www.eea.europa.eu/**

Emissions of acidifying and eutrophying gases and tropospheric ozone precursors

Emissions of acidifying and eutrophying gases and tropospheric ozone precursors continue to fall, although the latter decreased to a lesser extent

EMISSIONS OF ACIDIFYING AND EUTROPHYING SUBSTANCES AND TROPOSPHERIC OZONE PRECURSORS



Source: MARM

In 2009, emissions of acidifying and eutrophying gases (SO_2, NO_x and NH_3) and tropospheric ozone precursors (CO, NO_x, CH_4 and NMVOC) continued to decrease, though the downward trend was less pronounced than in 2008 (above all as regards ozone precursors).

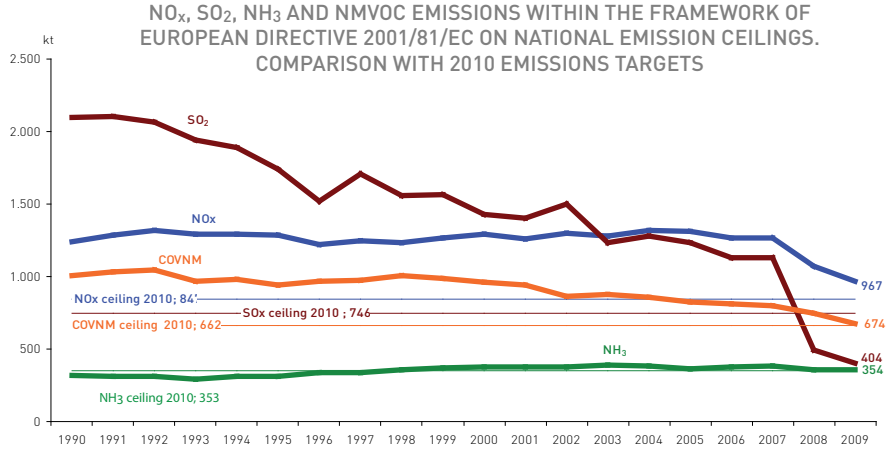
A review of the period from 1990 to 2009 reveals a strong drop (49.4%) in emissions of acidifying and eutrophying substances. The fall in emissions of tropospheric ozone precursors, while more moderate, was also significant (18.1%). The former fell by 8.8% on the previous year, while the latter fell by 1%.

The drop in emissions of acidifying and eutrophying substances was strongly conditioned by reductions in SO_2 (which fell by 80.2%), due mainly to the decline in combustion in energy and transformation industries. The fall in NO_x emissions, attributable to a reduction in emissions by road transport, also contributed to the downward trend. In contrast, the increase in agricultural NH_3 emissions (13.3%) between 1990 and 2009 counteracted the overall fall in acidifying and eutrophying gases. In the last year analysed, the three acidifying and eutrophying gases fell by 19.1%, 9.2% and 0.4% (SO_2, NO_x and NH_3, respectively).

As regards emissions of ozone precursors, the greatest drop was recorded in CO (51.6% between 1990 and 2009). It was accompanied by downturns of 16.8% for

NO_x and 13.7% for NMVOCs and by a rise of 35.6% in CH_4 emissions (generated by agriculture and waste treatment and incineration). However, the fall in 2009 was minimal due to increases in NMVOC and CH_4 emissions (5.2% and 1.1%, respectively).

The graph below shows the trend in emissions of pollutant substances included under Directive 2001/81/EC of 23 October on national emissions ceilings one year prior to the deadline for meeting the targets set in the Directive. It is evident that from 2008 onwards the targets set for SO_x have been met and that the targets for NH_3 and NMVOCs have almost been reached.



Source: MARM

The following table shows estimated emissions for 2010 based on national emissions projections in a scenario in which measures are implemented and indicates the distance from the ceiling established for each substance. These projections, based on the 1990–2009 inventory, cover the period from 2010–2020.

Pollutant	2010 emissions. Scenario with measures (t)	Ceiling (t)	Distance from ceiling in 2010 (%)
SO_x	363,059	746,000	-51.30%
NO_x	900,506	847,000	6.30%
NMVOCs	679,227	662,000	2.60%
NH_3	337,062	353,000	-4.50%

Source: MARM

NOTES

The graph for the indicator shows the changes in aggregate total annual emissions of acidifying and eutrophying substances (SO_2, NO_x and NH_3) and tropospheric ozone precursors (NO_x, NMVOCs, CO and CH_4) in relation to the base year 1990 (1990=100).

SNAP 11 group emissions (other sources and sinks) are not included for NMVOCs, nor are emissions pertaining to subgroups 10.01 and 10.02 (fertilised and unfertilised crops), corresponding to leaf biomass.

Emissions of acidifying and eutrophying gases are presented as acid equivalent (hydrogen ion-generating potential) and are aggregated using the following weighting factors: 31.25 acid equivalent/kg for SO_2 (2/64 acid equivalent/g), 21.74 acid equivalent/kg for NO_x, expressed as NO_2, (1/46 acid equivalent/g) and 58.82 acid equivalent/kg for NH_3 (1/17 acid equivalent/g). Emissions of tropospheric ozone precursors were estimated using the tropospheric ozone depleting potential (expressed as NMVOC equivalent). The following weighting factors were employed: 1.22 for NO_X, 1.00 for NMVOCs, 0.11 for CO, and 0.014 for CH_4.

The objective of Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001, on national emission ceilings for certain atmospheric pollutants, is to limit emissions of acidifying and eutrophying pollutants and ozone precursors in order to protect human health and the environment.

SOURCES

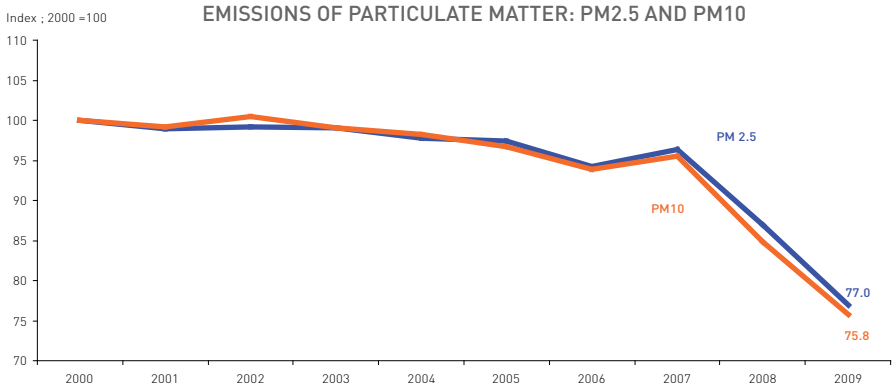
- MARM, 2011. *Inventario de Gases de Efecto Invernadero de España. Años 1990–2009*. Directorate-General for Environmental Quality and Assessment.
- MARM, 2011. *Inventario de Emisiones a la Atmósfera de España*. Ceilings Directive. 1990–2009 series. Directorate-General for Environmental Quality and Assessment.
- MARM, 2011. *Proyecciones de emisiones de contaminantes atmosféricos en España*. Directorate-General for Environmental Quality and Assessment.

FURTHER INFORMATION

- **http://www.marm.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/http://www.eea.europa.eu/**

Emissions of particulate matter

Emissions have fallen steeply since 2007



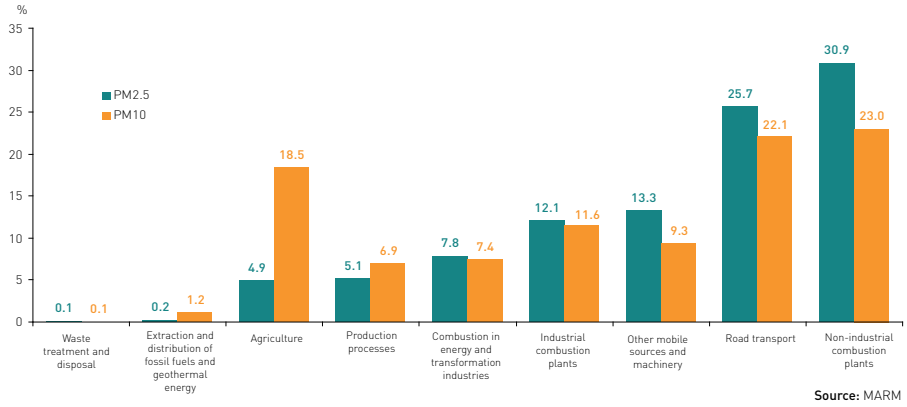
Source: MARM

Between 2000 and 2009, there was a very sharp decrease in emissions of primary particulate matter, with $PM_{2.5}$ falling by 23% and PM_{10} falling by 24%. The sectors recording the greatest emissions reductions were combustion in energy and transformation industries, transport, extraction and distribution of fossil fuels and geothermal energy. The waste treatment and disposal sector experienced no significant change, and therefore had very little influence on the general drop in emissions. Conversely, emissions reductions in the transport sector did have a considerable influence on the general trend due to both the magnitude of the decrease (24–30%) and to the size of the sector's contribution to overall emissions.

Over the same period, emissions from non-industrial combustion plants increased by around 1%, while emissions from agriculture increased by more than 4%, figures that naturally affected the overall emissions data.

Between 2008 and 2009, $PM_{2.5}$ emissions dropped by 11.5%, exceeding the 9.0% fall recorded between 2007 and 2008. Meanwhile, PM_{10} emissions dropped by 10.6% between 2008 and 2009, slightly less than the figure registered for 2007–2008 (11.2%). The last two years analysed witnessed the greatest drop recorded in the period under study, which had been characterised until then by slight isolated rises and falls in emissions of particulate matter.

BREAKDOWN OF PARTICULATE MATTER EMISSIONS BY SECTOR. 2009



Source: MARM

This downward trend is in line with the overall picture in Europe, where emissions of primary particulate matter (PM_{10}) fell by 21% overall between 1990 and 2008 across the EEA-32.

The most significant emissions reductions occurred in Estonia (-58%), the United Kingdom (-53%) and the Netherlands (-51%).

NOTES

- This indicator covers emissions of suspended primary particulate matter with an aerodynamic diameter less than or equal to 10 and 2.5 μm (PM_{10} and $PM_{2.5}$).
- The EU has not established specific limits for emissions of primary particulate matter, but it did put limits in place in 2010 for their precursors (NO_x, SO_x and NH_3) under the National Emission Ceilings Directive (Directive 2001/81/EC) and the Gothenburg Protocol to the Convention on Long-Range Transboundary Air Pollution (Council Decision 81/462/EEC of 11 June 1981).

SOURCES

- MARM, 2011. *Inventario de Gases de Efecto Invernadero de España. Años 1990–2009*. Directorate-General for Environmental Quality and Assessment.

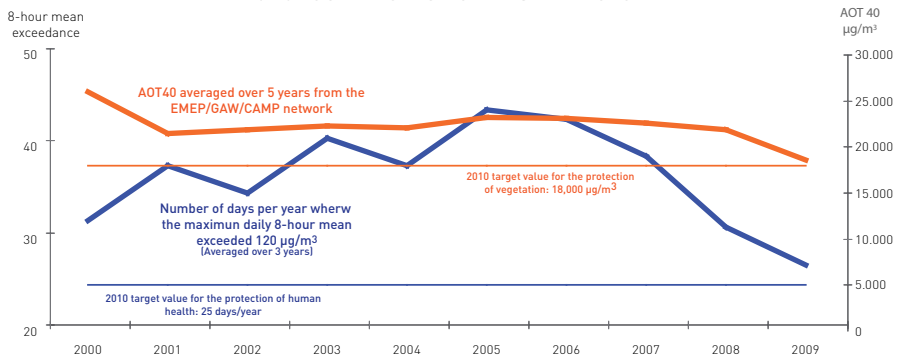
FURTHER INFORMATION

- **http://www.marm.es**
- **http://www.eea.europa.eu/**

Regional background air quality for the protection of health and vegetation

Mean concentration of annual mean background ozone is nearing the target value set for 2010

BACKGROUND POLLUTION IN SPAIN: OZONE



Source: MARM

Ozone pollution still constitutes one of Spain's main problems in terms of background pollution and the indicator shows that in 2009 levels were still above the targets stipulated by legislation. However, it is worth highlighting the drop in both mean values of AOT40 and in daily exceedances of the maximum 8-hour average, a trend that brings levels closer to the target for 2010.

Specifically, in 2009, the EMEP/GAW/CAMP Network recorded an average of 27 annual exceedances of the maximum 8-hour average of 120 µg/m^3, while in 2008 there were 31 exceedances, and in 2007, 39.

Likewise, the mean 5-year running average for AOT40 at rural background stations was 18,545 µg/m^3 in 2009 (21,910 µg/m^3 in 2008). The 2010 target value for the protection of vegetation is 18,000 µg/m^3.

As regards SO_2, NO_2 and PM_{10}, the Network averages of mean concentrations are still lower than the limits established by the legislation for each of these pollutants (since 2002 the SO_2 limit value for the protection of ecosystems has been 20 µg/m^3

(calendar year and winter); since 2002 the NO_x annual limit value for the protection of vegetation has been 30 µg/m^3; and since 2005 the PM_{10} annual limit value for the protection of health has been 40 µg/m^3). The trend for all these mean values is downward. Likewise, the highest mean values do not exceed the limit values either and therefore (excluding possible critical and/or extreme situations and circumstances) background pollution does not present a significant hazard.

NOTES

- The indicator assesses general background pollution in Spain. This is presented for each pollutant and year as the mean of the mean concentrations recorded at all of the stations on the EMEP/GAW/CAMP network, which supplies comprehensive data on background air pollution in Spain.
- AOT40 stands for Accumulation Over Threshold. This index is defined as the sum of the differences between hourly concentrations above 80 µg/m^3 (=40 parts per billion, or ppb) and 80 µg/m^3 over a given period (which, in the case of the protection of vegetation, is that comprising the months of May, June and July), using only 1-hour values measured between 8.00 and 20.00 each day, Central European Time (Royal Decree 1796/2003, which transposes Directive 2002/3/EC into Spanish law; both replaced by Royal Decree 102/2011 and Directive 2008/50/EC).
- In order to obtain the AOT40 figure from the 1-hour ozone concentrations at each of the stations covered, figures are taken for those years in which 90% or more of the available data are valid, corrected to standardise all at 100% of possible data. Averages are calculated over five years (running averages) or, in the absence of a complete consecutive series of annual AOT40 figures, a minimum 3-year average is used (Annex I of Royal Decree 1796/2003, which transposes Directive 2002/3/EC into Spanish law; both replaced by Royal Decree 102/2011 and Directive 2008/50/EC).
- The EMEP, established under the framework of the Geneva Convention, measures background air pollution. The Global Atmospheric Watch (GAW) is a project implemented by the World Meteorological Organization (WMO). The Comprehensive Atmospheric Monitoring Programme (CAMP) is fruit of the OSPAR Convention and is designed to identify the atmospheric inputs in the North-East Atlantic region and examine their impact on the marine environment. The EMEP/GAW/CAMP network, which seeks to meet the aims of the aforementioned programmes, monitors tropospheric levels of background air pollution and sedimentation on the Earth's surface in order to protect the environment.
- With the entry into force of the new Air Quality Directive (Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008), on ambient air quality and cleaner air for Europe, transposed by Royal Decree 102/2011, of 28 January, on improving air quality, current limit values for the protection of ecosystems against SO_2 and of vegetation against NO_x are now known as "critical levels for the protection of vegetation".
- Winter is considered the period running from October last year until March of the year in study. The calendar year goes from January the first until December 31st.

SOURCES

- MARM, 2011. Air Quality Database. Directorate-General for Environmental Quality and Assessment. MARM

FURTHER INFORMATION

- http://www.marm.es
- http://www.aemet.es/
- http://www.eea.europa.eu/

2.2 WATER

2010 marked the tenth year since the Water Framework Directive came into effect. This regulation has been the driving force behind an extensive adaptation process, completely renewing water management with the main aims of preventing and reducing pollution, promoting sustainable water usage, protecting the environment, improving aquatic ecosystems and mitigating the effects of floods and droughts. The Directive's ultimate objective is to achieve good ecological and chemical status for all Community waters by 2015.

In line with the work carried out to meet the requirements set out in the Directive, in 2010 the MARM adopted Royal Decree 1161/2010, of 17 September, which amended Royal Decree 907/2007, of 6 July, on Water Planning Regulation. The Royal Decree introduces several changes as regards the responsibilities of Water Councils in river basin districts, allowing these to be adopted by other administrative bodies within the basins, or failing that, by the Basin Authorities themselves.

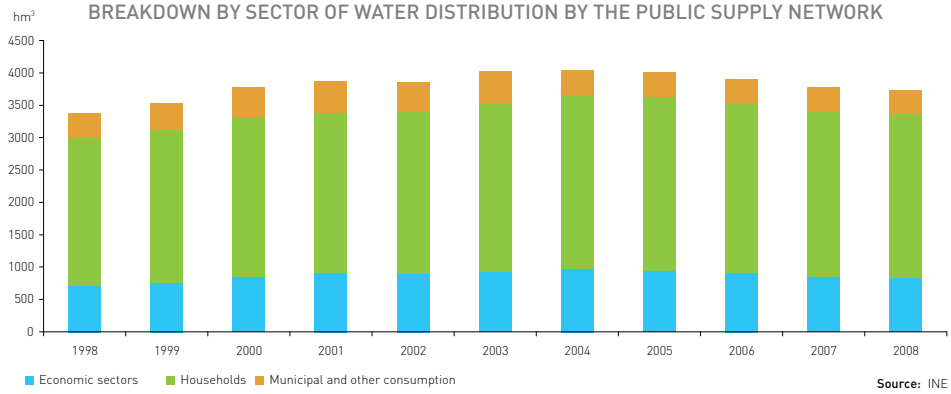
Water consumption continued to fall in all sectors and, in parallel, water reserves increased and are now well above the ten-year average. Although desalination capacity has increased, there has also been a fall in production of desalinated water in recent years.

INDICATOR	GOAL	TREND
Water consumption	Reduce and optimise consumption	Household water consumption continues to fall
Reservoir water levels	Provide sufficient reserves to guarantee supply	Water reserves are increasing
Natural water resources	Implement water planning to ensure sufficient water resources and maintain water bodies in a satisfactory state	Natural water resources are improving
Brackish and sea water desalination	Increase available resources	Desalinated water production is decreasing
Nitrate pollution of groundwater	Minimise pollution	Status varies between river basin districts
Salinisation of groundwater bodies	Reduce salinisation and preserve catchments	Improving situation in the Mediterranean basins
Organic pollution of rivers	Achieve good ecological status in rivers	BOD_5 levels remain stable, while average ammonium levels are increasing
Treatment of urban wastewater	Reduce the pollutant load to meet the targets of Directive 91/271/EC	Compliance levels are increasing
Quality of inland bathing waters	Maintain good health status of waters to ensure they remain suitable for bathing	Decreasing percentage of waters not suitable for bathing

Nitrate pollution of groundwater varies widely between river basin districts, as does salinisation of water bodies, although salinisation in Mediterranean river basin districts has reduced. Compliance with urban wastewater treatment criteria rose, inland bathing waters retained their good ecological status and the percentage of waters not suitable for bathing fell.

Water consumption

Water consumption continues to decrease in households, economic sectors and agricultural operations

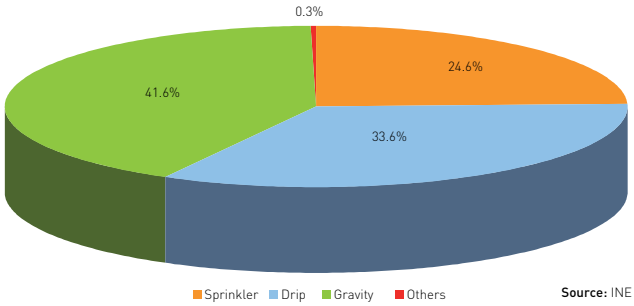


In 2008, the quantity of water delivered to urban public supply networks totalled 4,941 hm^3. Of this amount, three quarters of the water registered, 3,731 hm^3, was consumed by households, the various economic sectors (industry, services and livestock farming), and municipal services. This is a decrease of 1.2% compared to the previous year.

In Spanish households, water consumption is decreasing each year. In 2008, consumption stood at 154 litres per inhabitant per day; three litres less than 12 months previously.

Water consumption in agricultural operations also decreased, dropping by 5.5% in comparison to the year before to 15,513 hm^3. This reduction was seen across all of the irrigation techniques, with consumption decreasing by 5.5% in sprinkler irrigation, 6% in drip irrigation and 5.5% in gravity-fed irrigation. Nonetheless, the breakdown by irrigation type remains similar to that of 2007, with drip and sprinkler systems accounting for 58.2% of consumption in 2008.

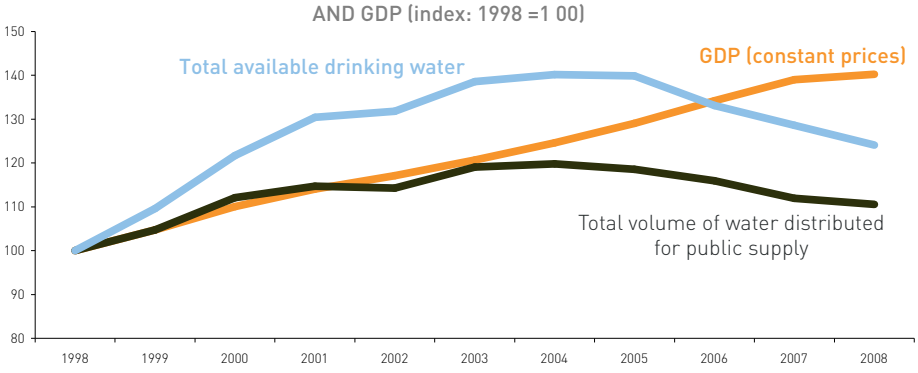
BREAKDOWN OF WATER USE BY IRRIGATION SYSTEM TYPE (2008)



Source: INE

Water consumption (expressed as total available drinking water and water distributed for public supply) has clearly been decoupled from GDP growth since 2003. In 2007, GDP growth started to slow down, and then decreased further in 2009. These three variables will need to be monitored in the next few years to identify the changes taking place.

COMPARISON BETWEEN WATER DISTRIBUTED FOR PUBLIC SUPPLY AND GDP (index: 1998 =1 00)



Source: INE and MITyC

NOTES

- Water distributed includes all water available in the public distribution network, plus all losses from the same. It is the sum amount of water collected by supply companies plus the net balance of water purchases and sales from and to other companies and local authorities.

- From 2007 onwards, the number of sectors included in the graph showing distribution of water for public supply has been reduced (the urban sector has been grouped with the other sectors category).

SOURCES

- INE. Environment statistics. Environment statistics of water. In INEbase
  - *Survey on water supply and sewerage (1996–2008)*
  - *Survey on the use of water in the agricultural sector (1999–2008)*
  - *Water consumption in industry*
- GDP figures: *Energía en España 2009*, MITyC, Secretariat-General for Energy.

FURTHER INFORMATION

- **http://www.marm.es**
- **http://www.ine.es**

Reservoir water levels

Total reservoir water levels continue to increase, rising by 29.7% compared to the previous year

HYDROLOGICAL TREND REPORT: CAPACITY (HM^3) AND RESERVES (%) IN PENINSULAR RESERVOIRS. Data as at 4 January 2011

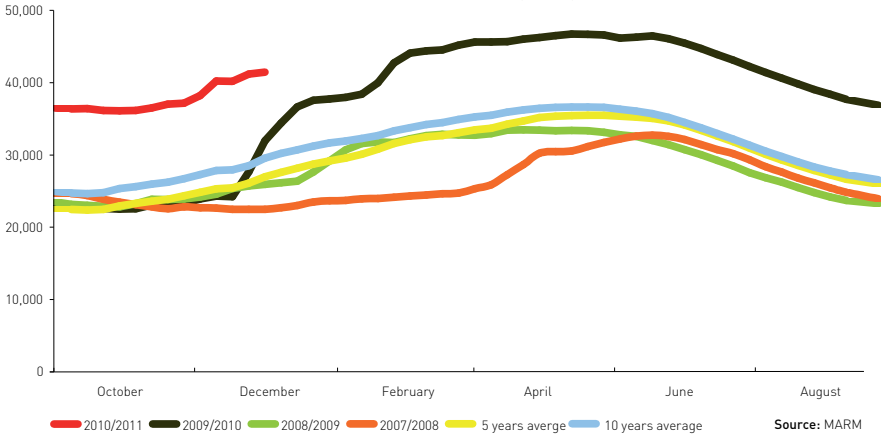
WATERSHED	Total reservoir capacity	Reserves	Reserves compared to total capacity (%)				
	hm^3	hm^3	2010	2009	2008	5-year average	10-year average
Atlantic	41,685	31,996	76.8	59.2	46.6	51.5	57.4
Mediterran	13,901	9,431	67.8	57.3	50.9	44.4	48.0
Entire peninsula	55,586	41,427	74.5	58.7	47.7	49.7	55.1

Source: MARM

As was the case the year before, in 2010 water reserves continued to increase, rising by 29.7% in comparison with 2009. This trend was seen in both watersheds (reserves in the Mediterranean watershed increased by 20.5%, while those in the Atlantic watershed rose by 32.7%), producing overall reserves that were well above the average level of recent years.

The winter months produced high levels of rainfall, which classified 2010 as a "wet to very wet" year. This resulted in a significant increase in water reserves, which remained much higher than average despite a sharp decrease in summer, as the graph shows below.

PENINSULAR WATER RESERVES
Reservoir volume (hm^3)



Source: MARM

NOTES

- The Directorate-General for Water has developed a comprehensive system of hydrological indicators to predict drought conditions based on the volume of water stored in reservoirs, aquifers' piezometric levels, natural river inputs, and rainfall in representative stations. This system of indicators provides an objective characterisation of drought in each resource usage system and enables timely measures and actions to be applied at the pre-alert, alert and emergency stages.
- The hydrological year runs from 1 October to 30 September of the following year.

SOURCES

- Data provided by the Sub-Directorate-General for Sustainable Water Use and Planning. Directorate-General for Water. MARM.

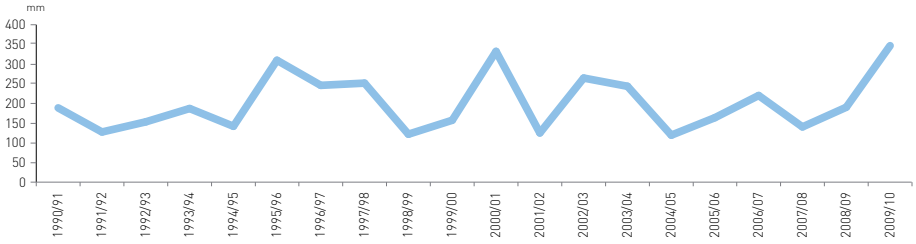
FURTHER INFORMATION

- http://www.marm.es

Natural water resources

In 2009–2010 natural water resource levels were higher than the average of recent years

NATURAL WATER RESOURCES (1990/91-2009/10)



Source: Information compiled by the MARM from data provided by the CEDEX

NATURAL WATER RESOURCES	Average for the period 1940/41–2009/10 (l/m^2)	Average for the last 5 years 2005/06–2009/10 (l/m^2)	2007/08 hydrological year (l/m^2)	2008/09 hydrological year (l/m^2)	2009/10 hydrological year (l/m^2)
TOTAL IN SPAIN	216.29	212.42	140.50	190.63	346.99

Source: Information compiled by the MARM from data provided by the CEDEX

The improvement that began in the 2008/09 hydrological year was continued in 2009/10, when Spain's natural water resources reached 346.99 l/m^2, a level only exceeded in the 1940/41 (377.71 l/m^2) and 1959/60 (360.25 l/m^2) hydrological years. This very high level is mainly due to the copious rainfall throughout 2009/10.

In 2009/10, natural water resources in 74% of the country's river basin districts exceeded the average of the last five years. The three to record the highest values were the Miño-Sil (455.36 l/m^2 above the average of the last five years), Guadalete and Barbate (421.91 l/m^2) and Tinto, Odiel and Piedras (320.39 l/m^2) river basin districts.

However, in 2009/10 natural water resources in six river basin districts were lower than the average of the last five years. These include the Basque Country Inland Basins, which recorded the biggest decrease of all the river basin districts (64.53 l/m^2 below the average of the last five years), the Catalonian Inland Basins (24.18 l/m^2) and island of La Palma (15.57 l/m^2).

NOTES

- Annual average natural water resources are calculated from the average monthly values obtained from the SIMPA model developed by the CEDEX to simulate rainfall and inputs. This models the hydrological cycle throughout Spain (the values have been aggregated for both individual river basin districts and nationally) using a grid of 1-km^2 cells.
- Based on data for rainfall, potential evapotranspiration and the hydrological parameters, the model produces maps of the various forms of storage, soil moisture and aquifer volumes, as well as of the hydrological cycle's output variables, evapotranspiration and total run-off, calculating the latter as the sum amount of surface and underground run-off. The indicator is expressed in litres per m^2 (l/m^2).
- The values are expressed in hydrological years, which begin in October and end in September.

SOURCES

- Sub-Directorate-General for Sustainable Water Use and Planning. Directorate-General for Water. MARM.

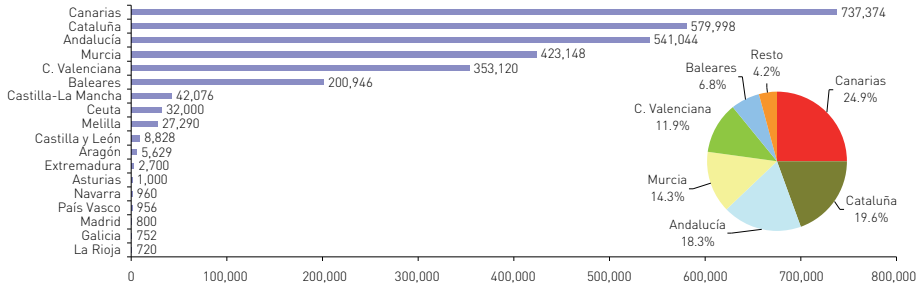
FURTHER INFORMATION

- Libro Blanco del Agua en España (2000)
- http://servicios2.mma.es/sia/indicadores

Brackish and sea water desalination

In 2010, desalinated water production decreased in Spain

INSTALLED DESALINATION CAPACITY OPERATIONAL IN 2010
(Desalinated water in m³/day) TOTAL 2,959,341 m³/day



Source: Information compiled by the MARM from data provided by the CEDEX

Given Spain's limited water resources, desalination of brackish and sea water is one of the ways to obtain this vital liquid. Over the years, Spain's operational desalination capacity has steadily increased and, in 2010, rose by 7.8% on 2009 to stand at 2,959,341 m³/day.

The two autonomous communities in which installed capacity grew in 2010 were Catalonia, with an increase of 200,000 m³/day, and the Balearic Islands, with an increase of 14,000 m³/day. As a result, Catalonia now has the second-highest desalination capacity among Spain's autonomous communities, behind the Canary Islands.

DESALINATED WATER PRODUCTION IN SPAIN

Year	1990	2000	2004	2007	2008	2009	2010
hm³/day	0.10	0.70	1.40	1.66	1.94	1.92	1.71

Desalinated water production decreased in 2010 to 1.71 hm³/day. As was the case the year before, this decrease was due to an improvement in water reserves, which lowered demand and, subsequently, reduced production. The autonomous communities that produced the most desalinated water were the Canary Islands with 630,000 m³/day, Catalonia with 277,592 m³/day, Murcia with 251,133 m³/day and Andalusia with 220,192 m³/day.

Advances in desalination technology are going hand in hand with greater use of alternative energy sources. Some countries have studied the possibility of using electricity produced by tidal energy for desalination. Another possible alternative would be to power desalination plants with energy obtained from organic municipal waste.

SOURCES
- Centre for Hydrographical Studies. CEDEX.

FURTHER INFORMATION
- http://www.hispagua.es
- http://www.marm.es

Nitrate pollution of groundwater

Nitrate concentration in groundwater is linked to the pressure exerted by crop and livestock farming

PERCENTAGE OF MONITORING STATIONS RECORDING NITRATE CONCENTRATIONS ABOVE 50 MG/L

RIVER BASIN DISTRICT	2007	2008	2009	RIVER BASIN DISTRICT	2007	2008	2009
Miño-Sil	9.1%	0.0%	9.1%	Andalusia (Med.)	N.A.	N.A.	N.A.
Galicia-Coast	0.0%	0.0%	0.0%	Andalusia (Atl.)	30.0%	30.0%	N.A.
Basque Country I.B.	0.0%	0.0%	0.0%	Segura	26.3%	26.5%	18.4%
Bay of Biscay	0.0%	1.9%	0.0%	Júcar	20.2%	19.7%	25.8%
Douro	11.3%	12.5%	14.6%	Ebro	20.5%	57.7%	15.7%
Tagus	24.1%	2.7%	16.7%	Catalonian I.B.	34.5%	30.0%	36.5%
Guadiana	30.2%	26.8%	28.7%	Canary Islands	N.A.	N.A.	N.A.
Guadalquivir	27.5%	42.5%	30.3%				

Source: MARM 2010

Nitrate concentration in groundwater is linked to the pressure that crop and livestock farming exert on these waters' chemical status. Directive 2006/118 on the protection of groundwater against pollution and deterioration establishes a nitrate concentration limit value of 50 mg/l for groundwater to qualify for good chemical status.

The Catalonian Inland Basins, Guadiana and Guadalquivir river basin districts had the highest percentage of monitoring stations recording nitrate concentrations above 50 mg/l in 2007, 2008 and 2009 (around 30% in all three years).

NOTES

- The 2008 figures for the Ebro river basin district were higher than usual. This variation was due to bias in the sample, as the number of stations sampled was reduced. Moreover, the stations selected tended to be those where higher nitrate contents were expected. In 2009, the figures for the Ebro river basin district returned to normal, or better than normal, as the 15.7% concentration in 2009 was below 20%, the norm for this river basin district in previous years.
- Directive 2000/60/EC (WFD), which establishes the European framework for action in the field of water policy, includes among its objectives the need to prevent groundwater pollution. In order to meet these objectives, rafts of measures should be established that, among other aspects, include those set out in Directive 91/676/EEC.
- Directive 91/676/EEC, on the protection of waters against pollution caused by nitrates from agricultural sources, incorporated into Spanish law by Royal Decree 261/1996, defines groundwater as being affected by this type of pollution if the nitrate concentration is above 50 mg/l, or could potentially reach this level.
- Directive 2006/118 on the protection of groundwater against pollution and deterioration defines groundwater as having good chemical status when nitrate concentration (among other criteria) does not exceed 50 mg/l.
- The figures for the Tagus river basin district differ in this edition from those in the 2008 environmental profile as the data have been updated.

SOURCES

- Data provided by the Sub-Directorate-General for Integrated Public Water Resource Management. Directorate-General for Water. MARM.

FURTHER INFORMATION

- http://www.marm.es
- http://www.eea.europa.eu

Salinisation of groundwater bodies

Salt intrusion is decreasing in the Júcar and Segura river basins

PERCENTAGE OF COASTAL GROUNDWATER MONITORING STATIONS RECORDING CHLORIDE CONCENTRATIONS ABOVE 1,000 mg/l

RIVER BASIN DISTRICT	2007	2008	2009	RIVER BASIN DISTRICT	2007	2008	2009
Galicia-Coast	0%	0%	0%	Andalusia (Atl.)	0.1%	N.A.	N.A.
Basque Country I.B.	0%	0%	14.3%	Segura	18.1%	46.9%	22.7%
Bay of Biscay	0%	0%	0%	Júcar	0.8%	5.4%	0%
Guadiana	0%	0%	0%	Ebro	0.1%	0%	0%
Guadalquivir	0%	0%	0%	Catalonian I.B.	20.9%	8.3%	6,0%
Andalusia (Med.)	N.A.	N.A.	N.A.	Canary Islands	0%	0%	0%

Source: MARM 2010

Salt intrusion in coastal groundwater, measured by examining the percentage of monitoring stations recording chloride concentrations above 1,000 mg/l, varies significantly throughout the basins analysed. The increased concentration of chloride is mainly due to the pressure exerted by groundwater usage. When groundwater abstraction exceeds these bodies' replacement level, the balance between groundwater and sea water is disrupted and the latter intrudes, producing salinisation and a deterioration in quality.

Salt intrusion is practically non-existent in the northern river basin districts, but it is widespread in the Mediterranean basins. The data for 2009 show an improvement in the worst affected river basin districts, such as the Júcar and Segura basins.

NOTES
- The figures for the Júcar, Segura and Ebro river basin districts differ in this edition from those in the 2008 environmental profile as the data have been updated.

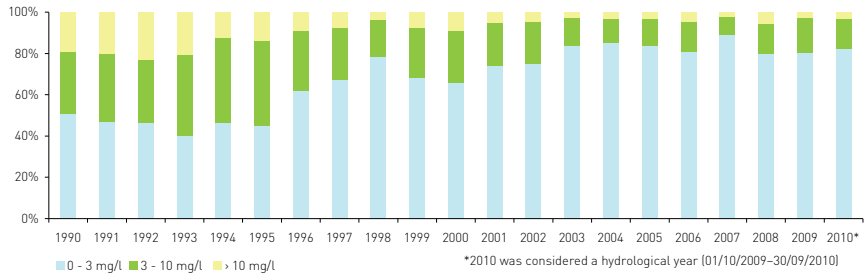
SOURCES
- Data provided by the Sub-Directorate-General for Integrated Public Water Resource Management. Directorate-General for Water. MARM.

FURTHER INFORMATION
- http://www.marm.es
- http://www.eea.europa.eu

Organic pollution of rivers

In 2009 and 2010 there were no significant variations in BOD_5, but there were considerable changes in ammonium concentrations

PERCENTAGE OF MONITORING STATIONS BY AVERAGE BOD_5 (mg/l) 1990–2010



Source: MARM

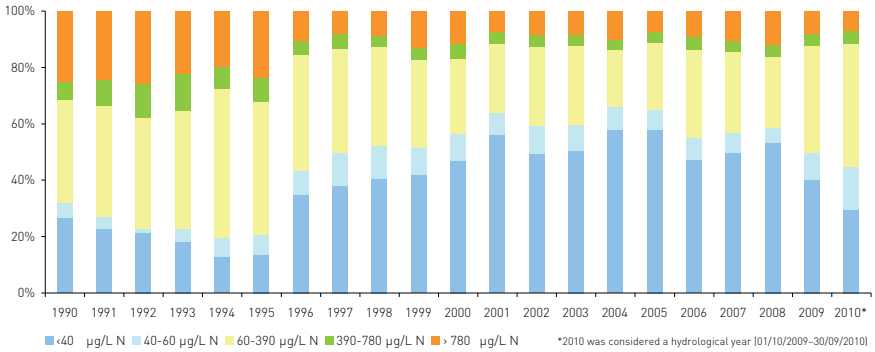
Urban wastewater discharges are directly related to organic pollution of rivers. This pollution is measured using the biological oxygen demand and ammonium concentration in rivers.

A river's capacity to break down organic matter present in its waters is determined by the amount of dissolved oxygen the water contains. This capacity is known as the Biological Oxygen Demand (BOD_5) and is measured in milligrams of O_2 per litre (mg/l). This indicator shows the percentage of monitoring stations in which the average BOD_5 value falls between three ranges: 0–3 mg/l, 3–10 mg/l and over 10 mg/l.

As the graph shows, there are no significant variations in the percentages in 2009 and 2010. The proportion of monitoring stations that recorded a low BOD_5 (0–3 mg/l) remained around 80%, that of stations with a BOD_5 value of 3–10 mg/l stood at around 15%, while that of stations with a BOD_5 of over 10 mg/l totalled close to 3%.

Discharges from sewerage networks are the main cause of ammonium in rivers. Ammonium, along with nitrates, increases the nitrogen concentration in rivers, which contributes to eutrophication. This indicator shows the percentage of monitoring stations in which the average ammonium concentration, measured in µg/l N, falls between the five ranges shown in the second graph.

PERCENTAGE OF MONITORING STATIONS BY AVERAGE AMMONIUM VALUE (µg/l N)



Source: MARM

The data for average ammonium concentration vary over time, though a trend has been maintained over the last two years. The percentage of monitoring stations recording low concentrations (<40 µg/l N) decreased to 40.1% in 2009 and to 29.4% in 2010. The percentage of monitoring stations recording medium concentrations increased, while the percentage of stations recording high ammonium concentrations (>780 µg/l N) decreased, falling to 8.1% in 2009 and 7.1% in 2010.

NOTES

- The National Water Quality, Sewerage and Treatment Plan 2007–2015 was approved by the Council of Ministers in June 2007.
- Biological Oxygen Demand, also referred to as Biochemical Oxygen Demand (BOD), is used as a parameter to measure the quantity of matter liable to be consumed or oxidised by biological means within a liquid sample and is used to establish the degree of pollution. This is normally measured after 5 days (BOD_5) and is stated in mg O_2/litre. It should not be confused with Chemical Oxygen Demand (COD), the parameter used to measure the quantity of organic matter in a liquid sample liable to be oxidised by chemical means.
- Ammonium (NH_4^+) is the monovalent cation formed from ammonia. It is one of the substances in urine, along with urea, sodium and chlorine.
- At room temperature, ammonia (NH_3) is a colourless gas produced naturally by decomposing organic matter. It is also generated industrially to make fertilisers, textiles, plastics, explosives, paper, foodstuffs, beverages, cleaning products and coolants, among other products.

SOURCES

- Data provided by the Sub-Directorate-General for Integrated Public Water Resource Management. Directorate-General for Water. MARM.

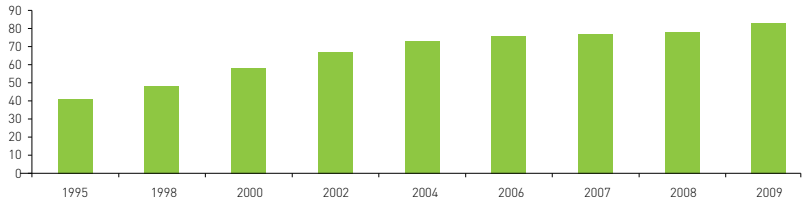
FURTHER INFORMATION

- http://www.marm.es
- http://www.eea.europa.eu

Treatment of urban wastewater

In 2009, treated pollutant load compliance, expressed as a percentage of population equivalent, stood at 83%

DEGREE OF COMPLIANCE WITH DIRECTIVE 91/271/EC EXPRESSED AS POLLUTANT LOAD TREATED (% pe)



Source: MARM

In 2009, treated pollutant load compliance in accordance with Directive 91/271/EEC reached 83%. In more than half of Spain's autonomous communities, compliance stood at over 90%, while in three of them it reached 100%.

The National Water Quality, Sewerage and Treatment Plan (PNCA) 2007–2015 defined the sewerage and wastewater treatment measures required to achieve the targets set for 2015 by the Water Framework Directive.

The PNCA is implemented through collaboration agreements and protocols signed with regional governments that provide the basis for attainment of the environmental targets set by the WFD. In 2009, the MARM signed collaboration agreements and protocols with the Regional Governments of Galicia and the Balearic Islands, with the Autonomous Cities of Ceuta and Melilla, and with Madrid City Council.

MAIN VARIABLES USED TO ESTIMATE DEGREE OF COMPLIANCE WITH DIRECTIVE 91/271/EC (2009)

2009	Load (p-e)	No Aglomerations	Pollutant load compliance (p-e)	Pollutant load compliance %	No Aglomerations compliance	Aglomerations compliance %	Pollutant load no compliance (p-e)	Pollutant load no compliance %	No Aglomerations no compliance	Aglomerations no compliance %
TOTAL ESPAÑA	68,772,103	2,320	56,931,125	83%	1,253	54%	11,840,978	17%	1.067	46%

Notes: UA: urban agglomerations

Source: MARM.

NOTES

- Directive 91/271/EEC, of the Council, of 21 May 1991, concerning urban wastewater treatment, amended by Directive 95/15/EC, of the Commission, of 27 February 1998, is intended to protect the environment against deterioration caused by urban wastewater discharges from urban agglomerations and by biodegradable wastewater discharges from the agri-food industry. In addition to being transposed into law in each Member State, the Directive also imposed an obligation for wastewater to be collected using sewerage systems, for areas to be defined as sensitive and less sensitive, and for an implementation programme to be produced. In Spain, this programme took the form of the National Sewerage and Wastewater Treatment Plan 1995–2005, approved in a Resolution of 28 April 1995. Its aims were continued by the National Water Quality, Sewerage and Treatment Plan 2007–2015 approved by the Council of Ministers in June 2007.
  Key definitions include the following:
  - Population equivalent (p.e.): biodegradable organic load with a 5-day Biochemical Oxygen Demand (BOD_5) of 60 g of oxygen per day.
  - Urban agglomeration: area with a population and/or economic activities of sufficient concentration to justify collection of urban wastewater and transport of the same to a treatment facility or final discharge point.
  - Urban wastewater: domestic wastewater or a mixture thereof with industrial wastewater and/or rain run-off.
  - The pollutant load, or population equivalent, to be treated in urban agglomerations is established by: permanent population, seasonal population (which increases demand and pollutant load to be treated in areas, mainly on the coast, with a major tourist industry) and pollution from industry and farms connected to the urban sewerage system.

SOURCES

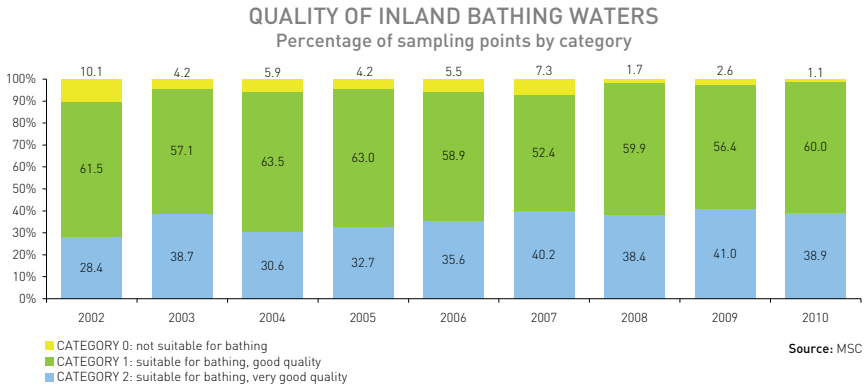
- Data provided by the Directorate-General for Water, Sub-Directorate-General for Infrastructure and Technology. MARM.

FURTHER INFORMATION

- http://www.marm.es
- http://water.europa.eu/en/welcome

Quality of inland bathing waters

Inland bathing water quality continued to increase, with just 1.1% of water being classified as not suitable for bathing



In recent years, the quality of inland bathing waters has remained stable with about 60% of waters suitable for bathing being classified as good quality. Bathing waters classified as very good quality have also remained stable at around 40%, while bathing waters classified as not suitable for bathing have decreased dramatically and are now well below the 10% recorded in 2002.

In the 2010 bathing season, the quality of inland bathing waters improved on the previous year, with the percentage of waters not suitable for bathing dropping to 1.1% and the percentage of waters classified as good quality rising to 60%. This increase was due to the decrease in waters not suitable for bathing, and to the percentage of waters classified as very good quality falling to 38.9%.

In compliance with reporting obligations set by the EU and other international bodies, the Spanish Ministry of Health, Social Policy and Equality created the National Bathing Water Information System (NAYADE). This is a health and environmental information system that collects data from inland and coastal beaches in Spain to monitor bathing water quality. Since January 2008, this data has been published on the Internet. The aims in creating the NAYADE include giving citizens access to information on bathing zones and the quality of bathing waters; facilitating co-ordination of hygiene monitoring programmes to prevent possible health risks associated with bathing waters; and complying with the reporting obligations set by the EU and other international bodies.

NOTES

- In accordance with the terms of Directive 76/160/EEC, concerning the quality of bathing water, the Ministry of Health, Social Policy and Equality submits an Annual Summary Report of Bathing Water Quality in Spain to the European Commission. This describes the key findings of hygiene monitoring of such waters carried out by regional governments and the Autonomous Cities of Ceuta and Melilla in accordance with Royal Decree 734/88 of 1 July.
- On 15 February 2006, the new Bathing Water Quality Directive (2006/7/EC) was approved. Among other aspects, this Directive modifies the current bathing water classification system, establishing four assessment categories (excellent, good, sufficient and poor), reducing the number of parameters considered and defining water quality at each point using a three-year average. This Directive was transposed into Spanish law by Royal Decree 1341/2007.
- Under the new Directive, classification should be performed using data from the current season together with the data for the last three years. The new classification is as follows: poor, sufficient, good and excellent. However, classification in accordance with the new categories cannot be carried out until the 2011 bathing season, when it will also include the data for the previous three years (2008, 2009 and 2010). Therefore, the European Commission, via the Committee for the Adaptation to Technical Progress of Directive 2006/7/EC, established a transitional period in which the previous classification will be used. This will be adapted to the current parameters and will add measurement of faecal coliforms to that of *Escherichia coli* and measurement of faecal streptococci to that of intestinal enterococci.
- The Hygiene Classification of Bathing Water at Sampling Point follows the criteria below:
- CATEGORY 2: Water suitable for bathing, very good quality. Such water simultaneously meets the following conditions:
  1. At least 95% of samples must not exceed the mandatory value for *Escherichia coli*.
  2. At least 80% of samples must not exceed the guide value for *Escherichia coli*.
  3. At least 90% of samples must not exceed the guide value for intestinal enterococci.
- CATEGORY 1: Water suitable for bathing, good quality. Such water meets condition 1) of Category 2, but not conditions 2) and/or 3) of Category 2.
- CATEGORY 0: Water not suitable for bathing. Such water does not meet condition 1) of Category 2.

SOURCES

- Data provided by the Sub-Directorate-General for Environmental Health and Health and Safety at Work. Ministry of Health, Social Policy and Equality.

FURTHER INFORMATION

- **http://nayade.msc.es/Splayas/home.html**
- **http://ec.europa.eu**

2.3 LAND

Changes in land cover between 2000 and 2006 are due in part to Spain's economic and social development over that period. Data supplied by the Corine Land Cover (CLC) survey in 2006 clearly show how in Spain — and, by extension, in Spain's autonomous communities and cities — there was a significant increase in artificial surfaces. This increase in relation to data from the CLC 2000 survey is particularly pronounced in coastal areas, where there was an 11% rise in artificial surfaces within 10 kilometres of the coast and an 8% rise within 1 kilometre of the coast.

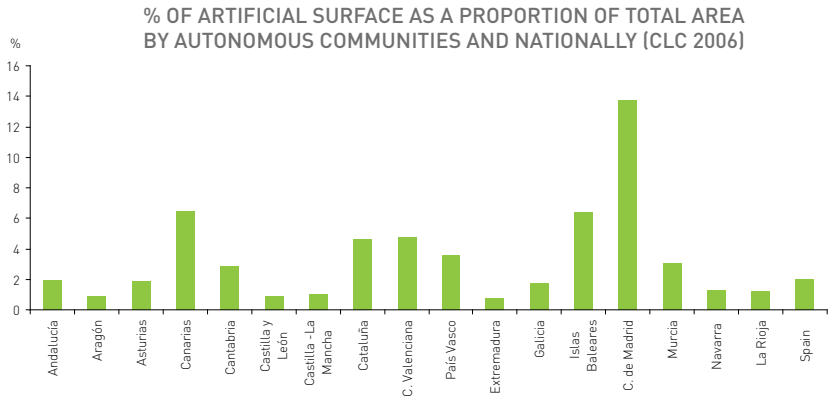
Soil is one of the environmental media most sensitive and vulnerable to pollution. In relation to the declaration of land as contaminated, Royal Decree 9/2005 of 14th January establishes a list of potentially soil-polluting activities and the criteria for classifying land as contaminated, as well as a series of obligations to be fulfilled by those engaging in potentially soil-polluting activities. To this end, and following the guidelines established in the legislation, Spain's regional governments continue to receive Preliminary Situation Reports from companies as a first step in the process.

The National Soil Erosion Inventory was again updated in 2010. This year's survey has added data on areas at risk from erosion in the provinces of Leon, Valladolid and Zamora.

INDICATOR	GOAL	TREND
Land cover: artificial surfaces	Achieve sustainable land use	In 2006, artificial surfaces did not exceed 2% of Spain's land area
Artificial surfaces along the coast	Ease pressure on coastal ecosystems	Artificial surfaces accounted for 22% of total land area within 1 km of the coast
Contaminated land	Eliminate pollution that represents an unacceptable hazard to human health and ecosystems	Companies continue to submit Preliminary Situation Reports to regional governments
Area affected by erosion	Achieve hydrological and forest restoration	Work continues on the National Soil Erosion Inventory

Land cover: artificial surfaces

Between the CLC 2000 and the CLC 2006 surveys, the area covered by artificial surfaces increased in all of Spain's autonomous communities, as well as in its two autonomous cities



Source: Information compiled by the MARM from data provided by IGN

According to the Corine Land Cover 2006 survey, artificial surfaces covered 2% of Spain's total land area, while in Europe they accounted for 4% of the total. As the graph above shows, this percentage varies greatly according to autonomous community. Due to their particular characteristics, the autonomous cities of Ceuta and Melilla had the greatest proportion of artificial surfaces — in Melilla, 54% of the land area (739 ha) was covered by artificial surfaces. In Ceuta, artificial surfaced accounted for 37% (766 ha) of the city's total land area.

Of the other autonomous communities, Madrid had the highest proportion of artificial surfaces (13.7%; 110,249 ha), followed by the Canary Islands (6.5%; 49,887 ha) and the Balearic Islands (6.4%; 32,258 ha).

Meanwhile, the autonomous communities with the lowest percentage of artificial surfaces were Extremadura (0.7%; 29,764 ha); Aragon (0.8%; 40,260 ha); and Castile-Leon (0.9%; 80,294 ha).

The CLC 2000 and CLC 2006 data reveal that there was a 15% increase (138,290 ha) in artificial surfaces in Spain between the two surveys. During that period, the amount of artificial surface increased in all of Spain's autonomous communities, including the two autonomous cities.

NOTES

The CLC surveys identify linear elements with a minimum width of 100 m. The minimum mappable unit in the CLC surveys is 25 ha. Updates included in the CLC 2006 survey have enabled creation of the CLC 2000–2006 changes database as an independent product (minimum images unit: 5 ha). In Spain, the base year for most of the data is 2005. However, in the particular case of Navarre, mages from 2006 have been used.

In CLC 2006, artificial surfaces comprise the following categories:

- 1.1 Urban fabric
  - Continuous urban fabric
  - Discontinuous urban fabric
- 1.2. Industrial. commercial and transport units
  - Industrial or commercial units
  - Road and rail network and associated land
  - Port areas
  - Airports
- 1.3. Mine, dump and construction sites
  - Mineral extraction sites
  - Dump sites
  - Construction sites
- 1.4. Artificial non-agricultural vegetated areas
  - Green urban areas
  - Sports and leisure facilities

SOURCES

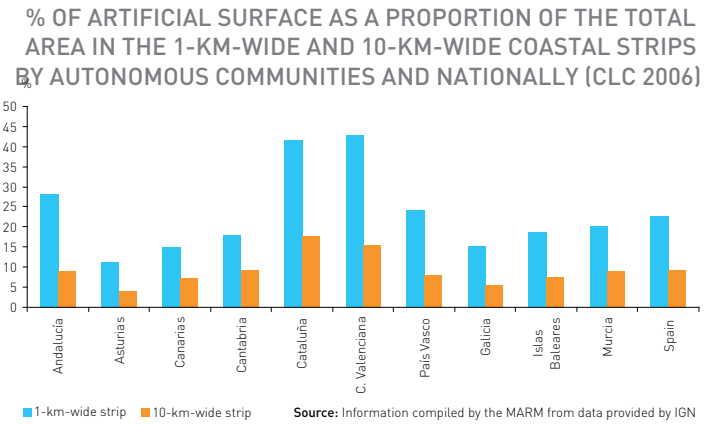
- IGN, MF. Corine Land Cover 1990, 2000 and 2006.
- EEA.

FURTHER INFORMATION

- **http://www.fomento.es**
- **http://www.marm.es**
- **http://www.eea.europa.eu/data-and-maps/figures/share-of-land-cover-types**

Artificial surfaces along the coast

The proportion of artificial surfaces on the coastal strip varies considerably from one autonomous community to another



On a national level, artificial surfaces accounted for 22.6% of the total area within one kilometre of the coast. This strip includes the autonomous cities of Ceuta and Melilla, in which artificial surfaces, because of the small size of the territory they occupy, cover a high proportion of their land area.

In Spain's coastal autonomous communities, artificial surfaces accounted for a higher percentage of the first kilometre from the shore than they did in the 10-km-wide strip. This figure reflects higher population concentration and, therefore, a higher percentage of artificial surfaces within one kilometre of the coast. The autonomous communities with the highest percentages of artificial surface on the coastal strip were Valencia, with 42.9% (18,566 ha) within the 1-km-wide strip and 15.2% (60,966 ha) within the 10-km-wide strip; Catalonia, with 41.7% (20,813 ha) and 17.9% (69,730 ha), respectively; and Andalusia, with 28.2% (28,871 ha) and 9.1% (65,288 ha), respectively.

Data on artificial surface area from the CLC 2000 and CLC 2006 surveys show how artificial surfaces in Spain as a whole increased at a higher rate within the 10-km-wide coastal strip (11.2%) than within the 1-km-wide strip (7.9%).

SOURCES
•Corine Land Cover 2000–2006. IGN, MF.

FURTHER INFORMATION
• http://www.fomento.es
• http://www.marm.es

Contaminated land

By 2009, regional governments had received a total of 67,307 Preliminary Situation Reports

PRELIMINARY SITUATION REPORTS RECEIVED BY REGIONAL GOVERNMENTS UP TO 2009

Andalusia	11,130	Rioja	1,005
Aragon	2,700	Madrid	5,824
Cantabria	1,299	Murcia	2,326
Castile-Leon	8,308	Navarre	1,125
Catalonia	7,825	Basque Country	4,400
Extremadura	2,070	Asturias	1,545
Galicia	10,850	Valencia	5,200
Balearic Islands	1,700	TOTAL	67,307

Source: MARM and regional governments

According to Royal Decree 9/2005 of 14 January, which establishes a list of potentially soil-polluting activities and the criteria for classifying land as contaminated, those engaging in potentially contaminating activities (as defined in Annex I) and/or those that meet the criteria set out in Article 3, must present a Preliminary Situation Report to the competent authority in the corresponding autonomous community. By 2009, a total of 67,307 reports had been submitted, with Andalusia and Galicia each receiving over 10,000 reports.

Submission of a Preliminary Situation Report constitutes the first step in complying with the obligations established under RD 9/2005. After receiving these reports, the competent authorities within the autonomous communities may require submitters to provide any further information deemed necessary. According to the information received, they may then classify the land as contaminated according to the particular form of use.

Once an area of land is declared contaminated, remediation of that site must take place. Remediation should be carried out by applying the best available techniques according to the characteristics of each individual case. Remediation should guarantee a permanent solution, prioritising to the extent possible the use of *in situ* treatment techniques that minimise waste generation, transport and disposal. Sites classified as contaminated are recorded as such in Spain's Property Register and a note is added describing their characteristics.

Once decontamination and remediation have been completed, and after verification of the effectiveness of the treatment, an administrative ruling is issued declassifying the site as contaminated.

Most of Spain's autonomous communities have played an active role in dealing with contaminated land and, working in accordance with the procedures set out in RD 9/2005, are developing their own legislation to regulate specific procedures, requirements, obligations and other aspects.

SOURCES
- MARM. Sub-Directorate-General for Sustainable Production and Consumption.

FURTHER INFORMATION
- http://www.mma.es/portal/secciones/calidad_contaminacion/suelos/

Area affected by erosion

The National Soil Erosion Inventory allows authorities to identify priority action areas to combat erosion

AREA AFFECTED BY EROSION (%)

AC	Moderate rate of erosion (%)	Intermediate rate of erosion (%)	High rate of erosion (%)
Cantabria	59.91	22.39	17.70
Asturias	61.92	21.67	16.42
Navarre	65.64	18.79	15.57
Murcia	66.41	18.13	15.46
Rioja	65.84	20.43	13.72
Galicia	74.34	13.06	12.61
Balearic Islands	76.62	13.69	9.70
Madrid	81.28	10.89	7.83
Catalonia	54.41	24.86	20.74
Extremadura	83.75	9.81	6.44
Canary Islands	69.25	21.86	8.89
Andalusia	57.61	19.76	22.63
Valencia	70.12	16.04	13.83
Castile-Leon*	87.93	9.35	2.72

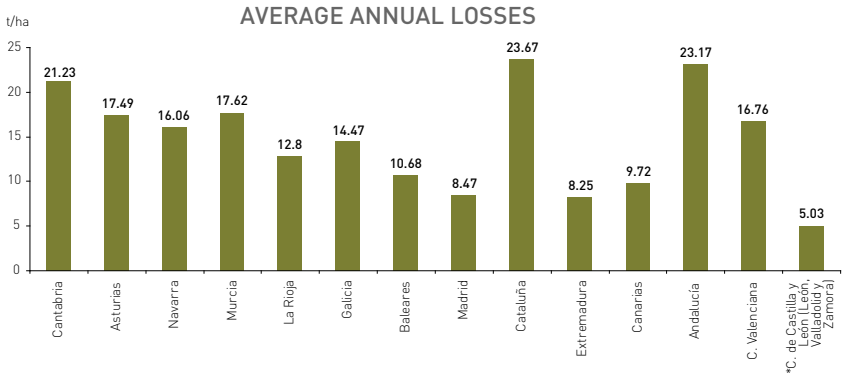
*The data for Castile-Leon refer to the provinces of Leon, Valladolid and Zamora and the percentage has been calculated in relation to the total for these three provinces.

Source: MARM

The National Soil Erosion Inventory seeks to detect, quantify and reflect cartographically the main erosion processes under way within Spain's national territory and to identify changes in these processes over time by carrying out an ongoing inventory. The project, which was launched in 2001, is expected to come to a close in 2012. One of its main objectives is to locate, quantify and analyse changes in erosive phenomena in order to delineate areas requiring priority action in the fight against erosion, as well as to define and evaluate the actions carried out.

In 2010, data for the provinces of Leon, Valladolid and Zamora in Castile-Leon were added to the inventory. The figures represent the percentage of land area affected by varying degrees of erosion in relation to the autonomous community's total land area (see notes for further details). The only exception is Castile-Leon, for which the figure represents the percentage of land area affected by varying degrees of erosion within the aforementioned three provinces (Leon, Valladolid and Zamora) in relation to their total land area. The data presented in this chapter on area affected by sheet, rill and gully erosion were collected in studies conducted between 2002 and 2010.

The National Soil Erosion Inventory, which uses a 1:50,000 scale, involves both field work that improves application of the RUSLE model and study of other types of erosion (riverbank, gully, deep and wind erosion). Thus, compared to similar projects in which sheet and rill erosion are studied in other European countries, the National Soil Erosion Inventory adopts an innovative approach and provides a highly detailed picture of the state of erosion in Spain. As such, the Inventory constitutes a methodological model for studies of this type throughout Europe.



*The data shown for Castile-Leon refer to the provinces of Leon, Valladolid and Zamora

Source: MARM

NOTES

- The erosion considered in this indicator is that known as "sheet, rill and gully erosion". The percentages of surface area stated refer to the proportion of the total geographical area of each autonomous community affected by erosion. The area affected by erosion is that considered likely to suffer from erosion processes and is calculated by deducting artificial surfaces, surface water bodies and wetlands from the total geographical area.
- The National Soil Erosion Inventory groups the results of calculated soil loss due to sheet, rill and gully erosion into the following categories:

1: 0–5 t/ha/year	5: 50–100 t/ha/year
2: 5–10 t/ha/year	6: 100–200 t/ha/year
3: 10–25 t/ha/year	7: >200 t/ha/year
4: 25–50 t/ha/year	

- In the indicator, 'Moderate' soil loss is defined as 0–10 t/ha/year, 'Intermediate' as 10–25 t/ha/year, and 'High' as over 25 t/ha/year.
- The Inventory is divided into five sections according to the various types of erosion:
  - Sheet, rill and gully erosion: quantitative estimate of soil loss, performed by applying the RUSLE model.
  - Gully erosion: identification and demarcation of affected areas.
  - Deep erosion (mass movements): identification of areas potentially at risk and qualitative classification.
  - Bank erosion: qualitative classification of hydrological units according to their susceptibility to torrential phenomena in their drainage basins.
  - Wind erosion: identification and classification of areas potentially at risk.

SOURCES

- National Soil Erosion Inventory, 2002–2012. Secretariat-General for the Rural Environment. Directorate-General for the Natural Environment and Forestry Policy. MARM.

FURTHER INFORMATION

- http://www.marm.es

2.4 NATURE AND BIODIVERSITY

Ecosystems, which are part of our natural heritage, provide essential services for human development. Conserving and managing them properly are fundamental to achieving environmentally sustainable social and economic development. Protection and conservation of the environment and nature require co-ordinated global measures.

The IPCC (Intergovernmental Panel on Climate Change) presents a concerning outlook as regards the future conservation of numerous species of fauna and flora. The studies it has commissioned indicate that between 20% and 30% of the plant and animal species assessed to date would be at a higher risk of extinction if the global temperature were to increase by over 1.5–2.5 ºC.

2010 was a key year for the Convention on Biological Diversity (CBD). The United Nations declared it International Year of Biodiversity and held several major events and meetings, among them the conference titled 'Post-2010 Biodiversity Vision and Target – The Role of Protected Areas and Ecological Networks in Europe', which took place during the Spanish Presidency. The programme concluded with the 10th Conference of the Parties (COP) to the Convention on Biological Diversity, held in Nagoya, Japan. During this conference in Nagoya, far-reaching agreements were made, particularly on the post-2010 biodiversity targets.

Among other important initiatives, the Spanish Committee of the International Union for Conservation of Nature (IUCN) launched the International Year of Biodiversity project as part of the UN International Year of Biodiversity.

Coinciding with the International Year of Biodiversity, the IUCN Spanish Committee organised voluntary activities to raise public and political awareness about the

INDICATOR	GOAL	TREND
Protected areas	Increase and conserve the area protected to preserve Spain's natural wealth	Protected areas now account for 27.7% of Spain's total land area
Forest defoliation	Quantify forest defoliation and identify causes	Significant improvement and recovery in woodlands' state of health
Wooded area and other forest formations	Increase the area and quality of woodland and other forest formations	Wooded area in Spain is increasing at a rate of 0.7% per year
Trends in common bird populations	Monitor trends in bird populations in Spain	Populations of common birds in forest environments are still increasing moderately, but populations in agricultural environments are decreasing
Forest reproductive material	Guarantee the origin and quality of forest reproductive material	The Spanish National Catalogue of Basic Material now contains 7,280 units
Environmental monitoring	Prevent damage to the natural environment and reduce environmental offences	Slight increase in the number of criminal and administrative offences

importance of ecosystems and biodiversity and encourage public participation in their conservation.

The indicator measuring the number of threatened species catalogued in Spain suggests that of the taxa considered to be under threat, 76% of the mammals, 25% of the fish, 18% of the amphibians and 10% of the flora are now listed.

According to the indicators in this chapter, protected areas now account for 27.7% of Spain's land area, while forest area is continuing to grow at an average of 0.7% per year and now stands at over 18 million ha.
Forest state of health improved significantly in Spain over the year in both coniferous and broad-leafed forests following the poor results recorded in 2009. However, once again bird populations in agricultural environments declined, mainly due to habitat loss.

This year, a new indicator has been added: forest reproductive material. This is based on the 7,280 units in the Spanish National Catalogue of Basic Material, which guarantees the origin and quality of forest reproductive material. In this edition, the indicator measuring the cataloguing of endangered species in Spain has not been included, as the figures have not changed since previous publications.

Protected areas

In 2010, protected areas accounted for 27.7% of Spain's total land area

PAs AS A PROPORTION OF SPAIN'S TOTAL AREA (%)

1990	1994	1998	2001	2003	2004	2005	2007	2008	2009	2010
4.38	5.75	7.34	7.90	8.80	8.93	9.16	9.22	11.63	11.70	11.90

Source: MARM

PROTECTED AREA BY PROTECTION CATEGORY (2010)

PROTECTED AREA	PAs & NATURA 2000 NETWORK	PAs	NATURA 2000 NETWORK
Terrestrial (ha)	14,001,442.48	6,019,645.48	13,733,332.01
Marine (ha)	1,088,259.88	267,736.64	1,048,879.18
Total (ha)	15,089,702.36	6,287,382.12	14,782,211.19
Terrestrial area protected (%)	27.66	11.89	27.13

Source: MARM.

In 2010, Spain had 1,542 Protected Areas (PAs) covering an overall area (terrestrial and marine) of 6,287,382 ha — 11.9% of the country's total territory.

Adding the area in the Natura 2000 network to that in PAs reveals that 27.7% of Spain's total area was protected in 2010. It should be noted that part of the area designated as PA also forms part of the Natura 2000 network. Consequently, adding the two totals together does not produce the total area protected (duplicated areas should first be removed when calculating the total protected area).

The Natura 2000 network, which is made up of Sites of Community Importance (SCIs) and Special Protection Areas (SPAs) for wild birds, rose to 27.1% of Spain's total land area in 2010.

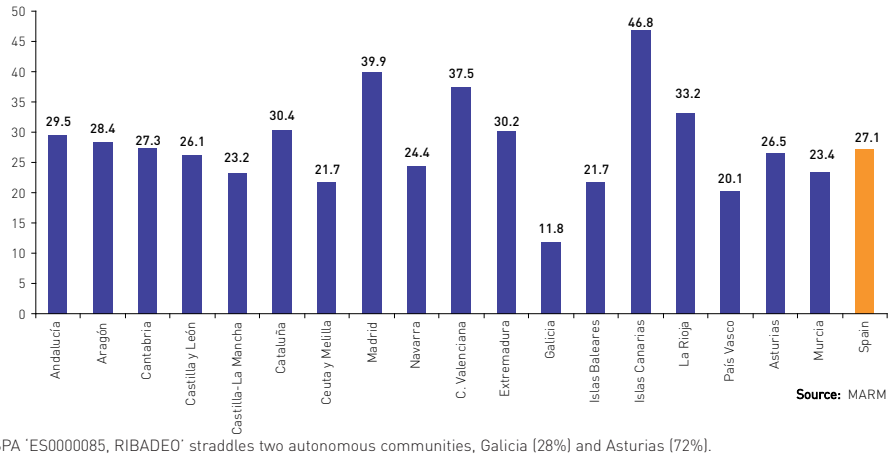
On 31 December 2010, Spain had 1,446 SCIs (11 more than the previous year) covering a total area of 12,622,994.2 ha (11,592,488.6 terrestrial ha and 1,030,505.6 marine ha). These accounted for 22.9% of the country's total land area.

A new Special Protection Area for wild birds was established in 2010, bringing the total number of SPAs as at 31 December 2010 to 595. These SPAs' total area now stands at 10,360,369.2 ha, of which 10,076,015 ha are terrestrial and 284,354.2 ha are marine. 19.9% of Spain's total land area is now covered by this protection category.

It is important to recall that adding together the areas designated as SCIs and SPAs does not produce the total area covered by the Natura 2000 network, as these two categories overlap.

The autonomous communities with most land area protected by the Natura 2000 network are also the biggest ones — Andalusia, Castile-Leon and Castile-La Mancha. Nevertheless, the Canary Islands (46.8% of its area), Madrid (39.9%) and Valencia (37.5%) were the autonomous communities with the greatest percentage of land area included in the Natura 2000 network. In contrast, those with the lowest percentages were Galicia (11.8%), the Basque Country (20.1%), the Balearic Islands (21.7%) and Castile-La Mancha (23.2%).

NATURA 2000 NETWORK AS PROPORTION OF TOTAL AREA 2010 (%)



Note: SPA 'ES0000085, RIBADEO' straddles two autonomous communities, Galicia (28%) and Asturias (72%).

NOTES

- The Natura 2000 network is a European network of biodiversity conservation areas. It includes Special Areas of Conservation (SAC), designated in accordance with the Habitat Directive (Directive 92/43/EEC), and Special Protection Areas (SPA), established under the terms of the Birds Directive (Directive 2009/147/EEC). Its purpose is to ensure the long-term survival of Europe's most endangered species and habitats, thereby helping to halt biodiversity loss resulting from adverse human impact. Establishment of an SAC requires completion of a process of application and approval that begins with proposal of an SCI by a Member State. Following assessment of the application by the EU, the area may then be declared an SAC.
- Spanish legislation (Law 42/2007, of 13 December 2007, on natural heritage and biodiversity) defines PAs as."... areas within Spain's national territory, including inland and marine waters (...) that meet at least one of the following requirements and are declared as such:
  a) Contain natural elements or systems that are representative, unique, fragile, endangered or of special ecological, scientific, scenic, geological or educational interest.
  b) Are specifically intended to protect and preserve biological diversity, geodiversity and associated natural and cultural resources."

SOURCES

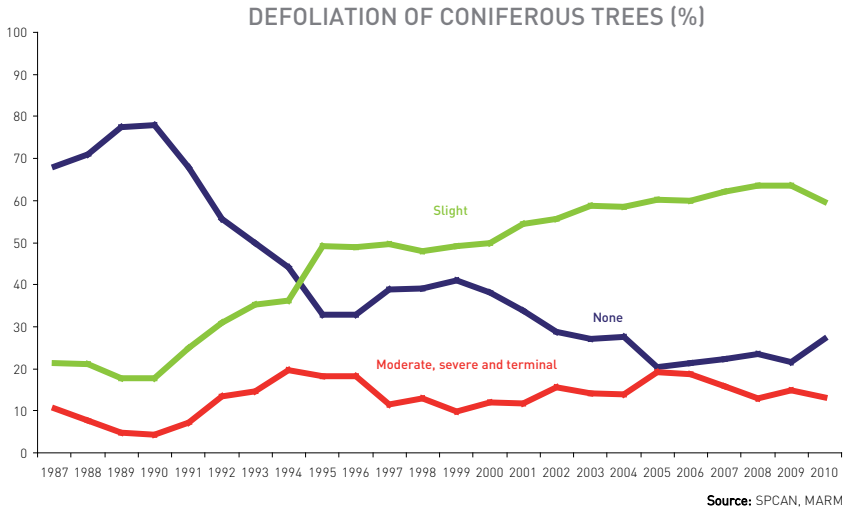
- PAs: Nature Database. Sub-Directorate-General for the Natural Heritage and Biodiversity Inventory. Directorate-General for the Natural Environment and Forestry Policy. MARM.
- Natura 2000 network. Sub-Directorate-General for Biodiversity. Directorate-General for the Natural Environment and Forestry Policy. MARM.

FURTHER INFORMATION

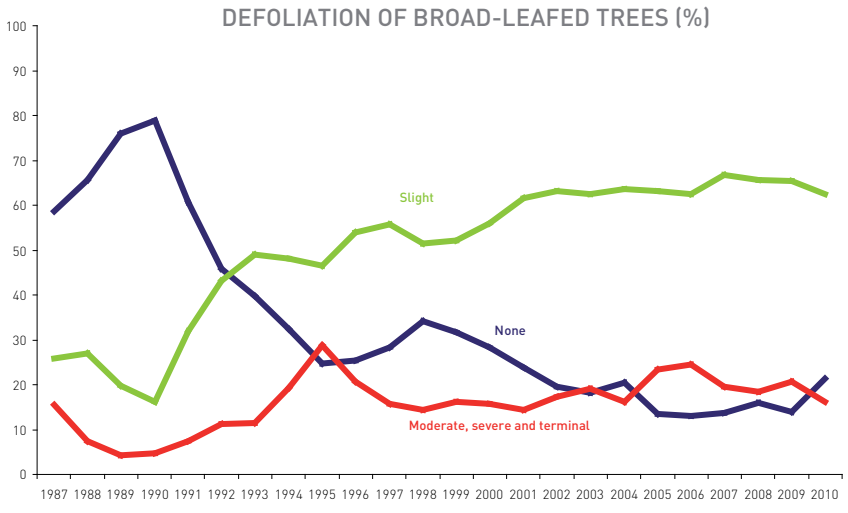
- **http://www.marm.es**

Forest defoliation

In 2010, woodlands' general state of health improved, recovering significantly in comparison with 2009



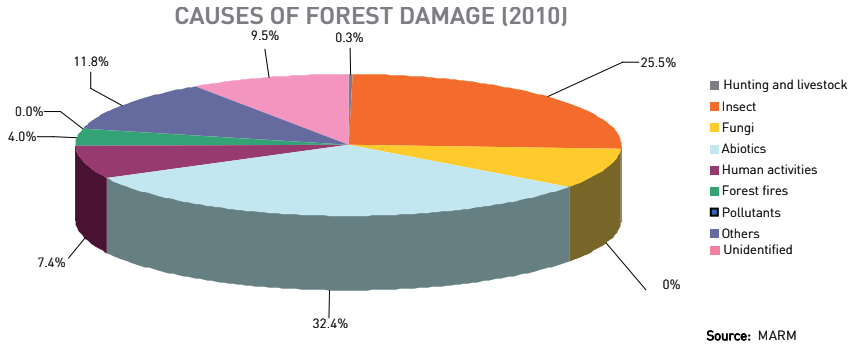
Source: SPCAN, MARM



Source: SPCAN, MARM

Analysis of Spain's Level I points on the European Forest Damage Monitoring Network shows that the general state of the country's forests improved in comparison with previous years. There was a general increase in the percentage of measurements showing no or slight defoliation (healthy woodland), together with a decrease in the percentage showing moderate, severe or terminal defoliation. This improvement was less pronounced in coniferous trees than in broad-leafed trees. There was also an

increase in the percentage of dead woodland as a result of preventive felling and forestry, followed by abiotic damage and damage by bark beetle (*Scolytidae*).



There was a decrease in woodland killed directly by insects, and an increase in dead woodland due to abiotic damage. The trees in question are likely to be have been those weakened by the 2009 drought.

NOTES

- Forest defoliation is the process by which a plant species loses its leaves as a result of pathological or climatic stress that provokes premature or abnormal leaf fall. The degree of forest defoliation indicates forests' state of health. It is analysed in terms of foliage loss from the tree crown at a series of sampling points. The results are classified into the following categories:

Loss of needles/leaves	Degree of defoliation
0–10%	None
> 10-25%	Slight
> 25%	Moderate, severe and terminal

- Under the International Co-operative Programme on the Assessment and Monitoring of Air Pollution Effects on Forests, the Level I network is an international large-scale systematic network consisting of over 5,700 monitoring points distributed on a 16x16-km grid covering all of Europe. It was set up in 1986 from a random start point. This network annually analyses forest health and assesses the main factors that have a negative impact on the same. The number of sampling points in the Spanish Network currently stands at 620. Furthermore, and within the framework of the previous Forest Focus EC Regulation and the current Life+ financial instrument (FutMon Project), its design allows for monitoring of other issues, such as the effects of climate change on forests, sustainable management and preservation of forest biodiversity.

SOURCES

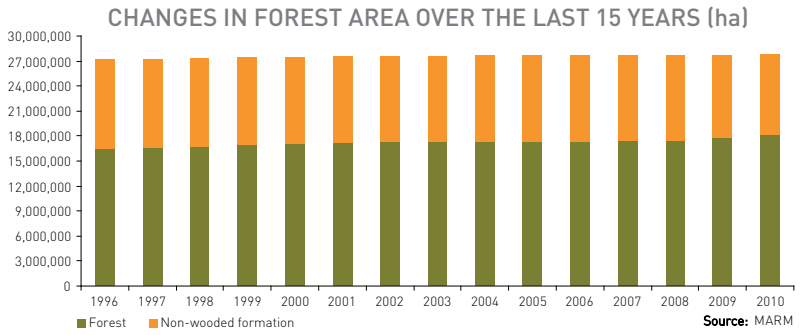
- Service for Protection of Forests Against Harmful Agents (SPMCAN). Directorate-General for the Natural Environment and Forestry Policy. MARM.

FURTHER INFORMATION

- *Anuario de Sanidad Forestal 2009*. Service for Protection of Forests Against Harmful Agents (SPMCAN). Directorate-General for the Natural Environment and Forestry Policy. MARM, 2010.
- **http://www.marm.es**
- **http://www.icp-forests.org**
- **http://www.futmon.org**

Wooded area and other forest formations

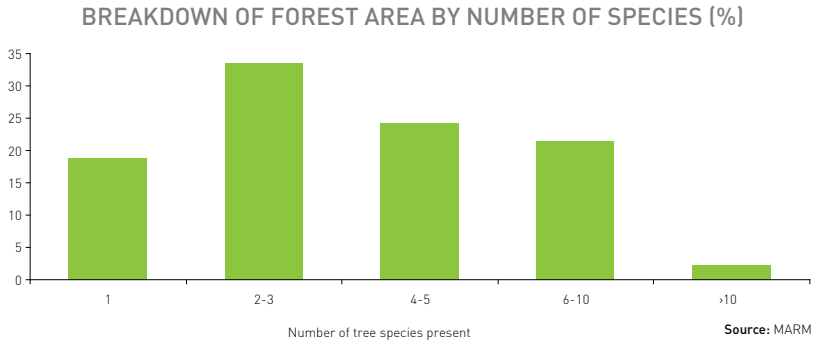
Spanish forests increased by 0.7% per year over the last decade



Spain's forest area, comprising woodland and other non-wooded forest formations, covers over 27.5 million ha, 55% of Spain's total land area.

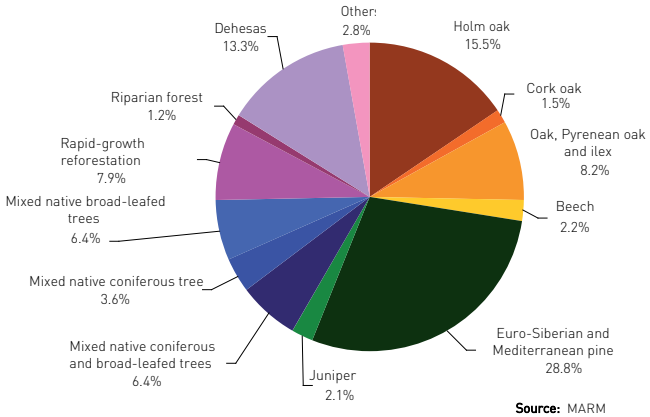
Total wooded area in 2010 stood at over 18 million hectares, or 0.39 ha per resident. In the last decade (2001–2010), forests grew by 0.7% per year, producing an average annual increase of 118,500 ha. The rise is mainly due to a reduction in agriculture and livestock farming, afforestation of agricultural land and reforestation of non-wooded forest areas.

The diversity of Spain's forests can be seen in the quantity of species and in the variety of wooded formations. According to data from the Third Spanish National Forest Inventory (IFN3), over 80% of forests contain two or more species of tree.



In terms of forest variety in Spain, according to the Forest Map of Spain (MFE50), holm-oak wood is the most common formation. Without including the area covered by *dehesas* (grasslands with scattered oak trees), holm-oak woods occupy 2.8 million ha (15.5% of the country's total forest area). The most frequent conifer formation is Aleppo-pine wood (*Pinus halepensis*), which covers 2 million hectares and accounts for just over 11% of the total forest area.

BREAKDOWN OF WOODED FORMATIONS (%)



Source: MARM

The results of the IFN3 show that forest area is increasing in all Spain's Autonomous Communities.

NOTES

- Started in 1966, the Spanish National Forest Inventory is a statistical survey designed to generate the most comprehensive information possible on Spain's woodland. It operates at provincial level and, as a continuous inventory, the same measurements are taken across the whole country every 10 years. The Forest Map is the cartographic basis of the IFN and is produced with the same frequency.
- The Second Spanish National Forest Inventory (IFN2) was taken between 1986 and 1996. The Third Spanish National Forest Inventory (IFN3) was taken between 1997 and 2007, as was the MFE50. The Fourth National Forest Inventory (IFN4) and the creation of the Spanish Forest Map 1:25,000 (MFE25) are currently under way.
- According to international criteria, forest is considered wooded area in which the forest cover fraction is greater than 10%.

SOURCES

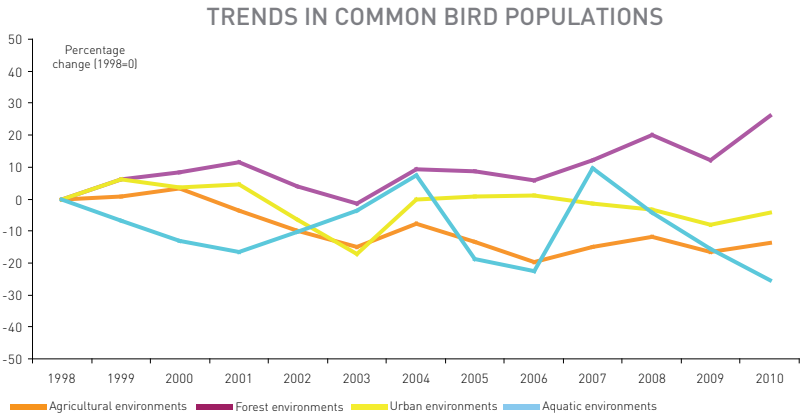
- Spanish National Forestry Inventory and Forest Map of Spain. Sub-Directorate-General for the Natural Heritage and Biodiversity Inventory. Directorate-General for the Natural Environment and Forestry Policy. MARM.

FURTHER INFORMATION

- **http://www.marm.es/portal/secciones/biodiversidad/inventarios/ifn**

Trends in common bird populations

The moderate increase in bird populations in forest environments was maintained, while populations in agricultural environments continued to decline



Source: MARM and SEO/BirdLife

Trends in populations of common birds have been monitored in Spain since 1998. A standardised census methodology is used to obtain demographic data on over 100 species of reproductive birds throughout Spain. Information on each species is collected and, by grouping together species with common characteristics, such as presence in a particular environment, it is possible to produce trend indicators. As birds are excellent biomarkers, analysis of this data provides valuable information with which to assess trends in Spain's most important ecosystems and, subsequently, to assess the country's biodiversity.

The main results observed over the 1998–2010 period are as follows:

Environment	Trend	Classification
Agricultural environments	-1.1	Moderate decline
Forest environments	2.1	Moderate increase
Wetland environments (Passeriformes only)	-0.3	Stable
Urban environments	-0.5	Stable

Analysis of bird populations by the type of environment they inhabit reveals that urban bird populations and those of Passeriformes in aquatic environments remained similar to previous year's figures.

Forest bird populations maintained the moderate growth recorded in previous years in both Mediterranean (sclerophyllous) and Euro-Siberian forests (deciduous).

However, bird populations in agricultural environments continued to show a negative trend, recording a moderate and statistically significant decline. This indicates that the causes of these trends remain in place. These causes include intensification and homogenisation of agricultural environments due to loss of traditional forms of land use; fragmentation and alteration of natural steppes; and pollution due to excessive use of pesticides and fertilisers. Maintaining the extensive biodiversity found in agricultural environments continues to mean addressing serious conservation issues. Mainstreaming biodiversity conservation into the activities performed by this prominent productive sector in Spain is imperative.

Finally, analysis of other aggregated indices shows that populations of common sedentary and migratory sub-Saharan birds remained stable, while those of trans-Saharan migratory birds increased slightly. Analysis by diet shows that populations of insectivorous birds remained stable, whilst those of granivorous birds experienced moderate decline, as in 2009.

NOTES

- The trend indicators employed are used internationally within the framework of the Convention on Biological Diversity and have been adopted by the European Union in its SEBI 2010 programme to assess compliance with its target for 2010 (i.e. halting biodiversity loss within the EU and slowing it globally by 2010). They will continue to be used for the post-2010 goals established.
- To monitor bird populations, a 10x10-km UTM grid has been set up across the Iberian Peninsula and Balearic Islands and samples are taken annually within each unit. There are over 800 squares within the grid, covering 14–15% of Spain's territory.
- The system monitors populations of the most common species (i.e. not those that are subject to specific censuses or monitoring).
- The bird populations monitored by this indicator are grouped as follows:

By environment inhabited	Urban environments	
	Forest environments	Euro-Siberian
		Mediterranean
	Agricultural environments	Cereals
		Northern
		Wooded
	Aquatic environments	
By migratory behaviour	Sedentary birds	
	Migratory birds	Sub-Saharan
		Trans-Saharan
By diet	Granivorous birds	
	Insectivorous birds	

SOURCES

- Sub-Directorate-General for Biodiversity. Directorate-General for the Natural Environment and Forestry Policy. MARM, 2010.
- SEO/BirdLife, 2010.

FURTHER INFORMATION

- **http://www.seo.org**
- **http://www.marm.es**

Forest reproductive material

The number of units in which forest reproductive material of guaranteed quality and origin can be obtained totalled 7,280,111 more than the previous year

The Spanish National Catalogue of Basic Material is a register managed by the Ministry of the Environment and Rural and Marine Affairs. It categorises the selected stands, seed sources, seed orchards and clones that constitute the basic materials, or units of approval, authorised by Spain's regional governments.

NUMBER OF NEW UNITS OF APPROVAL IN THE SPANISH NATIONAL CATALOGUE OF BASIC MATERIAL

Source: MARM

In these units of approval, forest reproductive material (seeds, fruits and parts of plants) is gathered and used for reforestation of the country's main forest species. Certified production and commercialisation of these materials are regulated by Royal Decree 289/2003, on the sale of forest reproductive material.

The Catalogue's main objective is to guarantee the origin and quality of forest reproductive material and so, based on the characteristics of the area where the reforestation trees will be planted, help users select species from appropriate origins.

In 2010, 111 new units were added to the Catalogue. After subtracting the units withdrawn, the total number stood at 7,280 units, 0.7% more than the previous year.

The breakdown of the units of approval by type and category is shown in the following table:

Type of basic material	Category	Nº units of approval (2010)	Land area* (ha) of the units of approval
Seed sources and stands	Identified	6,803	5,183,212.56
Selected stands	Selected	324	17,773.48
Seed orchards	Qualified	21	95.65
	Monitored	2	
Parents of families	Qualified	27	Not quantifiable in terms of area
	Monitored	4	
Clones	Qualified	55	
	Monitored	44	
TOTAL		7,280	5,201,081.69

*It should be noted that the areas included in the calculations sometimes overlap other areas containing different species. Also, entire municipal districts are sometimes registered, even though their land area may not coincide fully with that of the forest.

Of the total number, 6,803 units of approval are categorised as identified (seed sources and stands), 324 as selected (selected stands), 103 as qualified and 50 as monitored. These units of approval occupy over 5 million hectares, approximately 28% of Spain's total wooded area.

NOTES

- Basic material comprises populations, plantations and clones from which are obtained forest reproductive material (seeds and plants) used in reforestation. The approved types of basic material, as per Royal Decree 289/2003 of 7 March, on the sale of forest reproductive material, are as follows:
  - –Seed source: Trees within an area from which seed is collected.
  - –Stand: Delineated population of trees possessing sufficient uniformity in composition.
  - –Seed orchard: Plantation of selected clones or families which is isolated or managed so as to avoid or reduce pollination from outside sources, and managed to produce frequent, abundant and easily harvested crops of seed.
  - –Parents of family: Trees used to obtain progeny by controlled or open pollination of one identified parent used as a female, with the pollen of one parent (full-sibling) or a number of identified or unidentified parents (half sibling).
  - –Clone: Group of individuals (ramets) derived originally from a single individual (ortet) by vegetative propagation, for example by cuttings, micropropagation, grafts, layers or divisions.
  - –Clonal mixture: A mixture of identified clones in defined proportions.
- Management of the Catalogue implies ecological and phenotypic characterisation of each of the approved materials. This task is performed by the Directorate-General for the Natural Environment and Forestry Policy (MARM) in collaboration with regional governments. New basic materials are published in the BOE and form part of the European common catalogue.

SOURCES

- Genetic Material Service. Sub-Directorate-General for Forestry Policy and Desertification. Directorate-General for the Natural Environment and Forestry Policy. MARM. 2010

FURTHER INFORMATION

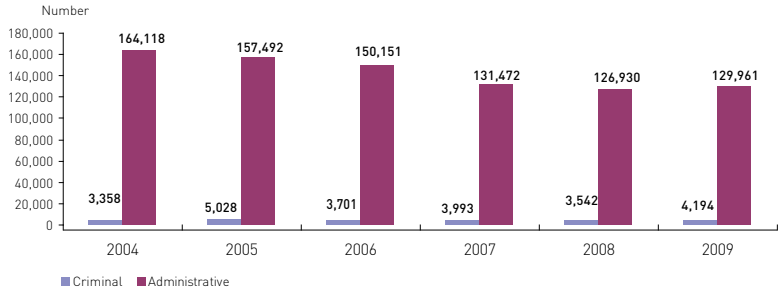
- **http://www.marm.es/es/biodiversidad/temas/montes-y-politica-forestal/recursos-geneticos-forestales/default.aspx**

Environmental monitoring

In 2009, the number of criminal and administrative offences increased slightly

The Nature Protection Service (Seprona) of the Spanish Civil Guard is responsible for enforcing compliance with legislation to conserve Nature and the environment, water resources, game, fish, forests and all other natural and related resources, thereby ensuring appropriate enjoyment of the natural environment while respecting it and preventing its degradation.

ENVIRONMENTAL CASES DEALT WITH BY THE CIVIL GUARD



Note: Only includes action by SEPRONA on environmental offences

Source: Compiled in-house using SEPRONA data

In 2009, Seprona intervened in 134,155 cases, 2.8% more than the previous year. However, this figure is 6.4% less than the average number of offences over the preceding five years. Of the total number of offences, 96.9% were administrative, 2.9% were criminal and the remaining 0.2% were minor.

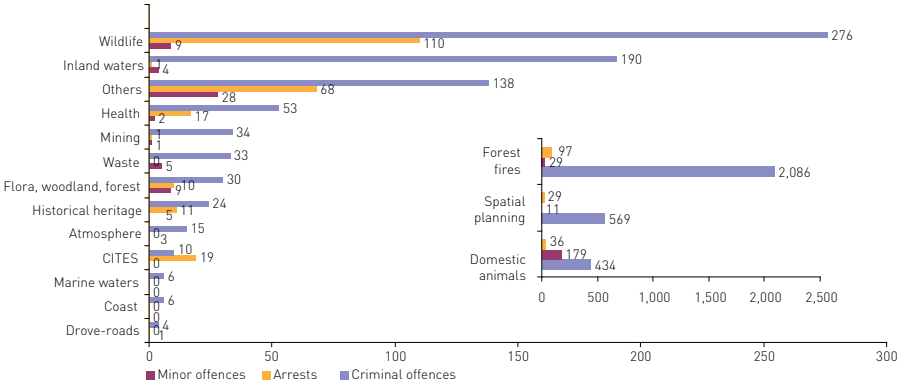
ENVIRONMENTAL CASES DEALT WITH BY SPAIN'S CIVIL GUARD

		2005	2006	2007	2008	2009
Offences	Criminal	5,028	3,701	3,993	3,542	4,194
	Administrative	157,492	150,151	131,472	126,930	129,961
Arrests		883	930	366	330	399

Source: Compiled in-house using SEPRONA data
Note: Only includes action by Seprona on environmental offences.

As in previous years, by type of offence, forest fires accounted for the largest number of cases reported. In 2009, there was a substantial increase in the number of forest-fire offences, which rose by 45.6% on 2008, bringing the total to 2,086.

NUMBER OF ENVIRONMENTAL OFFENCES AND ARRESTS (2009)



Note: "Others" refers to environmental actions not carried out by SEPRONA

Source: Compiled in-house using SEPRONA data

The next-biggest group of offences were spatial-planning crimes, which decreased by 10.9% in 2009 in comparison with the year before.

When assessing the figures, it should be borne in mind that inspection campaigns focusing on particular areas are carried out from time to time and these result in an increase in the number of offences reported in that particular field.

In 2009, Seprona arrested 399 people in relation to environmental offences, 20.9% more than the previous year, when there were 330 arrests. Of those arrested, 24.3% were arrested for forest fire offences and 27.6% for offences against wildlife.

NOTES

- When calculating the indicator, this edition only takes into account environment-related cases dealt with by the Civil Guard.

SOURCES

- Civil Guard Public Information Office. Directorate-General for the Police and Civil Guard. Ministry of the Interior, 2010.
- Seprona. Directorate-General for the Police and Civil Guard. Ministry of the Interior, 2010.

FURTHER INFORMATION

- **http://www.guardiacivil.org**

2.5 COASTS AND MARINE ENVIRONMENT

The uses traditionally made of the sea by society exert pressure on it and have an impact that can result in over-exploitation of resources and deterioration in the quality of marine water and coastal areas. Fishing, shipping, energy production, tourism and the biotechnology industry are some of the economic sectors that take place in or affect the marine environment. Pressures exerted on seas and oceans include urban, industrial and shipping waste; alteration of marine species' populations and habitats; over-exploitation of living marine resources; underwater noise; urban pressure; and transformations deriving from climate change.

Steadily growing concern about and awareness of the need to protect seas and coastal areas mean that their conservation is now one of the main challenges and primary goals of international policy. Many international conventions and regulations have been established in response to the need for conservation. International conventions, like the OSPAR convention for the North-East Atlantic, and the Barcelona Convention for the Mediterranean sea, of which Spain is a contracting party, have been in place for many years and have resulted in an encouraging number of related programmes and measures. Within the EU, it is worth highlighting the Water Framework Directive (2000/60/EC) and the Marine Strategy Framework

Directive (2008/56/EC) on the protection of the marine environment, as well as Recommendation 2002/413/EC on the implementation of integrated management in coastal areas in Europe, and the Blue Paper on an integrated maritime policy for the European Union.

In Spain, the great potential of the country's seas as a source of resources and base for economic activity makes it essential that conservation and development go hand in hand. To achieve this, a framework is needed to guarantee sustainable management and planning through programmes designed to protect the coast and sea. Law 41/2010, of 29 December, on the protection of the marine environment, sets out the

INDICATOR	GOAL	TREND
Marine areas protected by the Natura 2000 network	Preserve the natural wealth of the marine environment	Gradual increase
Demarcated coastline	Demarcate the publicly owned shoreline to guarantee public use, regulate rational use and ensure appropriate coastal water and shoreline quality	The length of coastline demarcated is increasing and has now reached 94%
Jellyfish swarms	Monitor the presence and number of jellyfish in coastal areas	As the historical series is very short, it is not possible to identify a clear trend in sightings
Quality of coastal bathing waters	Maintain good health status of waters to ensure they remain suitable for bathing	Coastal bathing water quality remains stable

legal framework governing adoption of the measures needed to achieve or maintain the good environmental status of the marine environment, transposing the Marine Strategy Framework Directive (2008/56/EC) into Spanish law.

The aim of this law is to achieve good environmental status for the marine environment through appropriate planning and legislative protection. Under it, marine strategies become the means of implementing these planning measures and individual strategies have to be drawn up for each of the marine areas established.

These marine strategies, which the MARM is currently working on, require an initial assessment of the state of the marine environment and of its environmental status. They also require establishment of a series of environmental goals (which will include a set of indicators to monitor attainment of these goals) and programmes to monitor and measure attainment of good environmental status.

In the context of ensuring marine waters' good environmental status, it is worth noting the applicable criteria and methodological standards that, under the Commission's Decision of 1 September 2010, provide the starting point for developing coherent approaches when drawing up marine strategies.

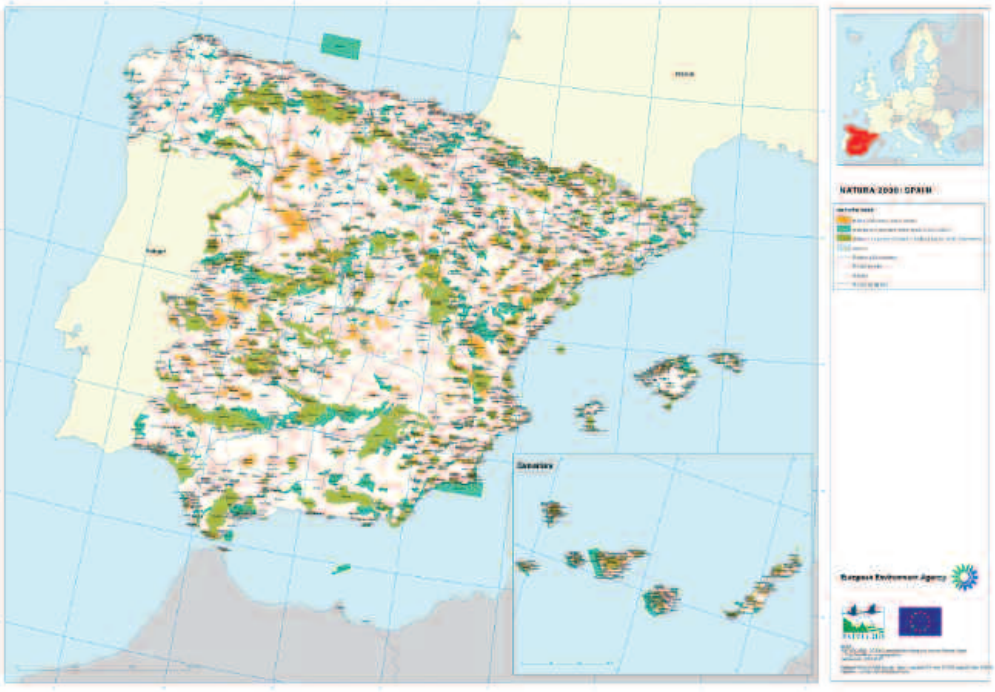
As data for the set of indicators referred to in the aforementioned Decision are not yet available, this chapter includes, as a preliminary approach to the issue, an assessment of the quality of coastal bathing waters to determine their status and evaluate compliance with the guidelines established.

As no new artificial reefs were installed in 2010, there were no year-on-year variations in the information contained in this indicator.

Marine areas protected by the Natura 2000 network

In May 2010, Spain contributed almost 6% of the EU's Marine Sites of Community Importance

NATURA 2000 NETWORK IN SPAIN (2010)



Source: EEA, March 2011

In May 2010, Spain's 97 marine areas assigned Site of Community Importance (SCI) status under the Habitats Directive covered a total of 7,926 km^2. This put Spain, which is home to 5.96% of the EU's overall SCI area, in fifth position in the EU ranking by SCI area behind France, Germany, Denmark and Holland.

On the same date, Spain had 1,034 km^2 of marine Special Protection Area (SPA) included in the Natura 2000 network, positioning it 12th in the EU-27 ranking.

SITES OF COMMUNITY IMPORTANCE (HABITATS DIRECTIVE)

	No of marine sites	Marine area (km^2)	%
Spain	97	7,926	5.96
EU-27	1,412	132,923	100.00

Source: Eurobarometer. Natura 2000 network (data as at May 2010)

SPECIAL PROTECTION AREAS (BIRDS DIRECTIVE)

	No of marine sites	Marine area (km^2)	%
Spain	33	1,034	1.01
EU-27	700	102,663	100.00

Source: Eurobarometer. Natura 2000 network (data as at May 2010)

If all of the areas classed as Protected Area (PA) and those belonging to the Natura 2000 network are taken into account, in 2010 Spain's marine protected area exceeded one million hectares (1,088,260 ha). Considered separately, the marine area classified as PA in 2010 totalled 267,736.64 ha, while that included in the Natura 2000 network stood at 1,048,879.18 ha. The sum of these two figures does not add up to the aforementioned total due to the overlaps caused by the fact that many of these protected areas belong to both protection categories.

Under the framework established by the Convention on Biological Diversity, participating states are obliged to create coherent networks of protected areas covering both terrestrial and marine environments. Law 42/2007, of 13 December, on natural heritage and biodiversity, establishes Marine Protected Area as one of the natural protected area categories and specifies that these should be integrated into the Network of Marine Protected Areas. Law 41/2010 formally establishes the Network of Marine Protected Areas and sets out its targets, the areas it covers and the mechanisms via which these should be designated and managed.

The Network of Marine Protected Areas will not only include protected areas for which the State has jurisdiction, but also areas that are declared and managed as such by regional governments as per Article 36.1 of Law 42/2007, of 13 December. It will also cover areas protected under the provisions of regional fishing legislation proposed by regional governments, subject to their authority to create additional regulations to protect the environment within their jurisdiction.

NOTES

- The Natura 2000 network is an ecological network made up of designated areas pursuant to the Birds Directive (which establishes Special Protection Areas for wild birds — SPAs) and the Habitats Directive (which establishes Sites of Community Importance — SCIs — and Special Areas of Conservation — SACs).
- For each area belonging to the Natura 2000 network, the national government has submitted a standard data form containing a detailed description of the site and its ecology. The European Topic Centre on Biological Diversity (ETC/BD), which has its headquarters in Paris, is in charge of validating this data and creating a Europe-wide database.
- Under Spanish legislation, natural protected areas are defined by Law 42/2007, of 13 December 2007, on Natural Heritage and Biodiversity (see chapter on Nature and Biodiversity).

SOURCES

- Natura 2000 network barometer. DG ENV. European Commission.
- Holder of copyright of the map: EEA.

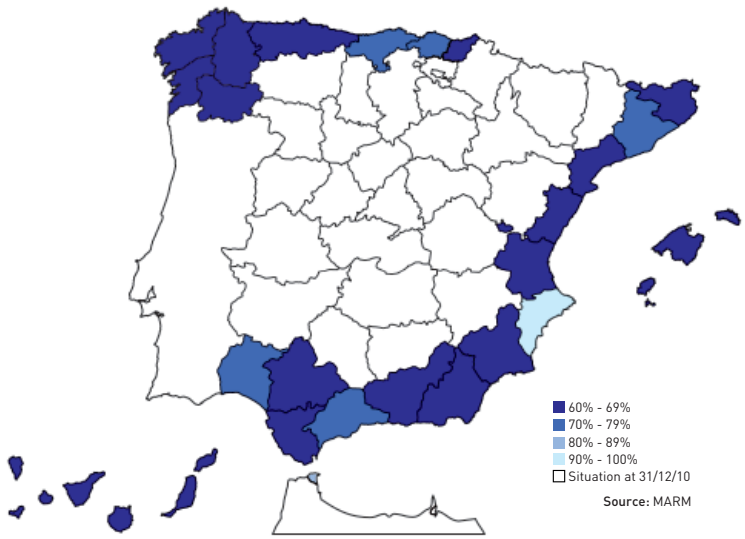
FURTHER INFORMATION

- **http://ec.europa.eu/environment/nature/natura2000/barometer/index_en.htm**
- **http://www.eea.europa.eu/data-and-maps/data/natura-2000/**

Demarcated coastline

94% of Spain's coastline is now demarcated

LENGTH OF DEMARCATED COASTLINE



In 2010, 94% of Spain's coastline was demarcated. It is worth pointing out that coastal demarcation has not occurred uniformly — although only 4,659 kilometres were demarcated between 1988 and 2003, the rate subsequently increased and 3,830 kilometres have now been done since 2004. In fact, in 2009 alone a further 768 kilometres were demarcated and in 2010 another 589 kilometres of coastline were included. In total, this adds up to almost 8,500 km of coastline.

Under Spain's Shores Law, demarcation is the administrative procedure used to mark the boundary of the publicly owned shoreline. This declares the existence, length and boundaries of the assets within the publicly owned shoreline on a particular section of coast.

This mechanism is applied via a procedure that requires rigorous technical assessments, declarations by private individuals (who are personally notified) and reports by other authorities.

Demarcation is essential to achieving the goals set out in the Shores Law, namely guaranteeing public access and use, regulating rational use of its assets and ensuring appropriate coastal water and shoreline quality.

Protection of Spain's coasts is the constitutional duty of both national and regional government. The principal piece of legislation in this regard is Law 22/1988, of 28 July, on Coasts, which regulates land use in coastal areas.

This law establishes the boundaries of the publicly owned shoreline and stipulates that adjacent privately owned land should be subject to regulations that impose certain minimal restrictions on ownership that complement the regulations implemented by regional government. These restricted coastal strips are classified as:

a) *transit easement* (a 6-metre strip, extendable to 20 metres), which should remain permanently open to pedestrian transit;

b) *protection easement* (a strip 20–100 metres wide, depending on zoning under the planning regulations in force when the law came into effect, and extendable to 200 metres). Various uses are forbidden in this strip, particularly residence and occupancy, which is designated for use by public services and facilities;

c) *sea access easement*, which covers land adjacent to or contiguous with the publicly owned shoreline and is of the length and width required to ensure public access to and use of the sea.

The Law also defines an *area of influence* that extends a minimum of 500 metres inland from the shoreline, within which minimum development is permitted so as to ensure respect for the environment and protection of the coastline.

Therefore, creation of demarcation boundaries, in other words physically separating the shoreline from surrounding privately owned land, is fundamental to application of legislation to protect the coastline.

NOTES
- The MARM is currently carrying out demarcation and is processing and approving the records that define the boundary of the publicly owned shoreline.
- To raise awareness about this task, the Directorate-General for Coastal and Marine Sustainability has launched a project that will produce maps and aerial photographs of coastal areas showing the boundaries of the publicly owned shoreline and the privately owned land affected by protection easement. This information can be accessed either via the MARM's on-line viewer (http://sig.marm.es/dpmt/) or via the on-line Land Register managed by the Ministry of Economy and Finance (www.sedecatastro.gob.es).

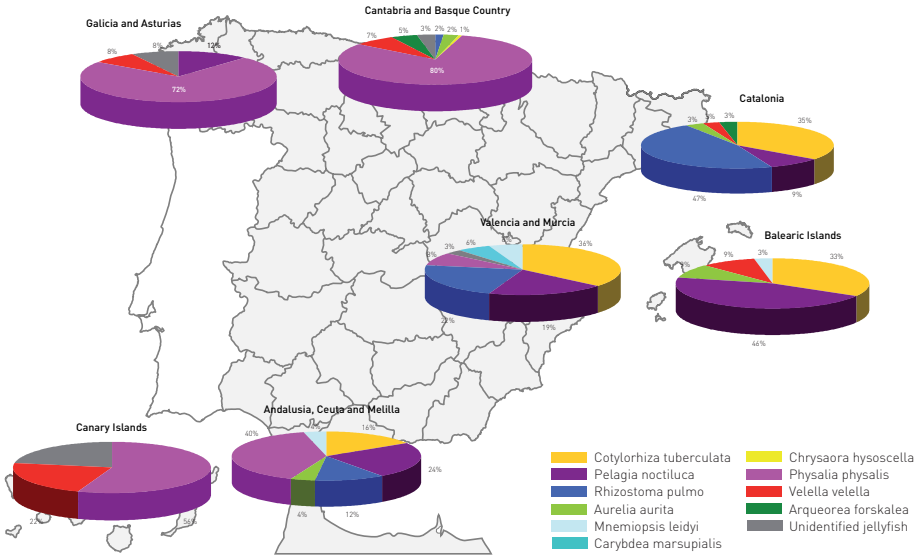
SOURCES
- http://www.marm.es/es/costas/temas/gestion-del-dominio-publico-maritimo-terrestre/default.aspx

FURTHER INFORMATION
- **http://www.marm.es**
- **http://www.marm.es/es/costas/temas/default.aspx**

Jellyfish swarms

Large swarms of gelatinous planktonic organisms continue to be found along Spain's coastline, particularly during summer months

SIGHTINGS OF GELATINOUS PLANKTONIC ORGANISMS IN SPANISH WATERS, BY AREA (2010)



Source: Directorate-General for Coastal and Marine Sustainability, MARM.

The presence of gelatinous planktonic organisms (including jellyfish and other cnidaria, ctenophora, salpae and pelagic molluscs) in the sea is a natural phenomenon. Their presence in Spanish coastal waters is the result of distribution patterns particular to individual species, their abundance and favourable weather conditions (rain, wind, marine currents, etc.). In many cases, these organisms' appearance is seasonal and their numbers may vary widely from year to year and season to season (although the Mediterranean species are more predictable and usually appear at the start of spring and the end of summer).

Among the cnidaria, there have been sightings of box jellyfish (*Carybdea marsupialis*); hydrozoa (*Olindias phosphorica*, *Aequorea forskalea*, *Physalia physalis* and *Velella velella*); true jellyfish (*Pelagia noctiluca, Rhizostoma pulmo, Chrysaora hysoscella, Cotylorhiza tuberculata* and *Aurelia aurita*); and ctenophora (*Mnemiopsis leidyi*). All of the cnidaria have specialised cells called cnidocytes or cnidoblasts that, on contact with human skin, release a toxin that produces the jellyfish's characteristic sting, often

a cause of alarm among bathers in the summer. It is worth noting that the ctenophore *Mnemiopsis leidyi* does not belong to the cnidaria, does not contain the aforementioned cells and, therefore, does not sting.

Analysis of sightings on the Mediterranean coast shows that the jellyfish found most frequently in this area include *Rhizostoma pulmo, Cotylorhiza tuberculata, Carybdea marsupialis* and *Mnemiopsis leidyi*. Others, such as *Pelagia noctiluca* and *Aurelia aurita*, although sighted mainly on the Mediterranean coast, have also been detected in colder waters in the Bay of Biscay. Some species, such as *Velella velella*, are found all along the Spanish coastline. The cold-water species *Physalia physalis*, known as the Portuguese man-of-war, has been seen in the Canary Islands and in the Bay of Biscay, while sightings have also been recorded in Andalusia and on Spain's south-east coast.

After the initial 2007 Pilot Campaign and the 2008 and 2009 Jellyfish Campaigns, the Ministry of the Environment and Rural and Marine Affairs continued the series with the summer 2010 campaign, the results of which are available on its website. As well as containing scientific information, this website provides reports on results, a sightings viewer and a pilot scheme to predict the appearance of jellyfish. These data can be accessed at http://www.marm.es/es/costas/campanas/campana-medusas/default.aspx.

The data collected show that species sighted regularly all year round included *Pelagia noctiluca, Rhizostoma pulmo, Cotylorhiza tuberculata, Physalia physalis* and, to a lesser extent, *Velella velella*, while other organisms were found in Spanish waters much less frequently. This could indicate that these waters are natural habitats for some species, while in other cases sightings could be linked to seasonal natural or anthropic phenomena.

NOTES

- In order to determine the true scale of the problem of proliferating numbers of jellyfish in Spain's coastal waters, detect their presence as early as possible and inform the public, since 2007 the Ministry of the Environment and Rural and Marine Affairs has run an annual campaign each summer, known as the Jellyfish Campaign, to study, detect and track jellyfish swarms and waste. This campaign is carried out in Galicia and Asturias; Cantabria and the Basque Country; Catalonia; Valencia and Murcia; Andalusia; Ceuta and Melilla; the Balearic Islands and the Canary Islands.
- The sightings data shown in the charts are based on observations made offshore and within 100 metres of the coast.
- The indicator measures sightings of gelatinous planktonic organisms. These comprise organisms that live freely in the water column and are composed of over 90% water. This group is made up of various types of animal, all of which are characterised by their transparency and fragility. It comprises cnidaria (including organisms such as jellyfish, hydrozoa, and box jellyfish), ctenophora, salpae and pelagic molluscs. Most of these organisms travel wherever the waves and wind take them, although some species are capable of limited movement.

SOURCES

- Directorate-General for Coastal and Marine Sustainability, MARM.

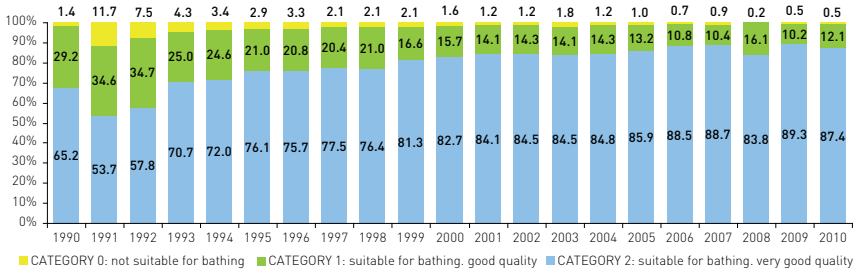
FURTHER INFORMATION

- http://www.marm.es
- http://www.planmedusas.es

Quality of coastal bathing waters

Coastal bathing water quality remained at similar levels to the previous bathing season, with waters not suitable for bathing staying at 0.5%

QUALITY OF COASTAL BATHING WATERS
Percentage of sampling points by category



Source: MSC

During the 2010 bathing season, coastal bathing water quality remained at similar levels to the previous bathing season. Waters classed as not suitable for bathing stayed at 0.5%, while there were variations in the percentage of bathing waters classified as good quality (12.1%) and those rated as being very good quality (87.4%).

NOTES

- In accordance with the terms of Directive 76/160/EEC, concerning the quality of bathing water, the Ministry of Health, Social Policy and Equality submits an Annual Summary Report of Bathing Water Quality in Spain to the European Commission. This describes the key findings of hygiene monitoring of such waters carried out by regional governments and the Autonomous Cities of Ceuta and Melilla in accordance with Royal Decree 734/88 of 1 July.
- On 15 February 2006, the new Bathing Water Quality Directive (2006/7/EC) was approved. Among other aspects, this Directive modifies the current bathing water classification system, establishing four assessment categories (excellent, good, sufficient and poor), reducing the number of parameters considered and defining water quality at each point using a three-year average. This Directive was transposed into Spanish law by Royal Decree 1341/2007.
- Under the new Directive, classification should be performed using data from the current season together with the data for the last three years. The new classification is as follows: poor, sufficient, good and excellent.
- However, this new classification cannot be carried out until the 2011 bathing season, when it will also include the data for the previous three years (2008, 2009 and 2010). Until then, the former classification will be used. The Hygiene Classification of Bathing Water at Sampling Point follows the criteria below:
  - **CATEGORY 2:** Water suitable for bathing, very good quality. Such water simultaneously meets the following conditions:
    1. At least 95% of samples must not exceed the mandatory value for *Escherichia coli*.
    2. At least 80% of samples must not exceed the guide value for *Escherichia coli*.
    3. At least 90% of samples must not exceed the guide value for intestinal enterococci.
  - **CATEGORY 1:** Water suitable for bathing, good quality. Such water meets condition 1) of Category 2, but not conditions 2) and/or 3) of Category 2.
  - **CATEGORY 0:** Water not suitable for bathing. Such water does not meet condition 1) of Category 2.

SOURCES

- Data provided by the Sub-Directorate-General for Environmental Health and Health and Safety at Work. MSPSI.

FURTHER INFORMATION

- http://nayade.msc.es/Splayas/home.html
- http://ec.europa.eu

2.6 GREEN ECONOMY

The quest for a new development model is paving the way towards a green economy. This goal is shared by many international institutions, including the United Nations, the Organisation for Economic Co-operation and Development, and the European Union. Encouraging development of a green economy will be one of the main goals of the Environment for Europe conference held in Astana in September 2011. In a report on this subject, the OECD proposes a set of indicators to monitor progress towards a green economy. Achieving a green economy is also a priority in the United Nations Environment Programme (UNEP). As part of this, in March 2011 it published a report entitled *Towards a Green Economy, Pathways to Sustainable Development and Poverty Eradication*. The UNEP sets the target of investing 2% of global GDP in 10 key sectors that will facilitate the transition to a low-carbon economy: agriculture, construction, energy supply, fishing, forestry, industry, tourism, transport, waste and water.

Discussions on this theme will play a large part in the United Nations' Rio+20 Conference. It is intended to address the situation in the world's financial, energy and ecological systems in a holistic and consistent manner.

The EU is promoting development of a global 10-Year Framework of Programmes on Sustainable Consumption and Production (10YFP on SCP).

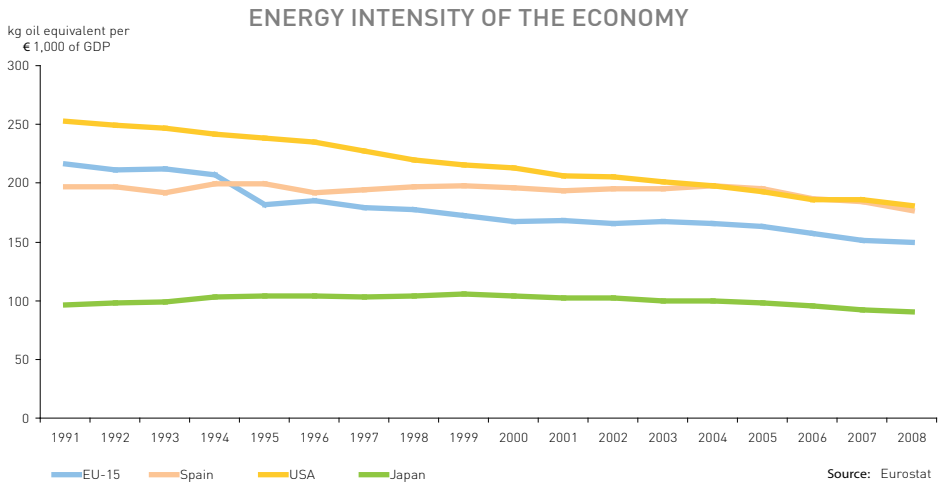
In Spain, the Government has passed the Sustainable Economy Law, which tackles various aspects of environmental sustainability (described in detail in the Background chapter). With this initiative, the Spanish Government intends to change the country's economic model and direct it towards more economically, socially and environmentally

INDICATOR	GOAL	TREND
Energy intensity of the economy	Advance towards a low-carbon economy	Spain's energy intensity fell by 4.06% in a single year
Total material requirement	Achieve rational resource use	Natural resource use per inhabitant is growing
Green jobs	Transform jobs in companies and economic sectors to preserve or restore environmental quality	The number of green jobs in Spain now exceeds 300,000 in companies that account for 1.9% of GDP
Environmental taxes	Reach average EU levels in use of environmentally friendly market mechanisms	Spain's overall revenue from environmental taxes is the lowest in terms of percentage of GDP in the EU

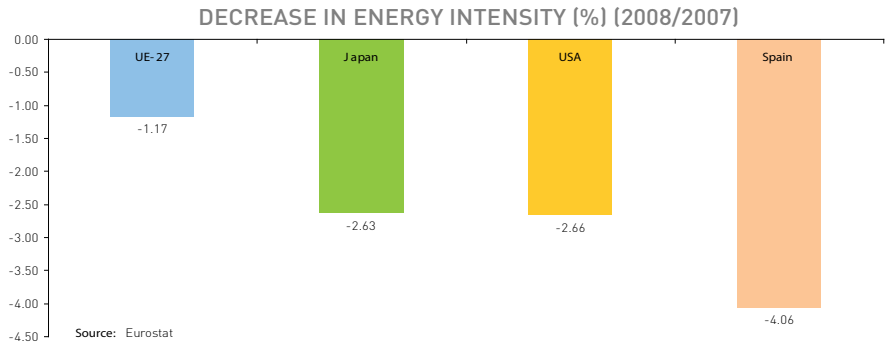
sustainable parameters. A large number of measures are aimed at fostering the green economy and green jobs, including establishing the foundations for a sustainable energy model; reducing GHG emissions to meet the EU targets for 2020; making the regulatory changes necessary to achieve sustainability in transport and mobility; and upgrading housing, all of which would contribute to improving the quality and sustainability of the urban environment.

Energy intensity of the economy

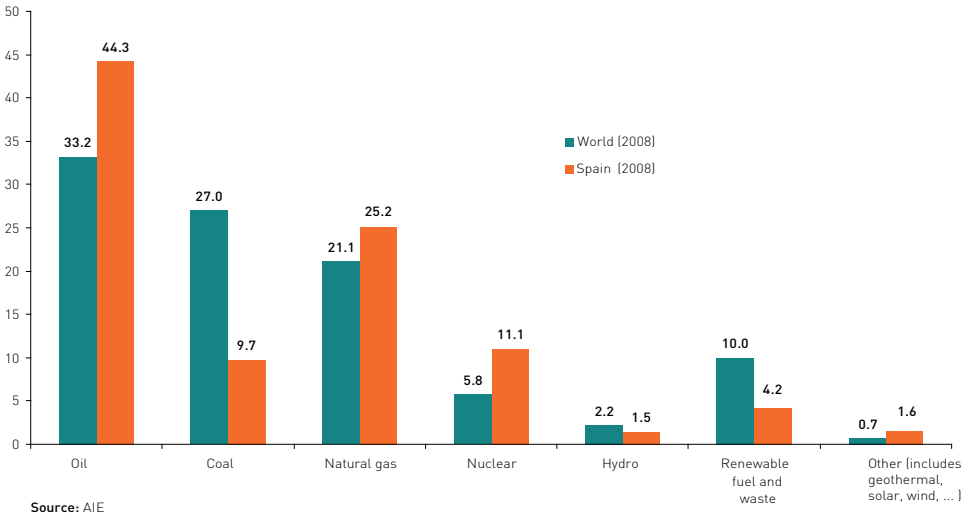
Energy intensity of the economy in Spain is currently decreasing faster than in the rest of the developed countries



In developed countries, there has been a general downward trend in energy intensity for two decades. In other words, these countries have been looking for ways to achieve the same outcome, but using less energy. Issues such as the pollution caused by fossil fuels, their uncertain supply and unpredictable price rises are all factors contributing to the energy crisis. In addition, the risk of climate change has become one of the major factors driving the quest for greater energy efficiency. In Spain, after clear divergence from the European trend over 1993–2004 (when the amount of energy used per unit of GDP grew), the country's energy intensity decreased to such an extent that in 2008 it fell much more year-on-year than in Japan, the US and the EU-27 (as a recent variation and not the series is being considered, the figure for the entire EU-27 has been taken).



PRIMARY ENERGY SUPPLY BY SOURCE (%) (2008)



Source: AIE

(*) Others includes geothermal, solar, wind, etc.

According to the 2008 data provided by the International Energy Agency on total primary energy sources, Spain's energy model differs from the worldwide one. Spain has a greater dependency on oil (44.3% as opposed to 33.2%); uses less coal than the global average (9.7% as opposed to 27%); consumes more natural gas (25.2% as opposed to 21.1%); utilises a higher proportion of nuclear energy (11.1% as opposed to 5.8%); employs a lower proportion of hydroelectric power (1.5% as opposed to 2.2%); and uses fewer renewable fuels and less waste as energy sources (4.2% as opposed to 10% globally).

SOURCES

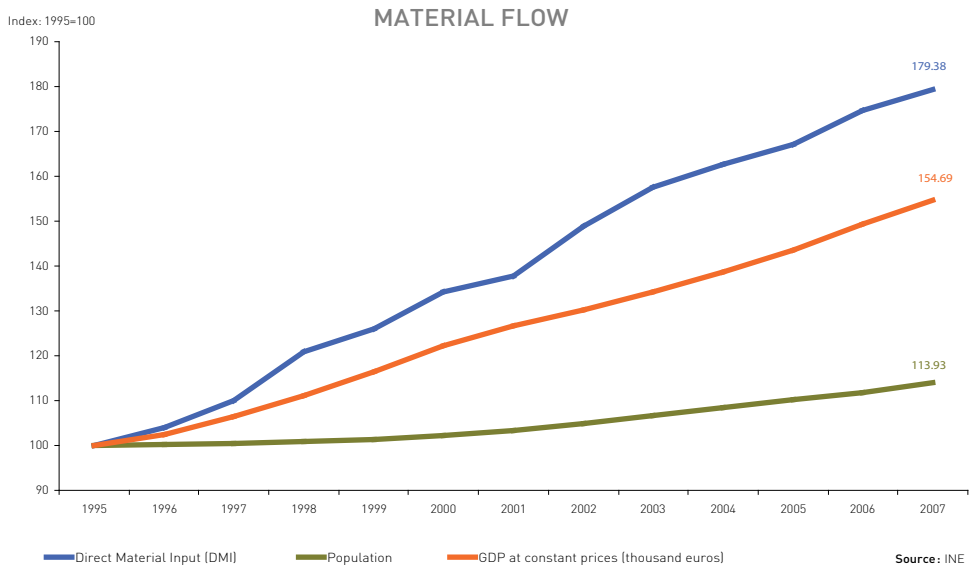
- International Energy Agency. *Key world energy statistics, 2010.*
- IEUROSTAT, 2011. Website: Eurostat/Statistics/Statistics by theme/Energy/Database/Main indicators
- IMITyC, 2010. *La Energía en España 2009*

FURTHER INFORMATION

- www.iea.org
- www.marm.es
- www.mityc.es
- http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home

Total material requirement

Spain's material consumption increased

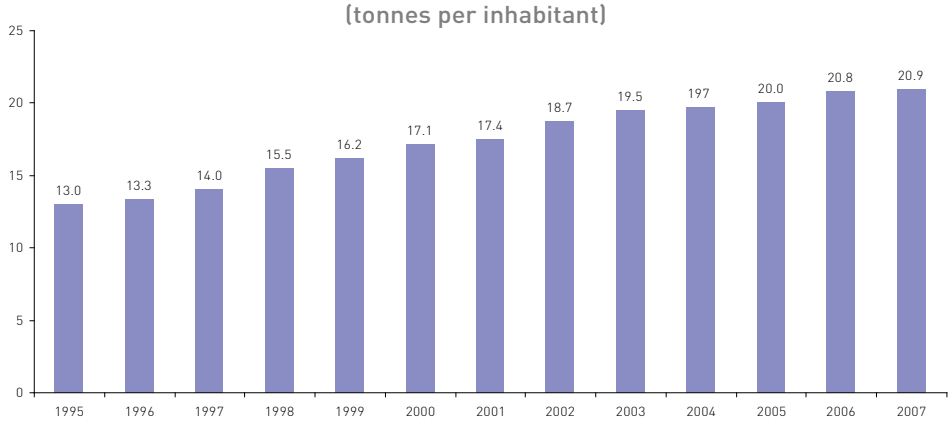


Efficient management of natural resources is vital for sustainable development. Extraction, use, and disposal of materials, as well as national and international trade in them, not only have an impact on the economy; they also have repercussions on the environment. International institutions (i.e., the UN, OECD and EU) are working to develop indicators that will allow them to monitor the extent to which economic growth is being decoupled from pressure on the environment and natural resources. Internationally, the System of Environmental-Economic Accounts shows the statistical interrelationships between the environment and the economy. The material flow accounts are consistent with national economic accounts, both of which are based on similar accounting concepts and standards.

Direct material input is the sum of all materials extracted from domestic sources (biomass, metallic minerals, non-metallic minerals and fossil fuels) plus imports. All of these materials enter the economic system from the national and international natural environment. A country's Total Material Requirement is calculated by subtracting exports from these resources to provide the total quantity of materials used directly in the local economy. This indicator reflects the processes of extraction, consumption, transformation and final disposal of raw materials, chemicals and products used in economic activity.

Analysis of the changes occurring over the 13 years from 1995 to 2007 reveals that while Spain's population grew by 13.93%, its GDP increased by 54.69% and its Direct Material Input shot up by 79.38%. Meanwhile, Spain's Total Material Requirement per inhabitant rose from 12.98 tonnes per inhabitant in 1995 to 20.94 tonnes per inhabitant in 2007, an increase of 61.3%.

NATIONAL MATERIAL REQUIREMENT
(tonnes per inhabitant)



Source: INE

Material flows take into account nationally sourced materials, including fossil fuels, minerals (metallic and non-metallic minerals and construction materials) and biomass. They also consider materials originating from national sources, but which become non-used resources, such as crop biomass and the by-products of mining and land excavation.

NOTES

- The INE has modified the Material Flow Accounts to adapt them to the Regulation of the European Parliament and of the Council on European Environmental Economic Accounts. Although material flow accounts are closely related to economic accounts, they cannot provide homogeneous aggregates, as materials may change in form and composition at each stage of production and consumption.
- GDP at constant prices is based on chain-linked volumes. The INE still classes the most recent data, from 2007, as provisional.

SOURCES

- INE. Material flow accounts. INEbase. Environment: Environmental accounts.

FURTHER INFORMATION

- http://www.ine.es

Green jobs

Spain could now have over 300,000 green jobs

There is still no worldwide agreement on the definition of green jobs. The International Labour Organization (ILO) defines them as jobs that reduce the environmental impact of companies and economic sectors to sustainable levels, which help to reduce greenhouse gas emissions, minimise waste and pollution, re-establish ecosystem services and guarantee biodiversity protection. According to the ILO, green jobs can be created in every sector and company. Potential direct jobs exist in sectors that produce green goods and services, while indirect and induced jobs exist in their supply chains when energy and raw material savings are invested in other more labour-intensive goods and services.

ILO forecasts predict that by 2020 the global market for green products and services is likely to have grown to $2.74 billion, practically double the current figure. Energy efficiency enhancements account for half of this market, while sustainable transport, water supply and health service and waste management make up the rest. The ILO believes that green jobs will be found predominantly in energy supply; renewable energy sources; energy efficiency, especially in buildings and construction; transport; and basic industries, agriculture and forestry. The number of green jobs is particularly expected to grow in alternative energy, especially wind and solar power. The ILO estimates that energy-generating biomass production, electricity and other industries could create 12 million jobs worldwide.

CORE GREEN JOBS. SPAIN 2010

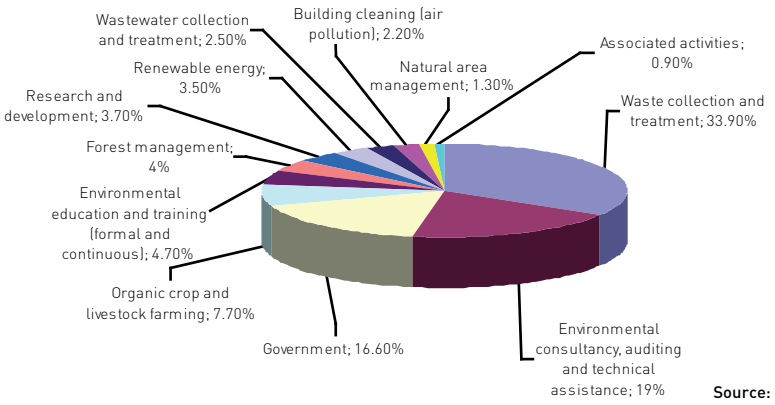
	No of employees	% of total
Waste collection and treatment	108,335	33.9
Environmental consultancy, auditing and technical assistance	60,887	19.0
Public administration	53,072	16.6
Organic crop and livestock farming	24,485	7.7
Environmental education and training (formal and continuing)	15,175	4.7
Forest management	12,715	4.0
Research and development	11,975	3.7
Renewable energy	11,327	3.5
Wastewater collection and treatment	7,931	2.5
Building cleaning (air pollution)	6,907	2.2
Natural area management	4,301	1.3
Related activities	2,832	0.9
TOTAL	319,942	100.0

Source: EOI from data provided by SABI (Encuesta Industrial, DIRCE and Encuesta de Servicios)

The report *Green Jobs: Empleos Verdes en España 2010* by Spain's EOI presents the results of a study based on economic sources and a proprietary survey. It uses the definition of the green economy provided by Eurostat, separating the various activities as follows:

- Core or characteristic activities: services principally intended to protect the environment.
- Connected or related activities: economic activities principally intended to produce non-environmental goods and services, but which are closely tied to the environment, either because they use environmental inputs or because they provide intermediate goods and services consumed by the main environmental activities.

BREAKDOWN OF GREEN JOBS IN SPAIN (%) (2010)



Source: EOI

Green jobs form part of the transformation proposed for economies, enterprises and labour markets and their creation is expected to contribute towards achieving a sustainable low-carbon economy. Although they do not coincide completely, the figures published in the EOI's report are similar to those stated in the report on green jobs in a sustainable economy, *Empleo verde en una economía sostenible*, produced by the OSE and the FB in 2010 (the number of people employed in activities traditionally associated with the environment is estimated at approximately 531,000, equivalent to 2.6% of the working population).

This report by the EOI shows that the value of the goods and services provided by the enterprises that make up the core of the green economy stands at €37.6 billion per year, and that their Gross Value Added at market prices totals around €20 billion per year, approximately 1.9% of GDP.

NOTES

- The above-mentioned EOI report on green jobs is based on a survey that uses the Eurostat classification of activities (*Environmental Goods and Services Sector. A Data Collection Handbook*). The renewable energy and energy efficiency subsector includes all activities designed to minimise fossil fuel consumption by producing energy from renewable sources, as well as all those designed to save energy (activities 3515, 3518 and 3519 in the CNAE 2009). Within the categories included in what the report considers the core of the green economy, 1,051 companies (with 22,349 employees) working in the fields of renewable energy and energy efficiency were listed under the Industry heading.

SOURCES

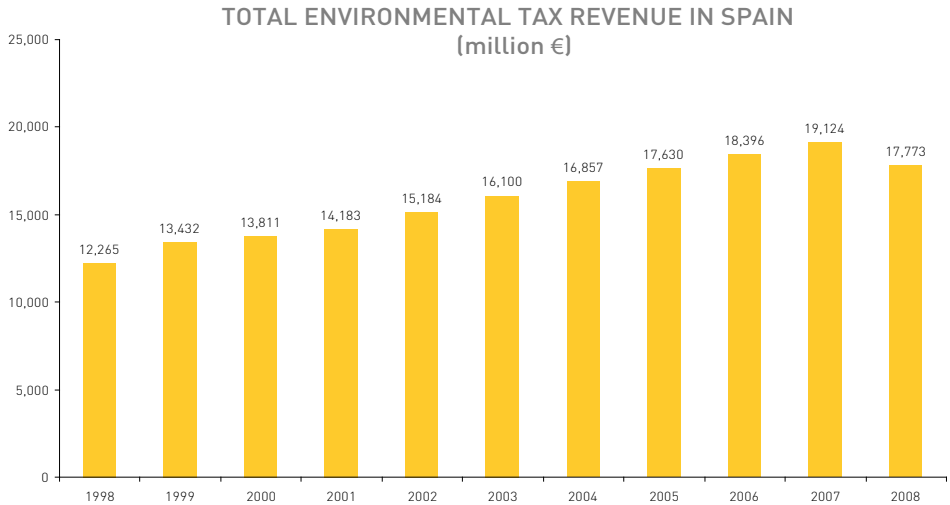
- http://www.unep.org/greeneconomy/GreenJobs/
- International Labour Organization, Green Jobs
- EOI. *Green Jobs. Empleo verde en España 2010*
- Spanish Observatory for Sustainability, 2010. *Empleo verde en una economía sostenible*

FURTHER INFORMATION

- www.unep.org
- www.marm.es
- www.ilo.org/global/topics/green-jobs
- www.sostenibilidad-es.org/

Environmental taxes

The percentage of Spain's GDP allocated to investment and development is increasing rapidly, particularly in the public sector



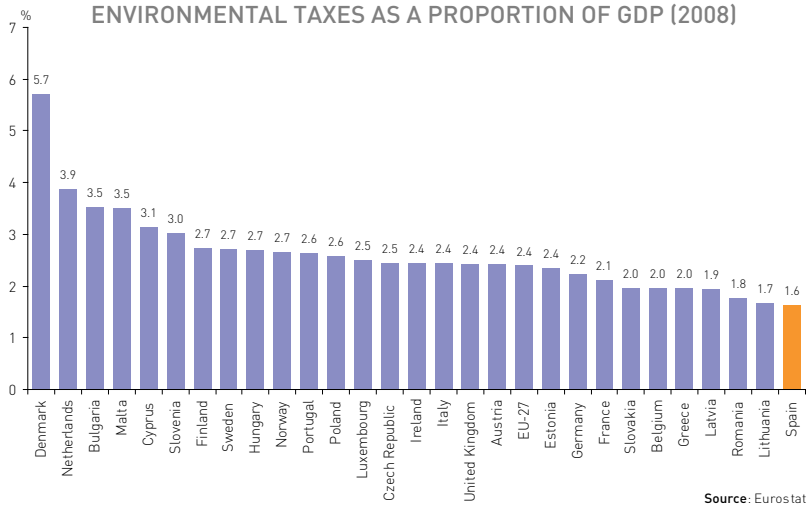
Source: Eurostat

In the European Union, environmental taxes have proven an effective way of persuading consumers to buy and use more environmentally friendly products, resulting in changes in some patterns of behaviour. In 2007, taxes on energy accounted for 72% of the environmental taxes in place in the EU, those on transport made up 24% of the total, and the remainder were on pollution and resource use. The way these taxes are applied and regarded is not uniform across the EU, so simply comparing them may obscure significant differences.

As part of the Eurostat methodology, adopted by the INE in Spain, environmental taxes include those on energy, transport, pollution and resources, but do not include VAT, as this tax is applied to all products. Energy taxes include those on energy products used for transport (petrol and diesel) and for other purposes (heating oil, natural gas, coal and electricity). Transport taxes mainly refer to those related to vehicle ownership and use and include taxes on other methods of transport, such as aeroplanes. These could be one-off taxes, such as those applied to imports or equipment sales, or taxes applied at regular intervals, such as the annual road tax. Pollution taxes include those related to atmospheric emissions (except CO_2 taxes), water, waste management and noise. Resource taxes cover those on extraction and use of natural resources (gas and oil, as well as shooting and fishing licences).

The increase in revenue from environmental taxation (when applicable) is a variable that should be interpreted with caution. For example, rises could be due to the introduction of new taxes, tax increases or growth in the activity taxed (i.e., a rise in pollutant discharges).

Examining the percentage that environmental taxes contribute to GDP shows that Spain is ranked last among the EU countries at only 1.6%.



Source: Eurostat

In Spain, environmental taxes doubled in value over 1995–2008. They then decreased slightly in 2008 before returning to a level similar to 2005.

In 2008, energy taxes represented 79.9% of the total, while transport taxes accounted for around 19.2% and pollution taxes made up the remainder (under 1%). Of the environmental taxes in place in Spain, the household sector represents 50%, while the services sector accounts for around 32%.

NOTES

- Under the harmonised statistical framework developed in 1997 by Eurostat, the European Commission, the Organisation for Economic Co-operation and Development and the International Energy Agency, environmental taxes are defined as those applied to a physical unit (or similar) of a material that has a proven and specific negative impact on the environment. These include taxes on energy and transport, but exclude value added tax. The taxes in question are mandatory payments collected by the Government and the benefits to the taxable person are not directly linked to the payment.
- Spain's main environmental taxes are as follows:
  - –Energy taxes: hydrocarbon tax, electricity tax, tax on retail sales of certain hydrocarbons, special tax on oil-based fuel (Canary Islands);
  - –Transport taxes: special tax on certain means of transport, motor vehicle tax;
  - –Pollution taxes: state duty on waste discharge, regional taxes on pollution, waste dumping and waste discharge into the sea.

SOURCES

- Eurostat

FURTHER INFORMATION

- www.ine.es
- epp.eurostat.ec.europa.eu/portal/

2.7 WASTE

In 2010, the MARM's actions on waste came under the framework of the National Integrated Waste Plan 2008–2015. In parallel, the Government also worked intensely on transposing the Waste Framework Directive into Spanish law.

Information on waste has continued to improve with the updating and creation of new databases on facilities, urban waste, landfill sites and imports–exports, thereby integrating further the information system on these issues. Many initiatives have been launched to promote waste prevention and recycling, such as domestic composting; management of urban waste in rural and island areas; creation of a compost market; and separate collection. An institutional campaign was carried out to reduce the number of single-use shopping bags in circulation and promote a change in consumer habits. This campaign was aimed at all stakeholders (manufacturers, retailers, consumers, etc).

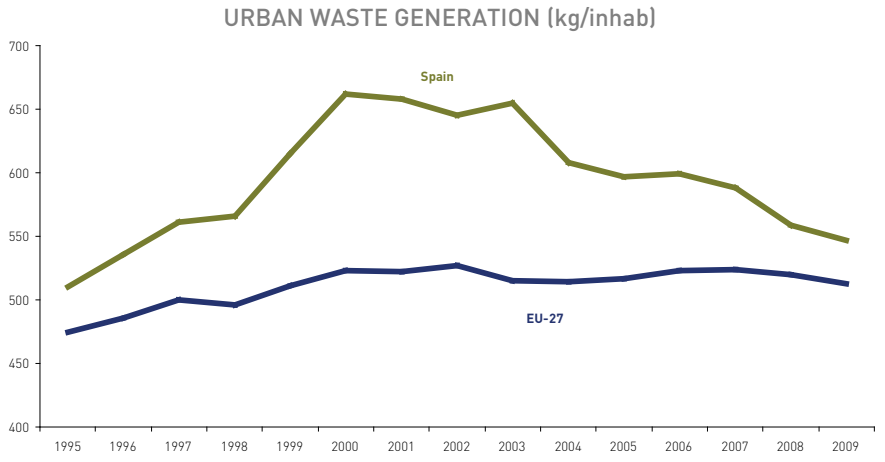
Transposition of the Waste Framework Directive into Spanish law began in 2010. Applying the principle of encouraging stakeholder involvement, several workshops were held with local and regional government, as well as with the Environmental Advisory Council.

As well as establishing producers' and managers' liabilities, the future Waste Law will simplify administrative procedures, enable electronic applications, and improve traceability throughout the production and management chain. In short, the new law will constitute an advance in waste regulation and will contribute to a more sustainable management model.

INDICATOR	GOAL	TREND
Urban waste generation	Minimise production	Urban waste generation per inhabitant is decreasing
Urban waste management: landfill and incineration	Increase recycling and reduce the quantity of waste landfilled	The quantity of urban waste landfilled per inhabitant is decreasing
Paper and cardboard recycling	Increase the recycling rate	The collection rate is increasing but that of recycling is slowing in comparison with 2008
Glass recycling	Increase the recycling rate	The glass recycling rate rose to 67% in 2009
Packaging waste recycling and recovery	Increase the recycling and recovery rates for used packaging	The recycling and recovery rates continue to increase, exceeding the targets set by RD 252/2006
Sewage sludge production and use	Increase sewage sludge recovery	Use as an agricultural fertiliser is increasing

Urban waste generation

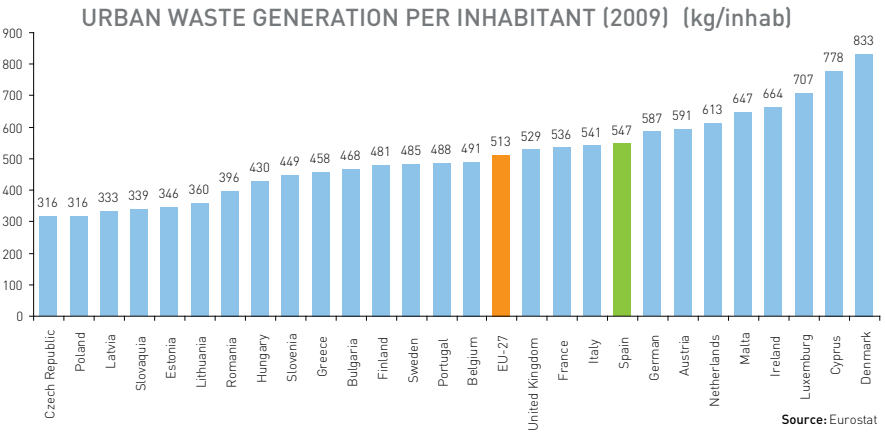
In 2009, urban waste generation in Spain stood at 547 kg/inhabitant, continuing the downward trend started in 2003



Source: Eurostat

Across the EU-27, average urban waste generation per inhabitant totalled 513 kg. In Spain, the average was 547 kg/inhabitant, 2.15% lower than in 2008. Between 2000 and 2009, urban waste generation in Spain fell by 17.4%, the second-biggest reduction in the EU-27 after Estonia (which recorded a decrease of almost 25%).

In 2009, Spain was ranked ninth in Europe by volume of urban waste generated per inhabitant, a similar position to the previous year.



Source: Eurostat

According to the information available to the MARM, an estimated 24 million tonnes of urban waste were collected in Spain in 2008. Of this volume, 17.4% was collected separately from containers located on public thoroughfares and from recycling points. Comparison with the 2007 data shows a 2% increase in the volume of urban waste collected. Although there was a slight decrease in the quantity of mixed waste collected, there was also a fairly significant increase (17.5%) in the total amount of waste collected separately, indicating public commitment to this issue.

URBAN WASTE (tonnes)

	2005	2006	2007	2008
Total urban waste collected	22,353,152	23,648,032	23,562,199	24,049,826
Separately collected paper, glass, lightweight packaging and organic matter	2,133,435	2,519,340	2,668,897	3,430,066
Mixed waste	19,657,827	20,431,260	19,993,461	19,858,348
Other separately collected waste	561,890	697,432	899,841	761,448

The data on urban waste compiled by the MARM from data provided by Spain's regional governments only include figures for domestic-type urban waste collected from households, small retailers, offices, schools, etc.
'Other separately collected waste' includes, among others, bulky waste and waste electrical and electronic equipment and even rubble from minor building work. These types of waste represent a high percentage of the total tonnage collected at recycling points. This information is only available for the regional governments that provided data.

Source: MARM.

NOTES

- The indicator shows urban waste generation, expressed in kilograms per inhabitant (kg/inhab), and refers to waste collected by municipal services (or by similar services contracted by local councils) and processed by waste management systems. Most of this waste originated from households, although waste from similar sources, such as retail outlets, offices and public institutions, is also included.
- According to Law 10/1998, on waste, urban or municipal waste is "waste generated in private households, retail outlets, offices and services, as well as all waste similar to that produced in the aforementioned places or activities and that is not classified as hazardous."
- Mixed waste is defined as household waste and items generated by private households, retail outlets, offices and services, or during the cleaning of public thoroughfares.
- Separately collected waste is the product of separate collection of fermentable organic matter and recyclable materials, as well as that of any other separate collection system that permits retrieval of recoverable materials contained in waste.

SOURCES

- Eurostat: Sustainable development indicators/Sustainable consumption and production/Resource productivity/Municipal waste generated
- Sub-Directorate-General for Sustainable Production and Consumption. Directorate-General for Environmental Quality and Assessment, MARM.

FURTHER INFORMATION

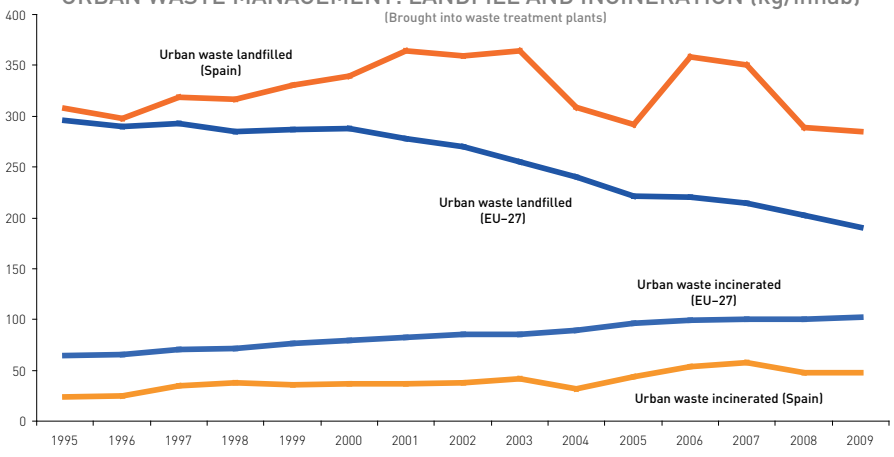
- http://www.marm.es
- http://www.ine.es
- http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators

Urban waste management: landfill and incineration

Landfill of urban waste has decreased, while incineration has increased in line with the EU-27 average, although the rates are slowing in both cases

URBAN WASTE MANAGEMENT: LANDFILL AND INCINERATION (kg/inhab)

(Brought into waste treatment plants)



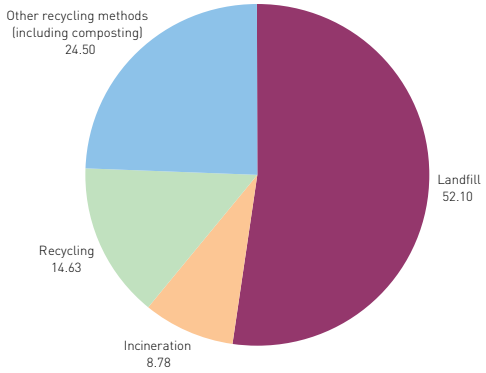
Source: Eurostat

The European trend in urban waste landfill and incineration, expressed as kg per inhabitant, displays a continued decrease in landfill and an increase in incineration. During the period 1995–2009, landfill dropped by 35.5%, while incineration rose by 56.9% (EU-27).

In Spain, the total decrease in the amount of urban waste landfilled over the same period stood at 7.5%, while incineration increased by practically 100%. In absolute terms, Spain landfilled 285 kg/inhab in 2009, while the figure for the EU-27 was 191 kg/inhab. Meanwhile, it incinerated 48 kg/inhab, as opposed to 102 kg/inhab for the EU-27. Therefore, it is necessary to take steps to reduce waste generation and minimise landfill. To achieve these goals, it is essential to increase separate collection for recycling.

The breakdown of waste treatment and disposal systems in 2009 is shown in the graphic below. Grouping the two types of recycling in the graphic together reveals that they accounted for 39.1% of treated waste. During the period 1995–2009, the increase in both management methods multiplied by 5.9, rising from 36 to 214 kg/inhab.

URBAN WASTE MANAGEMENT (%) (2009)



The table below shows the quantity of waste sent to urban waste treatment plants in Spain by treatment type (t/year). It does not include a breakdown of the number of inhabitants that generated the waste.

URBAN WASTE PROCESSING IN TREATMENT AND DISPOSAL FACILITIES (t/year)

	Facility type	2005	2006	2007	2008
TREATMENT	Packaging sorting plants	330,638	606,200	559,271	547,621
	Separately collected organic-matter composting plants	243,921	160,017	161,781	460,408
	Sorting and composting plants	6,455,248	6,991,541	7,249,622	8,199,049
	Sorting, biomethanisation and composting plants	1,123,818	1,168,565	1,041,153	1,579,922
DISPOSAL	Incineration plants				2,057,017
	Landfill sites (including waste refused by treatment plants)	243,921	160,017	161,781	16,125,342

Source: MARM

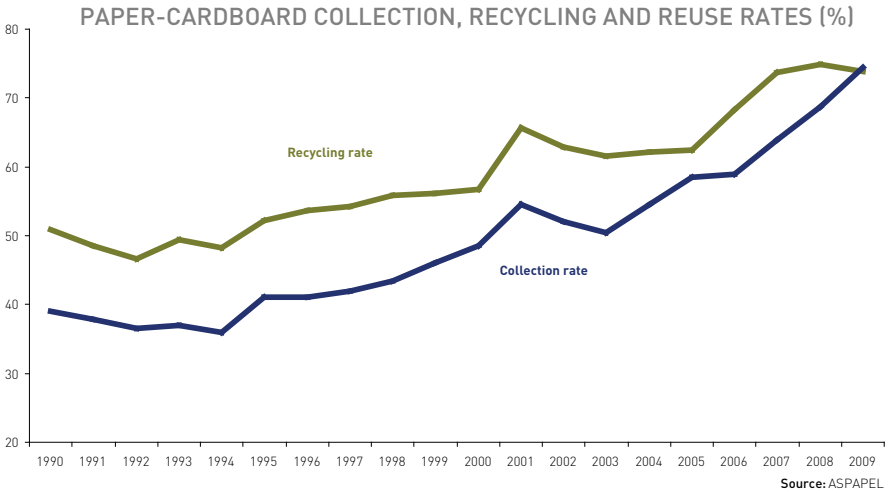
NOTES
- The indicator shows the relationship between the amount of waste treated at the various facilities and the number of inhabitants in Spain each year, factors that need to be taken into consideration when interpreting the indicator's results.
- See notes for the previous indicator.

SOURCES
- Eurostat/Sustainable development indicators/Sustainable consumption and production/Resource productivity/Municipal waste generated/Municipal waste treatment, by type of treatment method.
- Sub-Directorate-General for Sustainable Production and Consumption. Directorate-General for Environmental Quality and Assessment, MARM.

FURTHER INFORMATION
- http://www.marm.es
- http://www.ine.es
- http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators

Paper and cardboard recycling

Paper and cardboard collection and recycling rates rose to 74% in 2009



Source: ASPAPEL

In 2009, 4.6 million tonnes of cardboard and paper were recycled. This is 7.5% less than in 2008, when almost 5 million tonnes were recycled.

Although there was a 15.6% drop in paper and cardboard consumption in 2009, the collection rate stood at 74.4%. This was an increase of 8.14% on 2008 and continued the rising trend. This collection rate positions Spain on a par with Europe's most advanced countries, like Germany, the Netherlands and the Nordic nations.

The recycling rate stood at 73.9%, slightly below the 2008 figure (74.9%), maintaining the deceleration that began the previous year when the strong growth recorded between 2005 and 2007 came to an end. However, ASPAPEL's forecast for 2010 predicts an increase in the recycling rate to 79.1%. Meanwhile, in 2009 the utilisation rate was 80.6%, which means that over 8 kg of recovered paper were used in every 10 kg of paper produced.

It is worth noting that according to the REPARCAR 2009 Annual Report, over 80% of paper and cardboard recovered was processed by certified Environmental Management Systems, showing the sector's strong commitment to environmental sustainability.

According to the Survey on the Collection and Treatment of Waste carried out by the INE in 2008, the quantity of separately collected paper and cardboard stood at 24 kg/inhab, 3.7% less than in 2007. By autonomous community, the highest levels of separate collection were recorded in Navarre (50.9 kg) and the Balearic Islands (45 kg).

According to the progress report on the European Declaration on Paper Recovery published by the European Recovered Paper Council (ERPC), the paper recycling rate in Europe rose from 66.7% in 2008 to 72.2% in 2009, exceeding the 66% target set for 2010.

NOTES

- The collection rate, which is expressed as a percentage, indicates the ratio between the quantity of paper recovered and the quantity of paper and cardboard consumed. Used paper and cardboard are recovered for recycling by various means: industrial collection (from companies, publishing houses, printers and large retail outlets), separate collection (from blue containers and door-to-door collection from small retailers) and specific collection (from offices, public buildings, recycling points, etc.). After being cleaned and sorted into different grades, the recovered paper is used as a raw material by the papermaking industry to produce new paper.
- The recycling rate for waste paper and cardboard is calculated as the ratio between the quantity of paper recovered and apparent consumption of paper and cardboard. Apparent consumption is calculated by adding the quantity imported to the quantity produced and then deducting exports.
- The utilisation rate, which is expressed as a percentage, is calculated as the ratio between the quantity of paper recovered and the quantity of paper manufactured.
- In the Survey on the Collection and Treatment of Waste carried out in 2008 (INE, press release of 20 October 2010), separately collected waste is defined as the product of separate collection of fermentable organic matter and recyclable materials, as well as that of any other separate collection system that permits retrieval of recoverable materials contained in waste. It does not include waste recovered in screening and sorting plants.

SOURCES

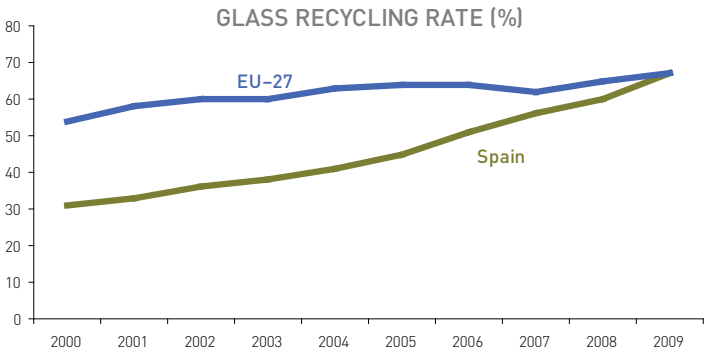
- Data provided by the ASPAPEL.
- REPACAR, 2010. *Memoria de actividades REPACAR 2009*.

FURTHER INFORMATION

- **http://www.marm.es**
- **htpp://www.ine.es**
- **htpp://www.repacar.org**
- **htpp://www.aspapel.es**
- **http://www.paperrecovery.org/**
- **http://www.cepi.org/**

Glass recycling

The glass recycling rate continues to rise, reaching 67% in 2009



Source: FEVE

Glass is 100% recyclable, which reduces raw material and energy consumption and, therefore, reduces greenhouse gas emissions. Recycling is recognised as the next best option in environmental terms after prevention and re-use. It is worth highlighting that the glass recycling industry helps to create and ensure economic growth and local employment. Therefore, it is one of the keys to developing a low-carbon green economy.

According to information submitted by the MARM to the European Commission, in 2008 the container glass recycling rate was 60%, thereby reaching the target set by Directive 2004/12/EC. In 2000, this rate was 31%, showing that it has doubled in eight years.
According to the Survey on the Collection and Treatment of Waste carried out by the INE in 2008, the average quantity of glass recycled in Spain stood at 14.9 kg/inhab, 8.3% more than in 2007. According to the same survey, Navarre and the Basque Country jointly recorded the highest figures at 24.4 kg per person.

In 2009, according to the European Container Glass Federation (FEVE), over 67% of container glass was collected for recycling in the EU (over 11 million tonnes), prolonging the positive trend seen in recent years (the proportion stood at 66% in 2008). Spain achieved a similar recycling rate (67.1%), positioning itself in line with the European average.

ECOVIDRIO is the non-profit organisation responsible for managing recycling of container glass waste in Spain. It operates in all of the sectors related to glass

recycling (bottling and packaging, and container manufacture and recovery). In 2009, a total of 2,573 companies were signed up with Ecovidrio, 118 more than in 2008. Apparent consumption of container glass, however, was slightly lower than in 2008, falling to 1,563,000 tonnes (from 1,614,000 tonnes in 2008 and 1,672,000 tonnes in 2007).

Its social indicators, included in the 2009 Annual Report, summarise its management of container glass collection. Among others, these include the following figures:

- Population covered by a container-glass collection service: 99.67% (very similar to that in previous years).
- Number of municipalities with separate glass collection: 7,881.
- Number of containers installed (total for Spain): 164,503.
- Ratio of population provided with containers: one container per 284 inhabitants.
- Glass collected per inhabitant: 15.25 kg/inhab.

NOTES
- The glass recycling rate is defined as the ratio between the quantity of glass collected and apparent glass consumption (calculated by adding the quantity imported to the quantity produced and then deducting exports).
- ECOVIDRIO conducts the entire process of glass recycling for subsequent manufacture of container glass (collection, treatment and final recycling, a process that takes place within the same year). This refers only to container glass (hollow glass), and does not include other types of glass, such as window panes, car windows, laminated glass, etc. (flat glass).
- Glass is collected from two sources: **glass contributed by the public,** which is glass collected in containers (green bottlebanks) located on public thoroughfares, and **glass of other origin,** which is obtained from packaging plants, waste-sorting plants, the hotel and catering sector and other private and public organisations.

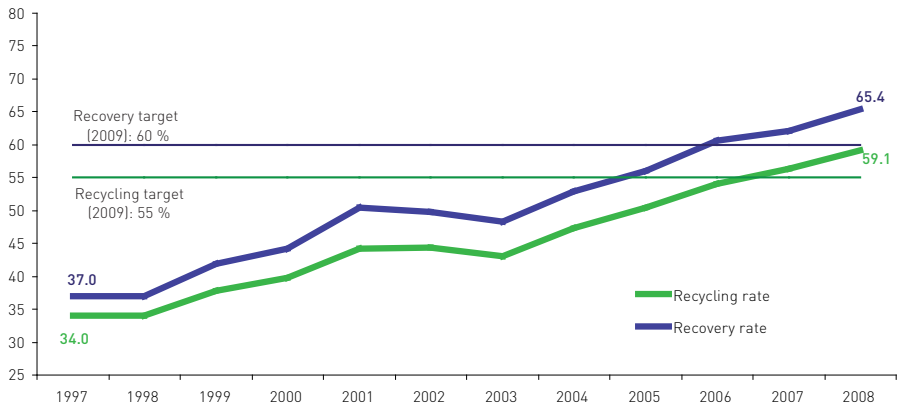
SOURCES
- FEVE.
- ECOVIDRIO, 2010. *Informe Anual 2009*.

FURTHER INFORMATION
- http://www.marm.es
- http://www.ecovidrio.es
- http://www.feve.org

Packaging waste recycling and recovery

Packaging waste recycling and recovery rates in Spain exceed the 2009 targets

OVERALL PACKAGING WASTE RECYCLING AND RECOVERY RATE (%)



Source: MARM

Since 2003, packaging waste recycling and recovery rates have maintained a continually upward trend and, since 2007, they have exceeded the overall targets set by Directive 2004/12/EC, which came into force on 31 December 2008.

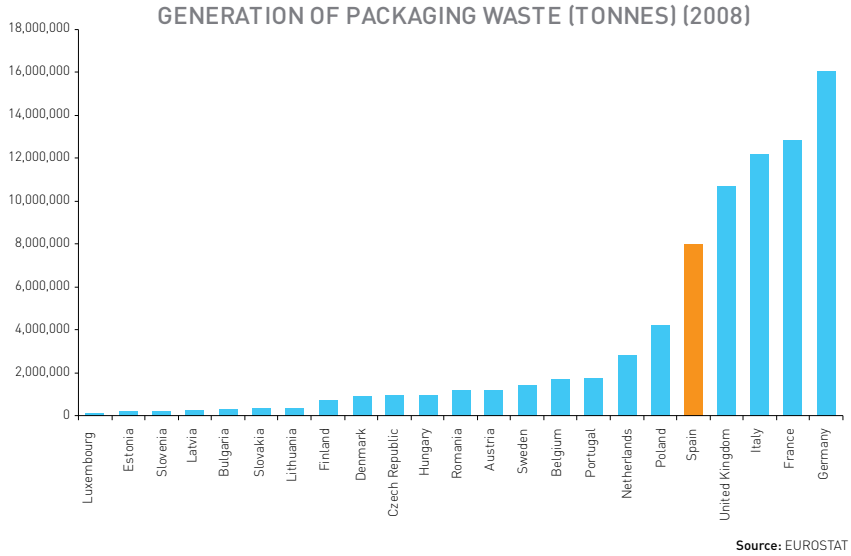
In 2008, the packaging waste recycling rate stood at 59.1% and the recovery rate stood at 65.4%, while the 2009 targets for both were 55% and 60%, respectively. The specific targets set for each material type (glass, plastic, paper and cardboard, metal and wood) were also all exceeded in 2008. The recycling and recovery rates are shown below:

PACKAGING WASTE RECYCLING AND RECOVERY RATES (%) 2008

	Glass	Plastic	Paper and cardboard	Metals	Wood	Total
Recycling rate	60.0	24.4	73.4	67.8	58.2	59.1
Recovery rate	60.0	40.0	78.3	69.3	68.2	65.4

Source: MARM

In relation to the EU, in 2008 Spain was ranked fifth in terms of packaging waste generation with over 8 million tonnes, behind the United Kingdom, Italy, France and Germany.



Source: EUROSTAT

Household packaging made of materials other than glass is managed by the Ecoembes Integrated Management System (IMS), which in 2009 consisted of 12,175 packaging companies (accounting for over 90% of containers placed on the market). According to the IMS, a total of 1,326,876 tonnes were recovered and saved from landfill (70.1% of packaging made by firms signed up to the IMS). Of this amount, 1,232,168 tonnes of packaging were recycled (65.1% of lightweight packaging and cardboard and paper packaging managed by Ecoembes) and 94,708 tonnes were recovered for their energy value. Spain has more than 420,000 packaging waste containers on its public thoroughfares, serving almost 45 million people — over 280,000 yellow containers for lightweight packaging (plastic bottles, cartons and cans), and over 140,000 blue containers (for paper and cardboard).

NOTES

- Ecoembalajes España, S.A. (Ecoembes) is a non-profit public limited company whose purpose is to design and implement systems with which to separate and recover used packaging and packaging waste in order to ensure compliance with the reduction, recycling and recovery targets set out in Law 11/1997 of 24 April on packaging and packaging waste.
- The recycling and recovery rate is calculated by comparing the number of tonnes recycled and recovered for their energy value (measured at the point of entry into the recycling and recovery process) with the total packaging waste generated (taken to be equal to the total amount placed on the market). It is assumed that the quantity of reusable packaging from previous years that becomes waste will balance out the reusable packaging placed on the market in that year and then subsequently reused.
- The data on packaging waste refers to domestic, commercial and industrial packaging.

SOURCES

- MARM, 2011. Information provided by the Sub-Directorate-General for Sustainable Production and Consumption.
- Ecoembalajes España, S.A. (Ecoembes). Ecoembes press pack 2011.

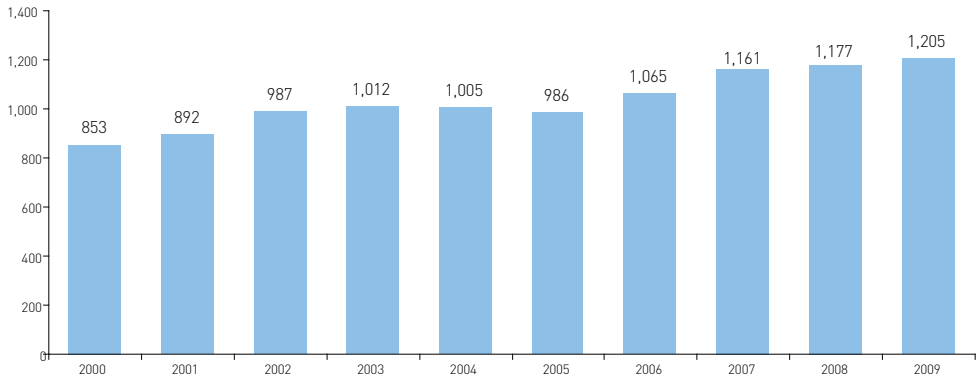
FURTHER INFORMATION

- **http://www.marm.es**
- **http://www.ecoembes.com**
- **http://epp.eurostat.ec.europa.eu**

Sewage sludge production and use

Use of sewage sludge as an agricultural fertiliser is rising, while the amount landfilled is falling

SEWAGE SLUDGE PRODUCTION (thousand t of dry matter)



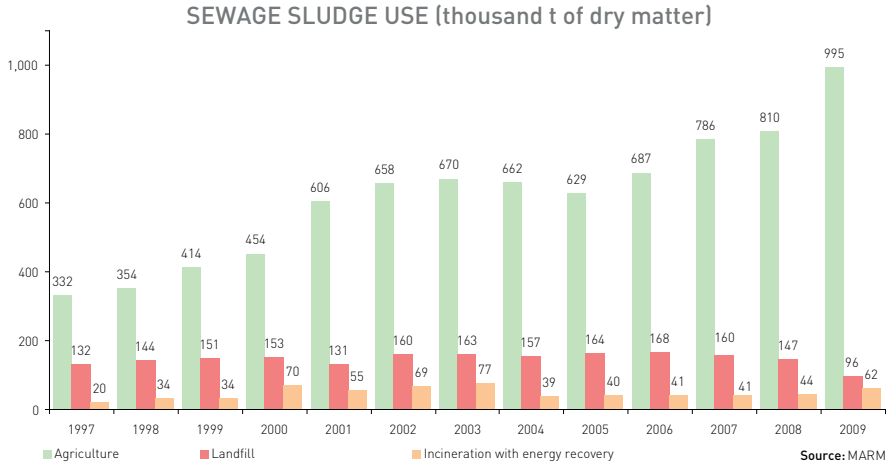
Source: MARM

Rising wastewater treatment (in 2009, 83% of pollutant load was treated, in accordance with Directive 91/271/EEC) is exacerbating the problems associated with the storage and management of the sewage sludge generated in wastewater treatment processes. After the wet content has been reduced and the sewage sludge has been treated (if applicable), it is principally used in agriculture, incinerated to recover its energy value or disposed of in landfill sites.

In 2009, Spain's treatment plants generated 1,205,124 tonnes of sewage sludge, 2.4% more than in 2008. Of this amount, 82.6% was used as fertiliser in agriculture, 7.9% was disposed of in landfill sites and 5.1% was incinerated to recover its energy value.

Over the period 2000–2009, sewage sludge generation rose by 41.2%, with agricultural use being the only one to increase (119.1%). All the other uses decreased — landfill fell in this period by 37.5% and incineration with energy recovery decreased by 12.3%.

In relation to 2008, agricultural use increased by 22.8%, landfill decreased by 34.9% and incineration rose by 40.0%.



Much of Spain's agricultural land could benefit from sewage sludge, providing it is used in accordance with the legislation in place and that appropriate fertilisation plans are drawn up that take into account sewage sludge composition and crop needs when calculating the amount to apply. Use on agricultural land should be conducted correctly, paying special attention to the method and moment of application in each case (depending on the terrain, distance from water courses, rainfall forecasts, etc). If applied in this way, it is possible to improve soil structure and nutrient content while also protecting the environment and human health.

NOTES

- Directive 86/278/EEC of 12 June 1986, on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture, employs the following terms:
  - "residual sludge from sewage plants treating domestic or urban waste waters and from other sewage plants treating waste waters of a composition similar to domestic and urban waste waters;"
  - "residual sludge from septic tanks and other similar installations for the treatment of sewage;"
  - "residual sludge from sewage plants other than those referred to in (i) and (ii);" (this sludge can only be used in agriculture under the conditions of usage regulated by the Member State affected).

SOURCES

- National Sewage Sludge Register. Sub-Directorate-General for Means of Agricultural Production. MARM (specific query).

FURTHER INFORMATION

- http://www.marm.es

2.8 AGRICULTURE

The European Commission's 2010 report on agriculture in the EU highlights that the sector's income increased by 6.1 percentage points in comparison with the previous year. However, according to this report, the overall situation in 2010 was just below the level recorded in 2005. Therefore, when viewed from a conventional perspective, the sector has stagnated, subject to the opportunities, particularly in a country like Spain, associated with the new focus on mainstreaming environmental and territorial issues into the Common Agricultural Policy (CAP). Spain has the second-largest area of land under cultivation in Europe and its agricultural GVA, at basic prices, is the third-highest in the EU-27, behind Italy and France. Spain also contributes the largest area to Europe's Natura 2000 network.

The need for reform is not just driven by the general economic situation or by other wider factors, such as the high price of inputs, product price instability or adverse meteorological conditions, but also by the guidelines set by the CAP that, despite the recent reform (Health Check of the CAP, published in May 2008), needs to be reviewed in the context of the global financial crisis, as was expressed by stakeholders in the public consultation process concluded in mid-2010.

Consequently, the European Union has considered it necessary to make further reforms, as stated in

INDICATOR	GOAL	TREND
Fertiliser consumption	Reduce fertiliser consumption	Fertiliser consumption fell for the second consecutive year
Phytosanitary product consumption	Reduce phytosanitary product consumption	In 2009, phytosanitary product consumption decreased notably
Organic farming	Increase the proportion of organic farmland to total farmland	Spain has the most organic farmland of any EU country
Organic livestock farming	Increase the number of organic livestock farms	In 2009, the number of organic livestock farms grew by 19%
Irrigated area	Introduce more efficient irrigation systems	Localised irrigation is used on 47.8% of Spain's irrigated area
Eco-efficiency in agriculture	Increase the economic value of agricultural production and decrease its pressure on the environment	Since 2007, fertiliser consumption has been decoupled from the sector's economic growth. This is also the case, albeit to a lesser extent, for phytosanitary products

COM(2010) 672 final entitled "*The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future*", which was published in July 2011. The three most important challenges faced are food security, the environment and climate change, and territorial balance.

The new CAP should pursue the following strategic objectives: a) preserve food security and contribute to meeting global food demand, which according to the FAO will increase by 70% between now and 2050; b) support agricultural communities to ensure they supply their products in a sustainable way and conform to EU commitments to the environment, water quality, animal welfare and use of phytosanitary products; c) ensure rural communities remain viable and make agriculture a generator of employment. In summary, the future CAP should continue to be based on two pillars, the first maintaining the system of direct payments (revising redistribution to guarantee base income), and the second oriented towards rural development aimed at enhancing competitiveness and achieving sustainable management of natural resources and balanced territorial development. Within this framework, the environment, climate change and innovation should, more than ever, be the guiding principles of future policy.

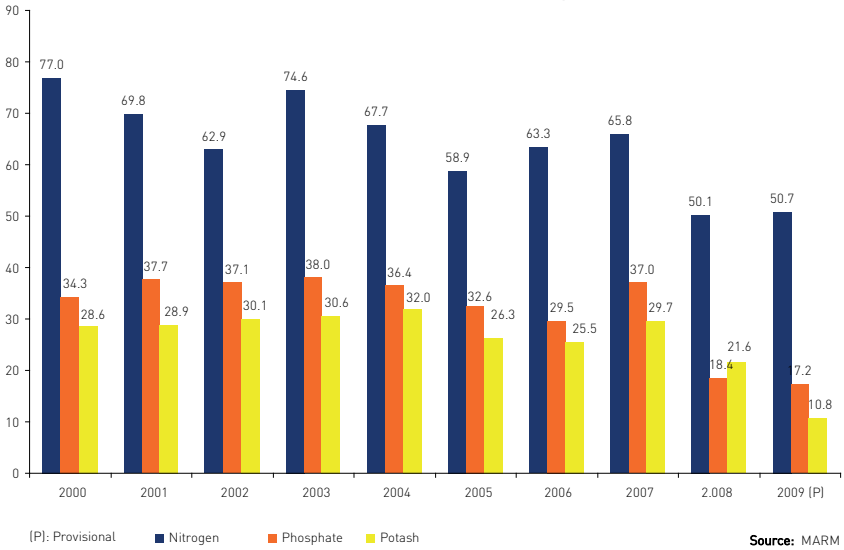
On a national level, it is worth mentioning the boost given to the territorial and inter-sectorial outlook on rural development by the Sustainable Rural Development Programme 2010–2014 (PDRS) created in conjunction with regional governments, local authorities and other stakeholders to implement Law 45/2007 of 13 December, on sustainable rural development. Action plans have been drawn up for 219 rural areas that were carefully selected on the basis of their needs. These areas account for 84.4% of Spain's land area and are home to 22.9% of the country's population. The PDRS was adopted by Royal Decree 752/2010, of 4 July.

This chapter analyses the development of a set of selected indicators revealing the agricultural aspects that affect the environment — fertiliser consumption, phytosanitary product consumption and irrigated area. It also monitors development of livestock and organic farming (Spain has the largest area of organically farmed land in Europe with 1.6 million ha).

Fertiliser consumption

In 2009, fertiliser consumption fell for the second consecutive year, dropping by 9%

FERTILISER CONSUMPTION (kg/ha)



Source: MARM

In 2009, fertiliser consumption totalled 78.7 kg/ha, 9% less than in 2008 (provisional data). However, the decrease was not uniform across the three existing types: potash and phosphate fertilisers fell by 47.9% and 2.7% respectively, while nitrogen fertilisers increased slightly, by 0.6%.

FERTILISER CONSUMPTION BY AGRICULTURAL YEAR (1,000 t)

By commercial product	2005/06	2006/07	2007/08	2008/09	2009/10
Simple nitrogen fertilisers	2,443	2,387	2,360	2,027	2,060
Simple phosphate fertilisers	190	183	251	69	101
Simple potash fertilisers	222	267	245	90	149
Complex fertilisers	1,959	1,973	2,281	911	1,458
Total fertilisers	**4,814**	**4,810**	**5,137**	**3,097**	**3,768**
By fertiliser element	2005/06	2006/07	2007/08	2008/09	2009/10
Total N	951	938	977	720	813
Total P_2O_5	465	461	527	153	324
Total K_2O	387	411	432	181	274

Source: ANFEE

However, analysis of the provisional data for the agricultural year (running from July to June of the following year) rather than for the calendar year, reveals that mineral fertiliser consumption in the 2009/2010 agricultural year (running from July 2009 to June 2010) rose again after a sharp decrease in 2008/2009. In absolute figures, and

although far below the 5,000,000-tonne average of recent years, consumption seems to have started to recover, increasing in the last agricultural year by 21.7% compared to the previous 12 months.

Breaking consumption down by fertiliser type reveals an increase in consumption of all three fertilisers compared to the previous year, with use of nitrogen fertilisers rising by 12.9%, that of phosphate fertilisers by 111.7% and that of potash fertilisers by 51.4%.

Furthermore, analysis by fertiliser type (as a commercial product) shows a modest 1.6% increase in consumption of simple nitrogen fertilisers. Consumption of simple phosphate fertilisers rose by 46.4% in comparison with the 2008/2009 agricultural year and use of simple potash fertilisers leapt up by around 60%.

As in previous years, the link between agricultural intensity and fertiliser consumption remains particularly evident in autonomous communities such as Murcia, Valencia and the Canary Islands, where agriculture is more intensive than elsewhere in Spain.

NOTES

- According to the 2009 agri-food statistical yearbook, fertilisable area is defined as arable land (excluding fallow and other unoccupied land) and natural grasslands. MAPA.
- Fertilisers are defined as products used in agriculture or gardening that, due to their nutrient content, encourage plant growth, increase yield and improve crop quality, or that, due to their specific action, modify, as desired, soil fertility or its physical, chemical or biological characteristics. This category includes fertilisers, special products and conditioners.
- Inorganic or mineral fertiliser: fertiliser obtained by extraction or by physical or chemical industrial processes whose declared nutrients are present in mineral form.
- Simple fertiliser: nitrogen, phosphate or potash fertiliser with a declared content of a single main nutrient.
- Compound fertiliser: fertiliser obtained chemically or by mixing, or by a combination of both, with a declared content of at least two main nutrients.
- Complex fertiliser: compound fertiliser obtained by chemical reaction, in solution or solid form as granules, with a declared content of at least two main nutrients. In solid form, each granule contains all the nutrients in its declared composition (as per the definitions established by Royal Decree 824/2005 of 8 July, on fertiliser products).
- The period used to measure fertiliser consumption runs from July to June of the following year.

SOURCES

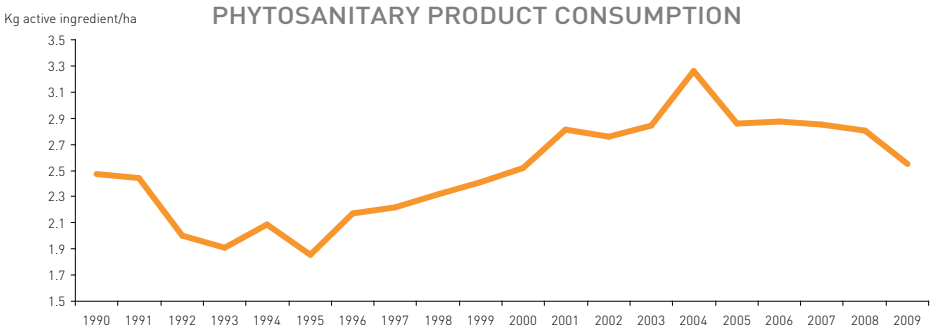
- ANFFE, 2011.
- MARM, 2010. *Anuario de Estadística 2009*.
- MARM, 2010. *Encuesta sobre Superficies y Rendimientos de Cultivos* (ESYRCE), 2009.

FURTHER INFORMATION

- **http://www.marm.es**
- **http://www.anffe.com**

Phytosanitary product consumption

In 2009, the downward trend in phytosanitary product consumption begun in 2004 accelerated



Source: Compiled in-house using data from the AEPLA and the MARM

Annual consumption of phytosanitary products is mainly conditioned by climatic factors, particularly rainfall, which affect expected agricultural production and, consequently, consumption of the various products used. Since 2004, when phytosanitary product consumption (active ingredients) per hectare peaked, largely due to highly favourable climatic conditions, consumption has been falling steadily, accelerating further in 2009.

The current economic climate's effect on agricultural activity, along with the meteorological conditions of spring 2009, created enormous uncertainty among farmers, which was reflected in the 9% decrease in phytosanitary product consumption.

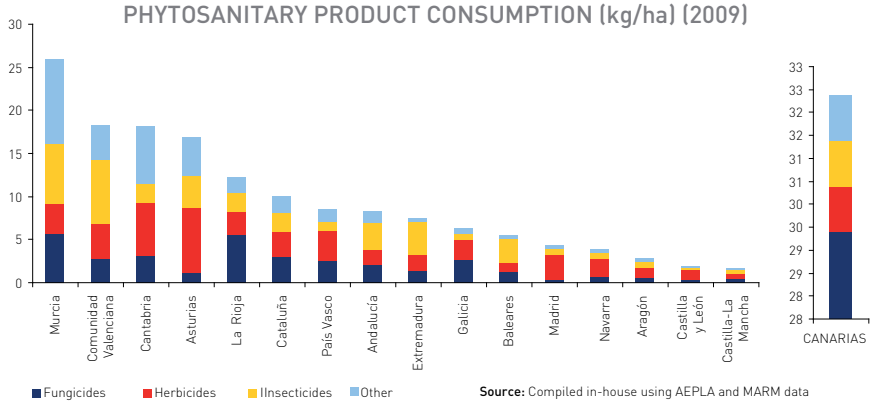
According to provisional data, the most widely used phytosanitary products in 2009 were herbicides (35%), consumption of which remained at a similar level to 2008, followed by insecticides (25%) and fungicides (25%).

Use of phytosanitary products can have undesirable and hazardous effects on human health, flora and fauna. Recent adoption of Regulation (EC) 1107/2009 of the European Parliament and of the Council, of 21 October 2009, concerning the placing of plant protection products on the market (repealing Council Directives 79/117/EEC and 91/414/EEC), aims to guarantee a higher level of protection for human and animal health and the environment, whilst seeking to improve operation of Europe's internal market by harmonising the regulations governing the placing of plant protection products on the market.

The Spanish State, by requiring authorisation for and entry in the MARM's Official Register of Phytosanitary Products, applies the necessary mechanisms to ensure that only plant protection products effective in combating pests, without incurring collateral risk, can be placed on the market.

At the same time, production of annual regulatory reports continues on the Phytosanitary Product Sales and Use Monitoring Programmes implemented by Spain's regional governments.

PHYTOSANITARY PRODUCT CONSUMPTION (kg/ha) (2009)



Source: Compiled in-house using AEPLA and MARM data

By autonomous community, greatest use of phytosanitary products per hectare occurs in the Canary Islands (70.7 kg/ha), Murcia (25.9 kg/ha), Valencia (18.3 kg/ha), Cantabria (18.2 kg/ha) and Asturias (19.9 kg/ha).

NOTES

In calculating the indicator, "area treated with phytosanitary products" is taken as the total area of arable land, excluding fallow and other unoccupied land (i.e. the area devoted solely to herbaceous and ligneous crops).

SOURCES

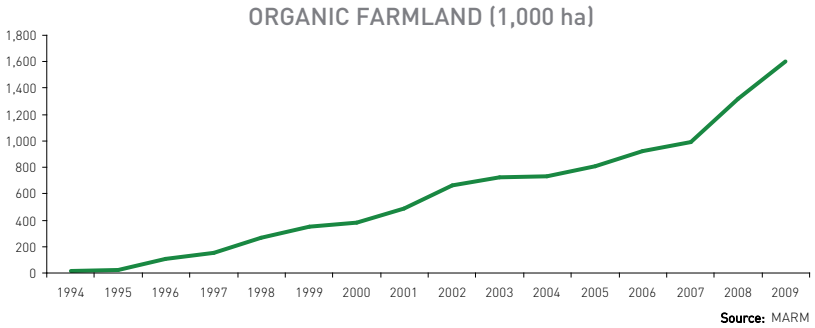
- Phytosanitary products: AEPLA.
- Treated area:
  - MARM, 2010. *Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE),* 2009.
  - MARM, 2010. *Anuario de Estadística 2009.*

FURTHER INFORMATION

- **http://www.marm.es**
- **http://www.aepla.es**

Organic farming

Spain has the most hectares of organic farmland of any country in the European Union



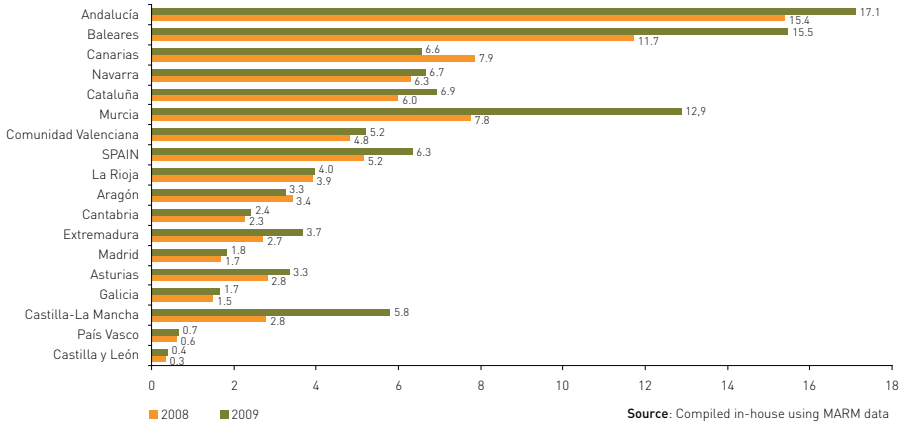
In recent years, organic farming has witnessed significant development boosted by growing consumer awareness about food safety and environmental issues. Organic farming should be considered an integral part of a sustainable agricultural production system, and as a viable alternative to the more traditional agricultural approach.

Organic farming has been regulated in Spain since 1989, when the Regulation on Generic Organic Labelling was passed. This was applied until the entry into force of Regulation (EC) 834/2007 of the Council, on organic production and labelling of organic products. At present, supervision and certification of organic farming is largely performed by regional Organic Farming Councils or Committees reporting to their respective regional ministries of agriculture.

In 2009, for the second consecutive year, Spain had the greatest number of hectares of organic farmland in the European Union. The country was also the world's sixth-biggest producer of organic products. Last year, Spain had 1,602 million hectares of organic farmland, 21.64% more than in 2008.

The number of workers in the sector rose from 23,473 in 2008 to 27,627 in 2009, representing a 17.7% year-on-year increase.

ORGANIC FARMLAND AS A PROPORTION OF UTILISED AGRICULTURAL AREA (%)



Source: Compiled in-house using MARM data

By autonomous community, Andalusia has the largest expanse of land devoted to organic farming (866,799 hectares in 2009, 54.08% of the country's total). It is followed by Castile-La Mancha, with 246,076 hectares (15% of the total) and Extremadura with 115,018 hectares (7.18% of the total). Next come Catalonia, with 71,734 hectares (15.09%); Aragon, with 66,730 hectares; Murcia, with 60,742 hectares; and Valencia, with 38,754 hectares.

In terms of crop typology for organic faming in Spain, pasture, grassland, forage and forest are used for organic livestock farming, occupying 1,030,890 hectares. These are followed by cereals, with 204,043 hectares, and olive groves (127,041 hectares).

NOTES

- Utilised Agricultural Area (UAA): Sum total of arable land, grassland and permanent pasture. The figures are taken from the *Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE)*. MARM.
- The legislative framework governing organic farming in Spain since 1989 comprises the Regulation on Generic Organic Labelling and, at European level, Regulation (EC) 834/2007 of 28 June 2007, on organic production and labelling of organic products, which repealed Regulation (EEC) 2092/91 [Official Journal of the EU 20.07.2007].

SOURCES

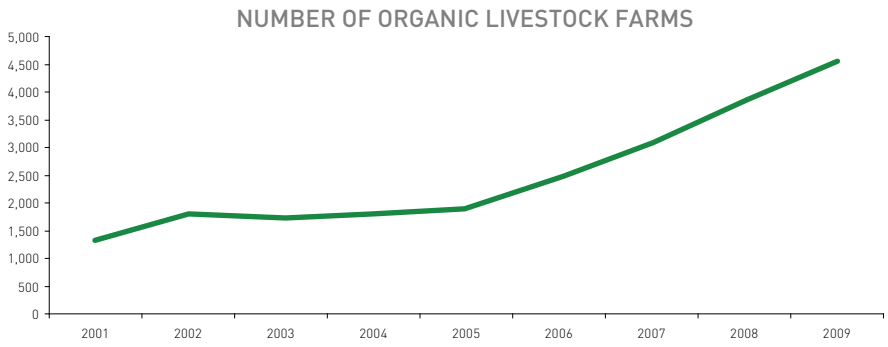
- MARM, 2010. *Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE)*, 2008 and 2009.
- MARM, 2010. 2009 statistics. Organic farming. Spain.

FURTHER INFORMATION

- **http://www.marm.es/es/alimentacion/temas/la-agricultura-ecologica/**

Organic livestock farming

Growth in organic livestock farming continued in 2009 with a 19.2% increase in the number of organic livestock farms



Source: MARM

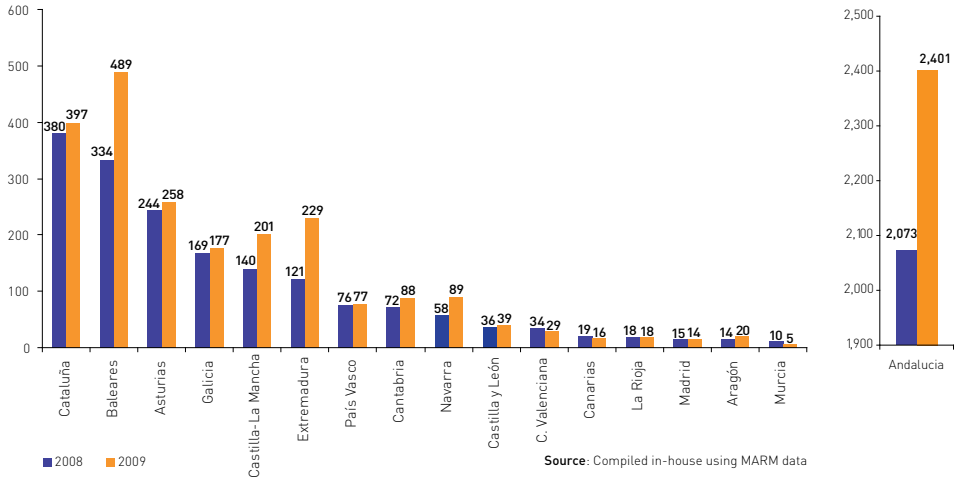
Organic livestock farming is a production system that ensures animals' well-being and protection. Under this system, animal's growth is not forced and they are provided with controlled foodstuffs, sufficient room to ensure mobility and access to water and open spaces.

Among other things, this means that the fodder and feed provided do not contain transgenic ingredients and were not cultivated using fertilisers or chemical pesticides. Likewise, antibiotics and anti-parasitic drugs are not used to prevent disease or to artificially stimulate production, but are replaced by careful management, measures to prevent disease transmission and rigorous selection to strengthen animal health.

The organic livestock farming sector developed strongly between 2005 and 2009, despite initial growth having been inconsistent across Spain's various autonomous communities. In 2009, Spain had 4,548 organic livestock farms, a 19.2% increase on the year before.

By autonomous community, Andalusia is still the region with the highest number of organic livestock farms (2,401, following a year-on-year rise of 15.8%). This represents 52.8% of all organic livestock farms in Spain. It is followed by the Balearic Islands with 489 livestock farms, Catalonia (397 farms) and Asturias (259 farms). The autonomous communities to record the largest increase in the number of organic livestock farms were Extremadura and Navarre, with 89.3% and 53.4% respectively.

NUMBER OF ORGANIC LIVESTOCK FARMS BY AUTONOMOUS COMMUNITY



Source: Compiled in-house using MARM data

By farm type, in 2009 cattle farming was once again the leading form of organic livestock farming. Cattle farms accounted for 46% of the total number of organic livestock farms (2,106), followed by sheep and goat farms (with 1,208 and 397 holdings, respectively), which comprised 36% of the total. Bee farming was the only form to decrease, falling slightly by 2.1% in comparison with the year before.

NOTES

- The legislative framework governing organic farming in Spain since 1989 comprises the Regulation on Generic Organic Labelling and, at European level, Regulation (EC) 834/2007 of 28 June 2007, on organic production and labelling of organic products, which repealed Regulation (EEC) 2092/91 [Official Journal of the EU 20.07.2007].

SOURCES

- MARM, 2010. *Anuario de Estadística*, 2009.
- MARM, 2010. 2009 statistics. Organic farming. Spain.

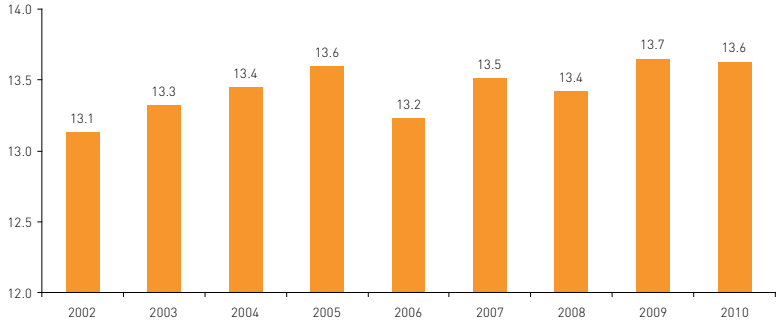
FURTHER INFORMATION

- **http://www.marm.es/es/alimentacion/temas/la-agricultura-ecologica/**

Irrigated area

In 2010, the area of irrigated land decreased slightly on the previous year

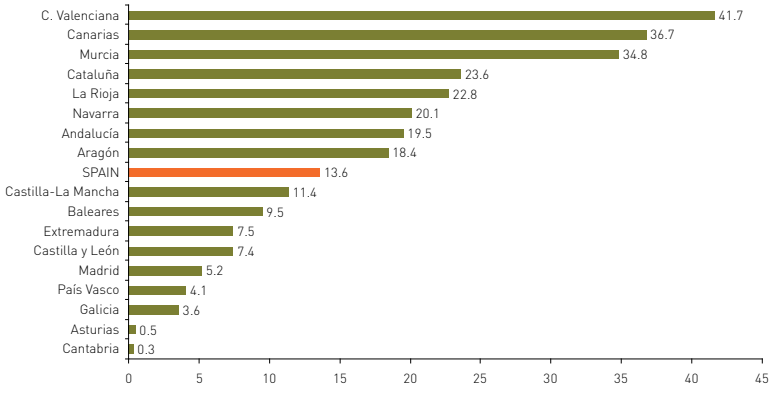
IRRIGATED AREA AS A PROPORTION OF TOTAL AGRICULTURAL AREA (%)



Source: MARM

Irrigation plays a vital role in Spain's agricultural economy. In 2010, irrigated area stood at 3,407,953 ha (13.6% of total agricultural area). This figure is slightly above the average proportion of irrigated area to total agricultural area for the last five years under study (13.5%), though it is lower than that of 2009.

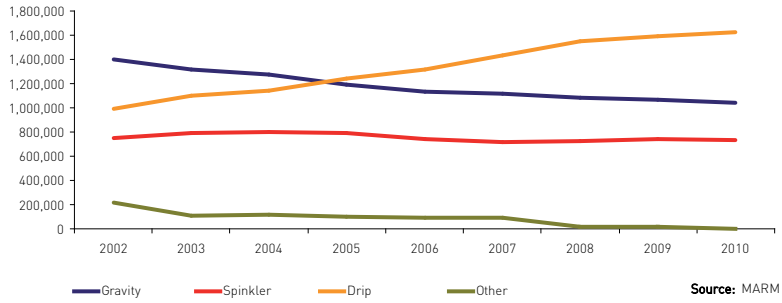
IRRIGATED AREA AS A PROPORTION OF TOTAL AGRICULTURAL AREA (%). 2010



Source: MARM

By autonomous community, Valencia (41.7%), the Canary Islands (36.7%) and Murcia (34.8%) had the highest proportions of irrigated area to total agricultural area, while Cantabria (0.3%) and Asturias (0.5%) had the lowest.

IRRIGATED AREA BY IRRIGATION SYSTEM (ha)



Source: MARM

Since 2002, there has been an increase in the number of hectares watered by localised irrigation systems that, at 1,628,705 ha, represents almost 50% of the total area (47.8%). This increase is proportionate to the decrease in land area watered by gravity-fed irrigation systems, which are used on 1,043,704 ha (30.6%). Combined, they account for over 78% of the total. The area on which sprinkler irrigation systems are used has remained stable at 470,758 ha, or 13.8% of the total.

This progressive optimisation of water use, characterised by a gradual shift towards more efficient irrigation systems in many of the country's regions in recent years, is due to sustained application of policies designed to modernise irrigation practices and raise their efficiency.

In this regard, the future National Strategy for Sustainable Modernisation of Irrigation — Horizon 2015 aims to continue the efforts to improve water management and encourage sustainable irrigation begun with the Action Plan for the Modernisation of Irrigation 2006–08. The Strategy is intended to form one of the cornerstones of Spain's new sustainable agricultural model, which includes the clear target of creating employment in rural areas by modernising irrigation, and also constitutes a tool with which to manage spatial planning and maintain rural populations.

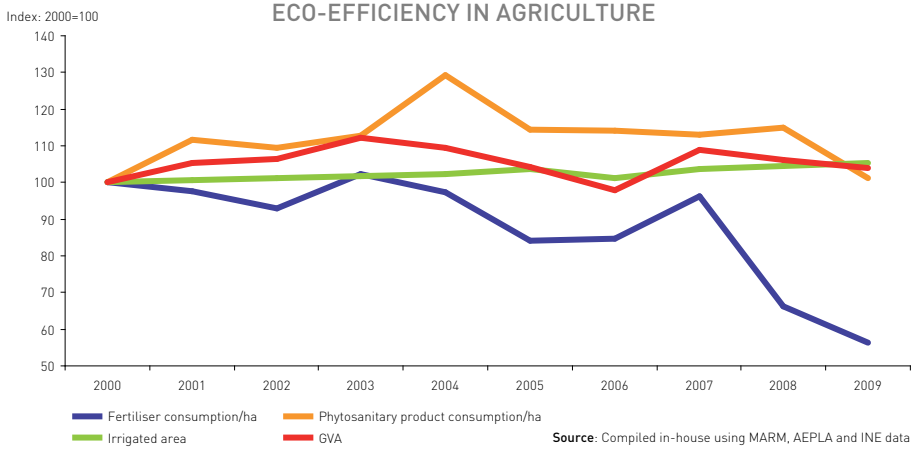
NOTES
- Irrigated area refers to the area devoted to crop production or pasture improvement that is supplied with water, irrespective of the number of times irrigation is performed per year.
- Total agricultural area refers to arable and fallow land, greenhouses and family smallholdings.
- One irrigated hectare produces on average six times more than an unirrigated hectare, and generates four times more income.

SOURCES
- MARM. *Encuesta sobre Superficies y Rendimientos de Cultivos* (ESYRCE), various years.
- http://www.marm.es/es/agua/temas/gestion-sostenible-de-regadios/

FURTHER INFORMATION
- **http://www.marm.es**

Eco-efficiency in agriculture

Fertiliser consumption has been steadily decoupling from the sector's economic growth in recent years



Source: Compiled in-house using MARM, AEPLA and INE data

Gross Value Added (GVA) for agriculture, livestock farming and fishing increased by 3.9% over the period 2000–2009. However, the annual figures fluctuated, peaking in 2003 (12.1% up on 2000) and dropping by 2.9% between 2007 and 2008 and by a further 2% between 2008 and 2009.

In this context, phytosanitary product consumption per hectare (active ingredients) grew by 1.1% in the same period, a figure principally attributable to the sharp decrease (of 12.1%) in 2009, which interrupted the stable trend of previous years. Likewise, irrigated area, which increased by 5.5%, followed the trend in GVA, though the rise was more substantial. However, the decrease in phytosanitary product consumption is significant, falling 43.7% in the nine years under study, and by almost 15% in the last year of the period.

In short, the sector's economic development in recent years has been accompanied by a slight increase in the agricultural area under irrigation; by a similar level of phytosanitary product consumption (mainly due to the decrease in the final year of the period under study); and by a sharp drop in fertiliser consumption per hectare.

NOTES

- Gross Value Added in the sector refers to agriculture, fishing, hunting and forestry.
- For the purpose of calculating the indicator, eco-efficiency is considered positive when the trend in the sector's economic growth is decoupled (contrary and divergent) from that of the pressures it exerts on the environment.

SOURCES

- GVA for agriculture, livestock farming and fishing: INE, 2011. Spanish National Accounts. GDP at market prices and its components. 2000 base. 1995–2009 accounting series.
- Fertiliser consumption per hectare: MARM, 2011. *Anuario de Estadística*, 2009.
- Phytosanitary product consumption per hectare:
  - AEPLA, 2011.
  - MARM, 2011. *Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE)*, various years.
- Irrigated area: MARM, 2010. *Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE)*, various years.

FURTHER INFORMATION

- **http://www.marm.es**
- **http://www.anffe.com**
- **http://www.aepla.es**
- **http://www.ine.es**

2.9 ENERGY

For years, Spain's energy policy has had many of the same goals as Europe's — to reduce pollutant emissions, guarantee energy supply, reduce dependence on foreign sources and develop interconnection infrastructure. The traditional characteristics of Spain's particular energy situation essentially comprise higher energy consumption per unit of Gross Domestic Product than the EU average and high levels of energy dependence and greenhouse gas emissions, the latter due chiefly to transport and electricity generation. However, this situation is currently undergoing notable changes. Energy efficiency and saving policies resulted in a 10% reduction in energy intensity between 2000 and 2008. Effectively, this means that in 2008 Spain used 10% less energy to achieve the same output as in 2000.

Meanwhile, development of renewable energy sources has been made a priority under Spanish energy policy. Highly notable advances have been made in this regard, especially in electricity production, where the amount of coal-generated power has fallen and the use of combined-cycle plants running on natural gas has increased. Among the most significant consequences of these changes are greater energy source sustainability, reductions in pollutant emissions, technological changes, reduced energy dependence and positive repercussions on employment and rural development.

Renewable sources are no longer a minor component in Spain's energy system, but have now established a leading position within the mix — 2010 was the first year in which renewable energy was the number one source in Spain's electricity-generation structure.

Spain's National Renewable Energy Action Plan 2011–2020 (PANER) seeks to consolidate and improve this situation and meet the objective set by Directive 2009/28/EC of the European Parliament and of the Council, which establishes a series

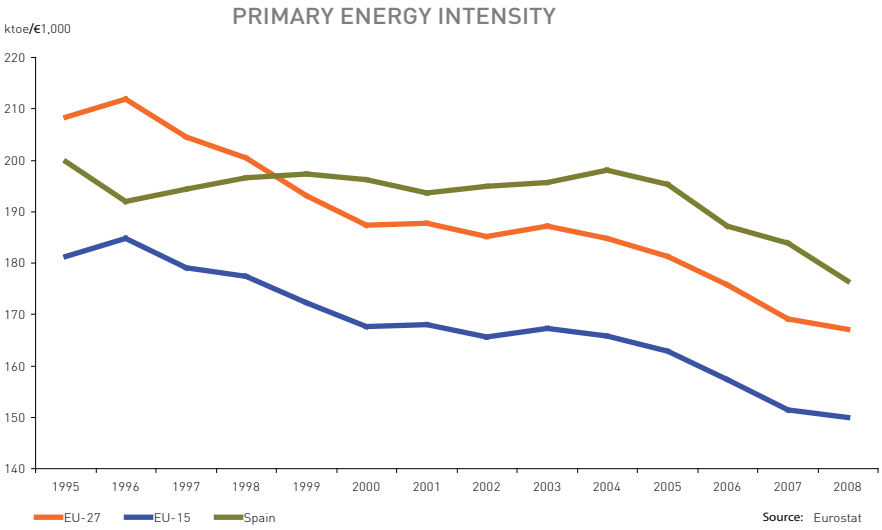
INDICATOR	GOAL	TREND
Primary energy intensity	Weaken the link between energy consumption and GDP	Primary energy intensity is falling faster in Spain than the European average
Energy-related GHG emissions intensity	Decouple economic growth from CO_2 emissions	The intensity of energy-related CO_2 emissions has decreased considerably in the last two years analysed
Renewable energy	Generate 20% of gross final energy consumption from renewable sources by 2020	Renewable energy, which accounts for 32.3% of the total, is now the number one source in Spain's electricity-generation structure
Eco-efficiency in energy	Decouple economic growth from the environmental pressure exerted by the sector	Energy-related GHG emissions are falling faster than primary energy consumption and GDP

of general goals for Member States for the year 2020. These include generating 20% of gross final energy consumption from renewable sources, as well as producing 10% of the energy used in the transport sector from renewable energy sources.

In addition to the aforementioned aspects, another important factor appearing in a number of indicators in this chapter is the drop in economic activity, which translates as lower energy consumption and reduced GDP, as well as exerting a partial influence on the reductions in greenhouse gas emissions related to energy production and distribution.

Primary energy intensity

The Spanish economy's energy intensity is decreasing faster than the European average

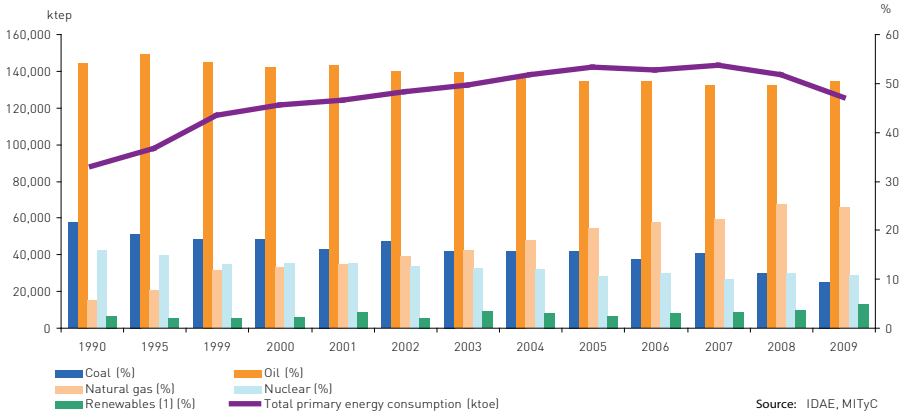


The Spanish economy's energy intensity, understood as the ratio between total primary energy consumption (in kt of oil equivalent) and GDP (expressed in thousands of euros) continues to decrease both nationally and in comparison with the EU. In addition, both ratios are falling at comparable rates — between 2000 and 2008, energy intensity decreased by 10.80% in the EU-27 and by 10.05% in Spain.

These figures vary slightly in the last two years analysed, when there was a 1.17% drop in the economy's energy intensity in the EU and a 4.06% fall in Spain.

Comparing the 2009 figures for total primary energy consumption and its breakdown by energy source with the equivalent 2008 figures reveals a notable drop (8.76% of the total value — from 137,836 ktoe in 2008 to 125,762 ktoe in 2009). Energy from coal accounted for 11.2% of total primary energy consumption in 2008, and for 9.5% of total primary energy consumption in 2009. Likewise, there was a fall in the proportions of energy derived from natural gas (from 25.2% to 24.7%) and nuclear energy (from 11.1% to 10.9%). However, oil use increased slightly (from 49.5% in 2008 to 50.6% in 2009).

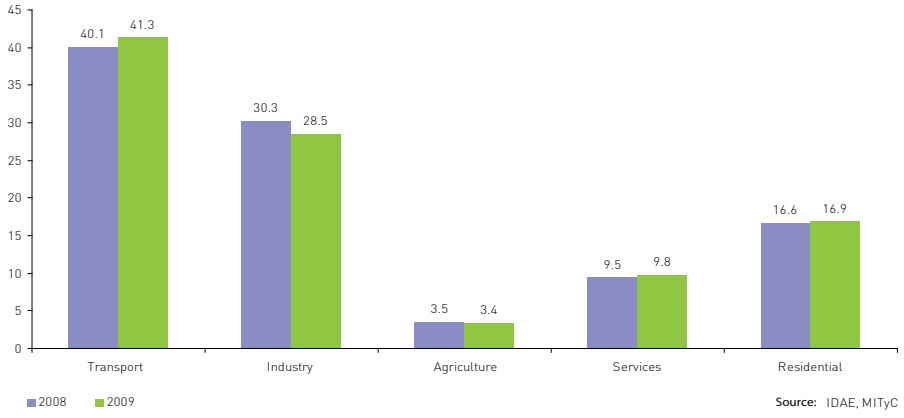
ANNUAL CONSUMPTION OF PRIMARY ENERGY (ktoe) BY SOURCE (%)



Source: IDAE, MITyC

By sector, in 2009 transport still ranked first in terms of final energy consumption with a 41.3% share, up from 40.1% in 2008. Conversely, the proportion of final energy consumed by industry fell from 30.3% in 2008 to 28.5% in 2009. The residential sector increased its share slightly, from 16.6% of total final energy consumption in 2008 to 16.9% in 2009. Likewise, the proportion consumed by the service sector increased from 9.5% in 2008 to 9.8% in 2009. Finally, agriculture's consumption remained practically unaltered, accounting for 3.5% of final energy consumption in 2008 and 3.4% in 2009.

FINAL ENERGY CONSUMPTION BY SECTOR (%)



Source: IDAE, MITyC

SOURCES

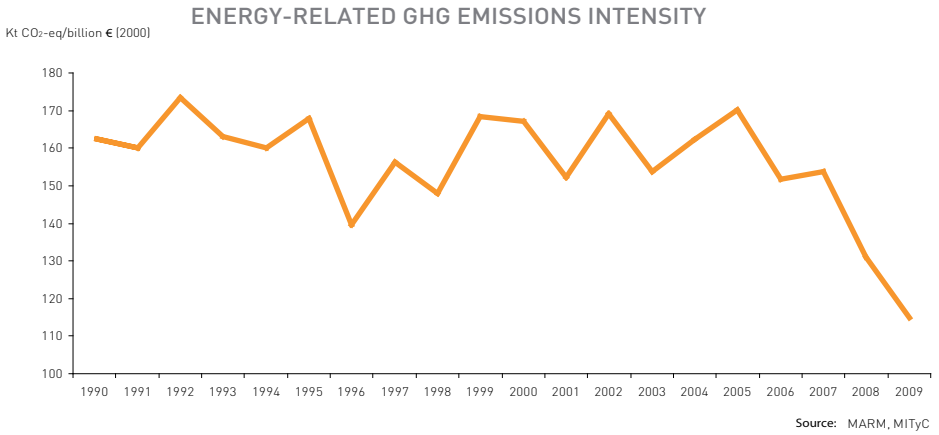
- EUROSTAT, 2011. Website: Eurostat/Statistics by theme/Energy/Database/Main indicators
- MITyC, 2010. *La Energía en España 2009*
- IDAE. *Boletín energético*, various years.

FURTHER INFORMATION

- www.idae.es
- www.cne.es/medioambiente.html
- www.mityc.es
- http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home

Energy-related GHG emissions intensity

The intensity of energy-related CO_2 emissions fell sharply in 2008 and 2009



Source: MARM, MITyC

The intensity of energy-related greenhouse gas emissions expressed as CO_2 equivalent (ratio between CO_2 equivalent emissions produced by energy transformation and processing industries and GDP) fell sharply in 2008 and 2009. What is more, this fall no longer depends (as it did in previous years) on meteorological conditions and the subsequent variations in the respective shares of hydroelectric power and fossil fuels.

GHG emissions from energy production in relation to the country's economic growth dropped by nearly 25% in only two years. Total GHG emissions from energy production and transformation fell from 121,631 kilotonnes of CO_2 equivalent in 2007 to 88,328 kt in 2009. At the same time, Spain's GDP dropped by 2.73% in 2009 in relation to 2007. The variations produced in these two items led to a 25.23% decrease in the energy-related CO_2-eq emissions intensity indicator in just two years.

In this case, if the difference between 2009 and 2008 is considered, the decline is general across all the greenhouse gases, though the reduction in CO_2 is the greatest (-15.44%). The drops in CH_4 and N_2O between 2009 and 2008 are slightly smaller, though certainly appreciable (-11.99% for CH_4 and -11.70% for N_2O). Thermal power stations were principally responsible for the fall in energy-related CO_2 emissions, as their output of these gases decreased from 106,708 kt of CO_2 in 2007 to 74,161 kt of CO_2 in 2009, a reduction of 30% in two years. However, emissions from coal mining, oil/gas extraction and pipeline compressors rose from 1,015 kt in 2007 to 1,551 kt in 2009 — an increase of 46.1% over the same two-year period.

NOTES

- For the purpose of calculating this indicator, CO_2-equivalent emissions refer to total emissions from combustion in the energy-sector industries included under the Energy heading (as per the IPCC categories) and comprise the six greenhouse gases expressed as CO_2-equivalent. The Energy category includes combustion processes, among them electricity generation, combustion at refineries and transformation of combustible fuels, as well as combustion in mining.
- The six main greenhouse gases covered by the Kyoto Protocol are, in order of importance, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and fluorinated gases, which include perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6), although the latter have no impact in the energy sector as they are only emitted in industrial processes.

SOURCES

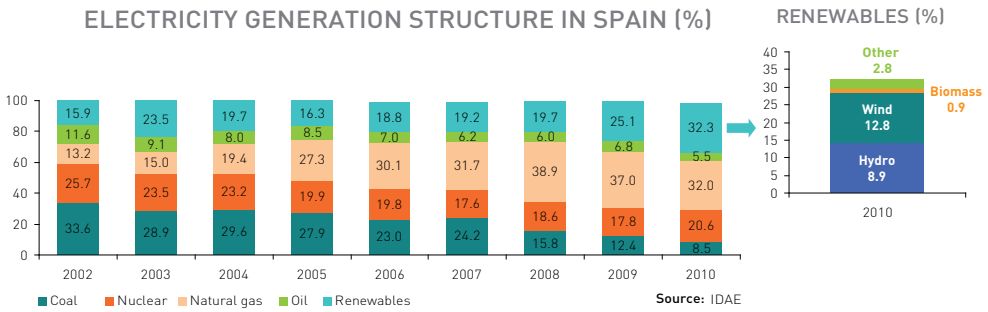
- Emissions data: MARM, 2011. *Inventario de Gases de Efecto Invernadero de España. Años 1990–2009.* Directorate-General for Environmental Quality and Assessment.
- GDP data: 1990–2009: MITyC, 2010. *La Energía en España 2009.*

FURTHER INFORMATION

- www.marm.es
- www.idae.es
- www.mityc.es
- http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home

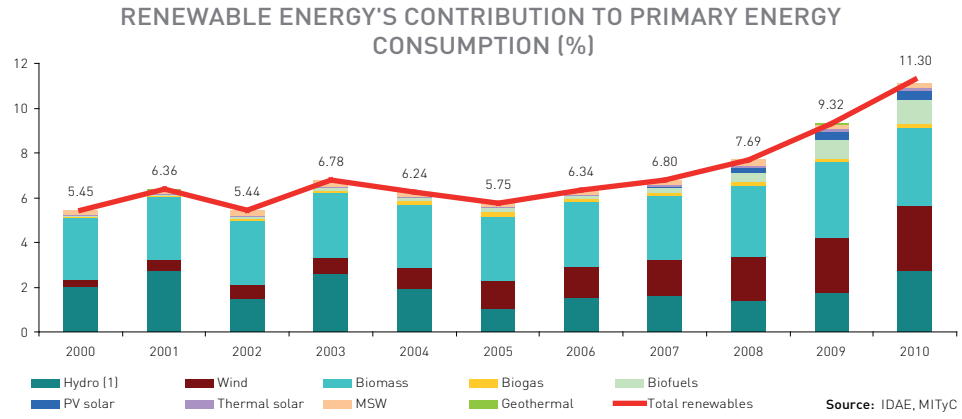
Renewable energy

In 2010, for the first time in Spain renewable energy exceeded all other sources in electricity production



In 2010, for the first time in Spain renewables were the leading electricity-generating source. The proportions of coal, gas and oil used all decreased; the use of nuclear energy rose slightly; and renewable energy's share jumped from 19.7% in 2008 to 25.1% in 2009 and then to an impressive 32.3% in 2010.

Within this category, hydroelectric energy, which accounted for 7.3% of total electricity generation in 2008, rose to 8.9% in 2009 and to 14.1% in 2010. Wind energy, which accounted for 10% of total energy production in 2008, represented 12.8% in 2009 and 14.6% in 2010.

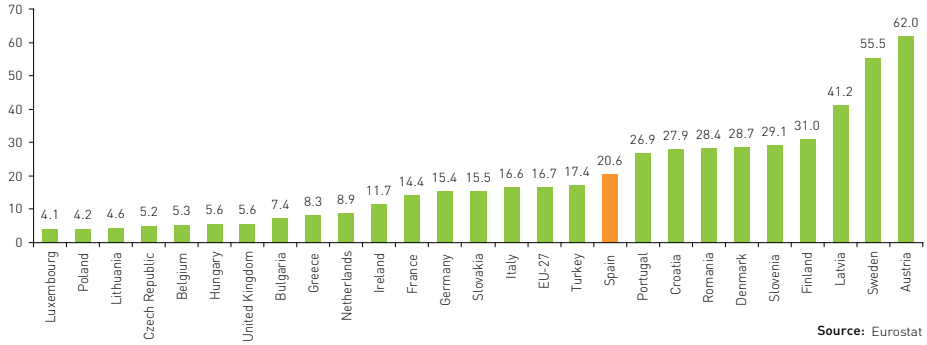


Directive 2009/28/EC of the European Parliament and of the Council, of 23 April 2009, on the promotion of the use of energy from renewable sources, stipulates that each Member State should draw up a national renewable energy action plan (the PANER, in the case of Spain) to meet the national objectives set in the same Directive.

For Spain, these objectives specify that renewable energy should represent 20% of gross final energy consumption and 10% of energy consumption by transport by 2020. Spain's Renewable Energy Plan 2011–2020, which is currently being drafted, estimates that by 2020 renewable energy's contribution to gross final energy consumption will stand at 22.7% (compared to the 20% objective) and at 42.3% for electricity generation.

According to Eurostat data, Spain is above the EU-27 average by proportion of electricity derived from renewable sources and ranks higher than countries like the United Kingdom, France, Germany and Italy (among others). What is more, this position is likely to improve over the next two years.

PROPORTION OF ELECTRICITY OUTPUT PRODUCED BY RENEWABLE SOURCES (%) (2008)



Source: Eurostat

NOTES

- The renewable energy total includes hydroelectric, mini-hydroelectric, wind, biomass and urban waste, as well as thermal and photovoltaic solar power and biogas.
- Development of renewable energy sources is a key aspect of national energy policy. These sources make an efficient contribution to reducing the environmental impact of energy production and transformation. This is mainly achieved by cutting emissions of greenhouse gases, particularly CO_2, as well as lowering those of other pollutants (SO_2, NO_x, particulate matter, etc.). Increasing renewable energy's contribution to the energy balance also reduces the country's dependence on petroleum products and diversifies its sources of supply by encouraging development of inexhaustible and widely available resources. This in turn also reduces the need for transformation and transport, bringing a corresponding reduction in environmental impact.

SOURCES

- Data provided by the IDAE. MITyC.
- MITyC, 2010. *La Energía en España 2009*.

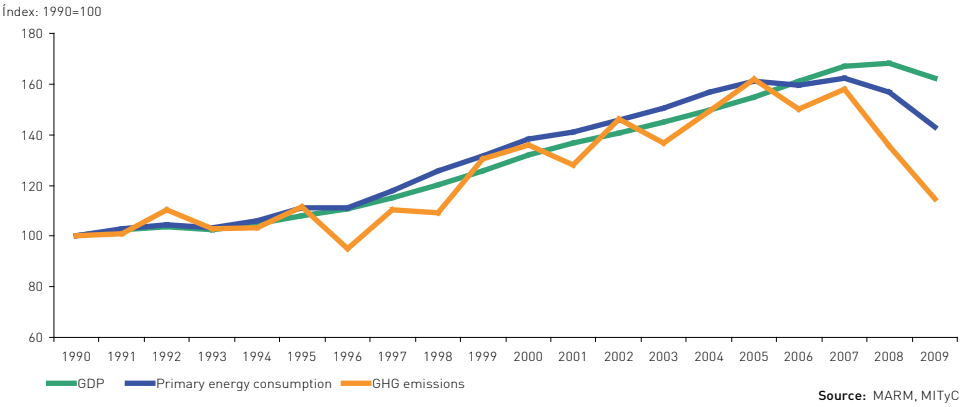
FURTHER INFORMATION

- www.idae.es
- www.cne.es/medioambiente.html
- www.mityc.es
- http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home

Eco-efficiency in energy

In 2009, energy-related GHG emissions fell sharply, while primary energy consumption and GDP also decreased, though to a lesser extent

ECO-EFFICIENCY IN ENERGY



Source: MARM, MITyC

In 2009, all three factors considered when analysing eco-efficiency in energy (GDP, primary energy consumption and greenhouse gas emissions associated with energy production and transformation) fell. These changes, however, were not comparable — GDP declined by 3.6% (from €803.4 billion in 2008 to €774.5 billion in 2009) and primary energy consumption decreased by 8.76% (from 137,836 ktoe in 2008 to 125,762 ktoe in 2009). However, the truly significant drop occurred in total greenhouse gas emissions (kt of CO_2-eq) associated with energy production and transformation, which fell 15.41% in just one year, from 105,303.70 kt of CO_2-eq in 2008 to 89,071.27 kt of CO_2-eq in 2009.

The magnitude of this decline in GHG emissions can be fully appreciated when it is taken into account that in 2005 these emissions, at 125,761.37 kt of CO_2-eq, represented 162% of the 1990 emissions value. Just four years later, in 2009, GHG emissions associated with energy production and transformation represented 114.78% of the 1990 emissions level.

NOTES

- In energy production, CO_2 accounts for the vast majority of greenhouse gas emissions, meaning that it makes no difference if total GHG emissions (CO_2-eq) or CO_2 emissions are used to analyse the sector's eco-efficiency and produce the graph. In this case, emissions of CO_2, CH_4 and N_2O in the SNAP subgroups related to combustion in energy and transformation industries have been used (public power; district heating plants; petroleum refining plants; solid fuel transformation plants; and coal mining, oil/gas extraction and pipeline compressors).

SOURCES

- MARM, 2011. *Inventario de Gases de Efecto Invernadero de España. Años 1990–2009*. Directorate-General for Environmental Quality and Assessment.
- MITyC, 2010. *La Energía en España 2009*
- IDAE. *Boletín energético*, various years.

FURTHER INFORMATION

- **www.marm.es**
- **www.idae.es**
- **www.mityc.es**
- **http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home**

2.10 INDUSTRY

Industry has also been affected by the economic and financial situation of recent years, as is underlined by the sector's production and employment figures, which show a historic slump in activity in 2009. In Spain, the price of non-energy industrial goods fell and GVA decreased by an average of about 5%, with manufacturing dropping by around 14%.

Emissions of almost all pollutants (particularly CO_2, NMVOC and NO_x) produced by industry decreased dramatically, as did industry's final energy consumption. Of the energy sources used in industry, the reduction in coal use was the most significant, followed by those of gas and petroleum products. There was also a fall in the amount of both hazardous and non-hazardous waste generated by industry. Overall, the proportion of final energy consumption by industry in relation to total final energy consumption decreased.

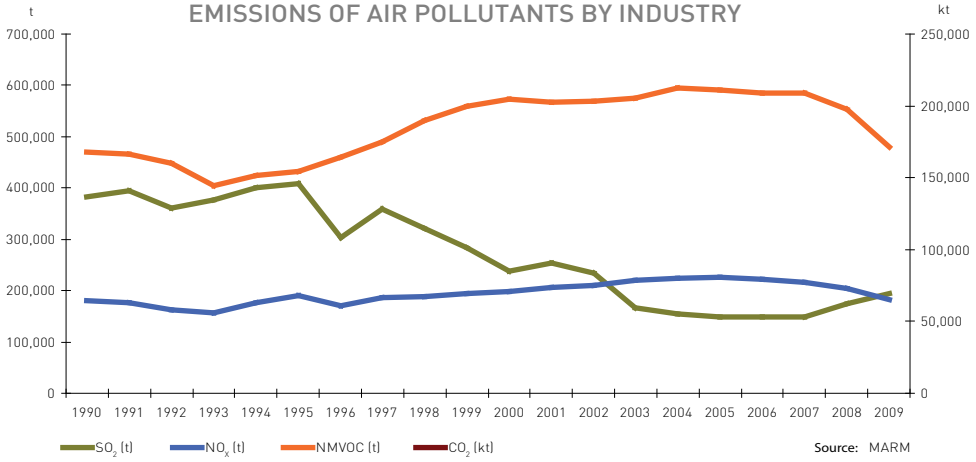
Despite this, the number of Spanish businesses registered with the European Eco-Management and Audit Scheme (EMAS) continued to increase, albeit slightly, keeping Spain in second place in the ranking of EU countries by number of companies affiliated to the scheme.

The sector's eco-efficiency therefore changed, significantly, as is reflected in the indicators: industrial Cross Value Added decreased by 13.7%, final energy consumption fell by 12.9%, and industry is CO_2 emissions dropped by 14.4%. These reductions meant the sector's indicators returned to levels last seen 4 or 5 years previously.

INDICATOR	GOAL	TREND
Emissions of air pollutants by industry	Prevent and reduce pollution	Emissions of CO_2, NMVOCs and NO_X are falling, while those of SO_2 are rising
Energy consumption by industry	Reduce consumption and improve resource use efficiency	Final energy consumption by industry is decreasing dramatically
Waste generation by industry	Prevent and reduce pollution	Generation of both hazardous and non-hazardous waste by industry is decreasing
Number of industrial enterprises with Environmental Management Systems	Mainstream environmental concerns into industry	The number of enterprises registered with the EMAS environmental management system is slowly rising
Eco-efficiency in industry	Decouple industrial production from consumption of resources and pollution	Industry's CO_2 emissions, final energy consumption and GVA are falling drastically

Emissions of air pollutants by industry

Industry's emissions of CO_2, NMVOCs and NO_X fell markedly, though those of SO_2 have been rising since 2007



The previous year's fall in the majority of pollutants emitted by industry continued and accelerated in 2009. Industry's CO_2 emissions decreased by 14.47%, from 87,247 kt in 2008 to 74,619 kt in 2009. The drop was more than double those of 2007 and 2008. In 2009, industry's CO_2 emissions accounted for 25.13% of total emissions of this gas.

The existing downward trend in emissions of NO_x and non-methane volatile organic compounds (NMVOCs) continued. Industry's NO_x emissions plummeted from 203,785 tonnes in 2008 to 181,740 tonnes in 2009. This fall of 10.82% in one year is practically double that of the two previous years. Industry's NMVOC emissions fell from 553,250 tonnes to 479,490 tonnes, a decrease of 13.33% in a single year.

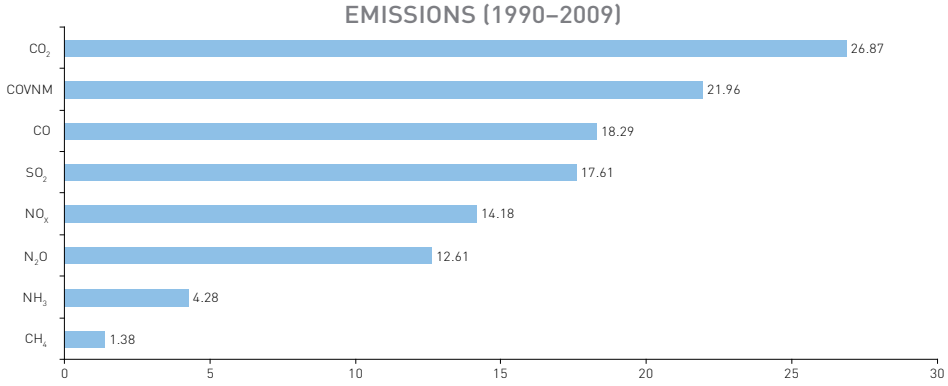
However, as was the case the year before, there was also an increase in industry's SO_2 emissions. Industrial emissions of this gas rose by 11.02%, from 175,028 tonnes in 2008 to 194,308 tonnes in 2009. In 2009, industrial emissions of SO_2 accounted for 44.94% of total emissions, whereas in 2007 industrial emissions only constituted 12.74% of the total.

Analysis of all of the pollutants emitted over the past twenty years (1990–2009) reveals that industry's emissions of CO_2 (1,565,942 kt) made up 26.87% of total CO_2 emissions in this period (5,828,701 kt). Meanwhile, total NO_x emissions in the same

period stood at 27,431,138 tonnes, of which industry was responsible for 3,890,970 (14.18%). Over 1990–2009, total CO emissions reached 60,842,125 tonnes, of which industry contributed 11,128,886 (18.29%). During this twenty-year period, N_2O emissions totalled 1,851,948 tonnes, of which industry accounted for 233,534 (12.61%).

As regards CH_4, emissions between 1990 and 2009 amounted to 32,462,543 tonnes, 449,064 tonnes (1.38%) of which were attributable to industry. Finally, NH_3 emissions over these twenty years totalled 7,113,488 tonnes, of which 304,548 tonnes (4.28%) were emitted by industry.

EMISSIONS BY INDUSTRY AS A PROPORTION OF TOTAL EMISSIONS (1990–2009)



Source: MARM

NOTES

- For the purpose of calculating emissions of air pollutants, the following groups or sectors (SNAP classification) are considered to form part of the industrial sector: combustion in manufacturing industry; production processes; and solvent and other product use. The combustion in energy and transformation industries categories are not included, since these emissions are covered by the chapter on energy. Likewise, emissions generated by the extraction and distribution of fossil fuels and geothermal energy are not included either.
- For reasons of scale, the indicator does not include emissions of fluorinated gases, even though these are 100% industrial in origin. Emissions of these gases between 1990 and 2009 were as follows:

EMISSIONS OF FLUORINATED GASES (kg)

	1990	2005	2006	2007	2008	2009
SF_6	2,800	11,365	13,541	14,225	14,814	14,685
HFCs	205,400	2,429,474	2.600,692	2,788,894	3,207,829	3,385,094
PFCs	131,825	42,194	42,972	43,523	45,880	43,047

Source: MARM

FUENTES

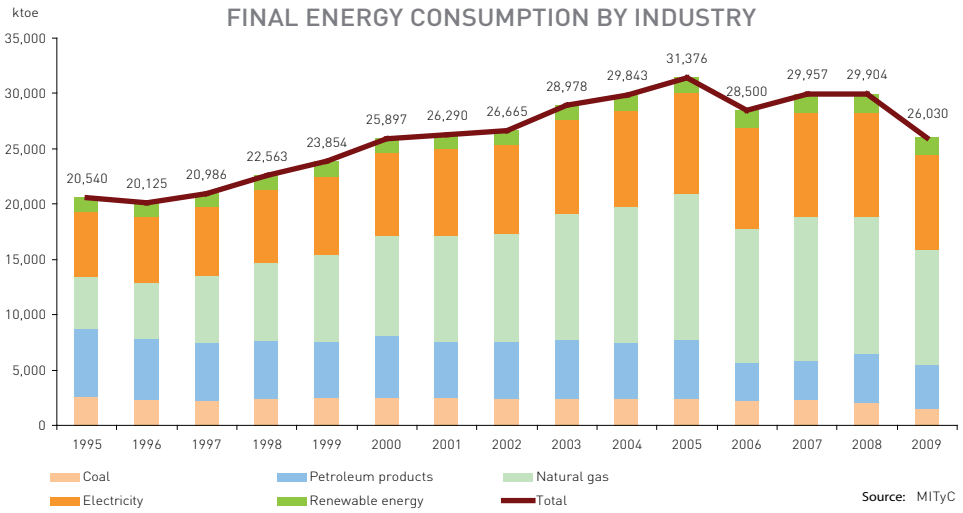
- MARM, 2011. *Inventario de Gases de Efecto Invernadero de España*. Years 1990–2009. Directorate-General for Environmental Quality and Assessment.

FURTHER INFORMATION

- http://www.marm.es

Energy consumption by industry

Final energy consumption by industry decreased dramatically in 2009

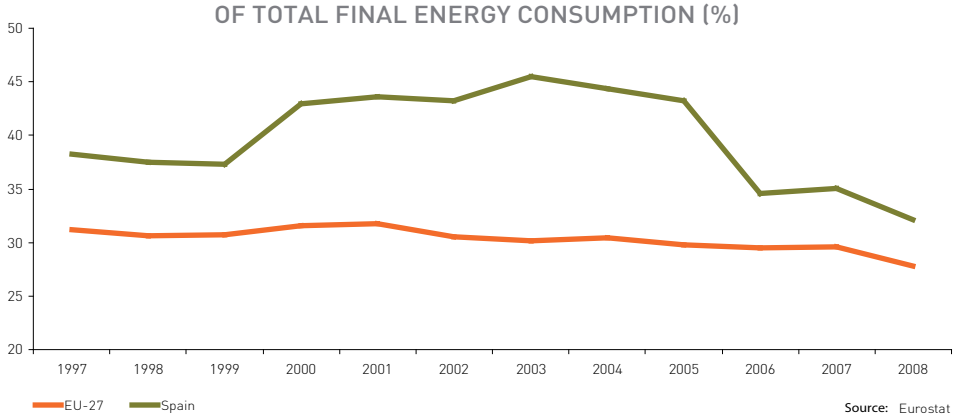


In 2009, final energy consumption by industry (26,030 ktoe) fell considerably compared to 2008 (29,904 ktoe), dropping by 12.95% in a single year. This decrease, which occurred across all energy sources, was most pronounced for coal (30.45%), though it was still considerable for natural gas (14.50%) and petroleum products (11.51%). Industry's final energy consumption also fell for electricity (9.29%) and, to a lesser extent, for renewable energy (4.54%). As regards renewable sources, consumption of final energy generated from biomass fell by 4.50% and from biogas by 10.56%, while that generated from thermal solar energy rose by 7.59%.

In 2008, final energy consumption by industry as a percentage of total final energy consumption dropped in the EU, continuing and accelerating the downward trend of previous years. This percentage, which stood at 31.14% in 1997, fell to 27.81% in 2008. This reduction was bigger in Spain, which recorded a drop from 38.25% in 1997 to 32.09% in 2008. However, it is worth noting that this percentage has decreased greatly since 2005 after peaking at 45.51% in 2003.

In absolute figures, and according to provisional data provided by the IDAE, industry's final energy consumption in Spain shrank from 31,376 ktoe in 2005 to 26,030 ktoe in 2009.

FINAL ENERGY CONSUMPTION BY INDUSTRY AS A PROPORTION OF TOTAL FINAL ENERGY CONSUMPTION (%)



Source: Eurostat

NOTES

- For the purpose of calculating final energy consumption by industry, only data corresponding to energy consumption are considered. Petroleum products or natural gas that form part of industrial processes but do not directly produce energy are not included.

SOURCES

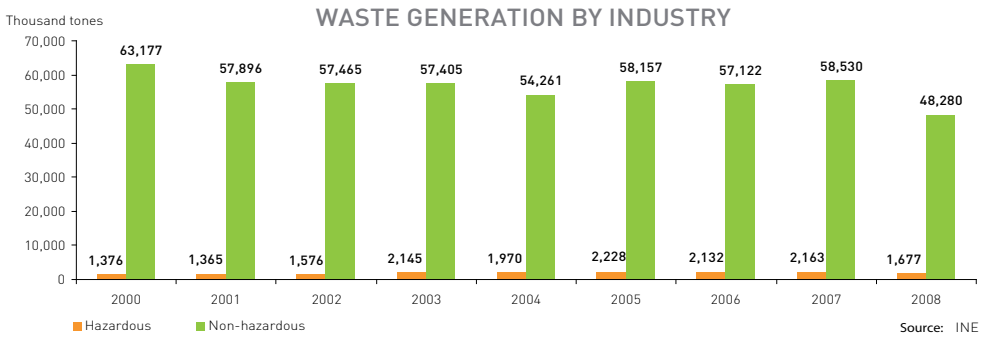
- Eurostat, 2011. Website: Statistics/Statistics by theme/Energy/Database/Main indicators
- MITyC, 2010. *La Energía en España 2009*
- IDAE. *Boletín energético*, various years.

FURTHER INFORMATION

- **http://www.idae.es**
- **http://www.mityc.es**
- **http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home**

Waste generation by industry

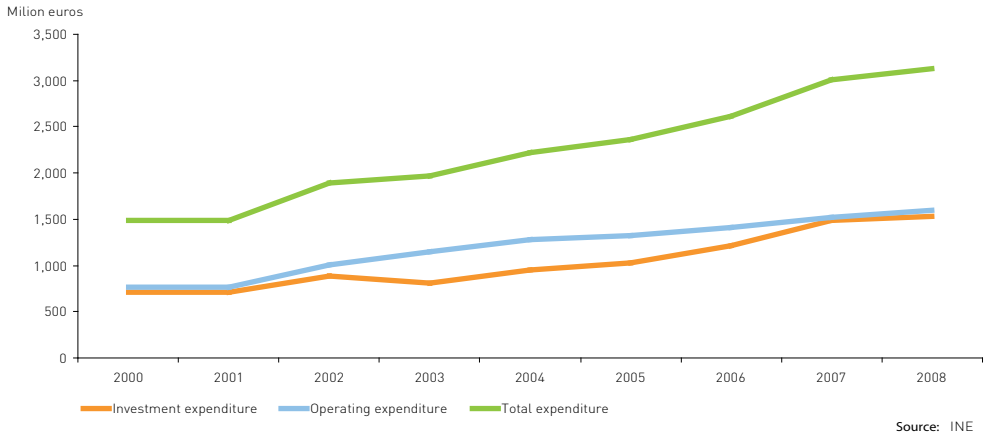
The amount of waste generated by industry decreased slightly



The fall in industrial activity in 2008 brought with it a reduction in the amount of waste generated by the sector. Non-hazardous waste decreased by 17.51% in a single year, from 58,530,051 tonnes in 2007 to 48,280,437 tonnes in 2008. Hazardous waste produced by industry dropped even more, from 2,162,614 tonnes in 2007 to 1,676,669 tonnes in 2008, a decrease of 22.47% in just 12 months.

Despite financial difficulties in 2008, businesses still spent an increasing amount of money on environmental protection. Operating expenditure on environmental protection rose by 4.69% from €1,525 million in 2007 to €1,595 million in 2008. Likewise, investment expenditure on environmental protection increased by 3.05% from €1,488 million in 2007 to €1,533 million in 2008. Although total expenditure on environmental protection by companies increased by 3.88%, this was well below the figures of previous years (for example, investment expenditure in 2007 increased by 23% on that of 2006).

COMPANY EXPENDITURE ON ENVIRONMENTAL PROTECTION



Source: INE

NOTES

- This indicator also includes data for the energy industry. The first INE survey aimed to quantify waste generated in economic activities classified as industrial (as per CNAE categories C, D and E, branch 40). The second INE survey aimed to evaluate industrial enterprises' expenditure on reducing or eliminating emissions of air pollutants and noise pollution, on treatment of the wastewater and solid waste generated, and on use of less pollutant raw materials or on use of the same ones but in lesser quantities.

SOURCES

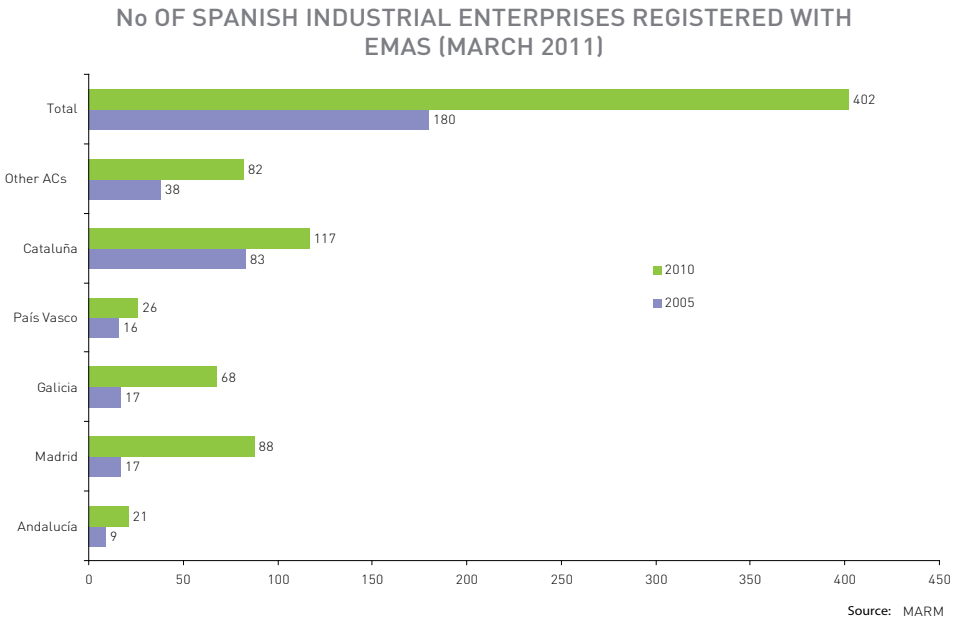
- INE, 2011. *Survey on waste generation.*
- INE, 2011. *Survey on Company Expenditure on Environmental Protection.*

FURTHER INFORMATION

- **http://www.ine.es**

Number of industrial enterprises with Environmental Management Systems

Spain has the second-highest number of companies in the EU registered with the EMAS environmental management system



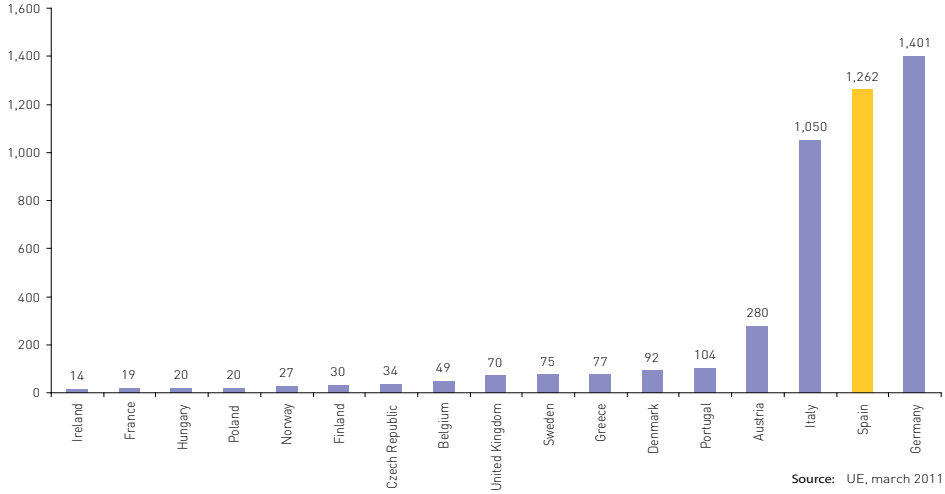
Source: MARM

According to figures provided by the European Commission's Directorate-General for the Environment, at the start of 2011 Spain still had the second-highest number of companies in Europe registered with the EMAS (Eco-Management and Audit Scheme) environmental management system, behind Germany. In March 2011, a total of 1,262 Spanish companies were signed up to this scheme, while in Germany 1,401 firms were registered with it.

Of these Spanish companies, 402 were industrial firms (CNAE categories 10 to 41). The number of companies registered with the EMAS rose in Galicia, the Basque Country and Catalonia, remained stable in Andalusia and decreased slightly in Madrid. There was also a slight overall increase in the rest of Spain's autonomous communities. Although the number only rose by 3.88% between 2009 and 2011, between 2003 and March 2011 it rose by 195%, increasing from 136 companies 402 firms.

Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a Community eco-management and audit scheme, improves the tools available to industry and reduces the associated administrative burden. It also aims to encourage participation by organisations, especially small enterprises, in the EMAS by providing access to information, to existing funds and to public institutions, as well as facilitating technical assistance.

No OF COMPANIES WITH EMAS ENVIRONMENTAL MANAGEMENT SYSTEMS IN EU COUNTRIES WITH OVER 10 COMPANIES REGISTERED WITH EMAS (MARCH 2011)



Source: UE, march 2011

NO OF INDUSTRIAL ENTERPRISES IN SPAIN REGISTERED WITH THE EMAS (2003–2011)

2003	2009	2011	Increase 2009/2011	Increase 2003/2011
136	387	402	3.88 %	195.59 %

Source: MARM

NOTES

- For the purpose of calculating the indicator, the industrial enterprises included are those listed in categories 10 to 41 of the CNAE. This therefore excludes crop and livestock farming and forestry, as well as the construction and service industries.
- Regulation 1221/2009 (EC) of 25 November amended Regulation 761/2001 of 19 March 2001. The EMAS' current scope extends to cover all enterprises, irrespective of sector. Actions derived from its application include:
  - Creation and implementation of environmental management systems in enterprises and systematic, objective and regular assessment of their operation.
  - Dissemination of information on environmental performance.
  - Active employee involvement in the programme, achieved through continuous vocational training.

SOURCES

- European EMAS data: EMAS website, European Commission.
- Data for Spain: Directorate-General for Environmental Quality and Assessment, MARM.

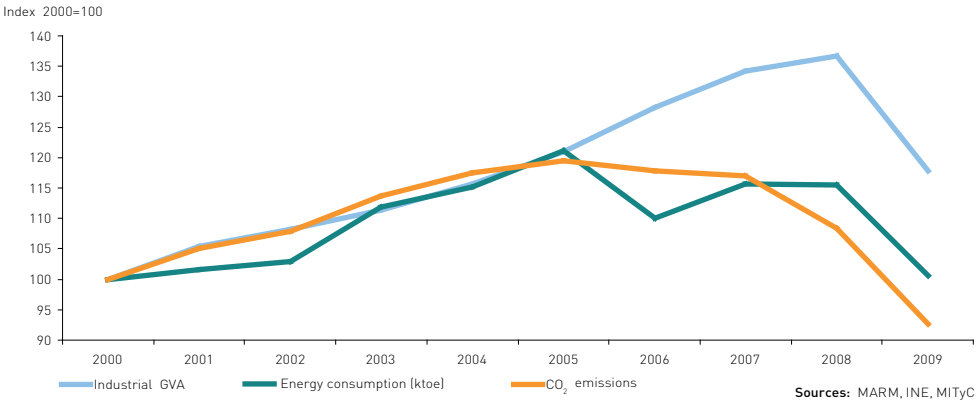
FURTHER INFORMATION

- http://ec.europa.eu/environment/emas/index_en.htm
- http://www.marm.es

Eco-efficiency in industry

GVA, CO_2 emissions and final energy consumption indicators all fell sharply and simultaneously

ECO-EFFICIENCY IN INDUSTRY



Sources: MARM, INE, MITyC

In 2009, industry's indicators changed considerably, significantly altering the existing scenario. Industry's Gross Value Added at current prices fell by 13.72%, from €141,310 million in 2008 to €121,917 million in 2009. The sector's energy consumption also decreased, dropping by 12.95% from 29,904 ktoe in 2008 to 26,030 ktoe in 2009. CO_2 emissions by industry fell further still, from 87,247 ktoe in 2008 to 74,619 ktoe in 2009, a decrease of 14.47%.

As a result, the trend of previous years has changed drastically. Industry's Gross Value Added, which had grown between 2000 and 2008 by 136.64%, shrank to 117.89% for the period 2000–2009, a figure very similar to that recorded in 2004 and 2005. Final energy consumption by industry, which in 2007 stood at 115.67% of the 2000 value, decreased in 2009 to almost the same figure as in 2000. CO_2 emissions by the sector, which in 2005 were 119.54% of those in 2000, plummeted sharply in 2009 to 92.66% of the 2000 value.

SOURCES

- MARM, 2011. *Inventario de Gases de Efecto Invernadero de España*. Years 1990–2009. Directorate-General for Environmental Quality and Assessment.
- MITyC, 2010. *La Energía en España 2009*
- IDAE. *Boletín energético*, various years.
- INE. Website: INEbase / Economy / National Accounts / Spanish National Accounts. 2000 base.

FURTHER INFORMATION

- http://www.marm.es
- http://www.mityc.es
- http://www.idae.es
- http://www.ine.es
- http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/hom

2.11 FISHING

The European Union's Common Fisheries Policy (CFP), which has been in place for many years, establishes the fishing opportunities and regulations necessary to ensure that fishing remains sustainable and does not harm the marine environment. The CFP seeks to meet the goal set at the World Summit on Sustainable Development of ensuring that by 2015 fish stocks are not exploited beyond their maximum sustainable yield. In its 2011 report, the Scientific, Technical and Economic Committee for Fisheries (STECF) highlighted the deficient state of many fishery resources in EU waters. According to the Committee, only 40% of fish stocks studied were fished in a sustainable way. In October 2010, the European Commission proposed not to increase fishing opportunities for deep-sea fish stocks in European and north-east Atlantic waters.

In Spain, the Sustainable Fisheries Bill, which will replace Law 3/2001 on marine fisheries, is in the final stages of its passage through Parliament. It aims to ensure rational, responsible and sustainable exploitation of fishery resources and includes all of the *acquis communautaire* related to the CFP. Since Law 3/2001 was passed, various pieces of Community legislation have been adopted in an effort to guarantee that marine living resources are exploited in an economically, environmentally and socially sustainable way. This includes implementation of the new Community regime

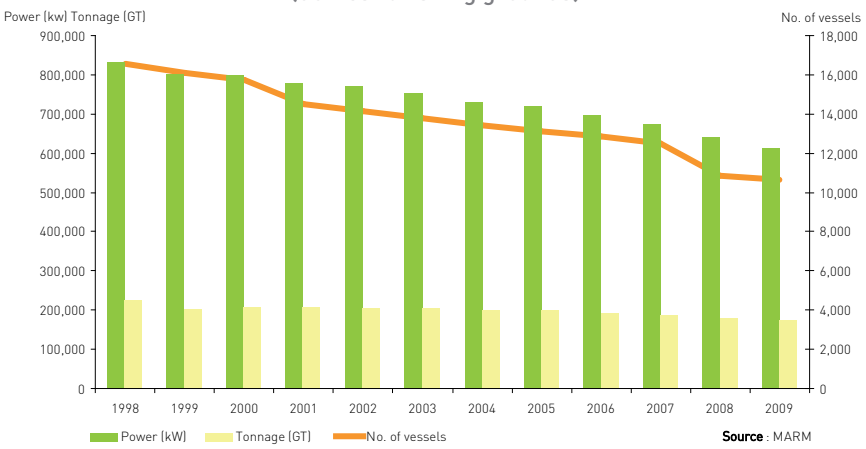
to combat illegal and unreported fishing, and the CFP's new control regime. The law also adapts fishing legislation to the Marine Strategy Framework Directive. This bill will regulate recreational fishing, fishing tourism, removal of marine flora and access to the marine environment's genetic resources. It promotes oceanographic and fishery research and the study of genetic resources and seeks to apply their findings when determining fish stock productivity. It will also regulate aquaculture, considering it a complementary economic activity to sea fishing. One of its main new features is that it will create a national fishing reserve, which will improve control of fishing and favour its management.

INDICATOR	GOAL	TREND
Number of vessels and fishing fleet capacity	Keep fishing capacity within sustainable limits	The Spanish fishing fleet continues to shrink in terms of number of vessels, power and tonnage
Fishing fleet catches	Contribute to food security and facilitate fishery recovery	Overall Spanish fishing fleet catches are falling
Aquaculture production	Increase and diversify production	Mussel and fish production in marine aquaculture are increasing
Eco-efficiency in fishing and aquaculture	Achieve sustainable resource exploitation	In 2010, the sector's GVA and aquaculture production increased, while fleet catches and capacity decreased

Number of vessels and fishing fleet capacity

The Spanish fishing fleet continues to shrink

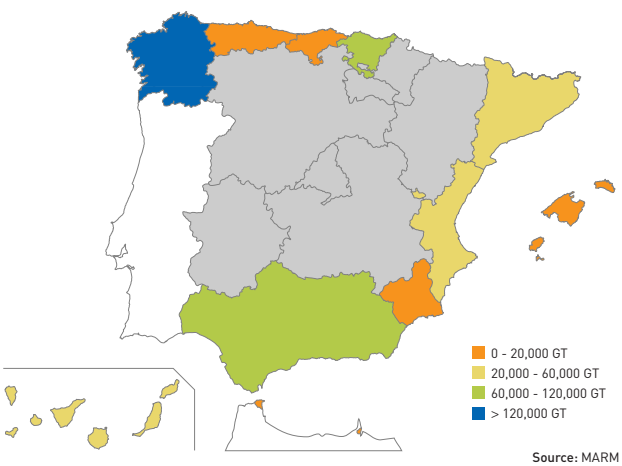
No OF VESSELS AND FISHING CAPACITY
(domestic fishing grounds)



On 31 December 2009, the number of vessels in the Spanish fishing fleet stood at 11,116, a drop of 2.4% on the 11,394 registered on 31 December 2008. Of the vessels that made up the fleet on 31 December 2009, a total of 10,625 operated in Spanish fishing grounds.

FISHING FLEET TONNAGE AS AT 31 DECEMBER 2009 (all fishing grounds)

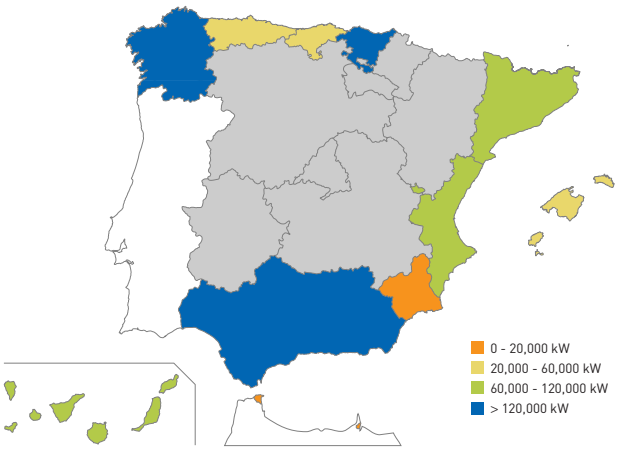
ALL FISHING GROUND	
AC	Tonnage (gt)
Andalusia	55,474
Asturias	10,415
Balearic Islands	3,896
Canary Islands	30,112
Cantabria	10,758
Catalonia	25,459
Ceuta	13,981
Galicia	194,750
Melilla	210
Murcia	3,667
Basque Country	84,916
Valencia	24,415



Source: MARM

FISHING FLEET POWER AS AT 31 DECEMBER 2009 (all fishing grounds)

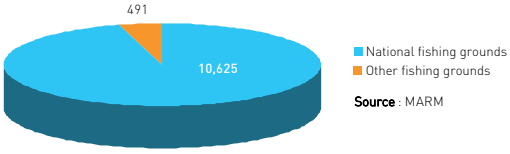
ALL FISHING GROUND	
AC	Power (kW)
Andalusia	159,427
Asturias	26,135
Balearic Islands	22,550
Canary Islands	66,338
Cantabria	25,427
Catalonia	114,974
Ceuta	19,297
Galicia	343,688
Melilla	544
Murcia	13,928
Basque Country	143,457
Valencia	87,089



Source: Secretariat-General for the Sea, MARM

Between 1998 and 2009, the number of vessels in the Spanish fishing fleet decreased by 35.8%, tonnage (gt) dropped by 22.8%, and power (kW) by 26.2%. In general, this was above the average decrease in the European fishing fleet in the same period. By autonomous community, Galicia still has the largest fishing fleet in terms of both tonnage and power.

SPANISH FISHING FLEET DISTRIBUTION BY FISHING GROUND (31 December 2009)



NOTES

- This indicator refers to the vessels on List 3 of Spain's General Vessel Register that make up the Statistical Register of Fishing Vessels in service on 31 December each year. Over the course of a year, some of these vessels may move between fishing grounds, meaning that the total figure may vary depending on the date in question. A significant number of vessels operate in small-scale fisheries and some even lack a built-in engine.
- For the purpose of calculating the indicator, fishing capacity, in accordance with Council Regulation (EC) 2371/2002, is stated in terms of power, measured in kilowatts (kW), and carrying capacity (tonnage), measured in gross tonnes (gt). This latter unit replaced gross registered tonnage (grt) in 1998.

SOURCES

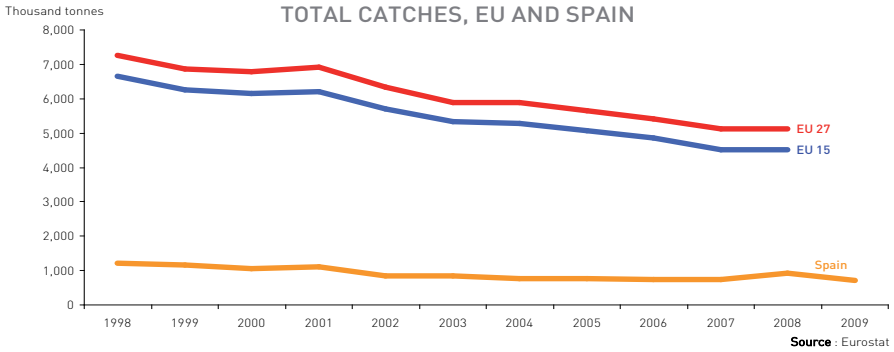
- Data provided by the Secretariat-General for the Sea. MARM.
- EU data from the Eurostat website (http://epp.eurostat.ec.europa.eu), "Data", "Fishing fleet".

FURTHER INFORMATION

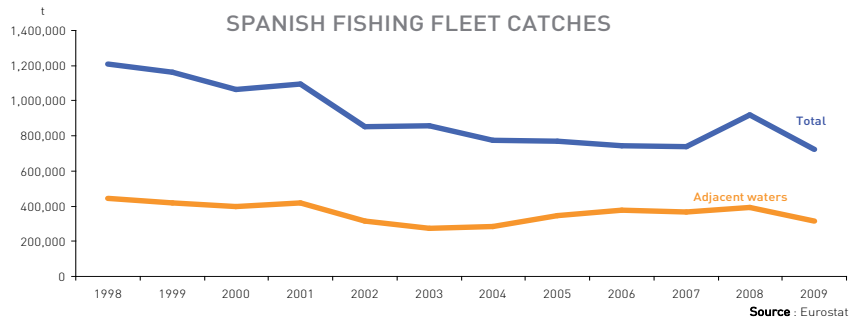
- **http://www.marm.es**
- **http://epp.eurostat.ec.europa.eu/**

Fishing fleet catches

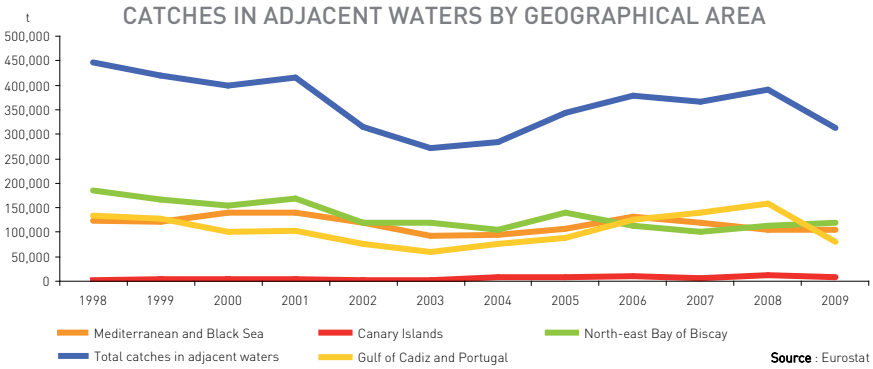
The total catch landed by the Spanish fleet in 2009 was 21.5% lower than in 2008

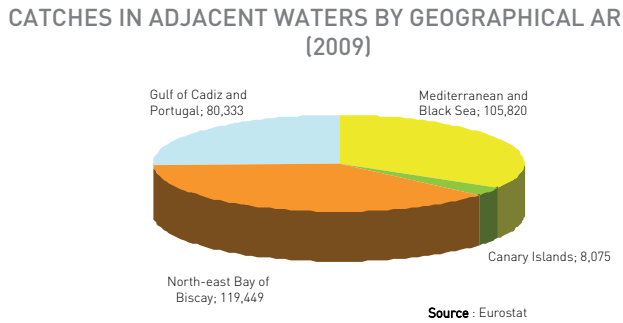


According to Eurostat figures, the Spanish fleet's catches in 2009 were 21.5% lower than the year before. Catches fell from 918,705 tonnes in 2008 to 721,080 tonnes in 2009. As in previous years, these Eurostat figures indicate the equivalent live weight landed and do not include products that, for various reasons, are not landed.



Catches in the Mediterranean Sea in 2009 remained stable in comparison with the previous year, while in the Bay of Biscay they increased by 5.4%. However, catches fell sharply in the Canary Islands and in the Gulf of Cadiz. Total catches by the Spanish fishing fleet in adjacent waters dropped by 19.6% in 2009 on the year before, falling from 390,284 to 313,677 tonnes.





NOTES

- The data used for the Mediterranean, Bay of Biscay–North-West, Gulf of Cadiz and Canary Islands fishing grounds, respectively, are taken from the Eurostat figures for the "Mediterranean and Black Sea", "North-East Atlantic, zone R27-08 c", "North-East Atlantic, zone R27-09a", and "Central Eastern Atlantic, zone 34.1.2".

SOURCES

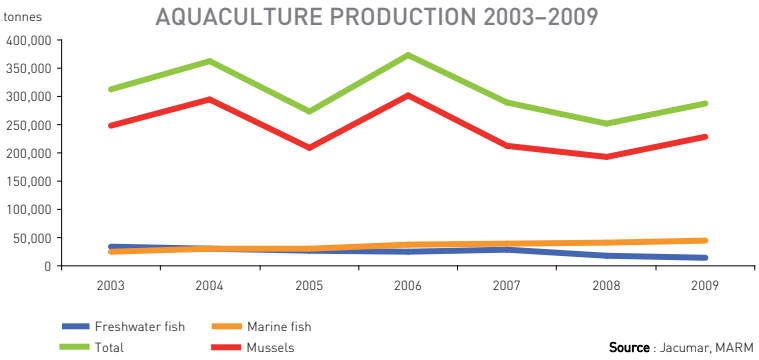
- Eurostat: "Data", "Fisheries".

FURTHER INFORMATION

- http://www.marm.es
- http://epp.eurostat.cec.eu.int/

Aquaculture production

Mussel and fish production in marine aquaculture are increasing



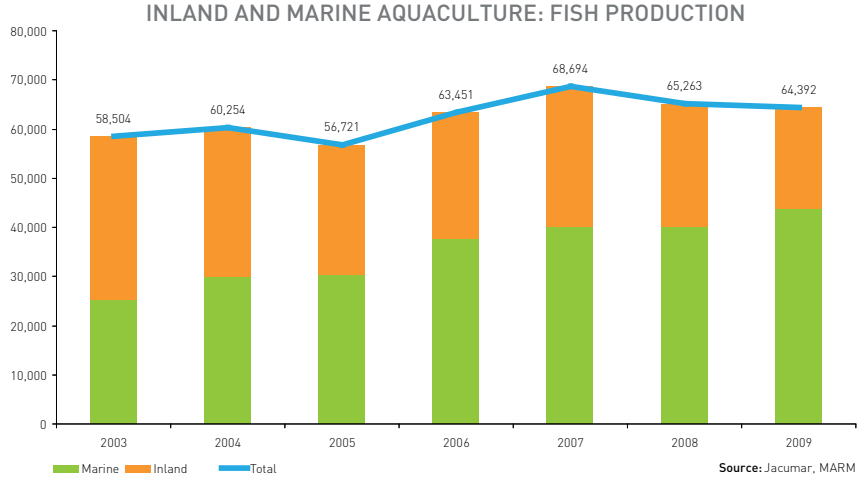
Faced with growing worldwide demand for fish and the state of some fishing grounds, both marine and inland aquaculture are emerging as alternative means of meeting this demand. According to a study by the FAO, aquaculture now accounts for 47% of aquatic food produced worldwide, and this percentage is predicted to continue rising. Aquaculture has already progressed from being a mainly family-run low-volume activity to a business producing high-value species on an industrial and commercial scale that makes a significant contribution to national economies.

In Spain, total aquaculture production in 2009 was 12.18% higher than the year before. Much of this increase is due to a rise in mussel production, which climbed from 192,859 tonnes in 2008 to 228,596 tonnes in 2009, an 18.5% increase.

Spanish aquaculture's fish production remained relatively stable, recording a 1.35% decrease in 2009 on 2008, a downturn due to a fall of around 17% in fish production in inland aquaculture (from 25,000 tonnes to 20,637 tonnes). This descent in freshwater fish production was partially compensated for by an increase in marine fish production, which rose from 40,263 tonnes in 2008 to 43,755 tonnes in 2009. These figures continued the downward trend in rainbow trout production (which decreased from 25,480 tonnes in 2006 to 20,435 tonnes in 2009) and the growth in production of European sea-bass (from 9,438 tonnes in 2006 to 11,548 tonnes in 2009) and gilt-head sea-bream (from 17,836 tonnes in 2006 to 21,319 tonnes in 2009). It is worth highlighting that several non-traditional species have become very well established in aquaculture in recent years, among them meagre, production of which shot up from 14 tonnes in 2004 to 1,088 tonnes in 2009.

According to data provided by the MARM's Sub-Directorate-General for Statistics, Spain's aquaculture industry now comprises 3,400 companies, which in turn operate 5,503 facilities. Of these, 95% are located in marine areas, while the remainder are located on inland waters. Shellfish, particularly mussels, account for the majority of production (79.5% of the total in 2009). In recent years, mussel production has fluctuated greatly as a result of red tides in Galicia. These variations have a notable effect on the total figures for Spanish aquaculture.

INLAND AND MARINE AQUACULTURE: FISH PRODUCTION



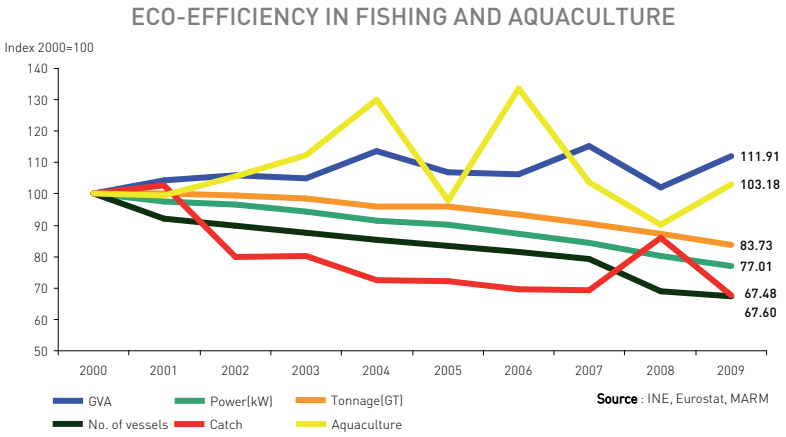
Source: Jacumar, MARM

SOURCES
- JACUMAR. MARM.

FURTHER INFORMATION
- http://www.marm.es

Eco-efficiency in fishing and aquaculture

Fleet capacity and catches continue to decrease, while aquaculture production rises and the sector's GVA fluctuates



Gross value added at current prices increased by 9.5% in 2009, from €1,518 million in 2008 to €1,663 million in 2009. This rise occurred as fleet capacity decreased — power (kW) fell by 4.1%, tonnage by 4%, and the number of vessels by 2.3%, dropping from 10,869 vessels in 2008 to 10,625 in 2009. This is the lowest figure in recent years and, when combined with the decrease in power and tonnage, indicates that the Spanish fleet is following the Common Fisheries Policy's guidelines. Catches also decreased, in this case by 1.2%, while total aquaculture production grew by 14.3%.

As shown in the graph, over the last ten years the Spanish fishing fleet's power, tonnage and number of vessels have all decreased. Catches have also followed a downward trend, although with some fluctuations. Meanwhile, aquaculture production has varied significantly due to the effect on mussel production of red tides in Galicia. Gross value added (at current prices) shows a slightly upward trend, although it has fluctuated over the ten years analysed.

NOTES

- For the purpose of calculating the sector's gross value added, data for GVA at basic prices (reference year 2000=100) provided by the INE have been used.

SOURCES

- GVA: Spanish National Accounts. INE.
- No. of vessels, power and tonnage: Secretariat-General for the Sea. MARM.
- Catches: Eurostat: "Data", "Fisheries".
- Marine aquaculture: JACUMAR, Secretariat-General for the Sea. MARM.

FURTHER INFORMATION

- **http://www.marm.es**
- **http://www.ine.es**
- **http://epp.eurostat.ec.europa.eu/**

2.12 TOURISM

In 2010, according to the World Tourism Organisation (UNWTO), the global number of tourists rose by 6.7%. This improved upon the sector's performance in 2009, when there were 4.2% fewer arrivals and revenue decreased by 5.7%. While recovery was significant in Asian countries and in the Middle East, it was more moderate in America and Africa.

Europe recorded the lowest growth (3.2%), but still remains the world leader in terms of number of tourists, receiving almost twice as many as the rest of the world. Tourism in southern Europe grew by even less, only expanding by 2%. In its report, the UNWTO contrasts the boom in tourism in emerging economies against its more gradual increase in advanced nations. This two-speed recovery reflects the situation in the global economy and is likely to continue for the next few years.

In terms of Europe's position within global tourism, it is worth noting the estimate in the first Commission Communication (after the Treaty of Lisbon) entitled "Europe, the world's No 1 tourist destination – a new political framework for tourism in Europe" [COM (2010) 352 final]. Presented in Santiago de Compostela during the Spanish Presidency of the EU, it called for implementation of 21 action plans (eight of

INDICATOR	GOAL	TREND
Number of foreign tourists per inhabitant	Monitor the number of tourists and their relationship with the host population	Despite the increase in tourist numbers, the number of foreign tourists per inhabitant remained the same as in 2009 (1.1) due to the continued rise in population
Number of foreign tourists per kilometre of coast	Monitor the presence of foreign tourists on the coast to minimise their impact	The number of foreign tourists per kilometre of coast stood at 5,860, up from 5,764 the year before
Tourist Population Equivalent (TPE) in the areas with the highest number of overnight stays	Monitor the trend in the 10 well-established tourist destinations selected	The ten destinations selected by number of overnight hotel stays show an increase well above the national growth rate in both 2010 (6.8%) and since 2001 (8.4%)
Number of visitors to National Parks	Safeguard National Parks against excessive tourist pressure	In 2010, the overall number of visitors decreased by 3.9%, although some Parks, like Tablas de Daimiel (206.8%), saw significant increases
Rural tourism: accommodation, capacity, tourists and overnight stays	Monitor trends in rural tourism infrastructure and services against the principles of sustainable rural development	In 2010, the number of establishments offering rural accommodation rose by 12.37%, as did capacity (14.36%), while the number of tourists only increased by 1.64%
Trends in the main variables affecting tourism in Spain	Achieve sustainable tourism and decouple its economic growth from the pressure it exerts on the environment, particularly the coast	After the slump in 2009, the number of international tourists is starting to recover as regards number of arrivals, overnight stays and revenue, though internal tourism is decreasing

which were assigned priority status) to build a sustainable and high-quality tourism industry.

KEY DATA ON WORLDWIDE INBOUND TOURISM (2009 and 2010)

Tourist destination	No of tourists 2009 (million)	No of tourists 2010 (million)	Increase 2010/2009
Europe	456.9	471.5	3.2
Asia and the Pacific	181.0	203.8	12.6
The Americas (North and South)	140.5	151.2	7.7
Middle East	52.7	53	13.9
Africa	45.8	48.7	6.4
World total	**877**	**935**	**6.7**

Source: UNWTO. World Tourism Barometer. January 2011.

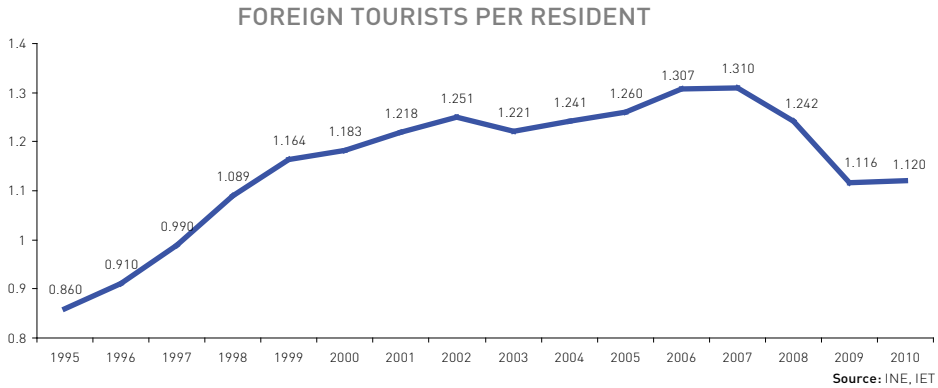
In this context of recovery, in 2010 Spain received 52.7 million tourists, just over 1% more than the previous year. This figure is close to the average (53.7 million) for 2000–2010, which was the decade that saw the most significant rises. In terms of modes of transport used to travel to Spain, the most widely used is still air transport, which accounts for 77% of the total, followed by road transport (20%). Although the number of tourists arriving in Spain by rail is low (177,942), the figure rose significantly in percentage terms on the previous year (27.7%).

The decrease in the number of tourists from Germany and the United Kingdom (the main countries of origin) was compensated for by the increase in Italian, Russian and Dutch tourists. Overall tourist spending totalled €49.14 billion, an increase of 2.5%. Thus, recovery was generally in line with the UNWTO's estimate for Mediterranean countries.

By autonomous community, the most popular destinations among international tourists were Catalonia, the Balearic Islands, the Canary Islands, Andalusia, Valencia and Madrid. These six autonomous communities received a total of 48 million tourists, 91.2% of all arrivals. Compared with the previous year, the autonomous communities that saw the greatest increase in tourist numbers were the Basque Country (12.6%), Asturias (6%), the Canary Islands (4.9%), Catalonia (3.7%), the Balearic Islands (1.7%) and Castile-Leon (1.4%). It is worth noting that the autonomous communities bordering France and Portugal also received over 41 million day-trippers (tourists who do not stay overnight).

Number of foreign tourists per inhabitant

In 2010, the slight increase in inbound tourism (1%) and the rise in population (0.6%) kept the number of foreign tourists per inhabitant at last year's level (1.12)



Despite the downturns in 2008 and 2009, the graph shows an overall upward trend for the period analysed. In 2010, the number of tourists rose again, as did the population in Spain. As a result, the rate remained the same as in 2009 (1.12 tourists per inhabitant). In 2010, Spain received 52.7 million foreign tourists, 1% more than the previous year. Meanwhile, the country's population reached 47 million inhabitants, an increase of 0.6%.

As in previous years, only three autonomous communities exceeded the national average, while the rest were well below it. In 2010, the Balearic Islands received 8.3 foreign tourists per inhabitant, while the Canary Islands received 4.6 and Catalonia 1.7. The autonomous communities that recorded the lowest number of foreign tourists per inhabitant were Castile-La Mancha, Asturias, Rioja and Extremadura.

To reach Spain, tourists still preferred to travel by air, followed by road, sea, and lastly, rail. In contrary to the previous season, when there were notable decreases, all of the transport modes registered rises in 2010. Over the period 2000–2010, air traffic increased by 18%, while sea and rail traffic fell significantly, the latter plummeting by 60%. Road traffic remained constant throughout the period.

NUMBER OF NON-RESIDENT TOURISTS BY MODE OF ENTRY (2000–2010)

	2000	2009	2010	Variation 2010–2009 (%)	Variation 2010–2000 (%)
Air	34,379,930	40,232,663	40,558,917	0.8	18
Road	10,669,405	10,407,355	10,516,269	1.0	-1.4
Sea	2,403,175	1,398,278	1,424,058	1.8	-40.7
Rail	445,405	139,343	177,942	27.7	-60
TOTAL	**47,897,915**	**52,177,640**	**52,677,187**	**1.0**	**10**

Source: IET, 2010 (provisional data for the final year)

NOTES

- The indicator measures the relationship between the number of foreign tourists and the resident population. Its value lies in its capacity to show the burden borne by tourist destinations, as in order to ensure the sector's sustainability it is desirable to maintain an appropriate ratio between the number of visitors and the resident population. Nationally, the rate is lower than in neighbouring countries, such as France and Italy, but it rises significantly on the Mediterranean coast, and particularly in the three autonomous communities mentioned above.
- Tourist: any person travelling to a place other than his/her usual place of residence, who stays at least one night for a purpose other than the exercise of paid activity.
- Carrying capacity of an area: concept used to assess tourism's sustainability. According to the UNEP, this is the maximum number of tourists that can visit a tourist destination at the same time, without this causing economic, socio-cultural or environmental damage and without a decrease in the visitors' satisfaction. Carrying capacity is established for a destination in accordance with a desirable quality of life.
- According to the UNEP, sustainable tourism will play a vital role in developing a green economy: "While the growth in tourism has been accompanied by significant challenges – for instance, in terms of GHG emissions, water consumption, discharge of untreated water, waste generation, damage to local terrestrial and marine biodiversity, and threats to the survival of local cultures and traditions – tourists are driving the greening of the sector, as seen by the 20% annual growth rate enjoyed by ecotourism; about six times the industry-wide rate of growth." UNEP, 2011. *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.*

SOURCES

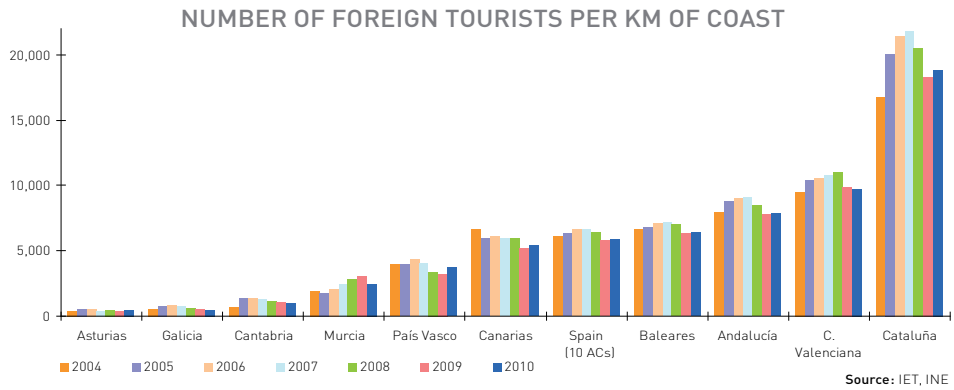
- IET. *Spanish Border Survey of Inbound Tourism* (FRONTUR). 2010 (provisional figures).

FURTHER INFORMATION

- **http://www.iet.tourspain.es**
- **http://www.ine.es**
- **http://www.unep.org/greeneconomy/Portals/88/documents/ger/GER_synthesis_sp.pdf**

Number of foreign tourists per kilometre of coast

In 2010, the number of foreign tourists per kilometre of coast increased slightly by 1.7%, to 5,860 tourists per kilometre



Source: IET, INE

In 2010, a total of 46.2 million foreign tourists visited the Spanish coast, accounting for 87.6% of inbound tourism. These figures produced an average of 5,860 tourists per kilometre of coast (as opposed to 5,759 the previous year), an increase of 1.7% in relation to 2009.

In absolute terms, Catalonia was the most popular destination with 18,851 tourists per kilometre of coast (triple the national average), followed by Valencia, Andalusia, the Balearic Islands and the Canary Islands. In Spain's coastal autonomous communities, the number of tourists increased year on year in the Basque Country (12.6%), Asturias (5.9%), the Canary Islands (4.9%), Catalonia (3.7%) and the Balearic Islands. The others recorded decreases, with Murcia and Cantabria registering the most significant drops.

The Cantabrian and Galician coasts received over two million foreign tourists, while 35.5 million travelled to the Andalusian and Mediterranean coasts (including the Balearic Islands). This is a rate of 843 tourists per kilometre on Spain's northern coast and 9,185 on the south-east coast.

Over the period 2004–2010, the number of foreign tourists visiting Spain's coasts fell by 4.2%. This was due to significant decreases in five autonomous communities (the

Canary Islands, Galicia, the Basque Country, the Balearic Islands and Andalusia), as the rest recorded increases ranging from 43.9% in Cantabria to 2.5% in Valencia.

NUMBER OF FOREIGN TOURISTS PER KILOMETRE OF COAST

Autonomous Community	2004	2010	Variation 2010/2004 (%)
Asturias	370	446	20.5
Galicia	507	460	-9.3
Cantabria	672	967	43.9
Murcia	1,893	2,470	30.5
Basque Country	3,924	3,682	-6.2
Canary Islands	6,627	5,439	-17.9
Balearic Islands	6,673	6,427	-3.7
Andalusia	7,920	7,870	-0.6
Valencia	9,465	9,699	2.5
Catalonia	16,715	18,851	12.8
Spain (10 ACs)	**6,118**	**5,860**	**-4.2**

Source: UNWTO. World Tourism Barometer. January 2011.

NOTES

- This indicator establishes the ratio between the number of foreign tourists who visit the Spanish coast and the length of coastline. Once again, when broken down by autonomous community, it is clear that there is a great imbalance between tourist destinations in northern Spain and those on the Mediterranean. However, it should be remembered that the figures are not calculated solely on the basis of number of tourists, but also in terms of length of coastline, which, in three autonomous communities (Galicia, the Balearic Islands and the Canary Islands) totals over 4,500 kilometres.
- The data on length of coastline used to calculate the indicator was provided by the INE (length of the Spanish coast by provinces) and are based on 2008 figures provided by the IGN. The total length of the coastline of the provinces included stands at 7,876 km (excluding islands and islets belonging to provinces on the peninsula).
- The same authority also provides data on the following sections of coastline: Bay of Biscay (1,086 km); Atlantic coast (1,728 km); Mediterranean coast (2,058 km); Balearic Islands (1,428 km); Canary Islands (1,583 km); Ceuta, Melilla, Chafarinas Islands and islets (32 km). Total: 7,915 km.

SOURCES

- IET. Spanish Border Survey of Inbound Tourism (FRONTUR), 2010 (provisional figures).
- INE. Physical variables. Length of coasts and borders. Length of the Spanish coast by provinces, 2010 (data from the IGN for 2008)

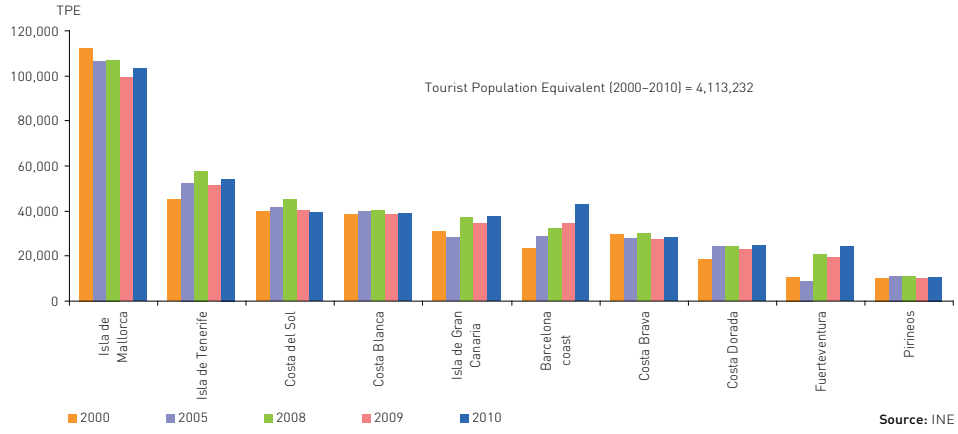
FURTHER INFORMATION

- **http://www.marm.es**
- **http://www.iet.tourspain.es**

Tourist Population Equivalent (TPE) in the areas with the highest number of overnight stays

In 2010, those destinations with the highest number of overnight hotel stays recorded a 6.8% increase on 2009

TOURIST POPULATION EQUIVALENT IN THE AREAS WITH THE HIGHEST NUMBER OF OVERNIGHT STAYS (2000–2010)



Source: INE

The Hotel Occupancy Survey conducted by the INE collects data on overnight stays in 38 tourist destinations, of which number the 10 shown in the graph above have been selected to calculate this indicator. The number of overnight stays in the 10 areas selected represents 55.2% of all overnight hotel stays between 2000 and 2010. In absolute figures, there were more than 1.5 billion overnight stays which, when translated into Tourist Population Equivalent (TPE), works out as 4,113,232 people permanently residing in these areas. Except for the destinations in the Pyrenees, all the areas included in the survey are coastal.

TOURIST POPULATION EQUIVALENT (TPE)
IN THE 10 AREAS WITH THE HIGHEST NUMBER OF OVERNIGHT HOTEL STAYS (2001–2010)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL TPE
TPE	349,060	350,611	333,589	355,210	353,884	369,773	408,297	405,509	405,322	378,274	404,085	4,113,232
Index	100.0	100.4	95.6	101.8	101.4	105.9	117.0	116.2	116.0	108.4	115.8	

Between 2000 and 2010, trends in the areas chosen for this indicator varied widely. For instance, there were large increases between 2000 and 2010 on the island of

Fuerteventura (120.3%), the Barcelona coast (85.2%), the Costa Daurada (35.4%) and the islands of Gran Canaria (22.6%) and Tenerife (19.3%); smaller rises were recorded in the Pyrenees (5.6%) and on the Costa Blanca (1.2%); and there were decreases on the island of Majorca (8.3%) and on the Costa Brava (4.8%).

The 10 tourist destinations monitored recorded an overall increase in the number of overnight stays and, therefore, in the TPE, which in 2010 was 15.8% above the base year figure (2000). These figures show that despite seasonal fluctuations and the global economic crisis, which had a major impact in 2009, tourist numbers remained high.

Comparing the figures for 2010 and 2009 reveals that most of the areas selected performed very well. Particularly noteworthy were the strong increases on the Barcelona coast (25.2%) and the island of Fuerteventura (25.9%), while the rest recorded more moderate rises (between 2.6% and 7.5%). Only the Costa del Sol recorded a decrease in the number of overnight stays and, therefore, in TPE (2.1%).

Overall, in 2010 there was a 6.8% year-on-year increase in the areas monitored, which indicated a return to the positive figures last seen in 2008 and exceeded the average for the 2000–2010 period.

As in previous years, the island of Majorca registered the highest number of overnight stays (37.7 million), a figure slightly below the average for the period studied. This is a TPE of 103,245 people living on the island throughout the year. Notably, the Palma-Calvià area accounted for almost half (44.2%) of overnight hotel stays in Majorca.

NOTES

- The Tourist Population Equivalent (TPE) provides a clear view of the pressure exerted by the sector by converting the number of overnight stays into the equivalent number of people living in that location all year round. From an environmental point of view, the indicator's value lies in its ability to a) highlight the areas whose hotels receive the greatest numbers of tourists (both residents and non-residents), and b) monitor trends in these areas over time. The indicator is calculated by dividing the number of overnight stays by 365 days. The Tourist Population Equivalent index (2000=100) peaked in 2006 (117.0). It dropped sharply in 2009 before rising again in 2010 to 115.8, bringing it close once more to the 2006 level.
- Spain's principal tourist destinations are generally well-established and include the 10 areas selected for this indicator. These areas require special treatment from stakeholders if they are to be steered towards sustainability. Sustainable tourism has been encouraged by the Spanish Government through the MITyC's FuturE Plan (approved in July 2009), which promotes sustainability and eco-efficiency in the tourism sector. Its aims are to consolidate Spain's leading position in the sector and to position it at the forefront as regards rational energy use, renewable energy use, water footprint reduction and waste management.
- Other noteworthy initiatives to improve Spain's tourism offering and its sustainability include: A) the "Q" for Tourist Quality standard, awarded by the ICTE, under which establishments are audited to confirm they provide a high-quality service (at present, 2,204 establishments have been awarded this status); B) The EUROPARC Federation's European Charter for Sustainable Tourism in Protected Areas (ECST), which aims to promote the development of sustainable tourism in Europe's protected areas. Commitment and adherence to the ECST is voluntary. It is aimed at managers of protected areas and related businesses and is intended to provide a partnership framework within which to define strategy; C) Spain's Plan for the International Promotion of Cultural Tourism 2010–2012, developed by three ministries. Its goal is to raise the international profile of Spain's cultural offering and to encourage more tourists to visit the country for cultural reasons. The aim is to diversify the tourism offering by promoting tourist destinations other than the traditional 'sun-and-sea' venues; D) The Spanish tourism portal (http://www.spain.info/es/), which publishes listings of cultural events taking place throughout Spain.

SOURCES

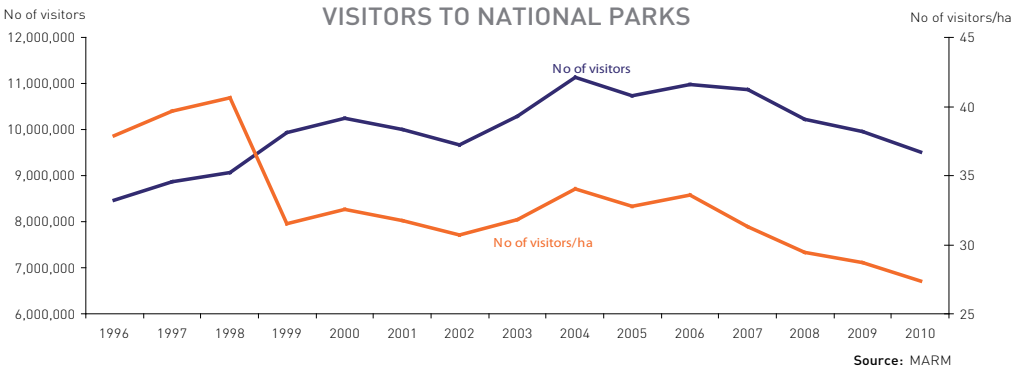
- INE. Hotel Occupancy Survey 2000–2010. Hotels and other lodgings.

FURTHER INFORMATION

- **http:// www.ine.es**

Number of visitors to National Parks

In 2010, the number of visitors to National Parks fell by 5.6% on the previous year to 9.5 million



Source: MARM

In 2010, Spain's National Parks received 9,514,829 visitors, 5.6% fewer than the year before. This decrease was particularly sharp in the Teide National Park (21.1%), while seven other parks recorded less pronounced falls. All the other National Parks registered increases. Most of these were modest, though the number of visitors to the Tablas de Daimiel National Park almost quadrupled, rising from 105,957 in 2009 to 398,742 in 2010, a 276.3% increase. This leap in the number of visitors is closely related to re-establishment of the park's water system.

The average number of visitors to the country's National Parks between the base year (1996) and 2010 stands at 10.0 million. This figure increases to 10.3 million for the 2000–2010 period, proving that there is stable demand for what could be called nature tourism. In this regard, the Teide (3.3 million visitors on average), Picos de Europa (1.8 million) and Timanfaya (1.7 million) National Parks received the highest numbers of visitors throughout the period analysed.

In respect of the number of visitors per hectare, this variable peaked in 1998 (40.6 visitors/ha) before decreasing in successive years to stand at an average of 27.4 visitors/ha in 2010. This trend was partly due to an increase in land area following the creation of several new parks, and partly to the decrease in tourism in recent years.

The Canary Islands' Timanfaya, Garajonay, Teide and Caldera de Taburiente National Parks continued to receive the highest number of visitors per hectare. Following restoration of its water system, the number of visitors to the Tablas de Daimiel National

Park rocketed up from 55.0 per hectare in 2009 to 206.8 per hectare in 2010, making it one of Spain's most visited Parks. As in previous years, in 2010 the Canary Islands accounted for over half (51.8%) the total number of visits to National Parks. However, these figures vary widely within the islands — while the Teide National Park saw a 21.1% decrease in visitor numbers, the Garajonay National Park's visitor figure increased by 25.3%.

VISITORS TO NATIONAL PARKS (2009–2010)

NATIONAL PARK	Area(ha)	2009		2010	
		Visitors	Visitors/ha	Visitors	Visitors/ha
Aigüestortes i Estany de S. Maurici	14,119	329,227	23.3	294,547	20.9
Cabrera Archipelago	10,020	60,662	6.1	64,688	6.5
Cabañeros	40,856	90,001	2.2	92,578	2.3
Caldera de Taburiente	4,699	377,349	80.3	387,805	82.5
Doñana	54,251	380,155	7.0	341,961	6.3
Garajonay	3,986	625,801	157.0	610,248	153.2
Atlantic Islands of Galicia	8,480	274,716	32.4	292,374	34.5
Monfragüe	18,118	306,041	16.9	297,976	16.4
Ordesa and Monte Perdido	15,608	617,500	39.6	614,059	39.3
Picos de Europa	64,660	1,818,671	28.1	1,610,341	24.9
Sierra Nevada	86,208	673,302	7.8	667,319	7.7
Tablas de Daimiel	1,928	105,957	55.0	398,742	206.8
Teide	18,990	3,052,830	160.8	2,407,480	126.8
Timanfaya	5,107	1,371,349	268.5	1,434,705	280.9
TOTAL	**347,306**	**10,083,561**	**29.1**	**9,514,829**	**27.4**

Source: OAPN. MARM, 2011

Notes: Size of Atlantic Islands National Park: 7,282.2 marine ha and 1,194.8 terrestrial ha. Size of Cabrera National Park: 8,703 marine ha and 1,318 terrestrial ha. 2010 data for the Sierra Nevada National Park: provisional estimate

NOTES

- The indicator shows the number of visitors to National Parks and the number of visitors per hectare. While the first variable reveals an upward trend until 2008, the latter declined as a result of the increase in the area of Spain's National Parks, which now cover 347,306 ha (INE, 2011). Moreover, the protected environment around National Parks now stands at 265,856 ha.
- The decreases observed in the graph (1999, 2003 and 2007) correspond to expansion of the National Parks Network to include the Sierra Nevada, Atlantic Islands of Galicia and Monfragüe National Parks, respectively. The latter was incorporated by Law 1/2007, of 2 March, declaring creation of a National Park (BOE no 54, of 3 March 2007), and increased the size of the National Parks Network by 5.22%.
- As regards recovery of the hydrological balance in the Tablas de Daimiel Natural Park, it is worth noting that in 2010 the OAPN acquired the water rights to over 83 ha (16 irrigated farms) in continuance of the policy started in 2000. This policy has resulted in the purchase of 1,560.50 ha for the sum of €24,788,754, obtaining water rights equivalent to a volume of 4,026,458 m^3 (4 hm^3).
- The area within National Parks may be publicly or privately owned. In two cases (the Cabrera Archipelago and Garajonay) the entire National Park is publicly owned. In five other cases (Aigüestortes, Ordesa, Tablas de Daimiel, Teide and Timanfaya) over 90% of the area is publicly owned. The Caldera de Taburiente (86%), Monfragüe (69.58%), Atlantic Islands (27%), Sierra Nevada (23.72%) and Doñana (15.6%) National Parks contain the largest area of privately owned land.

SOURCES

- Data provided by the Documentation Service at the OAPN (2011).
- National Parks Network. MARM. *Primer informe de situación de la Red de Parques Nacionales a 1 de enero de 2007.*
- INE. National Parks by situation, area and ownership, 2010.

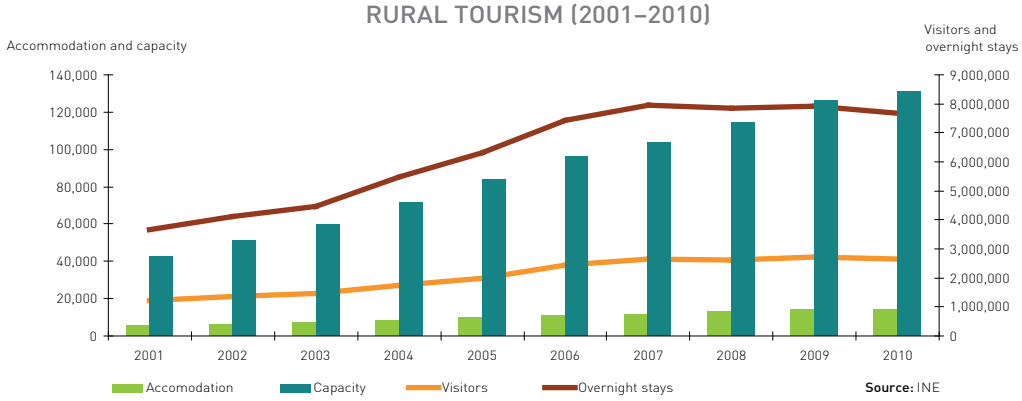
FURTHER INFORMATION

- **http://www.mma.es**
- **http://reddeparquesnacionales.mma.es/parques/index.htm**
- **http://www.ine.es**

Rural tourism: accommodation, capacity, tourists and overnight stays

In 2010, rural tourism accommodation increased (by 3.5%), as did capacity (4%), while the number of visitors and overnight stays fell (by 1.76% and 3.11% respectively)

RURAL TOURISM (2001–2010)



Source: INE

In 2010, the rural tourism sector continued the trend of the two previous years — available accommodation and capacity rose, but the number of tourists and overnight stays fell. The number of establishments offering rural accommodation in Spain climbed to 14,377, an increase of 3.5%. Meanwhile, capacity grew to 126,222 beds, almost 4% more than the previous year. In 2010, the number of visitors dropped to 2,666,449 (1.76% fewer than in 2009), while the number of overnight stays declined to 7,674,431, a 3.11% decrease.

Overall, the rural tourism industry remained stable in 2010, despite the adverse conditions, particularly for internal tourism. However, there does seem to be an imbalance between the growing supply (accommodation and beds) and the dwindling demand (travellers and overnight stays).

By autonomous community, Castile-Leon had the greatest rural tourism infrastructure (3,066 establishments), followed a long way behind by Catalonia (1,616), Asturias (1,339), Castile-La Mancha (1,232) and Aragon (1,038). Overall, these five autonomous communities account for 9,615 establishments, 67.1% of the total.

By number of tourists received, Castile-Leon once again led the ranking with over half a million (596,843), followed by Catalonia (298,878), Galicia (193,119), Cantabria (188,894) and Asturias (181,489). At the other extreme were the Canary Islands

(49,772), Murcia (32,277) and Rioja (24,407).

In terms of average stay, the Canary Islands had the highest ratio, with 5.9 overnight stays per traveller, followed by the Balearic Islands (4.7) and Asturias (3.7). It is worth pointing out that the sector's customers are predominantly Spanish residents (89.2%) who book into the establishments for weekends and short holidays. Tourists travelling from outside of Spain (10.8%) tended to stay in the Balearic Islands, Castile-Leon, the Canary Islands, Catalonia, Galicia and Andalusia.

Between 2001 and 2010, rural tourism developed significantly and there was a strong increase in the number of establishments (161.5%) and available capacity (205.8%). In the same way, the number of travellers and overnight stays also rose notably, by 120.7% and 109.6% respectively during the period studied. This development was a result of both private initiative and promotion by regional government.

In 2001, the sector provided employment for 7,973 people. This figure increased steadily over the period to reach 21,881 in 2010, with the figure for this latter year rising by 4.1% on 2009. In other words, it created 1.5 jobs per establishment offering rural accommodation. These figures show that the sector is not only important to sustainable rural development, but also to creating green jobs, as stipulated in Spain's Sustainable Economy Law.

NOTES

- Rural tourism accommodation refers to establishments or houses that charge for tourist accommodation (with or without other complementary services) and that are listed in the Tourist Accommodation Register maintained in each autonomous community. These establishments tend to share several common features, such as being located in buildings typical of the local architectural style or on working farms (agro-tourism).
- Law 45/2007, of 13 December, on sustainable development of the rural environment, promotes rural tourism by managing supply and encouraging demand. Particular attention is paid to sustainable tourism in priority rural areas and to agro-tourism. The Sustainable Rural Development Programme (PDRS) for 2010–2014 is now being implemented and is putting into practice the principles of Law 45/2007.

SOURCES

- INE. Encuesta de Ocupación de Alojamientos Turísticos, 2010.

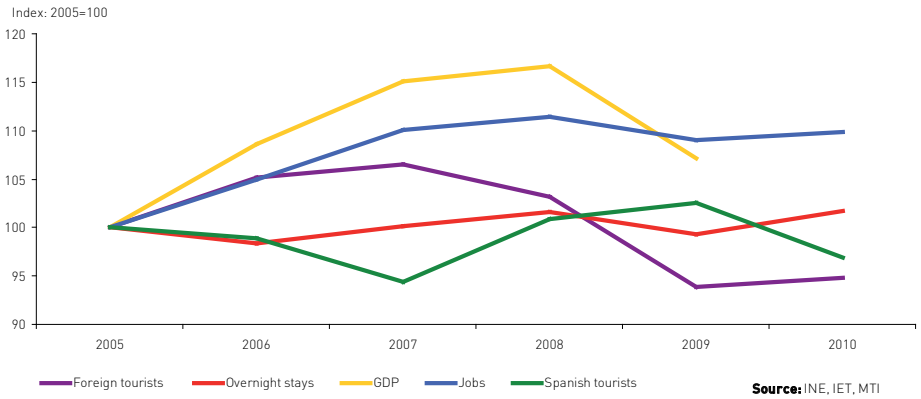
FURTHER INFORMATION

- **http:// www.marm.es**
- **http:// www.ine.es**

Trends in the main variables affecting tourism in Spain

In 2010, the tourism sector started to restabilise after the downturn in 2008 and 2009

TRENDS IN THE MAIN VARIABLES AFFECTING TOURISM



Source: INE, IET, MTI

After a sustained rise in the sector, the global economic situation caused a strong downturn that brought the number of foreign tourists travelling to Spain in 2009 down to the level recorded in 2002. Nevertheless, in 2010 the situation seemed to be restabilising and there was even a slight increase in the number of foreign tourists and overnight stays. In terms of the revenue produced, the MITyC estimates that this increased by 2.5%, representing average expenditure per tourist of €930.

Tourism's gross domestic product at current prices (2000 base year) grew significantly until 2008, but then decreased sharply in 2009, falling by 8.5% on the previous year (the last year for which data is provided by the INE). In absolute terms, it decreased from €114.74 billion in 2008 to €105.39 billion in 2009.

For its part, employment in the sector rose significantly until 2008 before showing a moderate downturn in 2009, after which it increased again in 2010 by almost one percentage point (0.8%). According to data provided by the Ministry of Labour and Immigration, in 2010 the number of sector employees making social security contributions stood at 1,932,224, compared to 1,917,405 the year before.

NOTES

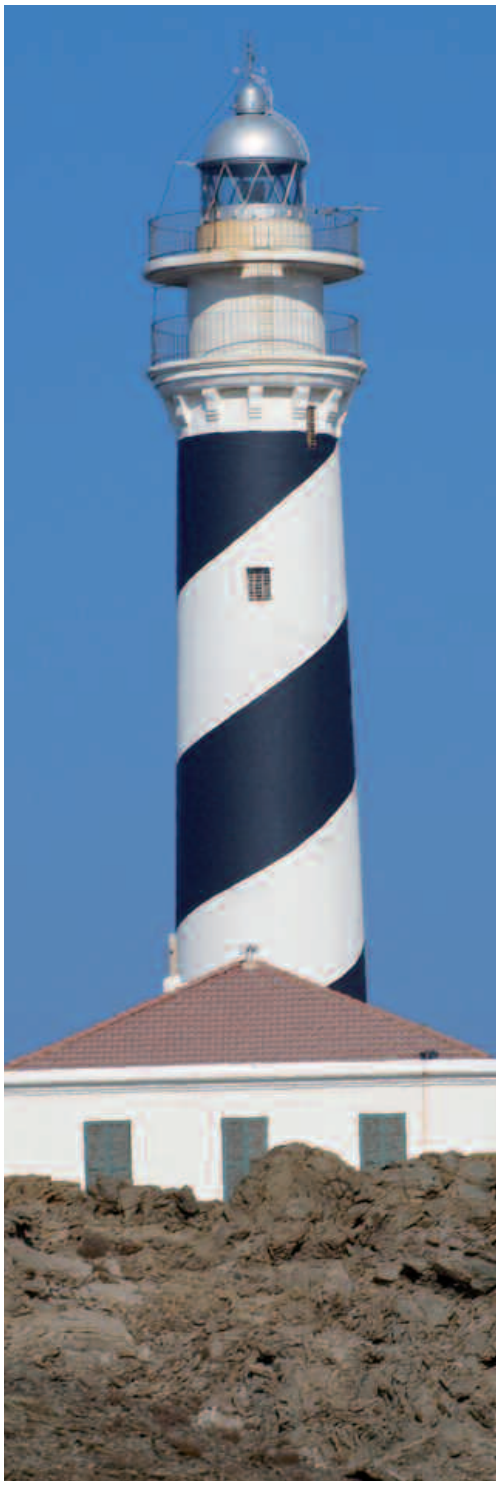
- The GDP figures (absolute values) for 2008 are provisional, while those for 2009 are an advance estimate.
- The travel figures for Spanish nationals (2010) are taken from the monthly reports up to October published as part of the FAMILITUR survey carried out by the IET. The statistics for November and December are estimates based on the previous year's data (as figures for these months were not available at the time of going to press) and take into account the 6.2% reduction recorded up to October.
- Travel by Spanish nationals includes destinations within Spain and in other countries. In 2009, Spanish nationals made a total of 12.8 million journeys abroad (5.5% more than in 2008), of which 9.8 million were to other European countries. In 2010 (pending the definitive figures), it is estimated that the number of journeys made by Spanish nationals decreased.

SOURCES

- INE. GDP at constant prices. Tourism Satellite Account of Spain. 2000 base. 2000–2009 accounting series.
- INE. Domestic tourism (overnight stays by tourists resident in Spain).
- INE. Occupancy surveys (overnight stays by foreign tourists).
- INE. Inbound tourism (number of foreign tourists).
- Ministry of Labour and Immigration (quoted by the IET). Number of employees in all tourism activities making social security contributions.
- IET. FAMILITUR (journeys by Spanish nationals up to October 2010, and estimates for November and December)

FURTHER INFORMATION

- **http://www.iet.tourspain.es**
- **http://www.ine.es**



2.13 TRANSPORT

Transport is one of the key sectors in terms of resolving the conflict between energy use and climate change. In 2009, transport accounted for approximately 13% of greenhouse gas (GHG) emissions worldwide, and for 26% of total emissions in Spain. It is a sector in which significant reductions can be made in pollutant emissions without restricting the mobility of citizens or goods, thereby contributing to the much-needed improvement in air quality in cities. To achieve this, government must reinforce and/or refocus part of current policy; mainstream sustainable mobility principles into spatial planning (e.g., by promoting public transport and localised urban development and by considering non-motorised modes of transport in urban planning); and increase investment in technological innovation. These and other policies should not only further raise citizens' awareness about environmental quality in cities, but should also encourage them to get involved in resolving the problem by changing aspects of their lifestyle and conduct.

One way of achieving this is to produce and improve hybrid/electric vehicles. Spain's Automotive Industry Plan, Sustainable Mobility Strategy, Sustainable Economy Law and the future Sustainable and Safe Mobility Law all promote the use of cleaner and more efficient vehicles as a means of reducing emissions. Naturally, progressive integration of externalities must

continue to ensure that in the medium and long term prices reflect all of the costs involved whilst maintaining social equity. If by 2014 Spain's automobile fleet were to include a million hybrid/electric cars, it would be a huge step forward and would have a significant impact on the economy, energy use and the environment.

INDICATOR	GOAL	TREND
Total inter-city transport volume: modal split	Achieve a balance between transport modes, promoting more environmentally friendly options	Road transport is still predominant. Meanwhile, rail passenger transport exceeded air passenger transport for the second year running
Emissions of air pollutants by transport	Reduce emissions of air pollutants and contribute to meeting environmental targets	Decrease in emissions of ozone precursors and acidifying gases by transport. GHG emissions have also been falling since 2008
Air transport	Achieve a balance between transport modes, promoting more environmentally friendly options	In 2010, air passenger traffic increased, reversing the downturn in 2008 and 2009
Waste generated by transport: end-of-life tyres	In this order: reduce, reuse, recycle and recover ELTs	Integrated management of ELTs is increasing as more producers sign up to the IMS
Eco-efficiency in transport	Decouple economic growth from the environmental pressure exerted by the sector	Between 1995 and 2009, economic growth was similar to that of energy consumption and greater than GHG emissions and transport demand

It is important to note that in July 2010, Law 13/2010 was passed, which amends the regulation governing the greenhouse gas emissions trading scheme. The new law improves and extends the regulation and now includes aviation. It also transposes the amendments to Directives 2003/87/EC, 2008/101/EC and 2009/29/EC into Spanish law.

Meanwhile, the European Commission has recently adopted the recommendations of a new White Paper on Transport for 2050 entitled *Roadmap to a Single European Transport Area — Towards a competitive and resource-efficient transport system*. This highlights the fundamental role that transport and mobility play in the economy and citizens' quality of life, while also recognising that Europe's transport system will not be sustainable if, over the next few decades, it continues to develop as it is currently doing. Based on acquired experience, the new White Paper on Transport reviews the transport sector's development, the future challenges it faces and the policy initiatives that, according to the European Commission, need to be considered.

As regards transport safety, in 2009 the trend of previous years was maintained, with the number of fatalities falling by 12% and the number of injured dropping by 16% in comparison with 2008. In 2009, there were 2,714 fatalities, which despite being 50% less than in 2003 is still a concerning number. The accident rate stood at three accidents with victims per thousand vehicles in the Spanish vehicle fleet.

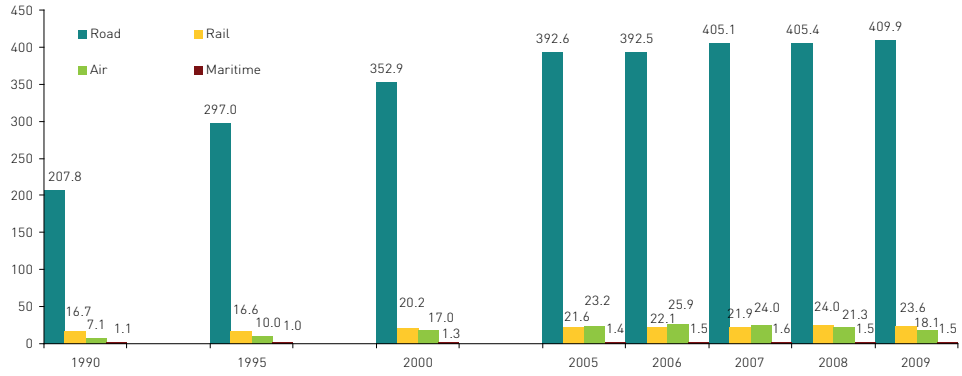
In the same year, the vehicle fleet shrank by 0.37% on 2008, while that of passenger cars contracted by 0.73% and that of motorcycles increased by 4.23%. Diesel vehicles continued to account for an ever-growing proportion of the national fleet and represented 52.4% of the total number of vehicles and 50.4% of the total number of passenger cars.

In December 2010, Royal Decree 1738/2010 established mandatory targets for biofuels, setting these at 5.9% for 2011, 6.0% for 2012 and 6.1% for 2013. These targets were subsequently modified in early 2011 and a new biofuel target (set at 7% in energy terms of all automotive petrols and diesels) was established for 2011.

Total inter-city transport volume: modal split

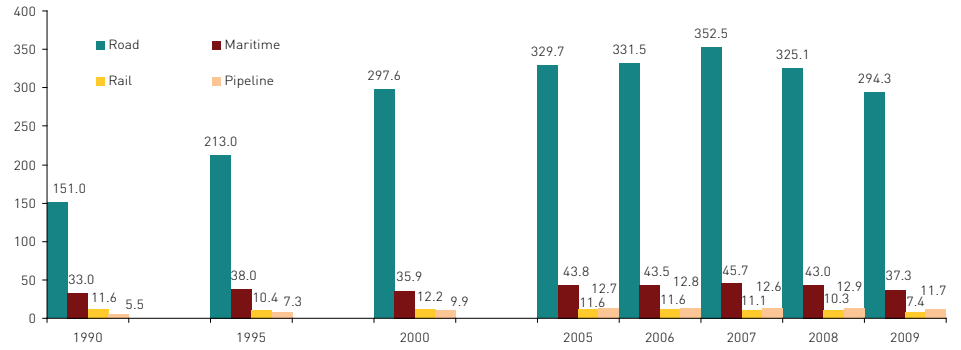
2009 saw a 10.4% decrease in freight traffic, while passenger traffic remained similar to the 2008 figure

DOMESTIC INTER-CITY PASSENGER TRAFFIC BY MODE TRANSPORT (thousand million passenger-km)



Source: MF

DOMESTIC INTER-CITY FREIGHT TRAFFIC BY MODE OF TRANSPORT (thousand million tonne-km)



Source: MF

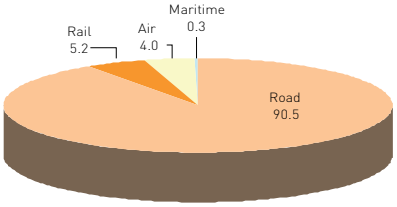
Over the period 1990–2009, inland passenger traffic in Spain grew by 94.8%, though in 2008–2009 there was barely any increase in volume. In fact, only road transport increased (by 1.1%), while the rest of the modes of transport recorded decreases (14.8% for air transport, 1.6% for rail and 1.9% for maritime).

Over the same period, inter-city freight traffic shot up by 74.4%, though this was tempered by a 10.4% decrease between 2008 and 2009. All modes of freight

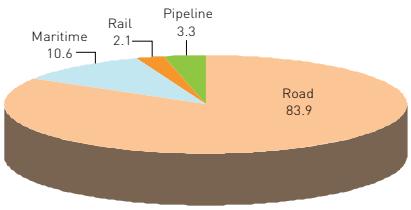
transport contributed to this reduction, though the 28.1% drop in rail freight was particularly significant. Freight transport by road fell the least of all the modes.

As in previous years, the modal split for inland transport in 2009 shows that the most popular mode for both passengers and freight was road transport, which accounted for slightly higher percentages than in 2008. Due to further development of existing high-speed routes and the start-up of new services, rail travel is gaining ground as a form of passenger transport and, for the second consecutive year, it was more popular than air transport. However, for freight, rail lost market share to road transport.

MODAL SPLIT OF DOMESTIC PASSENGER TRANSPORT (%) (2009)



MODAL SPLIT OF DOMESTIC FREIGHT TRANSPORT (%) (2009)



Source: MF

Road transport is dominated by passenger vehicles, which accounted for 85.5% of p-km in 2009, with buses accounting for 14% and motorcycles for just 0.5%.

NOTES

- The unit of measurement used for passenger transport is passenger-kilometre (p-km), which is calculated by multiplying the annual number of passengers by the number of kilometres travelled.
- The unit of measurement used for freight transport is tonne-kilometre (t-km), calculated by multiplying the number of tonnes transported by the number of kilometres travelled.
- Air freight transport is not relevant as it only represents 0.02% of the total t-km transported in 2009.

SOURCES

- MF, 2010. *Los transportes, las infraestructuras y los servicios postales 2009* (and previous editions).
- MF, 2010. *Anuario Estadístico 2009* (and previous editions).

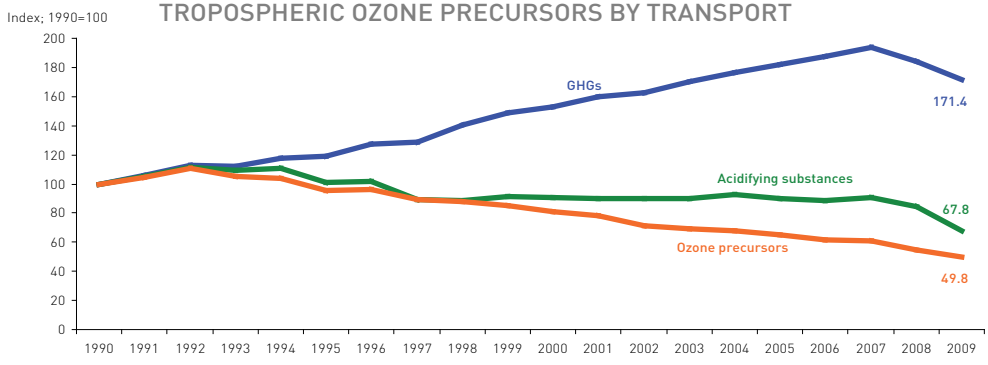
FURTHER INFORMATION

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

Emissions of air pollutants by transport

In 2009, emissions of greenhouse gases, acidifying gases and ozone precursors by transport decreased again

EMISSIONS OF GHGs, ACIDIFYING SUBSTANCES AND TROPOSPHERIC OZONE PRECURSORS BY TRANSPORT



Source: MARM

In 2009, the transport sector was responsible for 25.7% of all greenhouse gas emissions, making it the most pollutant sector in Spain. Since 1990, emissions by transport have increased by 71.4% (a percentage much higher than that of total emissions) and have risen practically every year. Nevertheless, and largely due to the economic situation, which reduced production of goods and services, 2009 was the second consecutive year in which this trend was reversed, recording a significant 6.8% decrease following a 5.2% drop in 2008.

Acidifying substances emitted by transport present a very different pattern, showing a general decrease largely due to the reduction in sulphur and nitrogen oxide emissions. Emissions of these substances fell by 32.2% over 1990–2009 and have been dropping particularly sharply since 2007. In fact, last year alone, they decreased by 19.7%.

Emissions of ozone precursors are following the same downward trend and fell even more markedly, diminishing by 50.2% over 1990–2009. Emissions in 2009 were 9.4% below the 2008 level. In both cases, the determining factors were improvements in fuel quality and new technological developments in vehicles to comply with Euro standards.

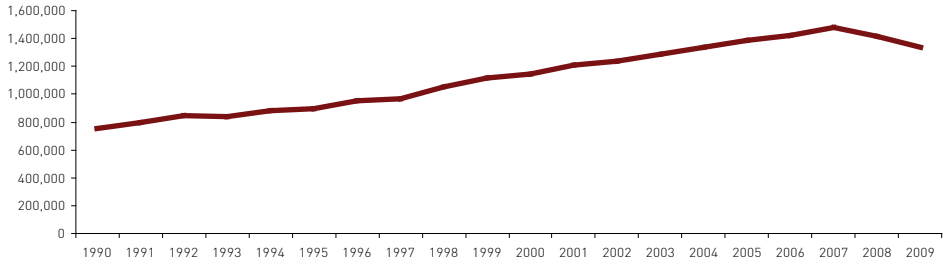
Over the period 1990–2009, the increase in energy consumption by transport was estimated to be 71.2%. Energy consumption by all modes of transport increased, although at different rates: domestic maritime transport's consumption increased by 121% (a figure that rises to 136% if international maritime transport is taken into account); domestic air transport's consumption rose by 91% (114% when international

transport's consumption is counted); road transport's consumption went up by 70%; and rail transport's consumption, including suburban services, climbed by 13%.

In this context of growing energy consumption, the descents seen in 2008 and 2009, of 4.5% and 5.2% respectively (excluding both international air and maritime consumption and rail transport's electricity consumption) stand out particularly. These decreases are attributable to technological improvements, structural measures and the economic climate.

By mode, and referring solely to fuels derived from oil, in 2009 road transport continued to be in high demand and have the largest energy consumption (91.6%), while air (3.8%) and maritime (3.4%) transport showed similar, but much lower, levels of consumption. Rail transport consumes the least energy, barely 1.2%.

FINAL ENERGY CONSUMPTION BY TRANSPORT
(Total Tj equivalent)
International air and maritime transports' consumption are excluded from the calculation, as is rail transport´s electricity consumption



Source: MARM

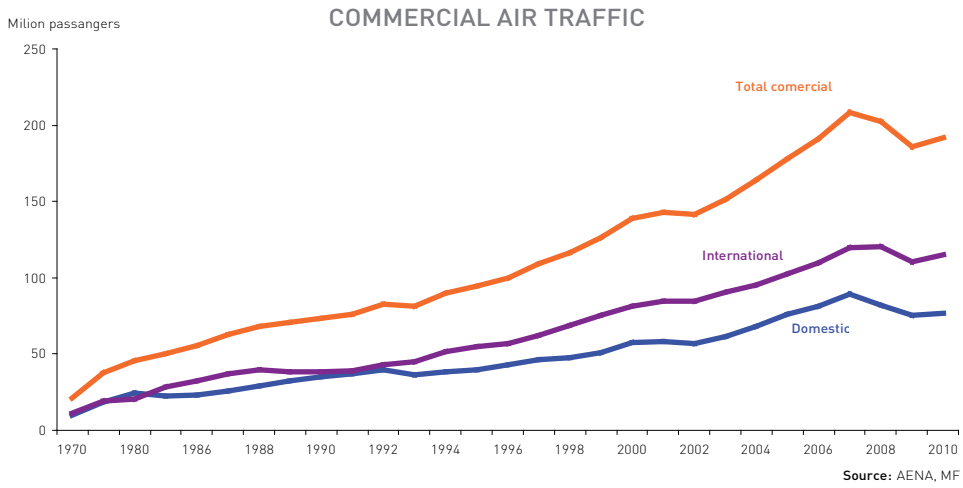
NOTES
- The graph for the indicator shows the changes in aggregate total annual emissions of acidifying and eutrophying substances (SO_2, NO_x and NH_3) and tropospheric ozone precursors (NO_x, NMVOCs, CO and CH_4) in relation to the base year 1990 (1990=100).
- Emissions of acidifying and eutrophying gases are presented as acid equivalent (hydrogen ion-generating potential) and are aggregated using the following weighting factors: 31.25 acid equivalent/kg for SO_2 (2/64 acid equivalent/g), 21.74 acid equivalent/kg for NO_x, expressed as NO_2, (1/46 acid equivalent/g) and 58.82 acid equivalent/kg for NH_3 (1/17 acid equivalent/g). Emissions of tropospheric ozone precursors were estimated using the tropospheric ozone depleting potential (expressed as NMVOC equivalent). The following weighting factors were employed: 1.22 for NO_X, 1.00 for NMVOCs, 0.11 for CO, and 0.014 for CH_4.
- International air and maritime transports' consumption are excluded from the calculation, as is rail's electricity consumption.

SOURCES
- MARM, 2011. *Inventario de Gases de Efecto Invernadero de España.* Years 1990–2009. Directorate-General for Environmental Quality and Assessment.
- MITyC, 2010. *La energía en España 2009*

FURTHER INFORMATION
- http://www.marm.es
- http://www.mityc.es
- http://www.eea.europa.eu/

Air transport

After decreases in 2008 and 2009, in 2010 air passenger transport grew by 2.7% and air freight transport increased by 15.5%



Source: AENA, MF

With 192,787,860 passengers, 2010 saw an increase in total air passenger transport (2.7% on 2009), reversing the downward trend of the two previous years. As regards commercial air traffic, the number of passengers was 3.1% higher than in 2009, at 191,697,798. Similarly to other years, of these commercial flights, around 60% of passengers were on international flights and 40% were on internal flights.

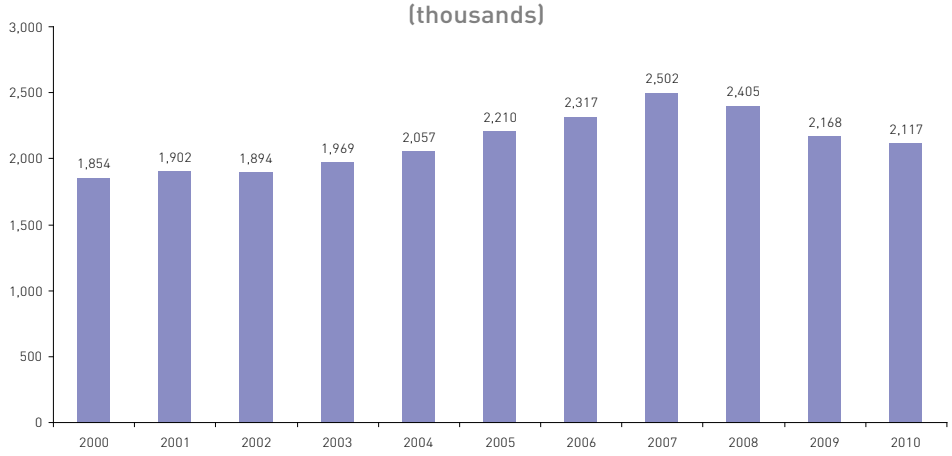
In 2010, 652,146 tonnes of freight were transported by air, 15.5% more than in 2009. This rise was mainly due to the increase in international cargo, which went up by 23.4%.

Nevertheless, the total number of air operations was 2.4% lower than in 2009, with 2,116,512 passenger and freight flights.

Madrid-Barajas airport recorded the greatest volume of passengers, operations and freight, followed by Barcelona-El Prat. However, these were not the airports that recorded the biggest increases — the number of passengers passing through the airports in Santiago de Compostela and Fuertaventura grew by over 11%, while Lanzarote airport saw the greatest rise in operations (8.7%).

Over 2000–2010, total passenger traffic increased by 36.7%, while the total number of operations grew by 14.2%.

NUMBER OF AIR OPERATIONS IN SPANISH AIRPORTS
(thousands)



Source: AENA, MF

NOTES
- Total air traffic includes inbound and outbound flights and includes all commercial traffic (both scheduled and charter flights). It includes passengers in transit and other traffic types. Total commercial air traffic is the sum of Spain's national (or internal) and international flights.

SOURCES
- AENA, 2011. Annual statistical reports on Spain's airports.

FURTHER INFORMATION
- http://www.mfom.es
- http://www.aena.es

Waste generated by transport: end-of-life tyres

Material recovery is the most established management method, although energy-value recovery is increasing

WASTE GENERATED BY TRANSPORT: END-OF-LIFE TYRES

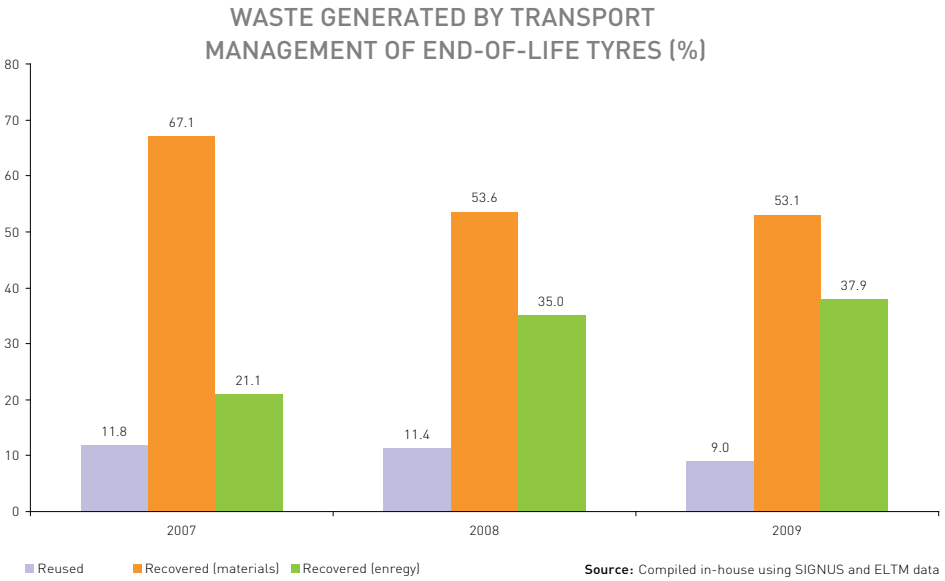
	2007			2008			2009		
	Signus	TNU	Total	Signus	TNU	Total	Signus	TNU	Total
Collected (t)	**213,542**	**55,326**	**268,868**	**198,347**	**52,659**	**251,006**	**190,080**	**49,593**	**239,673**
Managed (t)	**163,570**	**55,315**	**217,945**	**230,408**	**52,659**	**283,067**	**187,198**	**49,100**	**236,298**
Reused (t)	18,035	7,707	25,742	19,072	13,165	32,237	16,848	4.429	21.277
%	11.0	13.9	11.8	8.3	25.0	11.4	9.0	9,0	9,0
Recovered (materials) (t)	123,575	23,624	146,259	132,891	18,957	151,848	101,087	24.349	125.436
%	75.5	42.7	67.1	57.7	36.0	53.6	54.0	49,6	53,1
Recovered (energy) (t)	21,960	23,984	45,944	78,445	20,537	98,982	69,263	20.322	89.586
%	13.4	43.4	21.1	34.0	39.0	35.0	37.0	41,4	37,9

Compiled in-house using data from SIGNUS and TNU

The annual reports published by the two end-of-life tyre Integrated Management Systems (IMS) currently in operation (SIGNUS and ELTM) provide valuable information on how this type of waste is managed. In recent years, these schemes have been further developed and tyre management has improved, resulting in a better balance between collected and managed volumes. This is proved by the rise in the number of producers registered with the IMS. In 2009, SIGNUS had 149 registered producers (almost five times as many as in 2006), while TNU had 143, which together represent almost 85% of all producers.

It should be noted that the IMS have developed a model that collects end-of-life tyres from all over Spain. This is a fundamental step in proceeding to reuse, recycle and recover them, practices that along with a decrease in generation are essential for environmental protection.

During the three years studied, material recovery remained the main management method for end-of-life tyres, although there was also an increase in energy recovery, which was used to deal with 37.9% of the tonnes managed by both IMS.



Source: Compiled in-house using SIGNUS and ELTM data

NOTES

- Royal Decree 1619/2005, of 30 December, on management of end-of-life tyres, establishes a specific legal framework for tyre production and management and promotes, in the following order, reduction, reuse, recycling and other forms of recovery, with the aim of protecting the environment. It establishes that the integrated management systems, which should be authorised by the regional governments in the autonomous communities in which they operate, should ensure collection of end-of-life tyres and appropriate management. Management of the system should be performed by an administrative body constituted as a legal person on a not-for-profit basis.
- To date, two Integrated Management Systems have been established in Spain — Signus Ecovalor, S.L., legally constituted on 19 May 2005, and Tratamiento de Neumáticos Usados, S.L., legally constituted on 13 July 2006.

SOURCES

- Sistema Integrado de Gestión de Neumáticos Usados (SIGNUS), various years. 2007 to 2009 annual reports.
- Tratamiento de Neumáticos Usados, S.L. (TNU), various years. 2008 and 2009 annual reports.
- MARM, 2008. *Plan Nacional Integrado de Residuos (PNIR) 2008–2015.*

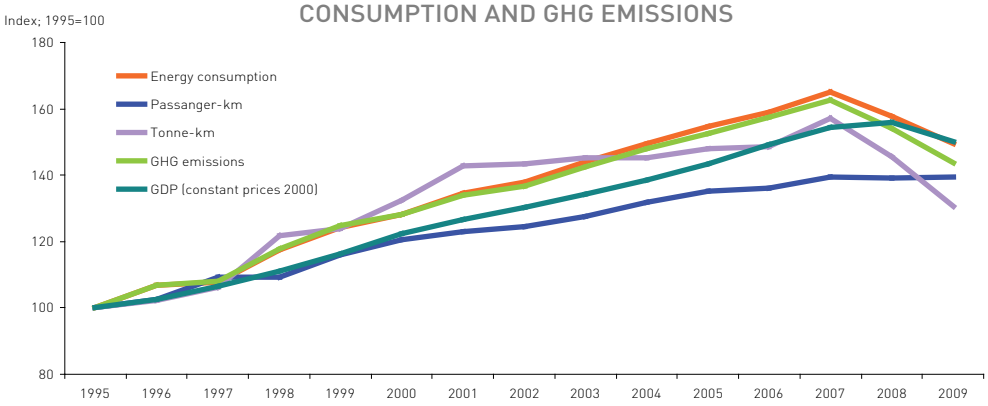
FURTHER INFORMATION

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

Eco-efficiency in transport

The decrease in GDP in 2009 followed, although to a lesser extent, the trend started the year before in the other variables

ECO-EFFICIENCY IN TRANSPORT IN TERMS OF GDP, ENERGY CONSUMPTION AND GHG EMISSIONS



Source: MF, MITyC, MARM

2007 was a turning point in the trend of the variables considered when assessing eco-efficiency in transport. Until 2007, all of them, except passenger transport, had increased in parallel (and more strongly) to GDP. In 2008, there was a change of trend in energy consumption, greenhouse gas (GHG) emissions and freight transport. This was not the case for passenger transport, which had grown less than the other variables and was decoupled from GDP growth. This change in trend coincides with the onset of the economic crisis, which became more pronounced in that year.

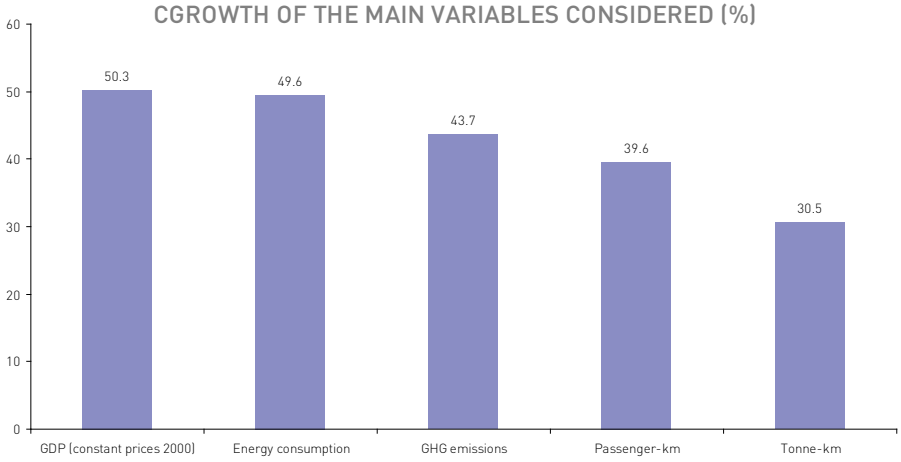
In 2009, GDP dropped by 3.6%, contrasting with the 0.9% growth recorded in 2008. Energy consumption went down by 5.1%, expanding upon the reduction of the year before (4.5%). GHG emissions followed the same trend, but with even greater decreases (6.8% and 5.2% in 2009 and 2008, respectively). These stronger decreases could be due to technological improvements and the energy-efficiency measures implemented in vehicles, engines, fuels, tyres and so on.

Freight transport also declined more markedly in 2009 than the previous year (10.4% in 2009 and 7.3% in 2008). Conversely, in 2009 passenger transport, which in 2008 remained at a similar level to 2007, increased very slightly (0.22%).

The graph below shows the increase in the variables over the 1995–2009 period. It

clearly shows how the increase in economic growth in Spain coincided with a smaller rise in the volume of inter-city transport (of both passengers and freight) and with lower GHG emissions. However, this GDP growth was coupled to a similar rise in energy consumption.

ECO-EFFICIENCY IN TRANSPORT (1995–2009):
CGROWTH OF THE MAIN VARIABLES CONSIDERED (%)



Source: INE, MITyC, MARM

Greater use of private vehicles, with few occupants, in urban and metropolitan areas could continue to be one of the factors responsible for this situation. Therefore, analysis of these variables is necessary over the next few years to decouple the structural component from the economic one.

NOTES

- Greenhouse gas emissions by transport refer to those produced by Group 7 of the SNAP classification (Road Transport), part of Group 8 (Other Transport Modes: rail, air and sea) and pipeline transport included in stationary sources (SNAP 01.05.06). The estimates include emissions of CH_4, N_2O and CO_2. Annual emissions of each of these three pollutants, converted into tonnes of CO_2 equivalent according to their global-warming potential, are as follows: 1 (CO_2), 21 (CH_4) and 310 (N_2O).
- The GDP figures are those used by the MITyC to estimate energy intensity at constant prices (base year 2000).

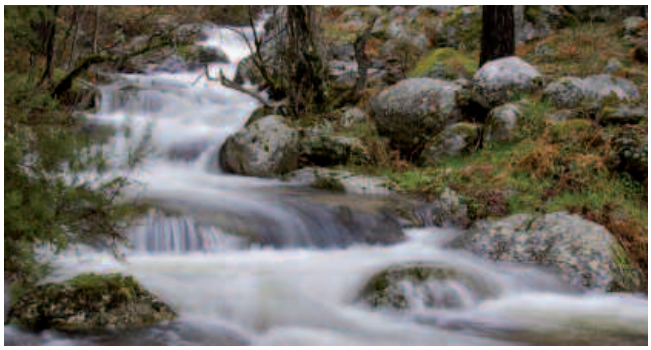
SOURCES

- MARM, 2011. *Inventario de Gases de Efecto Invernadero de España.* Years 1990–2009. Directorate-General for Environmental Quality and Assessment.
- INE. Economic Accounts. INE. Spanish National Accounts. Gross domestic product at market prices and its components. Current prices.
- MF, 2010. *Los transportes y los servicios postales.* 2009 annual report.
- MITyC, 2010. *La energía en España 2009.*

FURTHER INFORMATION

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

2.14 HOUSEHOLDS



The household sector consumes a large proportion of the goods and services produced by the economy (estimated at 60% of the EU-27's Gross Domestic Product). Although the environmental impact of each household is relatively small compared to that of manufacturing, overall the household sector exerts more pressure on the environment. The impacts generated by the residential sector provoke changes in living conditions, ecosystems and infrastructure, all of which were studied in a recent report by Eurostat.

This report covered a wide range of themes on the household sector in Europe — CO_2 emissions, water consumption, waste generation, housing unit building, transport use, energy consumption and, in general, consumption viewed from the life cycle perspective. It also analysed the influence of current practice in land-use planning, which encourages urban sprawl, on consumption patterns (Eurostat. 2010. *Environmental statistics and accounts in Europe. Households*).

This situation has sparked responses from the international community. At the Rio 92 summit, consumption patterns were identified as one of the main causes of global damage to the environment. Ten years later, the Declaration on Sustainable Development

INDICATOR	GOAL	TREND
Number of passenger cars per household	Promote urban and inter-urban mobility using other more eco-friendly forms of transport	Although the relationship between the number of motor vehicles and the number of households remains very stable, in 2009 the number of passenger cars per household decreased slightly
Urban waste production per household	Minimise production of urban waste	The total amount of urban waste decreased by 6.8% in 2008 on 2007 and average annual waste generated per household fell to 1.5 tonnes, the lowest figure since 1998
Energy consumption per household	Increase efficiency in energy consumption	In 2009, energy consumption per household fell by 7.9%, with both heating/hot water and electrical usage decreasing
Emissions of CO_2 by households	Reduce CO_2 generation in the sector	In 2009, there was a strong decrease in CO_2 generation in the residential sector, estimated at 7.1%, similar to the figure recorded in 2006
Water consumption per household	Minimise water consumption per household	Average water consumption per household per year stood at 152 m^3, compared with 156 m^3 the year before
Gross disposable household income	Make consumption more compatible with sustainable development	Over 2000–2008, gross disposable income per household increased, though significant differences still exist between autonomous communities
Eco-efficiency of households	Decouple household income from resource consumption and waste generation	The data available up to 2008 show a decoupling between the number of households and gross income (which have both continued to rise) and consumption per household (which is decreasing)

(Johannesburg, 2002) showed the need to develop a specific set of programmes to speed up the shift to "sustainable consumption and production". The new approach is evident in the Europe 2020 strategy, particularly in terms of reducing energy consumption and increasing efforts to achieve maximum efficiency in natural resource consumption.

SPAIN: POPULATION, HOUSEHOLDS AND HOUSING UNITS (2001–2009)

	2001	2004	2005	2006	2007	2008	2009	Variation 2009–2001
Population	41,116,842	43,197,684	44,108,530	44,708,964	45,200,737	46,157,822	47,021,031	14.36%
Households	13,468,068	14,528,259	14,865,707	15,855,594	16,280,438	16,741,379	17,068,196	26.73%
Housing units	21,033,759	22,623,443	23,210,317	23,859,014	24,495,844	25,129,207	25,557,237	21.51%

Source:
Population: INE. Municipal register as at 1 January (2001–2009).
Households: INE. Household Budget Continuous Survey 2000–2005 and Household Budget Survey 2006–2009.
Housing units: Ministry of Housing. Estimate of housing stock 2001–2009.

While population increased by 3.3% in the EU-27 between 2001 and 2009, Spain's population rose by 14.36%. This instigated a dramatic upsurge in the number of households and, therefore, in the pressure exerted on the environment. In the same period, 4.5 million housing units were built, resulting in enormous resource consumption and major environmental pressure, especially in coastal areas.

European households show a general downward trend in the number of members per household. This is also the case in Spain and is one of the reasons for the increase in the total number of households. In 2008, the number of people per household in Europe stood at 2.4. In Spain, this figure fell from 3 members per household in 2001, to 2.8 in 2008 and to 2.7 in 2009.

The table below shows a sharp rise in 2009 in one-person and two-person households in comparison with the base year. These two types of households, the increase in which could be attributable to the ageing population and the arrival of immigrants without family ties in Spain, account for 48.06% of the total. On the other hand, households comprising of five, six or more members are decreasing. The only household type that has remained reasonably stable is that of four persons, although in 2009 the number dropped slightly (0.8%) on the previous year.

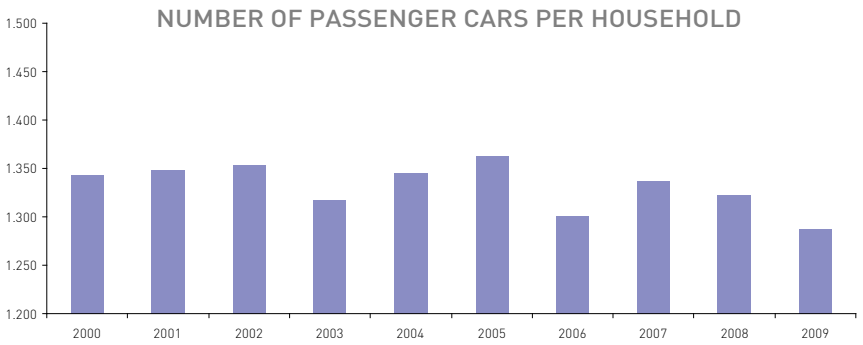
HOUSEHOLDS BY NUMBER OF MEMBERS

No of members	2006	2007	2008	2009	Variation 2009-2006
1	2,704,547	2,857,737	3,009,767	3,172,572	17.31%
2	4,503,716	4,666,801	4,854,800	5,030,888	11.71%
3	4,171,250	4,249,126	4,425,534	4,508,098	8.08%
4	3,259,819	3,325,275	3,375,953	3,298,427	1.18%
5	898,208	863,717	789,925	771,312	-14.3%
6 or more	318,054	317,781	285,580	286,898	-9.80%
TOTAL	**15,855,594**	**16,280,438**	**16,741,379**	**17,068,196**	**7.65%**

Source: INE. Household Budget Survey. 2006–2009

Number of passenger cars per household

In 2009, the number of passenger cars per household decreased again, partly due to a reduction in fleet size, but also partly due to an increase in the number of households



Source : DGT, INE

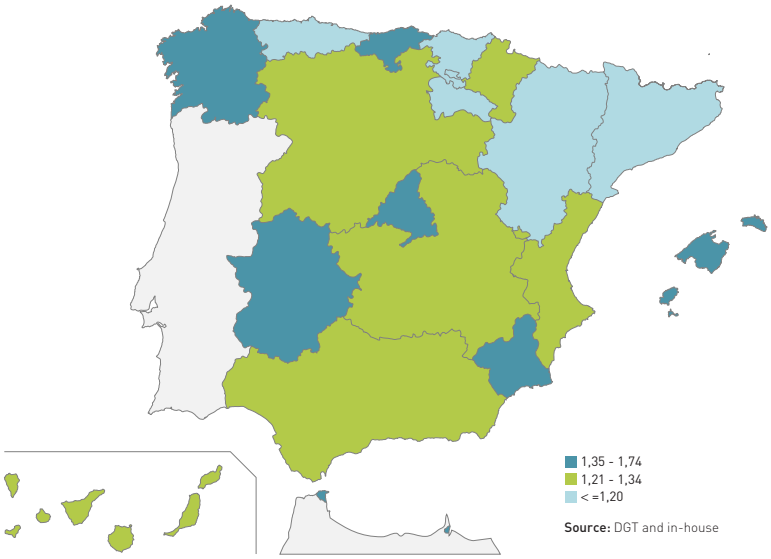
In 2009, Spain's passenger car fleet totalled 21.9 million units, a decrease of 0.7% on the previous year (161,879 passenger cars). Meanwhile, the number of households continued the rise of recent years to reach 17 million in 2009 (326,817 households more).

While the number of passenger cars dropped in 2009, the number of motorcycles increased by 4.2% on the previous year (105,755 units). This may indicate a shift in public preference from cars to this mode of transport, use of which has increased steadily since 2000 (an average 6.7% rise per year). This trend is particularly evident in urban areas.

Between 2000 and 2009, the number of passenger cars rose by 26%, while the number of households saw a bigger increase of 39.2%.

Households in nine autonomous communities exceeded the national average (1.3 passenger cars per household), as did those in the autonomous cities of Ceuta and Melilla, which were at the top of the table with 1.7 passenger cars per household. They were followed by the Balearic Islands (1.6); Madrid, Galicia, Murcia, Extremadura and Cantabria (all with 1.4 passenger cars per household); and the Canary Islands (1.3). The remaining autonomous communities matched the national average, as was the case in Andalusia, or were below this figure. Rioja, the Basque Country and Aragon were at the other end of the scale, with 1.1 passenger cars per household.

NUMBER OF PASSENGER CARS PER HOUSEHOLD, 2008



NOTES

- On 31/12/2009, Spain's national vehicle fleet totalled 30,855,969 units (lorries and vans, buses, passenger cars, motorcycles, industrial tractors and other vehicles). Of this number, passenger cars accounted for the majority (71.2%). The figure does not include mopeds, although registration was made compulsory with the entry into force of the General Vehicle Regulation in 1999. The number of mopeds registered rose from 1,806,758 in 2001 to 2,352,205 in 2009, despite a decrease for the second consecutive year (2.43% in 2009 on the previous year).
- From an environmental point of view, national vehicle fleet renewal is an important factor as new vehicles incorporate technology that reduces consumption and pollution. In 2009, 1,238,638 vehicles were withdrawn from circulation, of which almost a million (937,297) were passenger cars.
- There is a growing preference for diesel vehicles over petrol-powered ones. Thus, in 2000, 27% of passenger cars ran on diesel, while by 2009 that figure had risen to 50.4%. In 2009, only 3,796 passenger cars used fuels other than the two mentioned above. Diesel use is a cause of atmospheric pollution by particulate matter, adding to the pollution from tyre wear from road traffic.
- In 2009, over half of passenger cars (53.3%) had a cylinder capacity greater than 1,600 cm^3. Nevertheless, the number of units decreased on the previous year (138,233 fewer passenger cars, of which 102,047 were in the 1,600–1,999 cm^3 band, and 36,186 had cylinder capacities of over 1,999 cm^3).
- According to the INE (Survey on Households and the Environment, 2008), 42.2% of Spanish households had a single vehicle, while 7.4% possessed three or more (cars, vans and motorcycles). There is also a correlation between a higher number of household members and a greater number of private vehicles. Analysing vehicle ownership in relation to average monthly household income reveals a direct relationship between income and number of private vehicles.

SOURCES

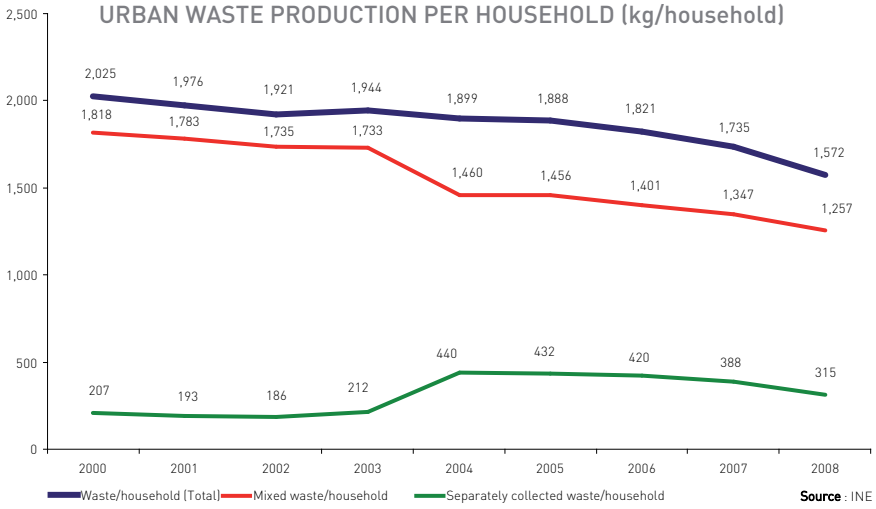
- Households: INE. Household Budget Continuous Survey. 1998–2004, and Household Budget Survey. 2006 base. 2006–2009 series.
- Passenger cars: DGT. *Anuario Estadístico General*. 2009
- INE. Survey on Households and the Environment, 2008. Press release of 22 April 2008.

FURTHER INFORMATION

- **http:// www.ine.es/inebase.**
- **http:// www.dgt.es/estadisticas.htm**

Urban waste production per household

The total amount of urban waste decreased by 6.8% in 2008 on 2007 and average annual waste generated per household stood at 1,572 kg



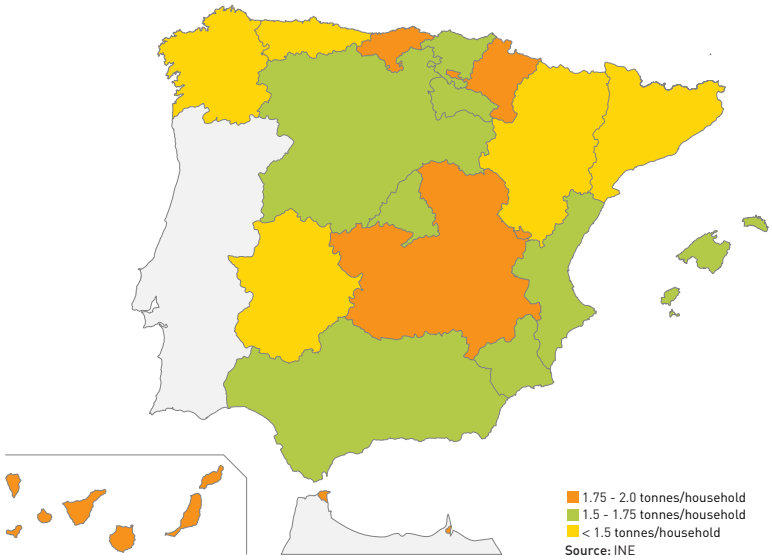
This indicator estimates the average annual amount of urban waste generated per household. In 2008, waste management companies collected a total of 26.3 million tonnes of waste from the residential sector, 6.8% less than in 2007. This averages out at 1,572 kg of urban waste per household, the lowest amount recorded in the period 2000–2008. However, when assessing this data it should be noted that the number of households rose from 16.3 million in 2007 to 16.7 million in 2008.

In 2008, 80% of urban waste was classified as mixed waste (household waste plus waste collected from points located on public thoroughfares), while the remainder was classified as separately collected urban waste. Continuing the trend from the previous year, in 2008 the amount of separately collected waste also decreased (16.4%), from 6.3 to 5.3 million tonnes. Nevertheless, it is worth noting that there was a strong increase in the volume of separately collected waste over the period, which by 2009 was double the amount collected in 2000.

Ten autonomous communities recorded volumes above the national average (1,572 kg per household) — Cantabria (1,844 kg/household), Navarre (1,793 kg), the Balearic Islands (1,757 kg), Castile-La Mancha (1,750 kg), the Canary Islands (1,720 kg), Madrid (1,634 kg), Andalusia (1,623 kg), Murcia (1,614 kg), the Basque Country

(1,598 kg) and Castile-Leon (1,598 kg). The autonomous cities of Ceuta and Melilla also fell within this range because of their intensive trade with Morocco. The autonomous communities that recorded volumes below the national average were Valencia, Rioja, Aragon, Catalonia, Asturias, Extremadura and Galicia, the latter generating just 1,319 kg per household.

URBAN WASTE PRODUCTION PER HOUSEHOLD, 2008



NOTES

- In 2008, 465 kg of mixed urban waste were collected per person per year (28 kg less than the previous year). In the same year, the volume of separately collected urban waste comprised 2 kg/inhabitant of paper and cardboard (a 3.7% decrease on 2007) and 14.9 kg/inhabitant of glass (a rise of 8.3%). INE.
- Households in the EU-27 are estimated to generate 2.7 million tonnes of hazardous waste (paints, solvents, pesticides, medicines, cosmetics, automobile products, batteries containing heavy metals, etc.), accounting for 1.2% of the total. The majority of hazardous waste is incinerated and only a small quantity of this waste is recycled. From an environmental perspective, it is important to collect hazardous waste separately so that it does not end up in landfill (OECD, 2006 data).

SOURCES

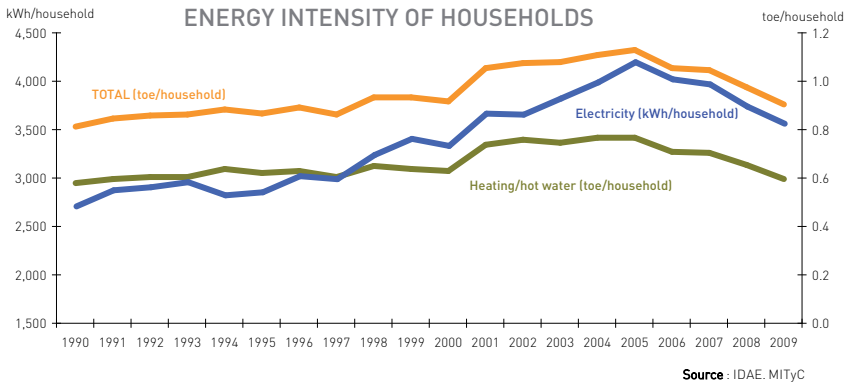
- Waste: INE. Survey on the Collection and Treatment of Waste. Urban Waste. 2008.
- Number of households (data to 2005): INE. Household Budget Continuous Survey. Various years. 1997 base.
- Number of households (data to 2008): INE. Household Budget Survey.
- INE. Survey on Households and the Environment, 2008. Press release of 22 April 2009.
- OECD. Economic Policy Reforms, 2011. *Going to Growth (Housing and Economy: Policies for Renovation* p31–70)

FURTHER INFORMATION

- http:// www. ine.es/inebase
- http://www.eea.europa.eu
- http://www.epp.eurostat.ec.europa.eu

Energy consumption per household

In 2009, energy consumption per household decreased by 7.9% on the previous year



Source : IDAE. MITyC

This indicator measures energy consumption per household broken down into electrical usage (kWh/household) and heating/hot water (toe/household). It is estimated that in 2009, each household consumed 3,580 kWh for electrical usage and used 0.597 toe for heating. While consumption for electrical usage decreased by 5% on the previous year, that for heating/hot water fell by 9.3%. Total consumption stood at 0.905 toe/household compared with 0.976 toe/household in 2008, an overall decrease of 7.9%. However, when assessing these figures it should be noted that the number of households rose from 16.7 million in 2008 to 17 million in 2009.

Energy consumption decreased for the fourth consecutive year, with the largest drops occurring in 2008 (7.2%) and 2009 (7.9%). However, over the period 2000–2009, consumption in the sector rose by 22.4%, representing an average annual increase of 2.5%. In the same period, the number of households rose from 13.1 million to 17 million, which is an increase of 23.3% and represents average annual growth of 2.6%. These figures show a close correlation between the size of the sector and electricity consumption, although the housing stock did increase a little more than consumption in the period studied.

According to data provided by Eurostat, in the EU-27 electricity consumption in the household sector (considered along with services) developed between 2004 and 2008 as shown in the table. The high levels of consumption in the EU-15 countries, which accounted for around 88% of the EU total over these four years, stand out particularly.

In absolute figures, electricity consumption in the EU-27 in 2008 stood at 1,639,020 GWh, 27.7% more than in 2004. In Spain, electricity consumption in households and services rose from 98,656 GWh in 2004 to 131,823 GWh in 2008. This represents a greater percentage (28.5%) rise than that of the EU-27. Despite the economic crisis, in 2008 consumption increased by 1.1% in the EU-27 on the previous year, and rose by 0.6% in the EU-15.

ELECTRICITY CONSUMPTION IN THE HOUSEHOLD/SERVICE SECTOR (%)

	2004	2005	2006	2007	2008 (p)
EU-27	**100**	**100**	**100**	**100**	**100**
EU-15	**88.8**	**88.7**	**88.5**	**88.3**	**87.9**
Germany	17.2	17.2	17.3	16.6	16.3
Spain	8.5	8.5	9.6	11.0	9.7
France	17.4	17.4	17.3	17.3	17.0
Italy	9.4	9.4	9.3	9.4	9.6
Portugal	1.8	1.8	1.8	1.9	1.8
United Kingdom	14.0	14.0	13.5	13.3	13.4
Other EU-27 countries	31.7	31.7	31.2	30.5	32.2

Source: Eurostat, 2011. Consumption of electricity by industry, transport activities and households/services (%: compiled in-house)

NOTES

- According to the IDAE, the domestic sector (households) is responsible for approximately 16.7% of total primary energy use in Spain, behind transport and industry (with 40.2% and 30.4%, respectively) and well above the service sector (9.3% of the total). Of the primary energy consumed in the domestic sector (households), 67% was used for heating and hot water (46% and 21%, respectively). From this data it may be concluded that household heating accounts for 11.2% of Spain's total primary energy consumption.
- To promote efficiency in domestic consumption, the IDAE has signed a collaboration agreement with the General Council of the Spanish College of Estate Managers, under which the latter undertakes to inform stakeholders about funding available to encourage thermal renewable energy use in buildings (i.e. programmes to promote biomass, thermal solar and geothermal energy). These funds are available to energy service companies (ESCOs), which are also responsible for designing, executing and maintaining the client's facilities (both in public and private buildings). In return, they must guarantee a cost saving of at least 10% on expenditure on energy derived from fossil fuels.
- According to several estimates, 13 million housing units built in Spain before 1975 (of which 10 million are main residences) consume over twice the maximum energy permitted under the legislation currently applicable to new-build homes. This is due to the lack of regulations governing heat insulation during this era. The Spanish Building Code of 2007 stipulates that energy consumption should not exceed 70 kWh per m^2 per year. It is estimated that housing units built before 1979 consume an average of 180 kWh/m^2 per year. Moreover, a further 7 million housing units built between 1979 and 2007 consume between 120 and 130 kWh/m^2 per year. Upgrading of housing units (along with development of renewable energy and ecosystem services) provides one of the main sources of green jobs in the present and near future.

SOURCES

- IDAE. Data provided in this publication by the Department of Planning and Studies.
- MITyC, 2010. *La Energía en España, 2009.*

FURTHER INFORMATION

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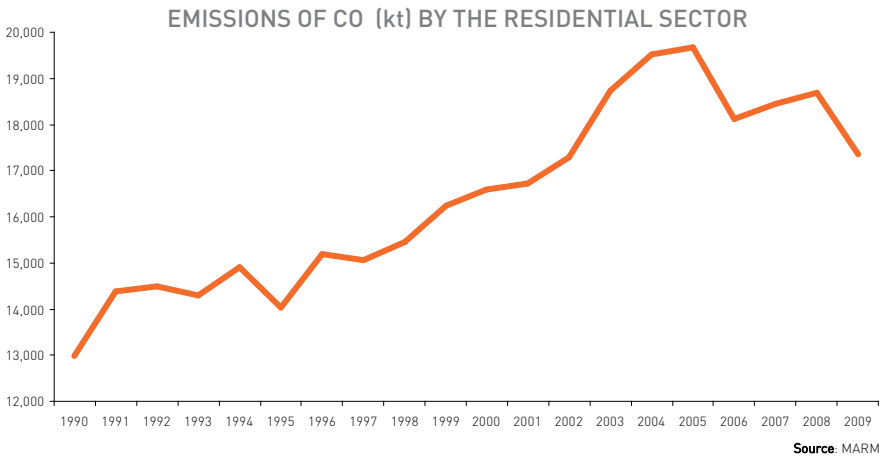
- http://www.eea.eu.int
- http://www.mityc.es
- http://epp.eurostat.ec.europa.eu

Emissions of CO_2 by households

In 2009, the residential sector produced 7.1% less CO_2, while each household emitted an annual average of one tonne of CO_2



Source: MARM

In 2009, there was a strong decrease in CO_2 generation in the residential sector, estimated at 7.1%, which is similar to that of 2006. In absolute terms, household emissions in 2009 totalled 17,363 kilotonnes, which represented 5.85% of total emissions of this gas in Spain. Over 1990–2009, the sector's emissions increased by an average of 1.9% per year.

The increase in the number of households in 2009, along with the drop in emissions from the sector, meant that average emissions per household stood at just over one tonne of CO_2 (1,017 kg). This figure is still below the European average, since in a large number of European countries household heating requirements are much greater because of their much lower winter temperatures.

The majority of energy consumption (and therefore of CO_2 production) in Spanish households is attributable to heating systems, which are found in 70.3% of the country's households, and to air-conditioning systems, which are now present in 35.5% of households. Small and large household appliances, use of which is increasingly widespread, also account for a significant proportion of energy consumption. According to the INE Living Conditions Survey, in 2009, 99.1% of households had a washing machine, 99.6% had a colour TV and 64.2% had a personal computer.

There are great differences between European countries in terms of greenhouse gas emissions by households. This is because CO_2 emissions not only depend on the quantity of energy consumed, but also on the energy source, as energy can be generated from renewable sources, nuclear plants or petroleum products. Thus, in Norway 98% of electricity is produced from hydroelectric power, while in the Netherlands 90% is produced from fossil fuels.

NOTES

- This indicator estimates CO_2 emissions from residential plants, a sub-activity of group 2 (non-industrial combustion plants) in the Selected Nomenclature for Sources of Air Pollution (SNAP-97). It includes emissions produced by boilers, gas turbines, stationary engines and other appliances, such as heaters, cookers, etc.
- The SNAP-97 for the CORINAIR project lists the emittent sources associated with a selection of pollutants in accordance with certain structural principles that allow for identification of emissions by sector, sub-sector and activity.
- The table below shows the results from the INE Household Budget Survey, which estimates household consumption (main residence) over 2006–2009. Consumption from second homes or facilities (garages, store rooms, etc.) included in the survey is not shown here.

ENERGY: AVERAGE CONSUMPTION PER HOUSEHOLD (MAIN RESIDENCE)

	2006	2007	2008	2009
Electricity (kWh)	3,163.9	3,155.7	3,249	3,464.4
City and natural gas (m^3)	223.7	200.3	205	215.7
Liquefied gas (k)	65.7	65.5	71.8	64
Liquid fuels (l)	147.1	150.3	133.1	145.5
Solid fuels (k)	4.9	5.1	6.2	8.4

Source: INE. Household Budget Survey. 2010

SOURCES

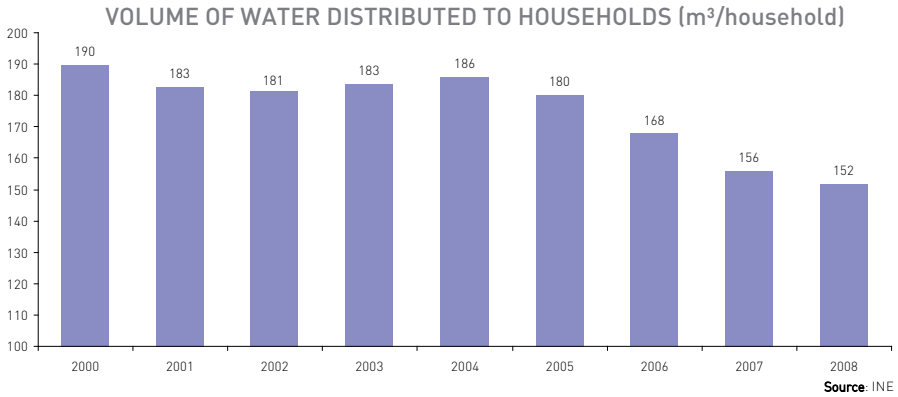
- Data on CO_2 emissions taken from the Spanish Greenhouse Gas Emissions Inventory, 2011 edition (1990–2009 series). Directorate-General for Environmental Quality and Assessment. MARM.
- INE. Household Budget Continuous Survey. 1998–2004, and Household Budget Survey. 2006 base. 2006–2008 series.
- INE. Living Conditions Survey. 2004–2010 series. Capital goods survey (2009). Definitive results.

FURTHER INFORMATION

- http:// www.marm.es
- http:// www.ine.es

Water consumption per household

In 2008, the volume of water distributed to households was 0.2% lower than in 2007, with each family receiving 152 m^3



In 2008, water consumption by the residential sector (households) stood at 2,540 hm^3. This was a decrease of 0.2% compared with the previous year, in which 2,544 hm^3 were consumed. This figure accounted for 51.4% of all water delivered to public urban supply networks, a percentage similar to that of 2000 (51.9%).

Average water consumption per household per year stood at 152 m^3, compared with 156 m^3 the year before. It is worth noting that despite the 27.9% increase in the number of households since the start of the 21st century, household consumption only rose by 2.8% in the same period, indicating better resource use efficiency. Nevertheless, losses in the distribution network are still significant, rising from 1,000 hm^3 in 2000 to 1,210 hm^3 in 2008, though this figure does include what the INE defines as "other consumption".

Households in seven autonomous communities (as well as those in Spain's two autonomous cities) exceeded the national average in 2008: Cantabria, Valencia, Murcia, Asturias, Andalusia, Extremadura and the Canary Islands. Consumption in the rest of the country's autonomous communities was below the average, with Navarre, the Basque Country and the Balearic Islands registering the lowest levels.

Average consumption per inhabitant per day (154 litres) fell by 1.9% in 2008 in comparison with the year before. As can be seen in the table below, this figure increased over the period 1996–2008 by 8 litres per day.

AVERAGE WATER CONSUMPTION PER INHABITANT PER DAY (LITRES)

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
146	153	159	165	168	165	164	167	171	166	160	157	154

Source: INE

According to recent estimates by Eurostat, average daily consumption in European households stands at 200 litres per inhabitant per day. Spain is in 16th place (out of the 26 countries that provided data) in the European ranking by percentage of water distributed to households (including the service sector and some industries) as a proportion of total water collected. To make this figure comparable to the one shown here, it would be necessary to add the 833 hm^3 attributed by the INE to various other sectors (including industry, services and livestock farming) to the 2,540 hm^3 distributed to households.

NOTES

- The indicator is calculated using data taken from the Survey on Water Supply and Sewerage carried out by the INE between 1996 and 2008. Distributed water includes total water available in the distribution network plus any network losses. It is the sum amount of water collected by the supply company plus the net balance of water purchases and sales from and to other companies or local authorities. In the series of data provided by the INE's Water Indicators (1996–2008 Series), the indicators used are water supply and treatment, losses during distribution, volume of water available and volume of water supplied (litres/inhabitant/day).
- In terms of managing water demand, the price of the service is an important factor. According to the INE, the unit cost of water rose in 2008, reaching an average of €1.31/m^3 in Spain compared with €1.26 the previous year. The highest water prices were found in the Balearic Islands (€1.85), Murcia (€1.87), the Canary Islands (€1.70), Catalonia (€1.59), Madrid (€1.57), Valencia (€1.52), and Ceuta and Melilla (€1.38), all of which were above the national average. The rest of the autonomous communities had water prices below the national average (the unit cost of water is calculated as the ratio between a) the tax on water supply plus the taxes or charges for wastewater treatment, and b) the volume of water distributed for consumption).
- According to the Survey on Households and the Environment, 2008, carried out by the INE, almost every Spanish household has adopted at least one water-saving habit. The main means of reducing water consumption include fully loading washing machines and dishwashers (81.9%), not using the toilet as a waste bin (54.7%), filling the sink before washing crockery (38.8%), restricting tap flow (30.8%) and recycling water (22.9%). This latter practice is more common in the autonomous communities in which water is scarce (Andalusia, Canary Islands, Murcia and Catalonia) and is less so where water is abundant (Galicia, Asturias and Cantabria). The lower the number of inhabitants in a municipality, the fewer the water-saving habits or devices in operation. The survey also shows that households with more members make greater efforts to reduce water consumption.

SOURCES

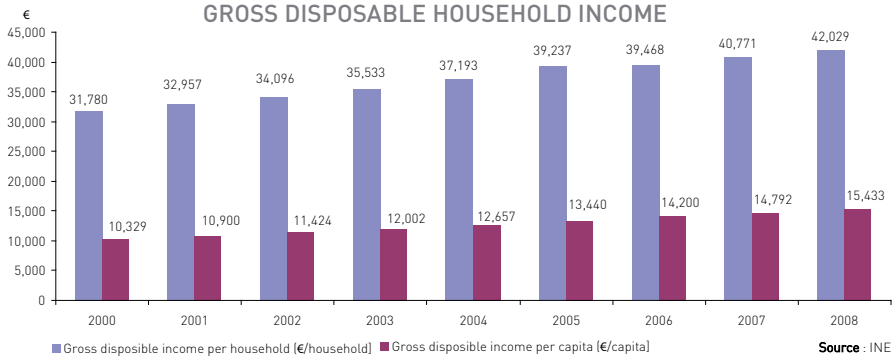
- INE. Survey on Water Supply and Treatment. Years 1996–2008.
- INE. Survey on Water Supply and Treatment. Press release of 20 July 2010.
- Eurostat. Use of water from public water supply by services and private households.
- OECD, 2011. Economic Policy Reforms, 2011: Going to Growth. [Chapter 4: Housing and the economy: Policies for
- Renovation, p. 32–70]

FURTHER INFORMATION

- http://www.ine.es

Gross disposable household income

In 2008, average gross disposable income per household continued the rising trend begun in 2000 and climbed to €42,029, an increase of 3.09% on the year before



According to the INE (Spanish Regional Accounts, 2000–2008 series), the upward trend begun in 2000 continues apace. In 2008, average gross disposable income per household totalled €42,029, an increase of 3.09% on the previous year, while per capita income amounted to €15,433, up 4.33% on 2007. Taking 2000 as the base year (index=100), gross disposable income per household was up by 32.3% in 2008, while per capita income was 49.9% higher. This growth coincided with a period of strong economic expansion and a significant increase in population size.

Households in eight autonomous communities exceeded the national average, as did those in the autonomous cities of Ceuta and Melilla. At the top of the list was Navarre with €53,407/household, followed by the Basque Country (€52,695) and Madrid (€50,449). The remaining autonomous communities were below the national average, with Extremadura recording the lowest figure (€34,598). In terms of gross disposable income per inhabitant, 10 autonomous communities and the two autonomous cities exceeded the national average, with the Basque Country recording the highest per capita income (€20,760), followed by Navarre, Madrid and Catalonia.

On the other hand, in 2008, according to the INE's Household Budget Survey, average annual expenditure per household nationally stood at €31,953, which is lower than the 2007 figure (€32,000). Households spent 27.3% of their budget (€8,707) on housing (rent, services, repairs). In the case of owned or assigned housing units, the 'imputed rent' is considered (i.e., the rental value that would be paid in the market for a dwelling).

Of each household budget, 14.5% was spent on food and non-alcoholic beverages (€4,647), 13.7% on transport (€4,363) and 6.9% on recreation and culture. Very little was spent on education and health per household (0.9% and 3.2%, respectively) compared to other expenses, as these two services are widely covered by the State.

EXPENDITURE	VARIATION 2008/2007
Total expenditure	2.7%
Average expenditure per household	-0.1%
Average expenditure per person	1.1%

Source: INE. Household Budget Survey, 2008.

NOTES

- Gross disposable income is the sum of disposable income available to institutional sources for final consumption and savings. It is calculated by adding together GDP, income (the balance of which can be positive or negative) from work and property, and current account transfers from and to the rest of the world.
- Gross disposable household income, as well as that of non-profit organisations serving households, is the income remaining to households and the aforementioned organisations after payment of direct taxes and obligatory Social Security charges, and after current account transfers and payment in kind from the State have been accounted for.
- The Household Budget Survey, started in January 2006, replaces the Household Budget Continuous Survey (1997 base), which was carried out on a quarterly basis between 1997 and 2005. The new survey provides annual information about the nature of consumer expenditure and various characteristics related to living conditions in Spanish households. Tables have been established to link expenditure groups across the two surveys.
- The Living Conditions Survey 2004–2009 (INE) provides information on average net annual income per household and per person (see table below).

	2003	2004	2005	2006	2007	2008	2009
Net annual income per household (€)	21,626	22,471	23,539	24,606	26,101	26,500	25,732
Net annual income per person (€)	7,618	7,943	8,437	8,945	9,594	9,865	9,627

Source: INE. Living Conditions Survey. 2009. Provisional data.

SOURCES

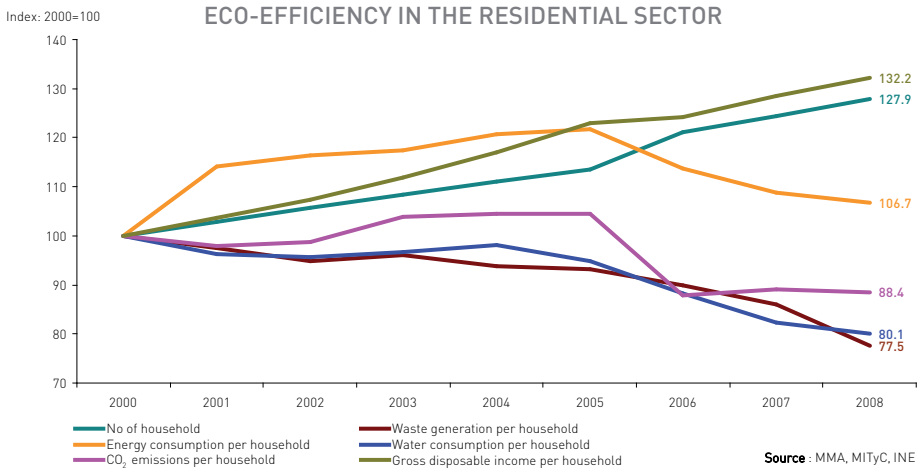
- Spanish Regional Accounts. 2000 base. Gross disposable household income. 2000–2008 series.

FURTHER INFORMATION

- http://www.ine.es/inebase

Eco-efficiency in households

In 2008, whilst the number of households and their gross income rose once more, energy and water consumption, waste generation and CO_2 emissions all dropped



The pressures exerted by the residential sector can be seen in the graph below, which shows the main variables. Over 2000–2008, the first thing to note is that the sector grew from 13.0 million households in 2000 to 16.7 million in 2008. In parallel with this demographic increase, strong economic growth continued, which raised gross disposable income per household from €31,780 per year in 2000 to €42,029 in 2008.

Between 2000 and 2008, Spanish households as a whole progressively consumed more energy, emitted more CO_2 into the atmosphere and produced more waste (except in 2008, when there was a significant reduction).

However, these constants change for the same period when the figures per household are analysed, as the increase in the number of households resulted in a decrease in the rates per consumption unit. In this regard, there have been some positive trends in recent years — the volume of urban waste generated per household decreased (in parallel with a sharp rise in separate collection), and, in addition, water consumption per household fell gradually.

In 2008, there was also a significant 5.3% decrease in energy consumption per household. Meanwhile, CO_2 emissions per household stood at 1.12 tonnes, the lowest

figure since 2000, when 1.27 tonnes per household were recorded. In recent years, the volume of water supplied for public services has remained fairly stable at around 2.5 million hm^3. Annual water consumption per household has slowly decreased from 190 m^3 in 2000 to 152 m^3 in 2008. As noted in all of the indicators in this chapter, these figures should be viewed in the context of Spain's growing number of households.

NOTES

- For the purpose of calculating the indicator, the annual variation rate of each of the component indicators was used. The indicator's values were then set at 100, and 2000 was established as the base year. The most recent data on waste is from 2008, which is why the indicator only considers the variables up to this year.
- European households account for nearly 27% of energy consumption, mainly using it for heating/hot water and air conditioning. In Spain, this figure is lower, probably due to the country's milder climate, which does not require so much heating in winter. Domestic energy consumption, excluding transport, is generally increasing due to the growth in the number of households and expenditure by the same. Household appliances' greater energy efficiency is being counteracted by the increasing number in use in households.
- Practically all Spanish households have access to water, although its cost and the rationing imposed in times of drought prevent unlimited consumption. 17% of the water consumed in Spain is used for urban supply, as opposed to the rest of the European Union, where the level does not exceed 10%.

SOURCES

- Number of households: INE. *Household Budget Continuous Survey.* 1998–2004, and *Household Budget Survey.* 2006 base. 2006–2009 series.
- Waste: INE. *Survey on Urban Waste Collection and Treatment. 2008*
- Energy: IDAE. Data provided for this publication by the Department of Planning and Studies. 2010
- MITyC, 2010. *La Energía en España 2009.*
- Water consumption: INE. *Survey on Water Supply and Treatment.* Various years.

FURTHER INFORMATION

- http://www.ine.es

2.15 URBAN ENVIRONMENT

According to the European Environment Agency, by 2020, 80% of Europe's population will live in urban areas. At the moment, 75% of the European population live in cities, making Europe one of the most urbanised continents. This is also the case in Spain — in 2009, 78.9% of the country's population of 47,021,031 lived in urban areas.

Policies introduced to improve sustainability in cities comprise a range of measures to reduce energy consumption *per capita* and include, among others, schemes to encourage sustainable urban transport, to reduce household energy consumption (by improving insulation and using energy-saving light bulbs) and to promote use of clean technologies in public transport. These and other lines of action are included in the draft of the Spanish Strategy for Urban and Local Sustainability (EESUL) developed by the Spanish Ministry of the Environment and Rural and Marine Affairs, and drawn up in collaboration with the Secretariat of State for Housing and Urban Development at the Spanish Ministry of Public Works and the Network of Sustainable Local Development Networks. This Strategy adapts the Thematic Strategy on the Urban Environment (2006) to Spain's particular circumstances and builds upon the Network of Sustainable Local Development Networks' Strategy on the Urban Environment adopted in 2006, as well as on other

INDICATOR	GOAL	TREND
Urban pressure on land	Achieve a sustainable balance in land use	Population pressure continues to increase in urban centres with over 10,000 inhabitants, though it is becoming less intense
Air quality in the urban environment	Maintain air quality within established limits	In 2010, mean air quality in towns and cities with over 50,000 inhabitants was below the regulatory limit
Environmental noise	Maintain environmental noise within established limits and apply the legislation currently in force	Having completed the first phase of implementation of Directive 2002/49/EC, the second phase is now under way. In 2012, there are plans to create noise maps for the areas established in the second phase, and to update those drawn up the first phase
Architectural heritage of Spain's cities	Ensure heritage sites are comprehensively protected	The number of protected sites of cultural interest has risen to 15,904
Metropolitan areas: modes of public transport	Promote less pollutant modes of transport and improve the efficiency of public transport	The number of train journeys increased to the detriment of the number of bus journeys
Public participation in environmental policy	Undertake local sustainability commitments	Work continues to increase public participation and disseminate information about the urban environment, for example via the Ecourbano portal

relevant documents. It is hoped that the EESUL will be approved by the Council of Ministers in 2011 once it has passed the mandatory investigation and consultation procedures.

Meanwhile, from 16–22 September 2010, the MARM, which acts as the national co-ordinator of European Mobility Week (EMW), held the EMW under the slogan *Travel Smarter, Live Better*. The aim was to promote more active mobility and focused on the themes of reducing physical inactivity, excess body weight and obesity while simultaneously improving citizens' physical and mental well-being. The focus was also on emphasising the combination of health, safety and sustainable mobility, which undeniably improves the quality of life in cities by helping to reduce noise and air pollution, accidents and traffic, and by restoring more space to live in and less to drive on. This initiative has expanded year after year throughout Europe and, in 2010, involved 2,221 cities covering 221 million people. In Spain, the number of cities participating rose from 207 in 2001 to 567 in 2010. In total, 7,506 permanent measures have been implemented in Spain, concentrating mainly on infrastructure for pedestrians and cyclists, decongesting traffic, improving access to transport and increasing awareness about transport options.

Regarding mobility, throughout 2010 the MARM continued to co-ordinate and support Spain's Metropolitan Mobility Observatory (OMM), a forum which shows the contribution public transport makes to improving quality of life and sustainable development in cities. Among other activities, in 2010 it published a report (based on data for 2008) analysing general mobility trends in Spain's main metropolitan areas.

At the end of 2009, the then Ministry of Housing founded the Urban Information System, which is intended to provide information on the urban and territorial situation in Spain and support the research and decision-making stages of urban and/or territorial policy making (http://siu.vivienda.es/portal/).

This chapter presents a series of indicators that reflect various aspects of the situation in Spain's urban environment.

Urban pressure on land

Population pressure generally continues to increase in urban centres with over 10,000 inhabitants, though it is becoming less intense and actually decreased in two autonomous communities

AC	Urban density 2010 (inhab/km^2)	Variation 2010/2011 (%)	Variation 2010/2009 (%)	Variation 2009/2008 (%)
SPAIN	73.32	17.95	0.64	1.58
Andalusia	76.24	17.16	0.89	1.37
Aragon	19.27	13.57	0.14	1.34
Asturias	88.50	2.05	0.02	0.66
Balearic Islands	185.08	31.82	0.87	1.97
Canary Islands	254.58	23.38	0.76	1.97
Cantabria	74.72	11.18	0.26	0.92
Castile-Leon	15.25	5.67	-0.15	0.30
Castile-La Mancha	14.52	34.08	1.79	4.10
Catalonia	190.63	21.03	0.56	1.58
Valencia	182.16	25.29	0.26	1.70
Extremadura	12.92	11.31	-0.90	1.20
Galicia	65.14	6.50	0.40	1.40
Madrid	757.37	19.80	1.04	1.74
Murcia	123.40	26.87	1.08	2.18
Navarre	33.42	20.28	0.72	4.07
Basque Country	241.30	2.54	0.13	0.54
Rioja	40.42	24.07	0.15	1.35
Ceuta & Melilla	4,894.16	8.40	2.94	2.22

Source: Compiled in-house using INE data

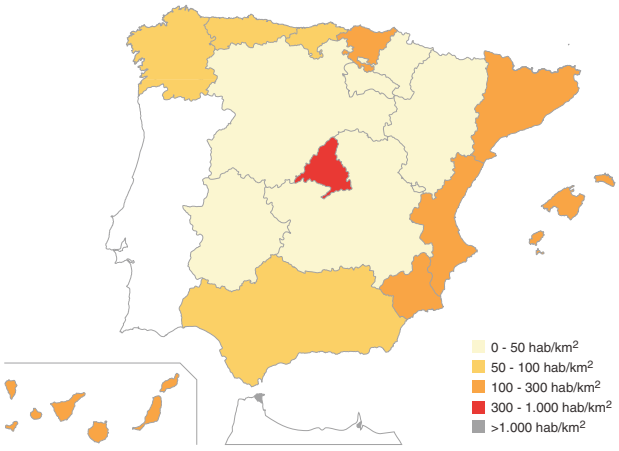
Data from the municipal register as at 1 January 2010 reveals that, as in previous years, population continued to increase in urban centres with over 10,000 inhabitants. In 2010, this reached 17.95% above the 2001 level. The indicator shows the pressure exerted on land by population centres with over 10,000 inhabitants and is calculated by comparing the population living in these municipalities against each autonomous community's total land area.

The most densely populated autonomous communities are still Madrid (757.37 inhab/km^2), the Canary Islands (254.58 inhab/km^2), the Basque Country (241.30 inhab/km^2), Catalonia (190.63 inhab/km^2), the Balearic Islands (185.08 inhab/km^2), Valencia (182.16 inhab/km^2) and Murcia (123.40 inhab/km^2). Ceuta and Melilla also deserve special mention due to the large population living in a very small area — urban density in the two autonomous cities reached 4,894.16 inhab/km^2.

In 2010, the rate of population increase slowed and, unlike other years, urban density in two autonomous communities actually decreased on 2009 (Castile-Leon and Extremadura). Population is still rising in the rest of Spain's towns and cities with over 10,000 inhabitants, but at a slower pace.

The map below shows that the highest population densities are mainly found in Spain's islands and on its Mediterranean coast, the two exceptions being Madrid and the Basque Country. The country's least populated areas are still inland.

URBAN DENSITY BY AUTONOMOUS COMMUNITY, 2009 (inhab/km^2)



Source: Compiled in-house using INE data

NOTES

- The indicator shows the pressure exerted on land by urban population centres with over 10,000 inhabitants. It is calculated as the coefficient of the population living in these municipalities and the surface area of each respective autonomous community. For the purpose of calculating the indicator, the data provided by the municipal register as at 1 January 2001 and at 1 January 2010 were used.
- From a demographic point of view, Spain's urban structure comprises 83 urban areas with over 50,000 inhabitants. Of these areas, 4 have over one million inhabitants (Madrid, Barcelona, Valencia and Seville), three of which (except the capital, Madrid) are located on the peninsula's periphery; 10 of these have a population of between 500,000 and 1,000,000 inhabitants (Malaga, Bilbao, central Asturias, Saragossa, Alicante/Elche, the Bay of Cadiz, Murcia, Vigo-Pontevedra, Las Palmas de Gran Canaria and Palma de Mallorca); and 29 urban centres have a population of between 50,000 and 100,000 inhabitants. The total population of Spain (according to the municipal register as at 1 January 2010) was 47,021,031.
- Although the indicator does not take into consideration the population living in towns of less than 10,000 inhabitants (rural population), it should be noted that the boundary between the urban and rural environments is becoming ever-more blurred as a result of urban sprawl, which is increasingly affecting the rural environment, especially on the urban fringe of the country's large and medium-sized conurbations.

SOURCES

- INE. Municipal register as at 1 January 2001 and at 1 January 2010.
- Geographic area: INEbase figures.

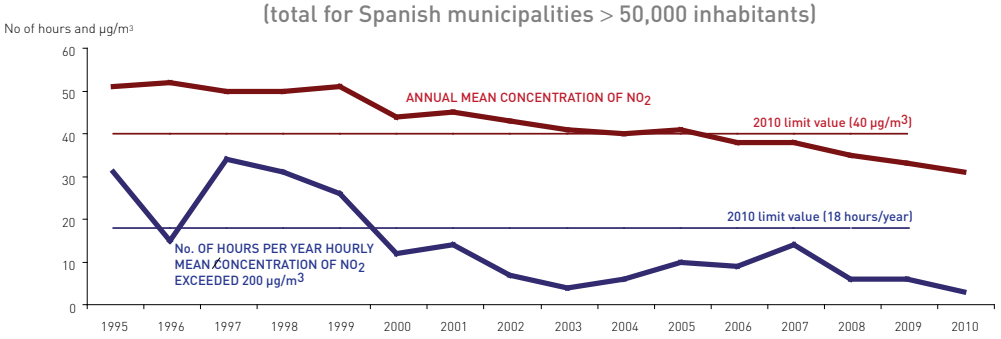
FURTHER INFORMATION

- http://www.ine.es

Air quality in the urban environment

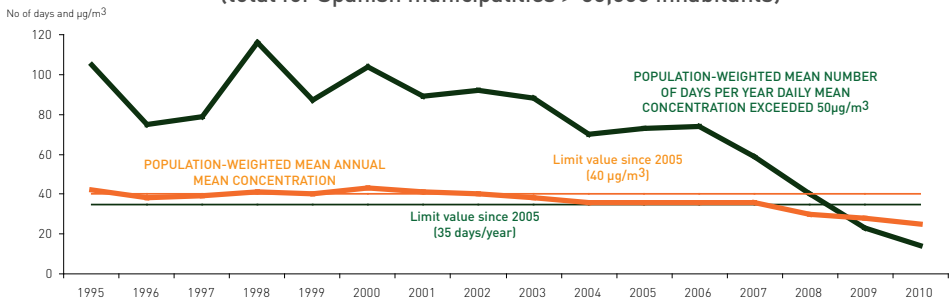
In 2010, estimated air quality in cities with over 50,000 inhabitants remained below the regulatory limits and only ozone levels worsened slightly

NO_2: POPULATION-WEIGHTED MEAN NO. OF HOURS PER YEAR HOURLY MEAN CONCENTRATION EXCEEDED 200 µg/m³ AND ANNUAL MEAN CONCENTRATION
(total for Spanish municipalities > 50,000 inhabitants)



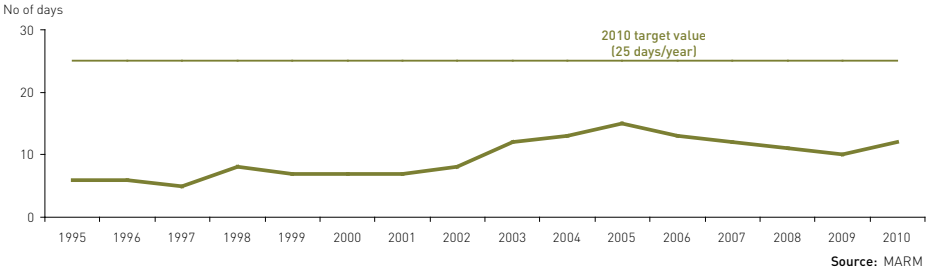
Source: MARM

PM10:POPULATION-WEIGHTED MEAN NUMBER OF DAYS PER YEAR DAILY MEAN CONCENTRATION EXCEEDED 50 µg/m³ AND ANNUAL MEAN CONCENTRATION
(total for Spanish municipalities > 50,000 inhabitants)



Source: MARM

URBAN OZONE: POPULATION-WEIGHTED MEAN NUMBER OF DAYS PER YEAR CONCENTRATION LEVELS EXCEEDED THE MAXIMUM DAILY 8-HOUR RUNNING AVERAGE OF 120 µg/m³
(Total for Spanish municipalities >50,000 inhabitants)



Source: MARM

In 2010, mean air quality in Spanish municipalities with over 50,000 inhabitants was satisfactory when compared to mean pollutant levels and their regulated values (limit values for NO_2 and suspended particulates smaller than 10 microns, and target values for ozone). This comparison, performed by weighting these variables in line with the cities' populations, reveals the following:

- For NO_2, mean air quality in Spanish cities with over 50,000 inhabitants continued to improve in terms of the number of hours that exceeded a 1-hour mean concentration of NO_2 of 200 $\mu g/m^3$ (which since 2000 has been lower than the legislated limit set for 2010), and in terms of the annual mean concentration (which since 2006 has been below the limit value of 40 $\mu g/m^3$ set for 2010).

- Suspended particulates smaller than 10 µm (PM_{10}) are one of the biggest problems in Spanish towns and cities as they have highly harmful effects on public health. Since 2002, the population-weighted mean of the annual mean concentration has been below the limit set for 2005, and has maintained a clearly decreasing trend, which even became more pronounced in 2010. Meanwhile, the population-weighted mean number of days per year in which the daily mean concentration exceeded 50 $\mu g/m^3$ has been falling strongly since 2007, and since 2009 has been below the current limit value.

- Ozone is a secondary photochemical pollutant generated by various gases emitted by combustion processes in cities and industrial areas and is strongly conditioned by solar radiation. The population-weighted mean number of days per year in which concentration levels exceeded the maximum daily 8-hour running average of 120 $\mu g/m^3$ remains below the target value for 2010. However, in 2010 there was a slight increase in exceedances (as in 2005), which was partly due to the high temperatures in the years used to estimate the running average.

- It is worth mentioning that a large number of the stations used in assessment measure traffic emissions and so present low background ozone levels in comparison with those found in suburban or rural areas.

NOTES

- A proprietary methodology has been used to produce a representative mean value to describe the quality of the air breathed in Spanish towns and cities. For each pollutant, the mean value for all of the stations belonging to each municipality with over 50,000 inhabitants (provided a sufficient amount of valid data is available) was multiplied by the population of that municipality. The sum of these values for all of the municipalities included, divided by the total population of the same, provides the weighted mean value. This weighted mean was used for all of the municipalities with over 50,000 inhabitants. In the case of ozone, the indicator, in accordance with applicable legislation, is based on the triennial mean.
- All stations with sufficient data (85% for daily and hourly exceedances and 50% for annual mean concentrations) were taken into account. Even so, it is worth highlighting that the mean value obtained is a representation of the mean situation as regards that pollutant, and there may be considerable differences between this value and individual values recorded in particular stations in the towns and cities covered.
- Station location, type (traffic, industrial or background), and percentage of valid data are three of the aspects that condition calculation of the variables and, therefore, the final indicator. Another way to proceed would be to monitor the variables of specific stations located at representative sites that had a sufficient quantity of valid data. Monitoring the resulting trends would provide an idea of air quality at those specific points, though this information would bear no relation to an estimate of general air quality throughout the country in towns and cities with a population of over 50,000 inhabitants, which is this indicator's aim.
- The indicator monitors the variables covered by the European Common Indicators (ECI) project and presents trends in these in comparison with the limit and target values set for 2005 and 2010 under current legislation (Royal Decree 102/2011).
- The total number of stations considered when calculating the indicators varied throughout the period, which had a significant effect on the final result.
- It should be noted that the analysis does not include changes in concentrations of SO_2 and CO, owing to the fact that in urban environments these do not represent a problem. Use of low-sulphur fuels and replacement of coal-burning boilers with natural gas units, among other measures, have led to an improvement in air quality in terms of SO_2 concentration. The limit value for CO (daily mean maximum of 10 mg/m^3 measured as an 8-hour running average) has not been exceeded since 2002, while the SO_2 limit value has not been exceeded since 2009.

SOURCES

- MARM, 2011. Air Quality Database. Directorate-General for Environmental Quality and Assessment.

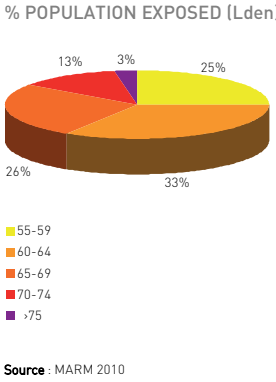
FURTHER INFORMATION

- www.marm.es
- www.eea,europa.eu

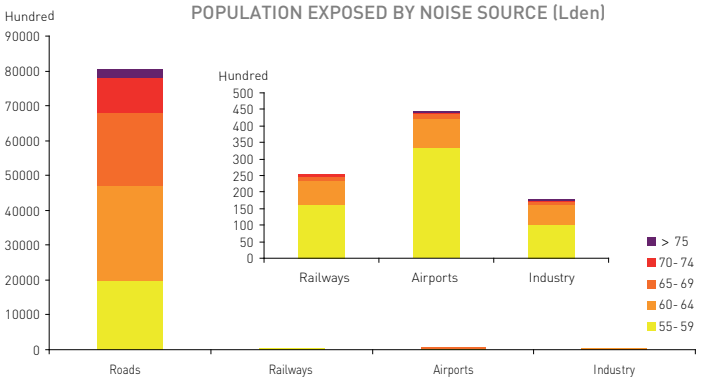
Environmental noise

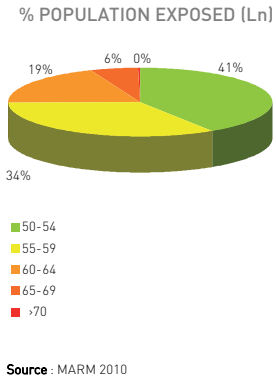
In Spain's large urban conurbations, an estimated 8,130,800 people are affected by noise from road and rail traffic, airports and industrial facilities, while those affected outside these conurbations stands at 2,520,500

NOISE LEVELS IN URBAN CONURBATIONS (2010):
Lden AND Ln INDICATORS (expressed in hundreds)

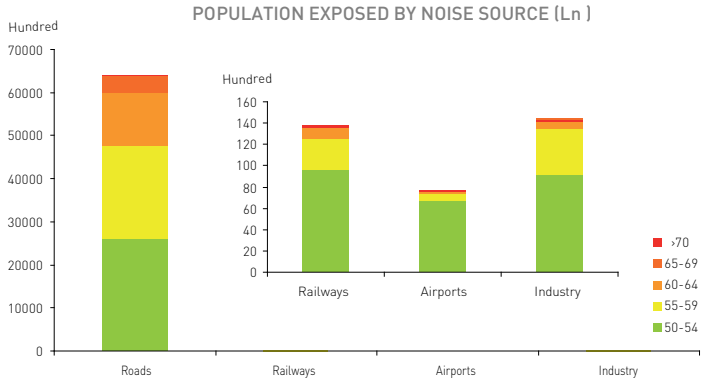


Source : MARM 2010





Source : MARM 2010

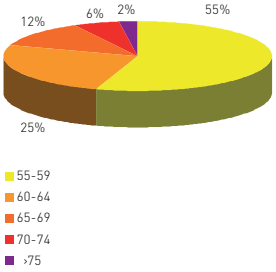


This data in the indicators form part of the information collected by the MARM in compliance with phase one of Directive 2002/49/EC, of 25 June, on the assessment and management of environmental noise, which was transposed into Spanish law (Law 37/2003 of 17 November, on noise, and Royal Decree 1513/2005, on the assessment and management of environmental noise). These regulations set a schedule in which to draw up and submit noise maps, which are used as diagnostic tools with which to produce subsequent action plans to combat noise. These plans will then be taken into account in the planning process in big cities and areas around large-scale infrastructure.

The updated estimates based on the Strategic Noise Maps created during phase one show that 8,130,800 people are affected by noise from road and rail traffic, airports and industrial facilities in urban conurbations. Meanwhile, outside these conurbations, the estimated number of people affected stands at 2,520,500. Of these, 2,292,900 are near to major roads; 85,300 are close to major railways; and 142,300 are in the vicinity of airports.

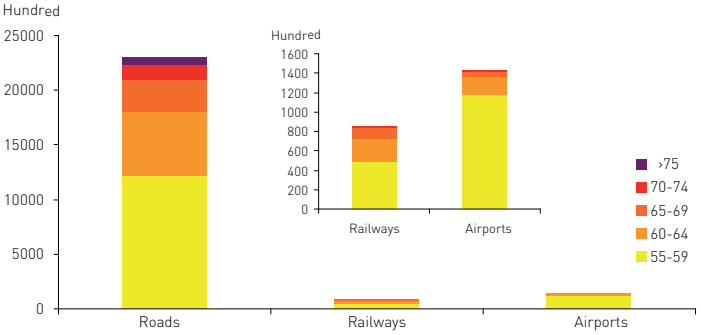
TRANSPORT INFRASTRUCTURE NOISE LEVELS:
MAJOR ROADS, RAILWAYS AND AIRPORTS
Lden AND Ln INDICATORS (expressed in hundreds)

%POPULATION EXPOSED (Lden)

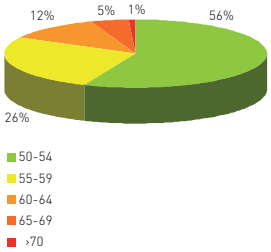


Source: MARM 2010

POPULATION EXPOSED BY NOISE SOURCE (Lden)

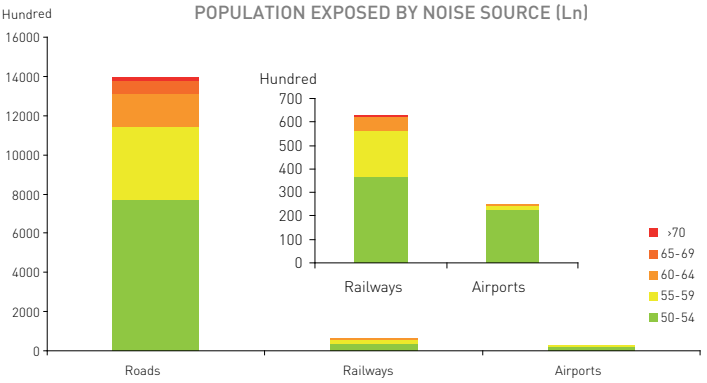


% POPULATION EXPOSED (Ln)



Source : MARM 2010

POPULATION EXPOSED BY NOISE SOURCE (Ln)



This data covers all of the conurbations and airports that were obliged to create Strategic Noise Maps, 91% of Spain's major roads and 90% of its major railways.

The values were obtained from strategic noise maps for 529 strategic mapping units (sections or groups of sections), which include 8,573.79 km of roads and 31 rail sections totalling 812.55 km.

Strategic maps have also been drawn up for 19 urban conurbations in phase one, covering a population of 12.2 million people. Of these, 66.6% were exposed to L_{den} levels above 55 dB and 27.7% were exposed to L_{den} levels above 65 dB.

Several authorities (for roads, railways and conurbations) have already created Action Plans to Combat Noise, through which they intend to introduce various means of improving acoustic quality for those affected. These measures include improving mobility in cities; tackling acoustic problems at source, at the recipient's end, or in between; educating the public; and declaring some areas as "quiet zones".

NOTES

- The indicators used to create Strategic Noise Maps are L_{den}, L_d, L_t, and L_n, which are defined by Royal Decree 1513/2005, which implements Law 37/2003, on noise, as regards the assessment and management of environmental noise. L_{den} is associated with overall discomfort; L_d and L_e show, respectively, the noise level and associated discomfort during the daytime and evening; and L_n is an indicator associated with sleep disturbance.
- The large conurbations referred to by the indicators are Alicante, Barcelona (I and II), Baix Llobregat, Bilbao, Cordoba, Gijon, Madrid, Malaga, Murcia, Palma de Mallorca, Las Palmas de Gran Canaria, Santa Cruz de Tenerife–San Cristobal de la Laguna, Saragossa, Seville, Valencia, Valladolid and Vigo. Strategic Noise Maps have been created for the airports of Alicante, Barcelona, Bilbao, Gran Canaria, Madrid-Barajas, Malaga, Palma de Mallorca, Tenerife Norte, Tenerife Sur and Valencia.
- A Strategic Noise Map comprises:
  - Noise level maps (L_{den}, L_d, L_e, L_n), which show emission levels and isophones for predetermined intervals in a range of predefined colours to facilitate comparison. In general, the scale used is 1:25,000 (except on the detailed maps that use 1:5000 in areas of high population density, areas of special interest, and in conflictive areas that do not meet noise quality targets).
  - Exposure maps, which show data about buildings, housing units and population exposed to certain noise levels at building facades and other data required by the Directive. The maps differentiate between educational and health facilities. Table 2 shows the area affected by state-owned transport infrastructure within the L_{den} >55 and L_{den} >65 isophones, as well as housing units (in hundreds), hospitals and educational institutions exposed to the same noise levels.
  - Affected area maps, which show the total area (km^2) exposed to L_{den} >55, >65 and >75, and report the estimated total number of housing units and people (in hundreds) within each of these areas, as well as hospitals and schools exposed to these noise ranges.

SOURCES

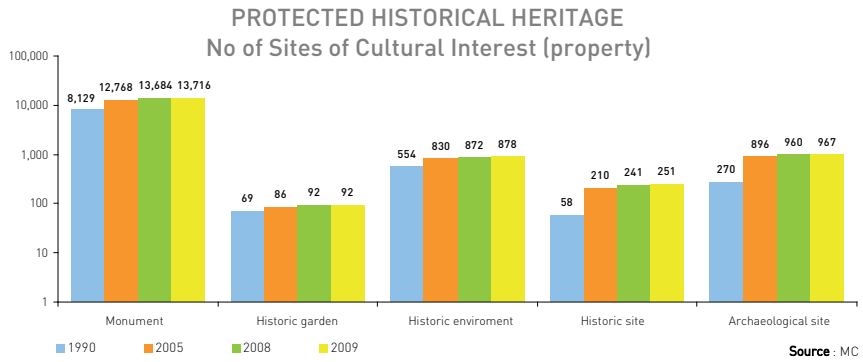
- SICA (Basic Noise Pollution Information System). Sub-Directorate for Air Quality and the Industrial Environment. Directorate-General for Environmental Quality and Assessment. MARM.
- *Primera fase de la elaboración de los mapas estratégicos de Ruido de las Carreteras de la Red del Estado: Resumen de resultados y Plan de Acción PAR 2008–2012*, September 2008. Madrid. Ministry of Public Works. Directorate-General for Highways [report]. http://www.cedex.es/egra/DOCUMENTACION/Memoria.pdf.

FURTHER INFORMATION

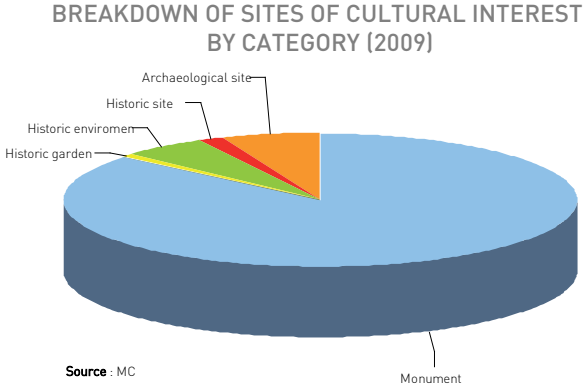
- **http://sicaweb.cedex.es**
- **http://eea.eionet.europa.eu/Public/irc/eionet-circle/eione_noise/library**
- **http://ec.europa.eu/environment/noise/**

Architectural heritage of Spain's cities

In 2009, legal protection for Spain's historical heritage covered 15,904 Sites of Cultural Interest



Data from 2009 shows a slight increase in the number of sites classified as being of cultural interest. The figure rose to 15,904 (55 more than the previous year). Of these, monuments accounted for 86.2%, followed by archaeological sites (6.1%), historic environments (5.5%), historic sites (1.6%) and historic gardens (0.6%).



The autonomous communities with the highest number of Sites of Cultural Interest (SCIs) remained the Balearic Islands, Andalusia, Catalonia, Castile-Leon and Valencia. It is worth noting that Andalusia recorded the biggest increase in the number of SCIs, with 20 new sites, while Navarre was the region that registered the largest percentage increase with 18 new SCIs, a rise of 10.7% on the previous year.

In 2009, the Ministries of Culture (MC) and of the Environment, Rural and Marine Affairs signed the 3rd Collaboration Agreement to work on preservation of Spain's historical heritage in accordance with Law 16/1985, of 25 June, which makes it

compulsory for public works contracts to allocate at least 1% of their budget to the conservation or enhancement of the country's historical heritage. This agreement promotes funding of programmes such as the Cultural Landscapes, Historic Gardens and National Heritage Conservation Plans, as well as of the Archaeological Site Recovery Programme.

In 2009, Spain's Ministry of Culture, in conjunction with the Ministry of Industry, Tourism and Trade and the Ministry of Foreign Affairs and Co-operation, agreed to draw up the Cultural Tourism Development Plan 2009–2012, which aims to promote and raise awareness about Spain's cultural products abroad to encourage the perception of Spain as a cultural destination. This action plan includes creation of a series of cultural itineraries that promote Spain's historic and artistic heritage and are linked to specific historical periods and artistic styles, such as historic routes, themed routes (i.e. Islamic Spain, Jewish quarters or royal seats) and the 2010 Holy Year of St James.

NOTES
- The graph showing data on Architectural Heritage was produced using a logarithmic scale due to the large difference between the number of monuments and the other categories.
- The register includes sites in both the 'declared' and 'under application' categories.
- Law 16/1985, of 25 June, on Spain's historical heritage makes it compulsory for public works contracts to allocate at least 1% of their budget to projects to conserve or enhance Spain's historical heritage.

SOURCE
- MC, 2009. *Anuario de Estadísticas Culturales*, 2009.

FURTHER INFORMATION
- **http://www.mcu.es**

Metropolitan areas: modes of public transport

The number of train journeys increased to the detriment of the number of bus journeys

METROPOLITAN AREAS: MODES OF PUBLIC TRANSPORT

Metropolitan area (MA)	No of municipalities	Size of metropolitan area (km^2)	Population of metropolitan area (1/1/2008)	Built-up area (km^2)	Density of metropolitan area ($inhab/km^2$)	Density of main city ($inhab/km^2$)	Main city-to-MA population ratio (%)
Madrid	179	8,030	6,271,638	1,049	781	5,304	51
Barcelona	164	3,239	4,929,000	588	1,522	15,921	33
Valencia	60	1,415	1,775,714	325	1,255	5,898	45
Murcia	45	11,313	1,426,109	n.d.	126	486	30
Seville	32	1,997	1,293,703	374	648	4,952	54
Asturias	78	10,604	1,080,138	n.d.	102	1,182	20
Malaga	13	1,258	972,762	75	773	1,435	58
Mallorca	53	3,623	855,343	206	236	1,857	46
Gran Canaria	21	1,560	829,597	330	532	3,773	46
Bay of Cadiz	9	2,905	701,275	140	241	8,958	18
Guipuzcoa	88	1,980	701,056	n.d.	354	690	26
Camp de Tarragona	131	2,999	599,804	n.d.	200	2,109	23
Granada	32	861	500,479	n.d.	582	12,216	47
Alicante	5	355	452,462	74	1,275	1,650	73
Pamplona	18	92	318,865	46	3,481	7,860	62
Vigo						2,740	100
Corunna						6,662	100

Source: OMM, 2008

Notes: The table is arranged in descending order by size of population of the metropolitan area. n.a.: data not available. The Metropolitan Public Transport Authorities shown are those selected in the OMM report.

In 2008, 50% of Spain's population lived in metropolitan areas served by Public Transport Authorities (MPTAs). These covered 930 municipalities and over 23 million people. In total, MPTAs served an area of 52,231 km^2. Of this, the main cities within the metropolitan areas (MAs) accounted for 6% (3,506 km^2).

MPTAs offer one or more modes of transport, usually urban and metropolitan buses and rail networks (which could include metro systems, trams, regional networks and narrow gauge railways). In 2008, city and inter-city bus lines totalled 69,943 km, while rail networks totalled 3,251.6 km.

Analysis of the way MPTAs have developed over the past six years reveals an increase in total population in the majority of metropolitan areas at the same as a decrease in

the population concentration ratio. In other words, population density is growing in the metropolitan suburbs. This population shift has dramatically increased car ownership (in many cases the motorisation index is around or over 20%), and, in parallel, journeys have risen in number and grown in length. As a consequence, management of public transport faces several obstacles, the principal one being that population density is not high enough to make public transport operationally efficient. The number of car owners continues to rise and these people are becoming more dependent on their cars.

VARIATIONS IN POPULATION SIZE, MOTORISATION INDEX AND PUBLIC TRANSPORT USE IN SPAIN'S MPTAS

Metropolitan area	Variation in population (%)	Variation in population density (%)	Variation in motorisation index (%)	Variation in no of bus journeys (%)	Variation in no of train journeys (%)
Madrid	15.6	-6	11	-8.3	25.1
Barcelona	10	-2.4	5.2	6.1	18.3
Valencia	10.7	-2.4	11	-6.7	13
Murcia	n.d.	n.d.	n.d.	n.d.	n.d.
Seville*	15.4	-13.7	15.7	-5.1	356.2
Asturias	15.8	-5.2	-2.2	3.5	-4.1
Malaga*	34.8	-21.3	5.4	34.8	11.9
Mallorca	5	-1.5	-1	n.d.	n.d.
Gran Canaria	2.8	-1.7	4.8	-5.7	n.d.
Saragossa	2.7	-1	3.8	n.d.	n.d.
Bay of Cadiz*	13.9	-19.1	15	-9.8	-1
Granada	12.4	-13.3	12.4	20.3	n.d.
Alicante	14.9	1.9	18.1	6.2	1,212.5
Pamplona	7.9	-4.8	6.7	15.4	n.d.
Vigo	0.6	n.d.	n.d.	6.2	n.d.
Corunna	1	n.d.	n.d.	n.d.	n.d.

Source: OMM, 2008

Notes: Motorisation index: number of vehicles/1000 inhabitants. n.a.: data not available. *Over time, these MPTAs have expanded to include new municipalities, which has brought significant variations in population size. These calculations take 2002 as the base year. If there are no data for 2002, the base year is the first one for which data are available (see the OMM's report).

The number of train journeys (metro, regional, etc.) rose in all the MPTAs with rail networks. The most significant increases reflect major government investment in this mode of transport in recent years (i.e., in Alicante, which now has a tram system and an upgraded regional rail network). This general growth contrasts with the fall in the number of bus journeys in several MPTAs. In many cases, this reflects users' switch to rail.

NOTES

- Metropolitan area: In accordance with the criteria established by the OMM, a metropolitan area is defined as "an urban geographical area with a high degree of interaction between its various urban centres in terms of journeys, day-to-day relationships, economic activity, etc." A single definition has not been established to demarcate Spain's metropolitan areas. Under OMM criteria, metropolitan areas coincide with the area within which each Public Transport Authority (PTA) operates.
- The data on MPTAs were provided to the OMM by the PTAs. Population data are as at 1 January 2008.
- The information provided by each PTA is not necessarily complete and the information available within a PTA may vary from year to year. Nevertheless, the data provided, even if partial, provide a good reflection of PTA development in Spain.

SOURCES

- MARM. MF. OMM. Working paper. 2008 OMM report.
- MF. *Anuario estadístico 2008.*

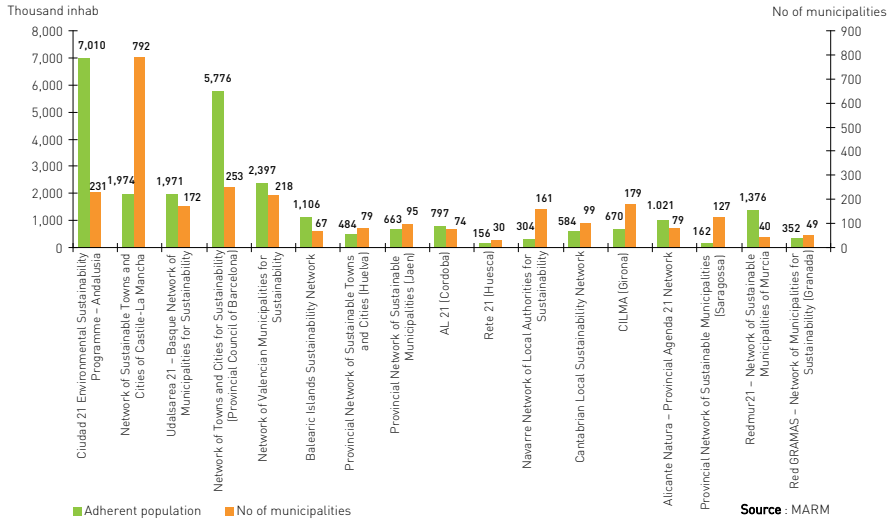
FURTHER INFORMATION

- **http://www.observatoriomovilidad.es**
- **http://europa.eu/scadplus/leg/es/lvb/l24484.htm**
- **http:// www. fomento.es**
- **http://www.transyt.upm.es**

Public participation in environmental policy

Public participation in local sustainable development networks continues to increase

NETWORK OF SUSTAINABLE LOCAL DEVELOPMENT NETWORKS (2010)
(number of municipalities and population covered)



Spanish towns and cities need to aim to create more sustainable scenarios if they are to resolve the environmental issues that affect citizens' quality of life. Land-use planning should be used to create an urban model based on compact yet diverse population centres and to promote energy saving, sustainable mobility, energy-efficient construction and the development and implementation of renewable energy sources on a local scale.

Since 2005, the Ministry of the Environment and Rural and Marine Affairs has been implementing policies and strategies to change the unsustainable trends that have developed in recent decades in Spain's villages, towns and cities. These new measures aim to create population centres that are compact, complex, efficient and socially cohesive.

The MARM's Network of Sustainable Local Development Networks was set up in 2005, and since then, it has been working to develop more sustainable municipalities according to the principles and actions established in the Urban Environment Strategy (EMAU), a reference document approved by the Network of Networks in 2006. The

Network of Networks consists of the 17 regional networks responsible for implementing Local Agenda 21, as well as the Spanish Federation of Municipalities and Provinces (FEMP), and represents over 2,700 municipalities and local authorities, and almost 26 million citizens.

In 2010, the MARM updated the Ecourbano knowledge portal, a tool created as part of the EMAU to disseminate information about the urban environment and flagship projects. Since September 2010, Ecourbano has had a blog providing updated news about the urban environment and about the most noteworthy initiatives and projects implemented by members of the Network of Networks. The blog also reviews projects and initiatives that comply with the sustainability guidelines set out in the Green Paper on the Urban Environment, the conceptual and pragmatic framework within which the EMAU is applied, thereby giving users a place to discuss the projects. The blog is accessed via the following link: www.ecourbano.es/blog.

Network	No. of municipalities/local authorities	Population
Ciudad 21 Environmental Sustainability Programme – Andalusia	231	7,009,718
Network of Sustainable Towns and Cities of Castile-La Mancha	792	1,974,381
Udalsarea 21 – Basque Network of Municipalities for Sustainability	172	1,970,636
Network of Towns and Cities for Sustainability (Provincial Council of Barcelona)	253	5,775,958
Network of Valencian Municipalities for Sustainability	218	2,397,179
Balearic Islands Sustainability Network	67	1,106,049
Provincial Network of Sustainable Towns and Cities (Huelva)	79	483,792
Provincial Network of Sustainable Municipalities (Jaen)	95	663,185
AL 21 (Cordoba)	74	797,192
Rete 21 (Huesca)	30	156,375
Navarre Network of Local Authorities for Sustainability	161	303,995
Cantabrian Local Sustainability Network	99	583,671
CILMA (Girona)	179	670,239
Alicante Natura – Provincial Agenda 21 Network	79	1,020,935
Provincial Network of Sustainable Municipalities (Saragossa)	127	161,794
Redmur21 – Network of Sustainable Municipalities of Murcia	40	903,894
Red GRAMAS – Network of Municipalities for Sustainability (Granada)	49	351,924
TOTAL	**2,721**	**25,931,438**

*Some municipalities that are part of the Ciudad 21 Environmental Sustainability Programme – Andalusia also belong to one of the three other Andalusian networks (Huelva, Jaen or Cordoba). When calculating the total number of municipalities and citizens within the Network of Networks, this factor was taken into account so as not to duplicate the data, and all duplicate figures for municipalities and population were subtracted from the totals.

In 2009, a working group was set up to define a system of indicators for the EMAU that would allow monitoring of compliance with the principles and measures set out in the Strategy to create more sustainable towns and cities. Creation of this group constitutes implementation of the final measure envisaged in the EMAU. In November 2010, the working group approved two documents that defined the aforementioned local sustainability indicators. The first document, entitled *Sistema municipal de indicadores de sostenibilidad* (Municipal System of Sustainability Indicators), contains sustainability indicators common to large and medium-sized population centres, as well as to those with fewer than 2,000 inhabitants. The second document contains the system of indicators and determining factors drawn up for large and medium-sized cities.

In December 2010, the Spanish Network of Cities for Climate (RECC) covered approximately 27.9 million inhabitants and included 300 local authorities (i.e., local councils, island councils, autonomous cities, provincial councils and local authority associations). This network focuses on leading local policies to combat climate change. The Network is currently working on the Local Carbon Sinks project, a programme launched in 2010 to offset emissions in Spanish municipalities by improving carbon sinks.

SOURCES
- MARM. Sub-Directorate General for Air Quality and the Industrial Environment. Department for the Urban Environment.
- FEMP. Office for Co-ordination of Territorial Action and Sustainable Development.

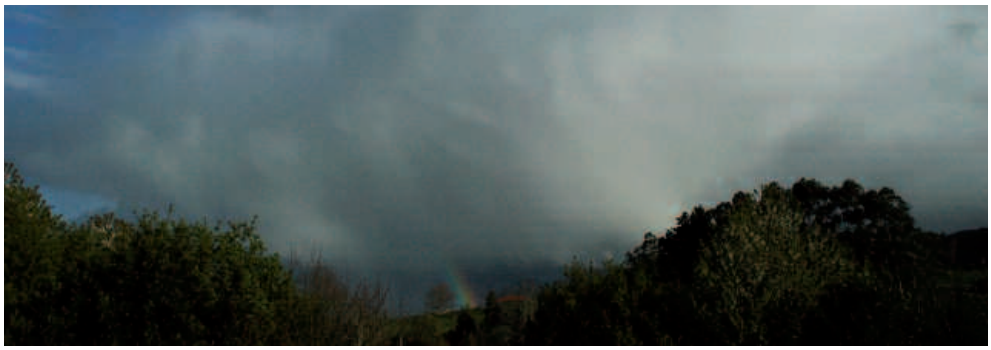
FURTHER INFORMATION
- http:// www.redciudadesclima.es
- http:// www.ecourbano.es
- http://www.femp.es

2.16 NATURAL AND TECHNOLOGICAL DISASTERS

Nature exists in a constant state of flux manifested both by regular phenomena, such as rainfall, and other extraordinary events, such as earthquakes.

Disasters arise from the conjunction of a potentially destructive natural phenomenon and a location vulnerable to such phenomena.
Generally, natural disasters (such as earthquakes, floods, landslides, hurricanes etc.) affect the normal functioning of a country. They can result in high death rates and extensive damage to infrastructure and services.

Other types of disaster, which also result in enormous losses, are due to, or are a direct consequence of, human activity. These include environmental pollution by industry; over-exploitation of renewable and non-renewable natural resources; and construction of homes and buildings in high-risk areas.



WORLDWIDE NO OF CATASTROPHES AND FATALITIES DUE TO NATURAL DISASTERS

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Events	890	701	698	699	641	648	850	960	750	850	950
Fatalities	10,300	25,063	10,576	77,886	183,000	100,995	20,000	16,000	160,000	10,500	295,000

Source: Munich Reinsurance Company (various years): Topics Geo Annual review: Natural catastrophes 2005, Topics Geo. Natural disasters 2006–2010. Website: http://www.munichre.com

According to the Munich Reinsurance Company (Munich Re), a disaster becomes a 'major catastrophe' when the affected regions cannot cope with the emergency situation without external aid. In 2010, there were five 'major catastrophes' and 50 'devastating catastrophes' (defined as catastrophes in which there are more than 500 fatalities).

2010 witnessed the second-highest ever number of natural disasters (after 2007) since 1980. Munich Re recorded 950 natural disasters, a figure well above the average of the last thirty years (615 disasters).
Forty per cent of recorded disasters in 2010 were tropical storms and weather events; 39% were floods and other hydrological events; 12% were climatic phenomena such as heatwaves; and the remaining 9% were earthquakes and volcanic eruptions. In terms of fatalities, 2010 was the second-worst 12-month period in 30 years, closing with a total of 295,000 deaths.

Disasters in Spain are insignificant compared to those that occur elsewhere in the world, but every year a varying number of people are affected and killed by these events. Over the years, and in terms of material damage and loss of human life, floods have been the most harmful natural hazard in Spain.

To facilitate assessment of flood risk and create the corresponding hazard maps and flood-risk management plans, the Spanish Government recently passed Royal Decree 903/2010 of 9 July on assessment and management of flood risk.

This year, the indicator measuring oil spills due to maritime accidents has not been included, as the figures have not varied since last year. However, it should be mentioned that in December 2010 there was an oil spill from a platform in the delta of the river Ebro.

INDICATOR	GOAL	TREND
Fatalities due to natural disasters	Prevent disasters and industrial accidents in order to reduce the number of fatalities and the environmental impact caused by natural phenomena and technological processes through implementation of appropriate preventive measures, intervention, and information	There were 13 more fatalities in 2010 than in 2009
Drought		32.9% of years between 1941 and 2010 were dry, while 67.2% were normal or wet
Forest fires		In 2010, the number of forest fires and the area affected were both below the average for the last decade
Road and rail accidents causing possible environmental damage		The figures for accidents in the transport of dangerous goods that may cause environmental damage are stable
Industrial accidents involving hazardous substances		In 2009, there were seven accidents within the scope of the Seveso Directive

Fatalities due to natural disasters

There were 13 more fatalities due to natural disasters in 2010 than in 2009

NUMBER OF FATALITIES IN SPAIN DUE TO NATURAL DISASTERS (1995–2010)

Type of natural disaster	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Floods	22	110	40	0	5	14	9	13	9	7	8	9	11	6	5	12	280
Storms	19	13	14	2	20	28	17	12	8	6	8	9	4	3	11	6	180
Forest fires	8	1	4	4	8	6	1	6	11	4	19	8	1	1	11	9	102
Landslides	7	8	2	0	0	0	1	1	2	0	0	5	2	1	2	2	33
Heatwaves	0	0	0	0	1	0	0	0	60	23	4	14	0	0	0	2	104
Avalanches	7	1	0	0	0	4	2	4	4	5	1	0	0	4	3	11	46
Snow and cold	0	2	5	1	0	2	4	0	0	3	3	0	0	0	1	1	22
Fatalities on land due to maritime storms	19	13	13	36	17	37	27	15	5	20	ND	ND	ND	4	2	5	213
ANNUAL TOTAL	82	148	78	43	51	91	61	51	99	68	43	45	18	19	35	48	980

Source: Directorate-General for Civil Protection and Emergencies (Ministry of the Interior)

Most of the 980 fatalities due to natural disasters in the last 16 years (1995–2010) in Spain were caused by floods (280 deaths, 28.6% of the total). The next biggest causes were maritime (213 deaths, 21.7%) and terrestrial storms, including lightning and strong winds (180 deaths, 18.4%). These natural phenomena, along with forest fires and heatwaves, have had the severest impact and have resulted in most fatalities over the past 15 years.

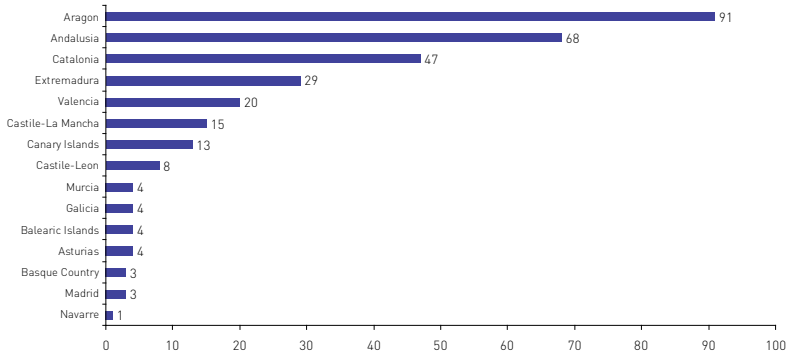
The fight against the effect of floods has long been a permanent part of civil protection and water policy. The traditional approach has been to design and build structural solutions, like dams, channels and dykes. These have been complemented in recent years with non-structural action, including civil protection plans; implementation of alert systems; corrective hydrological and forestry measures in river basins; and spatial planning measures, all intended to minimise the consequences of floods.

Royal Decree 903/2010, of 9 July, on the assessment and management of flood risks, is a further piece of legislation in this field. In 2010 there were various localised downpours of torrential rain in areas of central and northern Andalusia, in the north of the island of Majorca, and in the Canary Islands. In 2010, storms significantly damaged infrastructure and facilities and brought down numerous branches and trees. Overall, they caused 6 deaths, five fewer than in 2009. Meanwhile, torrential rainfall caused vast floods, resulting in 12 fatalities, seven more than the previous year.

Avalanches occur when a large mass of built-up snow becomes unbalanced, detaches from the rest and rolls or slides down the mountainside. It is worth highlighting the high number of deaths due to avalanches in 2010 — 11 people in total died in Spain, 8 more than the previous year.

Floods are the most frequent natural phenomenon in Spain. Analysis of flood data shows that 314 people died as a result of floods between 1990 and 2010. Aragon registered the highest number of deaths (29%), attributable mainly to the catastrophe in Biescas (Huesca) in 1996, which accounted for 87 out of the 110 fatalities in 1996, followed by Andalusia (21.7%), and Catalonia (15%). In 2010, there were 12 deaths (7 of them in Andalusia), as opposed to 5 in 2009 and 6 in 2008.

DEATHS DUE TO FLOODS AND SPATES IN SPAIN 1990–2010 (Total 314 fatalities)



Source: DGPC y E

NOTES

- Fatalities due to maritime storms refer solely to victims on land due to falls, sea surges, etc. These figures do not include fatalities at sea (drowning, falls, etc.) due to these phenomena.
- The indicator does not include volcanic eruptions, droughts and earthquakes, since although these phenomena may occur in Spain (drought recurrently and minor earthquakes periodically in certain areas), they have not caused any deaths in the period under consideration. The Canary Islands are the only part of Spain with active volcanoes and, therefore, the only area in which risk associated with this phenomenon exists. The last eruptions were that of Chinyero (a lateral volcano on the Pico del Teide) on Tenerife in 1909 and those of Nambroque in 1949 and Teneguía in 1971, both on the island of La Palma.

SOURCES

- Sub-Directorate-General for Planning, Operations and Emergencies. Directorate General for Civil Protection and Emergencies. Ministry of the Interior.

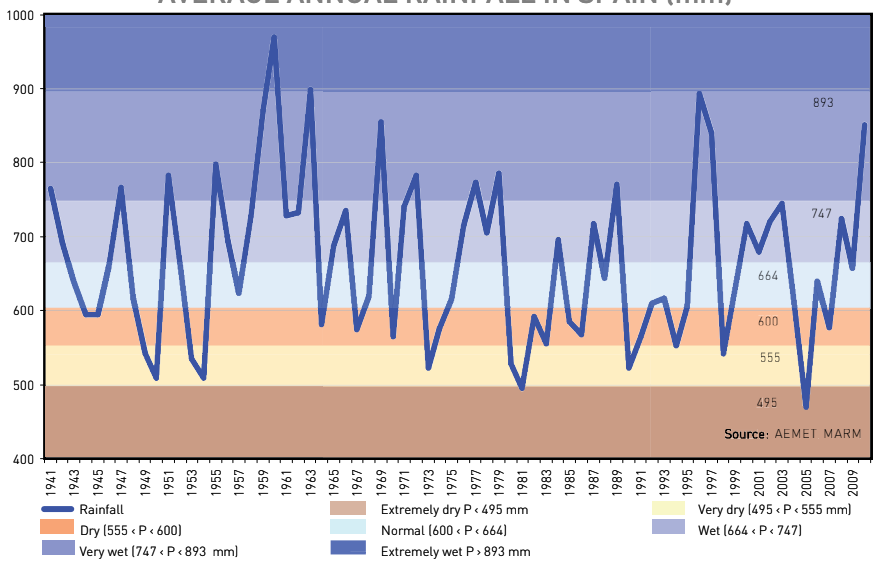
FURTHER INFORMATION

- http://www.eea.europa.eu
- http://www.proteccioncivil.org/
- http://natural-hazards.jrc.it
- http://nedies.jrc.it/

Drought

2010 was a very wet year and average rainfall was over 25% above normal

AVERAGE ANNUAL RAINFALL IN SPAIN (mm)



Drought is defined as an abnormal scarcity of water that results in a significant seasonal reduction in available water and moisture to below the expected quantity for a particular period.

Over the period 1941–2010, and taking into account average annual recorded rainfall, 32.9% of the years were dry, while the remaining 67.2% were normal or wet. In fact, using the classification based on average annual rainfall, according to the figures in the following table, 30% of those years were dry or very dry, 21.4% were normal, and 42.9% were wet or very wet. Furthermore, the percentage of years that were either extremely dry or extremely wet are similar — 2.9%.

PERCENTAGE OF YEARS, CLASSIFIED BY AVERAGE RAINFALL (1941–2010)

Extremely dry (R<495) (mm)	Very dry (495<R<555) (mm)	Dry (555<R<600) (mm)	Normal (600<R<664) (mm)	Wet (664<R<747) (mm)	Very wet (747<R<893) (mm)	Extremely wet (R>893) (mm)
2.9	14.3	15.7	21.4	24.3	18.6	2.9

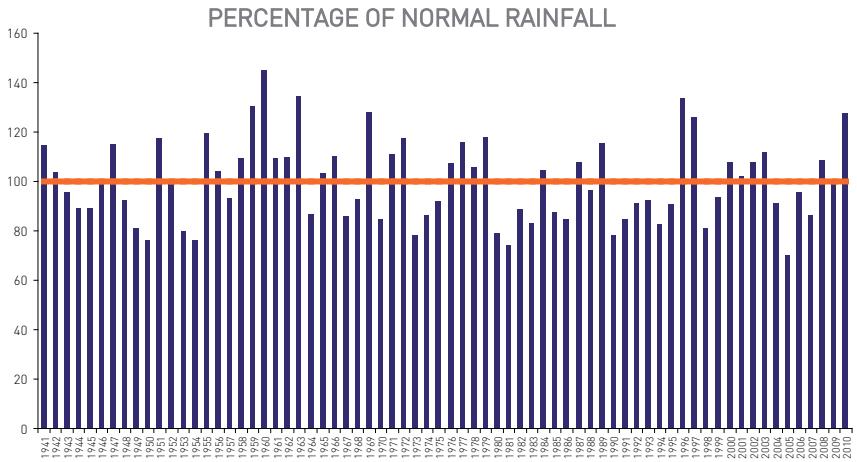
Source: Compiled in-house using data provided by the AEMET

Analysis of the Percentage of Normal Rainfall over the 1941–2010 period shows that in 54.2% of the years surveyed, annual rainfall was lower than the average for the period, whilst in 45.7% of them, annual rainfall was higher.

According to provisional data, average rainfall in Spain in 2010 was 851.5 mm. This is 27.7% above the average for the period 1941–2010, producing a surplus average rainfall of 184.9 mm.

The majority of this above-average rainfall occurred during the winter months (January, February and December), while in contrast, the summer months were dry, especially July, when rainfall in Spain as a whole was half the normal average.

In general, it was a very wet year in the southern part of the peninsula (with the exception of the south-east coast), as well as in the majority of the Balearic Islands, the most western Canary Islands, Asturias and some parts of Castile-Leon. In fact, in some western and southern areas of Andalusia and on the island of El Hierro, total rainfall in 2010 more than doubled the normal figure. In contrast, the year was normal to dry in the west of Galicia and across the north-east of the peninsula from Cantabria to the north of Valencia. In some parts of western Galicia and Valencia, rainfall was less than 25% of the average.



Source: AEMET. MARM

NOTES

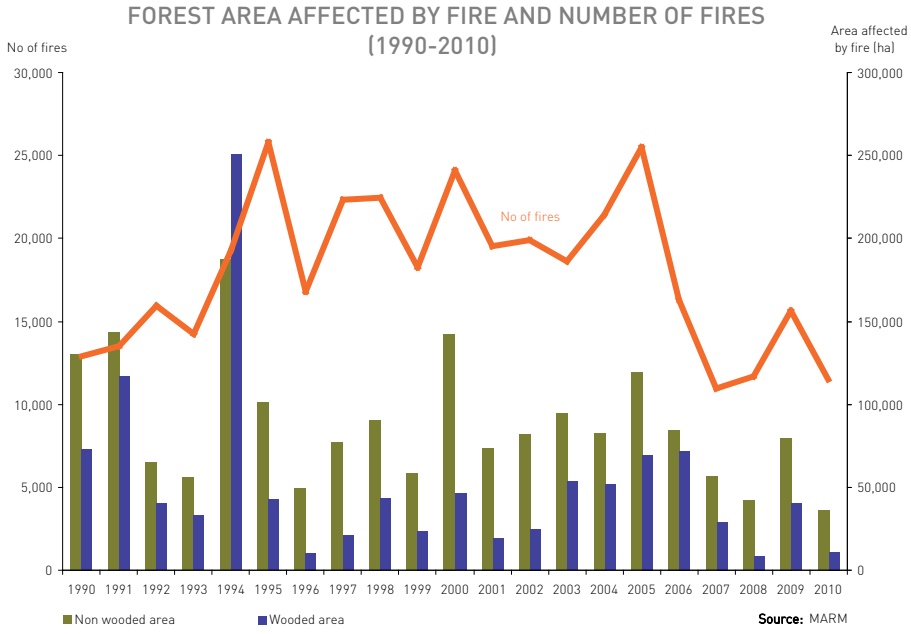
- In calculating the indicator, a year or several years are classified as drought years when average annual rainfall is significantly below the average for the period. Under the Spanish Water Information System (Hispagua), the Percentage of Normal Rainfall is one of the indicators used to study drought. It is calculated as the ratio between accumulated rainfall in a year and average annual rainfall for a particular region and period and is expressed as a percentage. Average annual rainfall is also referred to as normal rainfall and is obtained by averaging annual rainfall over a period of no less than 30 years.
- For the AEMET, the 1971–2000 reference period (30 years) is representative of rainfall in Spain and is used to establish the following ranges and create a generic classification within which to place each year in accordance with its average annual rainfall:
  - Extremely dry: rainfall is below the minimum amount recorded in the reference period (495 mm).
  - Very dry: rainfall is less than or equal to the reference period's 20 percentile and is greater than the minimum amount recorded in the reference period (495 mm ≤ R < 555 mm).
  - Dry: rainfall is greater than the 20 percentile and less than or equal to the 40 percentile (555 mm ≤ R < 600 mm).
  - Normal: rainfall is greater than the 40 percentile and less than or equal to the 60 percentile (600 mm ≤ R < 664 mm), in other words, it is around the median.
  - Wet: rainfall is greater than the 60 percentile and less than or equal to the 80 percentile (664 mm ≤ R < 747 mm).
  - Very wet: rainfall is greater than the 80 percentile and less than the maximum amount recorded in the reference period (747 mm ≤ R < 893 mm).
  - Extremely wet: rainfall is equal to or greater than the maximum amount recorded in the reference period (893 mm).
- Scarcity of precipitation (meteorological drought) may cause a shortage of water resources (hydrological drought) needed to supply existing demand. Consequently, there is no universally accepted definition of drought, as it varies from place to place and every water user has their own definition.
- Previous editions of the Report included extensive information on the definition, type and consequences of drought. The EU differentiates clearly between "drought" as a temporary drop in water availability due to lack of precipitation and "water scarcity," which arises when demand for water exceeds the water resources exploitable under sustainable conditions.

SOURCES

- Rainfall data provided by the AEMET. MARM. http://www.aemet.es/es/portada
- MARM, 2010. Drought situation. Diagnosis of the situation on March 17, 2010.

Forest fires

Forest area affected in 2010 was 63.3% below the average of the previous decade



According to provisional data, in 2010 the number of both outbreaks and fires was below the average for the previous decade (2000–2009) — 37% below the total number of forest-fire events (outbreaks and fires), and 44% below the number of actual fires. In 2010, there were 11,475 events, while the ten-year average stood at 18,367. The pattern in the number of forest fires over the year followed the average trend for the decade. Although these numbers peaked in March and August, all the monthly figures remained below the average.

The forest area affected in 2010 was 63.3% below the average of the decade 1999–2009.

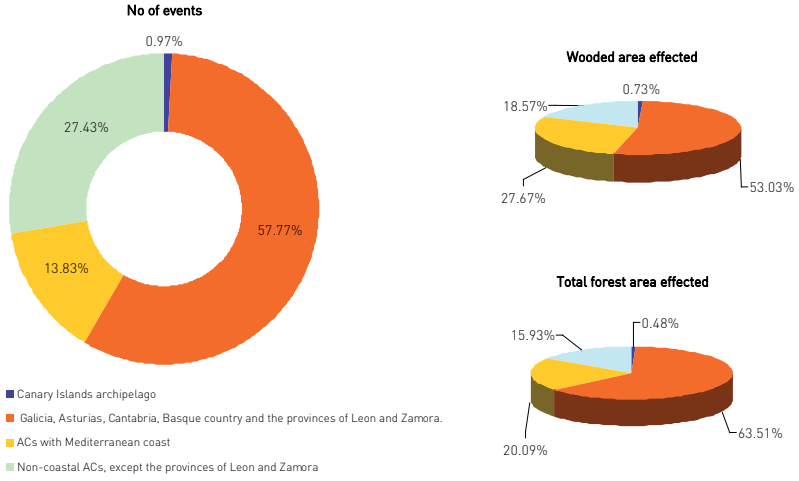
A total of 46,698 hectares were affected, while the ten-year average was 127,209 hectares. The percentage of wooded area affected also decreased substantially, to 23.18% in 2010.

	TEN-YEAR AVERAGE	2010
No of outbreaks (<1 ha)	11,675	7,687
No of fires (>1 ha)	6,692	3,788
Total no of forest-fire events	**18,367**	**11,475**
Wooded area affected (ha)	41,481.1	10,824.4
Forest area affected (ha)	127,209.1	46,697.9
% area affected / % total forest area	**0.456**	**0.168**
No of major fires (>500 ha)	**31**	**12**

Source: MARM

In 2010, the north-west of Spain (Galicia, Asturias, Cantabria and the Basque Country, together with the provinces of Leon and Zamora) suffered 57.8% of all forest-fire events, while the inland autonomous communities suffered 27.4%, the Mediterranean Arc suffered 13.8% and the Canary Islands suffered 1%.

NUMBER OF FOREST FIRE EVENTS AND AFFECTED AREA (2010)



Source: MARM

The percentage of forest or wooded area affected describes the consequences of forest fires in terms of surface area. In 2010, by proportion of wooded area affected, north-western Spain suffered most (53.03%), followed by the Mediterranean Arc (27.67%), the inland autonomous communities (18.57%) and the Canary Islands (0.73%). In terms of forest area, as before (albeit to a greater extent) the worst affected area was north-western Spain (63.51%), followed by the Mediterranean Arc (20.09%), the inland autonomous communities (15.93%) and the Canary Islands (0.48%).

The three largest fires in 2010 occurred in Ontinyent and Rafelguaraf (both in Valencia), which affected 2,512.1 and 2,059.3 hectares respectively, and in Laza,

Galicia (1,715 hectares). In 2010, there were 12 major fires (defined as affecting over 500 hectares) in Spain, which affected 29.2% (13,610.6 hectares) of the country's forest area.

NOTES
- The data for 2010 are provisional.

SOURCES
- Data provided by the Forest Fire Defence Department. Directorate-General for the Natural Environment and Forestry Policy. MARM.
- MARM, 2010. *Incendios forestales en España, 1 de enero – 31 de diciembre de 2010. Avance informativo, Enero 2011*. Published on the website.

FURTHER INFORMATION
- http://www.marm.es
- http://www.incendiosforestales.org

Road and rail accidents causing possible environmental damage

In 2009, there were 47 accidents causing possible environmental damage

NO OF ACCIDENTS CAUSING POSSIBLE ENVIRONMENTAL DAMAGE DURING THE TRANSPORT OF DANGEROUS GOODS BY ROAD AND RAIL (1997–2009)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Road	29	50	34	53	44	47	55	64	61	46	48	45	47	623
Rail	10	8	ND	4	2	1	5	4	2	1	2	1	0	40
TOTAL	39	58	34	57	46	48	60	68	63	47	50	46	47	663

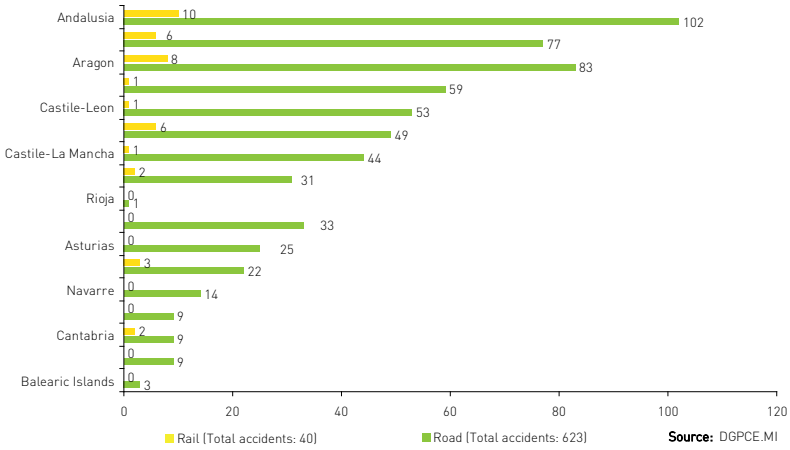
Source: Directorate-General for Civil Protection and Emergencies. Ministry of the Interior.

When categorising road and rail accidents, dangerous goods are considered those substances that, in the case of an accident during transport, may represent a hazard to the population, property and the environment. Over 1997–2009, there were 663 accidents causing possible environmental damage during the transport of dangerous goods — 623 by road and 40 by rail.

Globalisation of the economy and manufacturing specialisation are having a notable impact on transport distribution structures. The vast majority of accidents causing possible environmental damage occurred in road transport, while the number of rail accidents is much smaller, accounting for just 6% of the total. In 2009, none of the 47 recorded accidents occurred in rail transport. Road transport was the most widely used mode in 2009, carrying 84% of total freight (including dangerous goods), while only 2.1% of freight was transported by rail. The flexibility to adapt to new routes and vehicle specialisation to cater for specific transport needs are just two of the main reasons why road transport is growing rapidly and sustainedly in comparison with other modes such as rail.

The volume of goods transported, together with the size of the road network and its geographical location (either as a junction or as a strategic location such as a sea port or border crossing) are factors that contribute to the increase in freight and, therefore, to a possible increase in the risk of accidents occurring. The autonomous communities that recorded the highest number of accidents during the transport of dangerous goods were Andalusia (102 road accidents and 10 rail accidents), Aragon (83 road accidents and 8 rail accidents), and Catalonia (77 road accidents and 6 rail accidents) during the period 1997–2009.

NUMBER OF ACCIDENTS CAUSING POSSIBLE ENVIRONMENTAL DAMAGE DURING THE TRANSPORT OF DANGEROUS GOODS BY ROAD AND RAIL (1997–2009)



Between 1997 and 2009, the number of incidents affecting the environment totalled 723. The number of incidents is not the same as the total number of accidents, as a single accident may affect several environmental media. Soil was the environmental medium that suffered most (93.6% of incidents), while air was affected by 10.6% and water by 4.3%.

NO OF INCIDENTS CAUSING POSSIBLE ENVIRONMENTAL DAMAGE DURING THE TRANSPORT OF DANGEROUS GOODS (1997–2009)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Air pollution	5	3	2	4	3	0	8	8	17	7	8	4	5	74
Water pollution	7	11	6	9	5	5	4	14	9	8	7	8	2	95
Soil pollution	36	49	29	51	41	46	57	55	49	41	43	39	44	580
TOTAL	**48**	**63**	**37**	**64**	**49**	**51**	**69**	**77**	**75**	**47**	**50**	**46**	**47**	**723**

Source: Directorate-General for Civil Protection and Emergencies. Ministry of the Interior.

NOTES

- When categorising road and rail accidents, dangerous goods are considered those substances that, in the case of an accident during transport, may represent a hazard to the population, property and the environment. Possible environmental damage is considered to occur when the existence of a leak or spillage (on land, in water or into the atmosphere) with a potentially pollutant effect is reported.
- It is necessary to emphasise that the number of incidents is not the same as the number of accidents, as a single accident may affect several environmental media.

SOURCES

- Data provided by the Directorate-General for Civil Protection and Emergencies. Ministry of the Interior.
- *Libro Blanco del Transporte.*

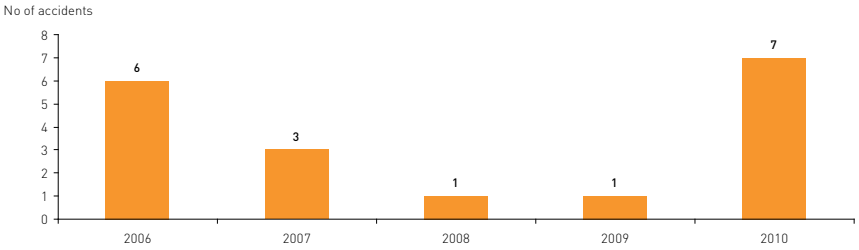
FURTHER INFORMATION

- http://www.proteccioncivil.org/
- http://mahbsrv.jrc.it/ (Major Accident Hazards Bureau –MAHB. Comisión Europea))
- http://www.eea.europa.eu

Industrial accidents involving hazardous substances

In 2010, seven accidents occurred in industrial facilities covered by the Seveso Directive

NUMBER OF ACCIDENTS OCCURRING IN INDUSTRIAL ACTIVITIES COVERED BY THE SEVESO DIRECTIVE BY AUTONOMOUS COMMUNITY



Source: DGPCE. MI

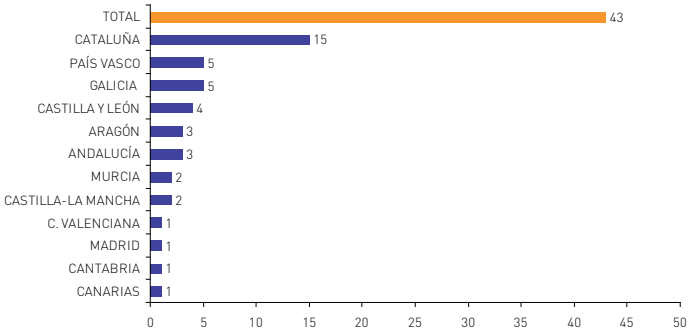
The Seveso Directive aims to improve both preventive measures and response capacity in case of an accident. By developing and maintaining an information system on accidents that have occurred and carrying out analyses and studies to compare experiences between the parties involved, it is possible to improve the design and implementation of preventive measures and mechanisms to reduce the damage caused by accidents.

In 2010, seven accidents occurred in industrial facilities covered by the Seveso Directive. This figure is much higher than those of the previous two years, when only one accident was reported. In 2010, Catalonia suffered two accidents, while Andalusia, Aragon, Castile-La Mancha, Galicia and Valencia all suffered one each.

As regards the whole period (1987-2010), there were 43 accidents overall. The majority of the incidents recorded occurred in Catalonia (34.9%), the Basque Country (11.6%) and Galicia (11.6%), which also have the highest number of industrial facilities covered by the Seveso Directive and the largest in size.

The majority of accidents occurred in the petrochemical, refining and general or basic chemical product industries. These activities are the most abundant in Spain and handle the largest quantity of highly flammable and highly reactive substances.

ACCIDENTS OCCURRING IN INDUSTRIAL ACTIVITIES COVERED BY THE SEVESO DIRECTIVE (1987–2010)



Source: DGPCE. MI

The Seveso Directive makes it compulsory for industrial facilities to draw up a self-protection plan, known as an internal emergency plan. It also stipulates that regional governments should draw up, in partnership with the industries in question, an external emergency plan. In 2010, 74 Special Civil Protection Plans were approved by the National Civil Protection Committee for facilities covered by the Seveso Directive. Between January 2003 and November 2010, a total of 286 plans were produced.

NOTES

- The accidents analysed are those covered by the Seveso Directive, i.e. accidents occurring in industry (chemical, pharmaceutical, energy industry, etc.) and include those occurring during storage, distribution and sale of dangerous substances and products.
- Directive 96/82/EC on the control of major-accident hazards involving dangerous substances (Seveso II), is intended to prevent major accidents and reduce their consequences for human health and safety and the environment. It replaces Directive 82/501/EEC (Seveso I). The Seveso II Directive was transposed into Spanish law by Royal Decree 1254/1999 of 16 July, which approved measures to control major-accident hazards involving dangerous substances. This Royal Decree was subsequently amended by Royal Decree 119/2005 of 4 February and by Royal Decree 948/2005 of 29 July. This regulatory framework is complemented by Royal Decree 1196/2003, of 19 September, which approved the Civil Protection Guidelines for the Control and Planning of Major-Accident Hazards involving Dangerous Substances (BOE no 242 of 9 October 2003).
- Serious Accident: Any incident, such as emissions in the form of leaks, spills, fires or major explosions, that is the consequence of an uncontrolled process during operation of any facility to which Royal Decree 1245/1999 is applicable and that represents a major-accident hazard, of either immediate or delayed effect, to the population, property or the environment, whether inside or outside the facility, and in which one or more dangerous substances are involved.
- It should be pointed out that other types of accident exist that, although no less serious for the environment, do not fall within the scope of the Seveso Directive. These include mining accidents, such as the one caused by failure of the Aznalcollar dam (Seville) in April 1998.

SOURCES

- Data provided by the Sub-Directorate-General for Planning, Operations and Emergencies. Directorate-General for Civil Protection and Emergencies. Ministry of the Interior.

FURTHER INFORMATION

- http://www.proteccioncivil.org

3. Information by Autonomus Community: basic data

This chapter complements the information on the state of Spain's environment with basic data about each of the country's autonomous communities. It includes a range of environmental and socio-economic variables that provide information about the state of the environment in each autonomous community and the administrative, social and economic context.

This section is included as the indicators do not always provide sufficiently detailed information about the various autonomous communities referred to in each chapter. Furthermore, of the 85 indicators in the 2010 Environmental Profile of Spain, only 23 provide a breakdown of the data by autonomous community and only 7 by other territorial demarcations (i.e., river basin districts, tourist areas, etc.).

This section of the Profile complements the information included and is only intended as a point of reference. Its value derives from the contribution it makes to the data on Spain's autonomous communities as a whole. It should be borne in mind that most of the autonomous communities publish their own reports on the state of the local environment (often on-line) and that these reports provide the most complete picture of the environmental situation within each particular region.

To simplify and condense the content, this chapter contains 19 data sheets (one for each autonomous community or autonomous city) split into two sections. The first section comprises a series of administrative, territorial, socio-economic and environmental variables, which are arranged into a series of relevant themes closely linked to the chapters in this publication. The second section covers the developments occurring in 2010 that the regional government considers most relevant. It also includes a series of website addresses to provide access to broader environmental information, as well as naming any relevant publications.

The end of the chapter lists the sources of information used and provides any notes on methodology and calculation considered necessary to interpret the variables. If the source stated has not been used for one of the variables, this is specified in the

section on the corresponding variable. This is also the case when the year to which the information refers is different to that referred to in the other autonomous communities.

Lastly, it should be noted that production of this chapter was made possible by the work done by the representatives of the Spanish EIONET Regional Focal Points.

Andalusia

Statute of Autonomy: Organic Law 2/2007, of 19 March (BOE no 68, of 20 March 2007)
Area: 87,598 km^2
Length of coastline: 1,101 km
Capital: Seville / **Provinces:** 8 / **Municipalities:** 762
Population 2010: 8,370,975 inhab
Population density 2010: 95.6 inhab/km^2
Population growth 2000–2010: 14% / **2009–2010:** 0.82%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 3.3
  2,001–10,000 inhabitants: 16.9
  10,001–100,000 inhabitants: 43.8
  100,001–500,000 inhabitants: 20.7
  > 500,000 inhabitants: 15.2
- **UNEMPLOYMENT RATE**
  28.4% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  25.4%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 8.7 / Industry: 9.2
  Construction: 8.3 / Services: 73.8
- **GDP MP (2009)**
  €17,498/inhab (Spanish average=100: 76.3%)
  Variation 2008–2009: -4.8%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €12,480/inhab. Growth 2000–2008: 54.1%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 3.9 / Industry: 9.7
  Construction: 12.5 / Services: 73.9

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 39 / Suburban: 33 / Rural: 17
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO2 in µg/m3 (2010 limit: 40 µg/m^3): 32
  – No days/year average daily PM10 concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 13

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  157 litres/inhab/day. Between 2000 and 2008 consumption decreased by 14.2%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 69.2 / Municipal and other consumption: 9.9 / Economic sectors: 20.9
- **WASTEWATER TREATMENT (2010)**
  67% of population equivalent provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 1.9 / Agriculture: 55.5 / Forest: 41.1 / Wetlands and water bodies: 1.5

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  1,522,603.5 ha (18.5% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  2,585,216.3 ha (29.5% of the AC)
- **WETLANDS INCLUDED IN THE SPANISH WETLANDS INVENTORY (2010)**
  117 wetlands (117,971 ha)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 2,969,079 ha / Non-wooded: 1,422,721 ha
- **FOREST FIRES (2010)**
  443 outbreaks and 112 fires affecting 991.8 ha

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  - Total urban waste: 585 kg/inhab/year including separate collection, and 544 kg/inhab/year excluding separate collection
  - Separately collected paper/cardboard: 14.0 kg/inhab/year
  - Separately collected glass: 9.5 kg/inhab/year
  - Separately collected packaging: 10.4 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  866,799 ha. Growth 2001–2009: 707%
- **IRRIGATED AREA (2009)**
  981,426 ha (19.4% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 1.67 / Hydroelectric: 0.14 / Thermal: 1.10
  Nuclear: 0.00 / Wind: 0.31 / Other renewables: 0.12

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.89
- **HOTEL CAPACITY (2010)**
  243,178 hotel beds (29.1 beds/1,000 inhab) and 10,612 beds in rural accommodation (1.3 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  5,281,052 vehicles. Growth 2000–2009: 44.4%
  630.9 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  3,720,792 passenger cars. Growth 2000–2009: 39.4%
  444.5 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  19,115,657 passengers. Growth 2000–2010: 39.5%
- **PORT FREIGHT TRAFFIC (2009)**
  106.2 million t. Growth 2000–2009: 18.3%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 SUBSCRIBED TO THE CIUDAD 21 PROGRAMME (2009)**
  231 municipalities subscribed to the Ciudad 21 programme.
  163 municipalities have completed the LA21 diagnosis and 32 have started it. 117 municipalities have drawn up their Plan of Action and 36 are currently creating one
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €1,578.1 million (1.1% of GDP). Growth 2000–2009: 191%

ENVIRONMENTAL REGULATIONS & MEASURES

- Via the Migres programme, the Regional Government of Andalusia takes a census of almost half a million soaring birds as they cross the Strait of Gibraltar.
- The lynx population in Andalusia is increasing and stood at 279 by the end of 2010.
- The Andalusian Climate Change Forum has confirmed a reduction in the region's greenhouse gas emissions.
- The flamingo colony in the Marismas del Odiel National Park increased by over two hundred pairs in comparison with 2009.
- In 2009, 20.17% of Andalusia was protected, as opposed to 12.2% of national territory and 18.2% of Andalusia in 2000.

RECOMMENDED WEBSITES

- REDIAM website http://www.juntadeandalucia.es/medioambiente/site/web/rediam
- Environmental reports and statistics www.juntadeandalucia.es/medioambiente/rediam/estadisticas_IMA
  - www.juntadeandalucia.es/medioambiente/rediam/IMA
  - The Open Geospatial Consortium services section provides downloadable geographical information produced by the Andalusian Regional Ministry of the Environment. www.juntadeandalucia.es/medioambiente/rediam/ogc

RECOMMENDED PUBLICATIONS

- Informe de coyuntura de Medio Ambiente en Andalucía, IMA 2009.
- Datos Básicos Andalucía, 2009.
- Ortofotografía Digital Histórica de Andalucía 1956–2007. DVD (2010).
- Completion of the SIOSE-Andalusia land cover information system (scale 1:10.000).
- Creation and publication of the map of land use and cover in Andalusia 2007 (scale 1:25,000).

Aragon

Statute of Autonomy: Organic law 8/82, of 10 August (BOE 195, 16 August 1982).
Reform approved by Organic Law 5/2007, of 20 April (BOE 97, of 23 April 2007)
Area: 47,720 km^2
Capital: Saragossa / **Provinces:** 3 / **Municipalities:** 731
Population 2010: 1,347,095 inhab
Population density 2010: 28.2 inhab/km^2
Population growth 2000–2010: 13.2% / **2009–2010:** 0.12%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 16.9
  2,001–10,000 inhabitants: 14.8
  10,001–100,000 inhabitants: 18.2
  100,001–500,000 inhabitants: 0.0
  > 500,000 inhabitants: 50.1
- **UNEMPLOYMENT RATE**
  16.1% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  12.8%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 6.7 / Industry: 20
  Construction: 8.8 / Services: 64.4
- **GDP MP (2009)**
  €24,656/inhab (Spanish average=100: 107%)
  Variation 2008–2009: -5.5%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €17,083/inhab. Growth 2000–2008: 54.2%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 4 / Industry: 19.2
  Construction: 10.8 / Services: 65.9

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 7 / Suburban: 3 / Rural: 23
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 29
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 48

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  147 litres/inhab/day. Between 2000 and 2008 consumption decreased by 14.8%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Household: 62.9 / Municipal and other consumption: 8.9 / Economic sectors: 28.2
- **WASTEWATER TREATMENT (2010)**
  98.4% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 0.8. / Agriculture: 48.8 / Forest: 40.7 / Wetlands and water bodies: 0.7

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  157,909.8 ha (3.3% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  1,354,545.6 ha (28.4% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 1,458,277 ha / Non-wooded: 1,150,036 ha
- **FOREST FIRES (2010)**
  258 outbreaks and 86 fires affecting 1,171.5 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 396.2 kg/inhab/year
  – Separately collected paper/cardboard: 23.6 kg/inhab/year
  – Separately collected glass: 16.8 kg/inhab/year
  – Separately collected packaging: 12.4 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**

  66,730 ha. Growth 2001–2009: 40.3%

- **IRRIGATED AREA (2009)**

  372,292 ha (18.3% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**

  Total: 5.39 / Hydroelectric: 1.14 / Thermal: 2.85

  Nuclear: 0.00 / Wind: 1.29 / Other renewables: 0.11

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**

  0.25

- **HOTEL CAPACITY (2010)**

  38,789 hotel beds (28.8 beds/1,000 inhab) and 8,309 beds in rural accommodation (6.2 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**

  842,705 vehicles. Growth 2000–2009: 34.3%

  625.6 vehicles/1,000 inhab

- **PASSENGER CAR FLEET (2009)**

  573,107 passenger cars. Growth 2000–2009: 24.9%

  425.4 passenger cars/1,000 inhab

- **AIR TRANSPORT (2010)**

  612,280 passengers. Growth 2000–2010: 148.2%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**

  239 (209 of which are implementing their Action Plan and 2 of which have completed the LA21 diagnosis). 47 municipalities have drawn up action plans (pending ratification). The provisional data does not include information from the province of Saragossa.

- **INTERNAL EXPENDITURE ON R&D (2009)**

  €370.9 million (1.1% of GDP). Growth 2000–2009: 176%

ENVIRONMENTAL REGULATIONS & MEASURES

- Celebration of the 25th anniversary of creation of the La Alfranca Wildlife Recovery Centre.
- The Aragon Water Institute (IAA) helped draw up river basin management plans for the Ebro, Júcar and Tagus river basin districts.
- Approval of Decree 84/2010, of 11 May, of the regional government of Aragon, establishing the organisational framework for implementation in Aragon of Law 45/2007, of 13 December, on sustainable rural development.
- Approval of Decree 204/2010, of 2 November, of the regional government of Aragon, creating the Aragon Wetland Inventory and establishing protection of the listed wetlands.
- The Paper on Quality in Environmental Education in Aragon was presented at the 3rd Meeting on Quality in Environmental Education in Aragon.

RECOMMENDED WEBSITES

- http://www.aragon.es

RECOMMENDED PUBLICATIONS

- Medio Ambiente en Aragón 2009
- II Catálogo de Compra Verde en Aragón

Asturias

Statute of Autonomy: Organic Law 7/81, of 30 December (BOE 9, 11 January 1982).
Area: 10,604 km^2
Length of coastline: 401 km
Capital: Oviedo **/ Provinces:** 1 **/ Municipalities:** 78
Population 2010: 1,084,341 inhab
Population density 2010: 102.3 inhab/km^2
Population growth 2000–2010: 0.7% **/ 2009–2010:** 0.1%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 3.4
  2,001–10,000 inhabitants: 10.0
  10,001–100,000 inhabitants: 40.2
  100,001–500,000 inhabitants: 46.3
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  16.7% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  13.4%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 4.1 / Industry: 14.3
  Construction: 9.3 / Services: 72.3
- **GDP MP (2009)**
  €21,512/inhab (Spanish average=100: 93.8%).
  Variation 2008–2009: -4.1%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €16,232/inhab. Growth 2000–2008: 68.8%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 1.8 / Industry: 18.5
  Construction: 13 / Services: 66.6

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**

Urban: 13 / Suburban: 5 / Rural: 2

- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 27
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 32

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  177 litres/inhab/day. Between 2000 and 2008 consumption increased by 17.2%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 69.3 / Municipal and other consumption: 6 / Economic sectors: 24.7
- **WASTEWATER TREATMENT (2010)**
  71% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 1.9 / Agriculture: 28.0 / Forest: 69.8 / Wetlands and water bodies: 0.3

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  234,604.6 ha (22.1% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  280,897.1 ha (26.5% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 434,903 ha / Non-wooded: 329,694 ha
- **FOREST FIRES (2010)**
  720 outbreaks and 985 fires affecting 5,982 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 448.7 kg/inhab/year
  – Separately collected paper/cardboard: 26.2 kg/inhab/year
  – Separately collected glass: 13.7 kg/inhab/year
  – Separately collected packaging: 8.4 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  14,019 ha. Growth 2001–2009: 4,401%
- **IRRIGATED AREA (2009)**
  1,621 ha (0.4% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 4.02 / Hydroelectric: 0.68 / Thermal: 2.89
  Nuclear: 0.00 / Wind: 0.32 / Other renewables: 0.13

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.16
- **HOTEL CAPACITY (2010)**
  24,118 hotel beds (22.2 beds/1,000 inhab) and 11,801 beds in rural accommodation (10.9 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  656,118 vehicles. Growth 2000–2009: 29.8%
  605.1 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  493,893 passenger cars. Growth 2000–2009: 23.5%
  455.5 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  1,355,364 passengers. Growth 2000–2010: 65.8%
- **PORT FREIGHT TRAFFIC (2009)**
  18.6 million t. Growth 2000–2009: -22.2%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  75 of the 78 municipalities are signed up to the Asturias 21 network of sustainable municipalities in the Principality of Asturias and have a Local Agenda 21 at various stages of implementation.
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €226.1 million (0.99% of GDP). Growth 2000–2009: 97.4%

ENVIRONMENTAL REGULATIONS & MEASURES

- A plenary session of the Asturias 21 network was held in which members from the 75 local councils comprising the network signed the accession protocols.

RECOMMENDED WEBSITES

- http://www.asturias.es
- http:/redambientalasturias.es

RECOMMENDED PUBLICATIONS

- Perfil Ambiental de Asturias 09.
- Memoria Anual de Actividades 2009 Observatorio de la Sostenibilidad en el Principado de Asturias.
- Promoción de la excelencia ambiental. Situación y perspectivas de la adhesión al Reglamento EMAS para las empresas asturianas.
- Estudio sobre el empleo verde en el medio rural asturiano.
- Guía sobre nuevos yacimientos de empleo relacionados con actividades medioambientales en el medio rural asturiano.
- Guía de buenas prácticas para el uso racional del agua en los núcleos rurales asturianos.
- Guía de buenas prácticas para la implantación de normas de calidad ambiental en las pymes rurales.
- Guía de gestión de residuos en el Hospital Universitario Central de Asturias.
- Guía de buenas prácticas en la agricultura y ganadería que contribuyan a la lucha contra los efectos nocivos del cambio climático.
- Guía para la implantación de modalidades de producción ecológica agrícola y ganadera.
- Guía para la recolección y transformación de hongos y otros productos del bosque (frutos, plantas aromáticas, etc.) como fuente de creación de empleo rural.

Balearic Islands

Statute of Autonomy: Organic Law 2/83, of 25 February (BOE 51, 1 March 1983), text as per Organic Law 1/2007, of 28 February (BOE 52, 1 March 2007)
Area: 4,992 km^2
Length of coastline: 1,428 km
Capital: Palma de Mallorca **/ / Provinces:** 1 **/ Municipalities:** 67
Population 2010: 1,106,049 inhab
Population density 2010: 221.6 inhab/km^2
Population growth 2000–2010: 30.8% / **(2009–2010):** 0.97%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 1.4
  2,001–10,000 inhabitants: 15.1
  10,001–100,000 inhabitants: 46.9
  100,001–500,000 inhabitants: 36.6
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  22.2% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  18%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 1 / Industry: 8.6
  Construction: 10.6 / Services: 79.8
- **GDP MP (2009)**
  €24,580/inhab. (Spanish average=100: 107%).
  Variation 2008–2009: -4.4%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €16.438/inhab. Growth (2000–2008): 31.5%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 1 / Industry: 6.2
  Construction: 9.4 / Services: 83.5

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 3 / Suburban: 6 / Rural: 6
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 17
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 0

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  139 litres/inhab/day. Between 2000 and 2008 consumption increased by 7.8%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 59.7 / Municipal and other consumption: 5.8 / Economic sectors: 34.5

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 6.4 / Agriculture: 57.3 / Forest: 35.5 / Wetlands and water bodies: 0.7

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  68,140.1 ha (13.6% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  108,906.5 ha (21.7% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 186,377 ha / Non-wooded: 37,223 ha
- **FOREST FIRES (2010)**
  87 outbreaks and 14 fires affecting 610.3 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 610.9 kg/inhab/year
  – Separately collected paper/cardboard: 37 kg/inhab/year
  – Separately collected glass: 24.3 kg/inhab/year
  – Separately collected packaging: 12.1 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**

  29,569 ha. Growth 2001–2009: 411%
- **IRRIGATED AREA (2009)**

  15,933 ha (8.3% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**

  Total: 2.08 / Hydroelectric: 0 / Thermal: 2 / Nuclear: 0 / Wind: 0 / Other renewables: 0.08

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**

  8.3
- **HOTEL CAPACITY (2010)**

  182,358 hotel beds (164.9 beds/1,000 inhab) and 3,343 beds in rural accommodation (3 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**

  890,184 vehicles. Growth 2000–2009: 26.3%
  804.8 vehicles/1,000 inhab

PASSENGER CAR FLEET (2009)

644,979 passenger cars. Growth 2000–2009: 20.3%
583.1 passenger cars/1,000 inhab

- **AIR TRANSPORT (2010)**

  28,669,696 passengers. Growth 2000–2010: 7.5%
- **PORT FREIGHT TRAFFIC (2009)**

  12.4 million t. Growth 2000–2009: 13.5%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**

  All 67 municipalities (50 of which have a ratified Action Plan and are implementing Action Plan projects). Furthermore, 1 municipality has signed the Aalborg Charter, 7 municipalities have begun the LA21 diagnosis, 2 municipalities have completed the LA21 diagnosis and 7 municipalities have drawn up an Action Plan (pending ratification).
- **INTERNAL EXPENDITURE ON R&D (2009)**

  €99.9 million (0.38% of GDP). Growth 2000–2009: 186%

ENVIRONMENTAL REGULATIONS & MEASURES

- Review of the Action Plan to Combat Climate Change 2008–2012 (Dec 2010).
- Report on Environmental Sustainability drawn up as part of strategic assessment of the Balearic Islands Hydrological Plan (June 2009, v.1).
- Expansion of the System of Key Sustainability Indicators for Local Agenda 21.
- Extension of the list of SCIs (temporary Mediterranean water body habitats).
- Expansion of the S'Albufera de Mallorca SPA.
- Drafting of the new S'Albufera de Mallorca Natural Resources Management Plan begun (extending the S'Albufera de Mallorca by 45 ha).
- Procedures to include 16 small islands in the Natura 2000 Network begun.
- Conservation plan for Limonium barceloi
- Conservation plan for endangered flora in Puig Major.
- Resolution to make the Planícia estate publicly owned.
- Statement confirming the existence of Rhynchophorus ferrugineus on the islands of Majorca and Ibiza.
- In 2009, the amount of organic farmland on the Balearic Islands increased by 21.4%.
- Creation of the Island Register of Genetically Modified Organisms (Dec. 2009).
- Agreement to promote electric vehicles on the Balearic islands (Regional Government, 30/4/2010).
- Decree 106/2010, of 24 September, on transfer to the Island Councils of authority over hunting, game and river fishing.
- August 2010: Submission of the Draft Bill on Maritime Fishing, Shellfishing and Aquaculture in the Balearic Islands.

RECOMMENDED WEBSITES

- www.caib.es
- http://pia.caib.es
- http://mediambient.caib.es/dgcc/estatmediambient
- http://ces.caib.es
- www.cre.uib.es
- www.obsam.cat
- www.xarxanatura.es
- www.conselldeivissa.es
- www.cime.es
- www.conselldemallorca.net
- www.ideib.es (spatial data on the Balearic Islands)
- www.ibestat.cat (statistics on the Balearic islands)

RECOMMENDED PUBLICATIONS

- Regional Ministry of the Environment. Actualización 2008–2009 de los indicadores del Estado del Medio Ambiente.

Canary Islands

Statute of Autonomy: Organic Law 10/82, of 10 August (BOE 195, 16 August 1982).
Area: 7,492 km^2
Length of coastline: 1,583 km
Capital: Las Palmas de Gran Canaria and Santa Cruz de Tenerife
/ Provinces: 2 **/ Municipalities:** 88
Population 2010: 2,118,519 inhab
Population density 2010: 284.5 inhab/km^2
Population growth 2000–2010: 23.4% **/ 2009–2010:** 0.69%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 0.5
  2,001–10,000 inhabitants: 10.0
  10,001–100,000 inhabitants: 48.9
  100,001–500,000 inhabitants: 40.6
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  29% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  26.2%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 3.1 / Industry: 5.3
  Construction: 9.0 / Services: 82.6
- **GDP MP (2009)**
  €19,792/inhab (Spanish average=100: 86.3%)
  Variation 2008–2009: -5%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €13,368/inhab. Growth 2000–2008: 39.4%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 1.1 / Industry: 5.9
  Construction: 9.8 / Services: 83.2

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 18 / Suburban: 18 / Rural: 4
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): Sta. Cruz de Tenerife: 25; Las Palmas: 28
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 0

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  157 litres/inhab/day. Between 2000 and 2008 consumption increased by 12.9%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 64.8 / Municipal and other consumption: 8.5 / Economic sectors: 26.7
- **WASTEWATER TREATMENT (2010)**
  52.1% of population equivalent provided with wastewater treatment compliant with Directive 91/271/EEC (38 urban centres). 24.1% of population equivalent provided with wastewater treatment not compliant with Directive 91/271/EEC (2 urban centres) and 23.5% of population equivalent with no data available to assess compliance with Directive 91/271/EEC (101 urban centres).

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 6.5 / Agriculture: 22.3 / Forest: 71.3 / Wetlands and water bodies: 0.0

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  302,115.1 ha (40.6% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  348,037.7 ha (46.8% of the AC)

- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 126,012 ha / Non-wooded: 437,633 ha
- **FOREST FIRES (2010)**
  100 outbreaks and 11 fires affecting 204.9 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 572.2 kg/inhab/year
  – Separately collected paper/cardboard: 14.8 kg/inhab/year
  – Separately collected glass: 12.8 kg/inhab/year
  – Separately collected packaging: 5.9 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  4,236 ha. Growth 2001–2009: 28.8%
- **IRRIGATED AREA (2009)**
  23,060 ha (35.7% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 1.35 / Hydroelectric: 0.00 / Thermal: 1.21
  Nuclear: 0.00 / Wind: 0.07 / Other renewables: 0.06

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  4.1
- **HOTEL CAPACITY (2010)**
  209,966 hotel beds (99.1 beds/1,000 inhab) and 4,156 beds in rural accommodation (2 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  1,469,316 vehicles. Growth 2000–2009: 29.9%
  693.6 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  974,992 passenger cars. Growth 2000–2009: 19.7%
  460.2 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  31,204,248 passengers. Growth 2000–2010: 3.5%
- **PORT FREIGHT TRAFFIC (2009)**
  37.8 million t. Growth 2000–2009: 13.8%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  14 municipalities are currently at the diagnostic stage and 6 have drawn up an Action Plan. Meanwhile, 70 of the 88 municipalities have signed the Aalborg Charter.
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €238.8 million (0.58% of GDP). Growth 2000–2009: 100%

ENVIRONMENTAL REGULATIONS & MEASURES

- Three new permanent stations have been added to the Air Quality Network.
- In Q1, the noise pollution Action Plan, based on the Strategic Noise Maps created in 2007, was passed.
- This year, 7 Environmental Licences were issued, including two for biodiesel plants.
- There were 10 new additions to the EMAS Register.
- Thanks to European investment, the waste facilities at the Environmental Centres on all the islands were upgraded. New Environmental Centres were created on El Hierro, La Gomera and La Palma, while on the rest former landfill sites were transformed into treatment and recycling centres.
- 129 of the autonomous community's 146 Protected Areas now have planning mechanisms in place.
- Law 4/2010, of 4 June, on the Canary Island Catalogue of Protected Species, was adopted in June.

RECOMMENDED WEBSITES

- http://www.gobiernodecanarias.org/cmayot/index.jsp
- http://www.gobiernodecanarias.org/cmayot/medioambiente/medionatural/biodiversidad/especies/bancodatos/Lista_Especies_Silvestres.pdf

RECOMMENDED PUBLICATIONS

- Lista de especies silvestres de Canarias Hongos, plantas y animales terrestres. 2009.

Cantabria

Statute of Autonomy: Organic Law 8/1981, of 30 December, on the Statute of Autonomy of Cantabria
Area: 5,321 km^2
Length of coastline: 284 km
Capital: Santander **/ Provinces:** 1 **/ Municipalities:** 102
Population 2010: 592,250 inhab
Population density 2010: 111.3 inhab/km^2
Population growth 2000–2010: 11.5% **/ 2009–2010:** 0.51%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 8.4
  2,001–10,000 inhabitants: 24.5
  10,001–100,000 inhabitants: 36.5
  100,001–500,000 inhabitants: 30.6
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  14.9% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  12%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 2.7 / Industry: 15.7
  Construction: 9.5 / Services: 72.1
- **GDP MP (2009)**
  €23,111/inhab (Spanish average=100: 101%)
  Variation 2008–2009: -4.6%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €16,481/inhab Growth (2000–2008): 61.1%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 2.7 / Industry: 18.5
  Construction: 12 / Services: 66.8

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 9 / Suburban: 1 / Rural: 1
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 31
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 11

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  188 litres/inhab/day. Between 2000 and 2008 consumption remained stable (0% increase)
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 65.6 / Municipal and other consumption: 7.5 / Economic sectors: 26.9
- **WASTEWATER TREATMENT (2010)**
  94% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 2.9 / Agriculture: 29.0 / Forest: 66.5 / Wetlands and water bodies: 1.6

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  152,239.0 ha (28.7% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  144,974.8 ha (27.3% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 209,611 ha / Non-wooded: 149,847 ha
- **FOREST FIRES (2010)**
  72 outbreaks and 366 fires affecting 3,843 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 615.7 kg/inhab/year
  – Separately collected paper/cardboard: 22.2 kg/inhab/year
  – Separately collected glass: 19.1 kg/inhab/year
  – Separately collected packaging: 8.2 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  5,796 ha. Growth 2001–2009: 76.2%
- **IRRIGATED AREA (2009)**
  446 ha (0.19% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 1.35 / Hydroelectric: 0.78 / Thermal: 0.51
  Nuclear: 0.00 / Wind: 0.03 / Other renewables: 0.03

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.46
- **HOTEL CAPACITY (2010)**
  16,803 hotel beds (28.4 beds/1,000 inhab) and 6,806 beds in rural accommodation (11.5 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  386,872 vehicles. Growth 2000–2009: 40.2%
  653.2 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  281,589 passenger cars. Growth 2000–2009: 33.1%
  475.5 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  918,470 passengers. Growth 2000–2010: 252.2%
- **PORT FREIGHT TRAFFIC (2009)**
  8.1 million t. Growth 2000–2009: -19.9%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  90 (12 of which have already implemented LA21 and are carrying out Action Plan projects). In addition, 61 municipalities have completed the LA21 diagnosis, of which 16 were already drawing up their Action Plan in 2009.
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €149.1 million (1.1% of GDP). Growth 2000–2009: 315%

ENVIRONMENTAL REGULATIONS & MEASURES

Environmental legislation passed by the Regional Government of Cantabria in 2010:

- Decree 15/2010, of 4 March, approving the Sectoral Waste Plans deriving from the Cantabrian Waste Plan 2006–2010 and establishing the targets for 2010–2014.
- Decree 19/2010, of 18 March, approving the Regulations governing Law 17/2006, of 11 December, on Integrated Environmental Monitoring.
- Decree 48/2010, of 11 August, approving the Regulation that partially governs Law 6/2006, of 9 June, on the Prevention of Light Pollution.
- Decree 68/2010, of 7 October, regulating sewage and similar waste in the Autonomous Community of Cantabria.
- Decree 72/2010, of 28 October, regulating production and management of construction and demolition waste in the Autonomous Community of Cantabria.
- Decree 57/2010, of 16 September, approving the Special Civil Protection Plan for the Autonomous Community of Cantabria against the Risk of Flooding (INUNCANT).
- Decree 65/2010, of 30 September, approving the Regional Planning Regulations.

RECOMMENDED WEBSITES

- http://www.medioambientecantabria.es
- http://www.medioambientecantabria.es/calidad_aire/
- http://geoportal.medioambientecantabria.es/
- http://www.icane.es
- http://www.cantabria.es

RECOMMENDED PUBLICATIONS

Available in PDF format at http://www.medioambientecantabria.es/cda/publicaciones_consejeria.

- Guía de experiencias de referencia para la gestión sostenible del agua en los ríos.
- Indicadores de Sostenibilidad. Red Local de Sostenibilidad de Cantabria.
- Manual de adopción de ríos.
- Procesos participativos de la Oficina de Participación Hidrológica en Cantabria.
- Revista Medio Ambiente Cantabria Informa.
- Monthly electronic bulletins issued by the Cantabrian Documentation and Resource Centre for Environmental Education and the Cantabrian Local Sustainability Network.

Castile-La Mancha

Statute of Autonomy: Organic Law 9/82, of 10 August (BOE 195, 16 August 1982).
Area: 79,462 km^2
Length of coastline: 0 km
Capital: Toledo **/ Provinces:** 5 **/ Municipalities:** 919
Population 2010: 2,098,373 inhab
Population density 2010: 26.4 inhab/km^2
Population growth 2000–2010: 21% **/ 2009–2010:** 0.82%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 14.9
  2,001–10,000 inhabitants: 30.1
  10,001–100,000 inhabitants: 46.9
  100,001–500,000 inhabitants: 8.1
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  21.3% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  18.8%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 6.3 / Industry: 15.9
  Construction: 11.2 / Services: 66.6
- **GDP MP (2009)**
  €17,573/inhab (Spanish average=100: 76.6%)
  Variation 2008–2009: -4.6%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €12,608/INHAB. GROWTH 2000–2008: 45.2%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 7.8 / Industry: 15.3
  Construction: 11.7 / Services: 63.5

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 2 / Suburban: 9 / Rural: 2
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 28
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): Not enough data to calculate the indicator due to problems with the particle equipment. However, according to the Regional Government the available data indicate the daily limit was never exceeded.

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  155 litres/inhab/day. Between 2000 and 2008 consumption decreased by 17.6%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 70.4 / Municipal and other consumption: 10.7 / Economic sectors: 18.9
- **WASTEWATER TREATMENT (2010)**
  79.7% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 1.0 / Agriculture: 59.1 / Forest: 39.3 / Wetlands and water bodies: 0.7

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  322,490.1 ha (4.1% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  1,838,684.5 ha (23.2% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 2,537,616 ha / Non-wooded: 1,027,163 ha

FOREST FIRES (2010)
367 outbreaks and 98 fires affecting 606.8 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 468.1 kg/inhab/year
  – Separately collected paper/cardboard: 14.3 kg/inhab/year
  – Separately collected glass: 9.9 kg/inhab/year
  – Separately collected packaging: 8.5 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  246,076 ha. Growth 2001–2009: 1,564%
- **IRRIGATED AREA (2009)**
  490,625 ha (11.6% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 4.17 / Hydroelectric: 0.41 / Thermal: 1 / Nuclear: 0.51 / Wind: 1.81 / Other renewables: 0.44

TOURISM (Data provided by the AC)

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.16
- **HOTEL CAPACITY (2010)**
  37,278 hotel beds (17.8 beds/1,000 inhab) and 11,328 beds in rural accommodation (5.4 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  1,404,185 vehicles. Growth 2000–2009: 54.1%
  669.2 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  957,915 passenger cars. Growth 2000–2009: 50.2%
  456.5 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  44,810 passengers. Includes the Albacete and Ciudad Real airports; data from the latter was provided by the Regional Government.

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  772 (176 of which have already implemented LA21 and are carrying out Action Plan projects). In addition, 139 municipalities have completed the LA21 diagnosis and 215 have drawn up action plans (pending ratification).
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €237.9 million (0.68% of GDP). Growth 2000–2009: 101%

ENVIRONMENTAL REGULATIONS & MEASURES

Public information system:

- Queries regarding waste: residuosclm@jccm.es. Queries regarding air quality: ccalaire@jccm.es
- WASTE: Decrease in the quantity of urban waste generated in comparison with 2007 and 2008, when the volume produced was 502.64 kg/inhab/year and 487.55 kg/inhab/year, respectively
- AGENDA 21: In 2009, 93.6% of the population of Castile-La Mancha and 84% of the region's municipalities were involved in Local Agenda 21 procedures.
- Awareness-raising campaigns: measures against the zebra mussel. This free campaign is aimed at fishermen, other users of the region's reservoirs and local schoolchildren.
- Campaign to raise awareness among fishermen about the problems caused by alien fish species.
- RECREA (on-line information about environmental educational resources): http://industria.jccm.es/recrea/forms/recrf001.php

RECOMMENDED WEBSITES

- http://www.jccm.es/
- http://pagina.jccm.es/medioambiente/indexlA.htm
- http://pagina.jccm.es/medioambiente/calidad_ambiental/rrr.htm
- http://pagina.jccm.es/medioambiente/calidad_ambiental/indexresiduos.htm
- http://pagina.jccm.es/medioambiente/rvca/calidadaire.htm
- http://agenda.fempclm.eu/
- http://www.revistamedioambientejcm.es

RECOMMENDED PUBLICATIONS

- Decree 179/2009, of 24 November, approving Castile-La Mancha's Urban Waste Management Plan 2009–2019; good practice guides; leaflets
- Red 21CLM (biannual journal): http:/revistadelared.fempclm.eu/
- Reserva de la Biosfera de la Mancha Húmeda: retos y oportunidades
- Natura 2000 network in Castile-La Mancha:
- Atlas y Libro Rojo de los Moluscos de Castilla-La Mancha
- Manual de gestión de los Rebollares de Castilla-La Mancha
- Estructura de la Propiedad Forestal en Castilla-La Mancha
- Guía de peces y cangrejos de Castilla-La Mancha
- FERCATUR. Caza y pesca (annual).
- Boletín de Avisos Fitosanitarios
- Revista Medio Ambiente Castilla La Mancha (quarterly journal)
- Informe anual sobre calidad del aire de Castilla-La Mancha 2010
- La red de nanosensores en Castilla-La Mancha
- Muestreo y determinación de partículas y HAPs en la estación de Toledo

Castile-Leon

Statute of Autonomy: Organic Law 14/2007, of 30 November, on reform of the Statute of Autonomy of Castile-Leon
Area: 94,225 km^2
Capital: Valladolid / **Provinces:** 9 / **Municipalities:** 2,248
Population 2010: 2,559,515 inhab
Population density 2010: 27.2 inhab/km^2
Population growth 2000–2010: 3.2% / **2009–2010:** -0.16%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 26.2
  2,001–10,000 inhabitants: 17.7
  10,001–100,000 inhabitants: 25.6
  100,001–500,000 inhabitants: 30.6
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  15.8% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  13.8%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 6.5 / Industry: 15.6
  Construction: 9.2 / Services: 68.7
- **GDP MP (2009)**
  €22,475/inhab (Spanish average=100: 97.9%)
  Variation 2008–2009: -3.2%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €16,163/inhab. Growth 2000–2008: 62.4%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 5.6 / Industry: 16.6
  Construction: 11.7 / Services: 66.1

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 18 / Suburban: 17 / Rural: 21
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 20
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 10

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  153 litres/inhab/day. Between 2000 and 2008 consumption remained stable.
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 67.3 / Municipal and other consumption: 11.7 / Economic sectors: 21.0
- **WASTEWATER TREATMENT (2010)**
  95.5% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 0.9 / Agriculture: 53.0 / Forest: 45.7 / Wetlands and water bodies: 0.4

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  717,953.4 ha (7.6% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  2,461,507.1 ha (26.1% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 2,832,342 ha / Non-wooded: 1,975,389 ha
- **FOREST FIRES (2010)**
  807 outbreaks and 392 fires affecting 8,864.3 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 412.5 kg/inhab/year
  – Separately collected paper/cardboard: 22.5 kg/inhab/year
  – Separately collected glass: 17 kg/inhab/year
  – Separately collected packaging: 10 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  22,154 ha. Growth 2001–2009: 38.6%
- **IRRIGATED AREA (2009)**
  418,032 ha (7.5% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 4.77 / Hydroelectric: 1.64 / Thermal: 1.3
  Nuclear: 0.18 / Wind: 1.52 / Other renewables: 0.13

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.39
- **HOTEL CAPACITY (2010)**
  59,714 hotel beds (23.3 beds/1,000 inhab) and 27,641 beds in rural accommodation (10.8 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  1,698,225 vehicles. Growth 2000–2009: 33.3%
  663.5 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  1,234,342 passenger cars. Growth 2000–2009: 27.7%
  482.3 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  562,770 passengers. Growth 2000–2010: 109%

URBAN AND INVESTMENT POLICY

- **INTERNAL EXPENDITURE ON R&D (2009)**
  €629.5 million (1.1% of GDP). Growth 2000–2009: 183%

ENVIRONMENTAL REGULATIONS & MEASURES

- Approval of the Zamora–Duero Regional Plan (Official Gazette of Castile-Leon, 8 September 2010)
- Start of the approval procedure for the Corredor de la Plata Regional Plan. (Official Gazette of Castile-Leon, 5 April 2010)
- Declaration of the Laguna Negra y Circos Glaciares de Urbión Nature Park in Soria (Official Gazette of Castile-Leon, 10 March 2010).
- Declaration of the Sierra Norte de Guadarrama Nature Park in Segovia and Avila. Approval of the Sierra Norte de Guadarrama Natural Resource Management Plan (Official Gazette of Castile-Leon, 21 December 2010).
- Initial approval of the proposal for declaration of the Cumbres de la Sierra de Guadarrama Nature Park in Castile-Leon. Agreement 80/2010 (Official Gazette of Castile-Leon, 30 July 2010).
- Prevention of Light Pollution and Promotion of Energy Saving and Efficiency in Lighting Installations. Law 15/2010, of 10 December (Official Gazette of Castile-Leon, 20 December 2010)

RECOMMENDED WEBSITES

- www.jcyl.es/medioambiente
- www.jcyl.es/cida
- www.jcyl.es/calidadambiental
- Red de Casas del Parque de Castilla y León
- Estrategias Regionales de Desarrollo Sostenible y Cambio Climático
- Informe basado en los Indicadores Ambientales y de Sostenibilidad
- Información Estadística

RECOMMENDED PUBLICATIONS

- Anuario Estadístico de Castilla y León 2010 – Medio Ambiente.
- Boletín de Información Ambiental de Castilla y León.
- Boletín de difusión de la Educación Ambiental de Castilla y León.
- Boletín electrónico de la Red Centros de Información y Documentación Ambiental de los Espacios Naturales de Castilla y León (CIDA-REN)
- E-Newsletter: Desarrollo Sostenible en Castilla y León

Catalonia

Statute of Autonomy: Organic Law 6/2006, of 19 July (BOE no 172, of 22 July 2006)
Area: 32,113 km^2
Length of coastline: 827 km
Capital: Barcelona **/ Provinces:** 4 **/ Municipalities:** 946
Population 2010: 7,512,381 inhab
Population density 2010: 233.9 inhab/km^2
Population growth 2000–2010: 20.0% / **2009-2010:** 0.49%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 4.8
  2,001–10,000 inhabitants: 13.7
  10,001–100,000 inhabitants: 39.6
  100,001–500,000 inhabitants: 20.3
  > 500,000 inhabitants: 21.6
- **UNEMPLOYMENT RATE**
  18% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  16.2%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 2.1 / Industry: 18.5
  Construction: 9.6 / Services: 70.3
- **GDP MP (2009)**
  €26,863/inhab (Spanish average=100: 117%)
  Variation 2008–2009: -3.7%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €17,291/inhab. Growth 2000–2008: 45%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 1.3 / Industry: 18.5
  Construction: 9.6 / Services: 70.6

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 35 / Suburban: 45 / Rural: 36
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 48
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): Insufficient data to calculate the indicator

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  139 litres/inhab/day. Between 2000 and 2008 consumption decreased by 25.3%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 67.1 / Municipal and other consumption: 5.2 / Economic sectors: 27.7
- **WASTEWATER TREATMENT (2010)**
  99% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 4.6 / Agriculture: 39.4 / Forest: 55.4 / Wetlands and water bodies: 0.6

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  985,641 ha (30.7% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  979,169.35 ha (30.4% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 1,602,867 ha / Non-wooded: 328,469 ha
- **FOREST FIRES (2010)**
  475 fires affecting 618.1 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 562.1 kg/inhab/year
  – Separately collected paper/cardboard: 57.3 kg/inhab/year
  – Separately collected glass: 25.6 kg/inhab/year
  – Separately collected packaging: 17.1 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  71,734 ha. Growth 2001–2009: 41.2%
- **IRRIGATED AREA (2009)**
  239,192 ha (23.1% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 1.55 / Hydroelectric: 0.33 / Thermal: 0.69
  Nuclear: 0.42 / Wind: 0.07 / Other renewables: 0.03

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  1.75
- **HOTEL CAPACITY (2010)**
  223,090 hotel beds (29.7 beds/1,000 inhab) and 12,857 beds in rural accommodation (1.7 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  4,994,108 vehicles. Growth 2000–2009: 24.8%
  664.8 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  3,346,653 passenger cars. Growth 2000–2009: 17.3%
  445.5 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  35,494,721 passengers. Growth 2000–2010: 67.4%
- **PORT FREIGHT TRAFFIC (2009)**
  76.4 million t. Growth 2000–2009: 25.4%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  716 (365 of which have already implemented LA21 and are carrying out Action Plan projects). In addition, 191 municipalities have completed the LA21 diagnosis and 90 have drawn up action plans (pending ratification). The data refer to 3 of Catalonia's 4 provinces: Barcelona, Tarragona and Girona. Data for the province of Lleida is unavailable. Therefore, the municipalities in the Lleida province are not included.
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €3,284.5 million (1.7% of GDP). Growth 2000–2009: 160%

ENVIRONMENTAL REGULATIONS & MEASURES

- The Sustainable Development Strategy for Catalonia was approved in 2010.
- The Department of Environment and Housing held various events as part of the International Year of Biodiversity.
- Publication of the review of environmental and sustainability policy for the period 2007–2010.

RECOMMENDED WEBSITES

- http://www20.gencat.cat/portal/site/dmah

RECOMMENDED PUBLICATIONS

- Medio Ambiente en Cataluña. Informe 2009.
- Datos del medio ambiente en Catalunya 2010
- Boletín de Medio Ambiente

Ceuta

Statute of Autonomy: Organic Law 2/1995, of 13 March (BOE, 14 March 1995)
Area: 19 km^2
Length of coastline: 21 km
Capital: Ceuta **/ Provinces:** 1 **/ Municipalities:** 1
Population 2010: 80,579 inhab
Population density 2010: 4,241 inhab/km^2
Population growth 2000–2010: 7.1% **/ 2009–2010:** 2.42%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 0.0
  2,001–10,000 inhabitants: 0.0
  10,001–100,000 inhabitants: 100
  100,001–500,000 inhabitants: 0,0
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  24.8% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  18.9%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 0 / Industry: 3.7
  Construction: 8.6 / Services: 87.8
- **GDP MP (2009)**
  €22,456/inhab (Spanish average=100: 97.9%)
  Variation 2008–2009: -0.34%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €15,195/inhab. Growth 2000–2008: 61.1%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 0.2 / Industry: 6.3
  Construction: 7.4 / Services: 86.1

WATER (JOINT FIGURES FOR CEUTA AND MELILLA)

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  133 litres/inhab/day. Between 2000 and 2008 consumption decreased by 13.1%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 73.3 / Municipal and other consumption: 17.1 / Economic sectors: 9.6
- **WASTEWATER TREATMENT (2009)**
  100% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 37.2 / Forest: 62.8 / Wetlands and water bodies: 0.0

NATURE AND BIODIVERSITY

- **NATURA 2000 NETWORK, 2010**
  637 ha (32.3% of the Autonomous City) and 836 ha of marine environment
- **FOREST FIRES (2010)**
  No fires occurred.

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 0.9 / Hydroelectric: 0.0 / Thermal: 0.9
  Nuclear: 0.0 / Wind: 0.0 / Other renewables: 0

TOURISM

- **HOTEL CAPACITY (2010)**
  897 hotel beds (11.1 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  57,455 vehicles. Growth 2000–2009: 18.2%
  713.0 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  40,596 passenger cars. Growth 2000–2009: 4.8%
  503.8 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  29,817 passengers.
- **PORT FREIGHT TRAFFIC (2009)**
  2.8 million t. Growth 2000–2009: -4.8%

URBAN AND INVESTMENT POLICY

- **INTERNAL EXPENDITURE ON R&D (2009) (JOINT FIGURE FOR CEUTA AND MELILLA)**
  €6.4 million (0.21% of GDP).

RECOMMENDED WEBSITES
- http://www.ceuta.es/medioambiente/

Melilla

Statute of Autonomy: Organic Law 2/1995, of 13 March (BOE of 14 March 1995)
Area: 13 km^2
Length of coastline: 9 km
Capital: Melilla / **Provinces:** 1 / **Municipalities:** 1
Population 2010: 76,034 inhab
Population density 2010: 5,848.8 inhab/km^2
Population growth 2000–2010: 14.7% / **2009–2010:** 3.5%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 0.0
  2,001–10,000 inhabitants: 0.0
  10,001–100,000 inhabitants: 100
  100,001–500,000 inhabitants: 0.0
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  26.1% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  24.2%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 0 / Industry: 1.6
  Construction: 5.6 / Services: 92.7
- **GDP MP (2009)**
  €21,441/inhab. (Spanish average=100: 93.4%)
  Variation 2008–2009: -1.4%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €14,875/inhab. Growth 2000–2008: 56.9%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 0.6 / Industry: 3.8
  Construction: 9.0 / Services: 86.6

WATER (joint figures for Ceuta and Melilla)

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  133 litres/inhab/day. Between 2000 and 2008 consumption decreased by 13.1%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 73.3 / Municipal and other consumption: 17.1 / Economic sectors: 9.6
- **WASTEWATER TREATMENT (2009)**
  100% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND (joint figures for Ceuta and Melilla)

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 53.7 / Agriculture: 27.0 / Forest: 19.2 / Wetlands and water bodies: 0.0

NATURE AND BIODIVERSITY

- **NATURA 2000 NETWORK (2010) (JOINT FIGURES FOR CEUTA AND MELILLA)**
  733.8 ha (21.7% of the autonomous cities)
- **FOREST FIRES (2010)**
  No fires occurred.

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 1.18 / Hydroelectric: 0.00 / Thermal: 1.16
  Nuclear: 0.00 / Wind: 0.00 / Other renewables: 0.03

TOURISM

- **HOTEL CAPACITY (2010)**
  855 hotel beds (11.2 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  53,314 vehicles. Growth 2000–2009: 51%
  727.5 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  38,428 passenger cars. Growth 2000–2009: 42.5%
  505.4 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  292.608 passengers. Growth 2000–2010: 10.9%
- **PORT FREIGHT TRAFFIC (2009)**
  0.85 million t. Growth 2000–2009: 5.6%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  1 municipality implementing Action Plan projects
- **INTERNAL EXPENDITURE ON R&D (2009) (JOINT FIGURE FOR CEUTA AND MELILLA)**
  €6.4 million (0.21% of GDP)

RECOMMENDED WEBSITES
- http://www.melilla.es/melillaportal

Valencia

Statute of Autonomy: Organic Law 1/2006, of 10 April, on Reform of Organic Law 5/1982, of 1 July, on the Statute of Autonomy of Valencia
Area: 23,255 km^2
Length of coastline: 518 km
Capital: Valencia **/ Provinces:** 3 **/ Municipalities:** 542
Population 2010: 5,111,706 inhab
Population density 2010: 219.8 inhab/km^2
Population growth 2000–2010: 24.0% **/ 2009–2010:** 0.33%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 4.1
  2,001–10,000 inhabitants: 13
  10,001–100,000 inhabitants: 50.5
  100,001–500,000 inhabitants: 16.6
  > 500,000 inhabitants: 15.8
- **UNEMPLOYMENT RATE**
  22.9% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  21.2%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 2.9 / Industry: 16.6
  Construction: 9.1 / Services: 71.5
- **GDP MP (2009)**
  €20,295/inhab (Spanish average=100: 88.4%)
  Variation 2008–2009: -5.1%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €13,909/inhab. Growth 2000–2008: 37.9%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 2.1 / Industry: 15.7
  Construction: 11.4 / Services: 70.9

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 24 / Suburban: 20 / Rural: 13
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 40
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): Insufficient data to calculate the indicator

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  189 litres/inhab/day. Between 2000 and 2008 consumption increased by 13.9%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 76.7 / Municipal and other consumption: 7.4 / Economic sectors: 15.9
- **WASTEWATER TREATMENT (2010)**
  98% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 4.8 / Agriculture: 44.7 / Forest: 49.8 / Wetlands and water bodies: 0.8

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  241,424.1 ha (10.4% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  871,910.7 ha (37.5% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 680,169 ha / Non-wooded: 575,169 ha
- **FOREST FIRES (2010)**
  281 outbreaks and 58 fires affecting 5,617 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 366 kg/inhab/year
  – Separately collected paper/cardboard: 15.2 kg/inhab/year
  – Separately collected glass: 14.7 kg/inhab/year
  – Separately collected packaging: 7.7 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  38,754 ha. Growth 2001–2009: 113%
- **IRRIGATED AREA (2009)**
  327,166 ha (44.1% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 1.41 / Hydroelectric: 0.27 / Thermal: 0.7
  Nuclear: 0.21 / Wind: 0.18 / Other renewables: 0.05

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.98
- **HOTEL CAPACITY (2010)**
  122,066 hotel beds (23.9 beds/1,000 inhab) and 8,779 beds in rural accommodation (1.7 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  3,326,571 vehicles. Growth 2000–2009: 31.7%
  605.8 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  2,376,266 passenger cars. Growth 2000–2009: 27.4%
  464.9 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  14,317,207 passengers. Growth 2000–2010: 72.5%
- **PORT FREIGHT TRAFFIC (2009)**
  72.3 million t. Growth 2000–2009: 83.1%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  82 municipalities have approved an LA21, while a further 225 have started the process
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €1,120.3 million (1.1% of GDP). Growth 2000–2009: 160%

ENVIRONMENTAL REGULATIONS & MEASURES

- Approval of the Territorial Strategy for the Autonomous Community of Valencia
- Submission of the Territorial Action Plan on Green Infrastructure and Protection of the Landscape in the Autonomous Community of Valencia (pending approval)
- Production of the Territorial Action Plan on Development and Protection of the Huerta de Valencia
- Draft Bill on the Protection of Natural Areas.
- Plan to build 37 new WWTPs and upgrade a further 33.
- Waste generation has fallen by 2.6%. Increase in the figures for all separately collected waste, particularly paper and cardboard.

RECOMMENDED WEBSITES

- http://www.gva.es
- http://www.cma.gva.es
- http://www.bdb.cma.gva.es
- http://icv.gva.es
- http://parquesnaturales.gva.es
- http://www.espar.gva.es

RECOMMENDED PUBLICATIONS

- Biodiversidad magazine (www.cma.gva.es/biodiversidad)
- Reútil (www.cma.gva.es/CTL) magazine, which covers enterprise and the environment in the Autonomous Community of Valencia.
- Plan de la Huerta Valenciana (final version) (2 vol.)

Extremadura

Statute of Autonomy: Organic Law 1/83, of 25 February (BOE no 49, of 26 February 1983)
Area: 41,635 km^2
Capital: Mérida **/ Provinces:** 2 **/ Municipalities:** 383
Population 2010: 1,107,220 inhab
Population density 2010: 26.6 inhab/km^2
Population growth 2000–2010: 3.5% **/ 2009–2010:** 0.44%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 19.6
  2,001–10,000 inhabitants: 31.9
  10,001–100,000 inhabitants: 35
  100,001–500,000 inhabitants: 13.6
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  23.9% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  20.5%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 8.9 / Industry: 10.4
  Construction: 11.1 / Services: 69.6
- **GDP MP (2009)**
  €16,590/inhab. (Spanish average=100: 72.3%)
  Variation 2008–2009: -1.5%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €12,436/inhab. Growth 2000–2008: 64.9%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 7.5 / Industry: 9.1
  Construction: 15.1 / Services: 68.2

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 2 / Suburban: 2 / Rural: 2
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 9
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 1

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  158 litres/inhab/day. Between 2000 and 2008 consumption increased by 1.3%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 68.4 / Municipal and other consumption: 11.4 / Economic sectors: 20.2
- **WASTEWATER TREATMENT (2010)**
  94.7% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 0.7 / Agriculture: 55.4 / Forest: 42.2 / Wetlands and water bodies: 1.7

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  313,548.4 ha (7.5% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  1,257,626.7 ha (30.2% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 1,819,814 ha / Non-wooded: 907,418 ha
- **FOREST FIRES (2010)**
  343 outbreaks and 220 fires affecting 974.2 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 489 kg/inhab/year
  – Separately collected paper/cardboard: 8.86 kg/inhab/year
  – Separately collected glass: 9.1 kg/inhab/year
  – Separately collected packaging: 10.5 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  115,018 ha. Variation 2001–2009: -33.5%

- **IRRIGATED AREA (2009)**
  233,531 ha (7.4% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 4.17 / Hydroelectric: 1.97 / Thermal: 0.02
  Nuclear: 1.78 / Wind: 0 / Other renewables: 0.41

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.17
- **HOTEL CAPACITY (2010)**
  18,079 hotel beds (16.3 beds/1,000 inhab) and 5,516 beds in rural accommodation (5 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  744,194 vehicles. Growth 2000–2009: 43.7%
  672.1 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  535,480 passenger cars. Growth 2000–2009: 39.6%
  483.6 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  61,177 passengers. Growth 2000–2010: 94.1%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  LA21 is being implemented in 98.2% of Extremadura's municipalities:
  – 34% of municipalities have started the LA21 process.
  – 53% of municipalities in the Caceres province and 10% of those in the Badajoz province are at the planning stage of Local Agenda 21.
  Municipalities in Extremadura with a Local Agenda 21 account for 5% of the Spanish total.
  Healthy and Sustainable City Programme: The RECSyS (Extremadura Network of Healthy and Sustainable Cities) comprises 12 municipalities and 8 associations of local authorities (130 local bodies). This covers 300,000 citizens (34% of Extremadura's total population).
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €154.7 million (0.88% of GDP). Growth 2000–2009: 174%

ENVIRONMENTAL REGULATIONS & MEASURES

- 32 Environmental Licences were issued.
- 90 Environmental Impact Statements were drawn up and 3,866 projects with Environmental Impact Reports were approved.
- In 2009, work was carried out at 102 abandoned mine sites throughout the autonomous community to restore degraded areas.
- The number of species of flora and fauna recorded in the Regional Catalogue of Endangered Species reached 450. In 2009, 4 new Action Plans were approved (1 Management Plan and 3 Recovery Plans).
- Reforestation was carried out on 500 hectares, and work to restore forest cover was performed on 2,700 ha.
- In 2009, installed capacity under the special regime increased by 13.6% on the year before.
- Various activities were carried out to promote energy saving and efficiency, which produced a total energy saving of 34,406.67 toe/year.
- The network of environmental facilities received a total of 240,802 visits.
- The www.extremambiente.es website received 178,048 visits and 47 requests for environmental information were made.
- Implementation of the Action Plan associated with the Energy Saving and Efficiency Strategy resulted in a saving of 125,980.36 t CO_2/year.
- Renewable energy facilities have prevented emission of 412,062 t CO_2/year.

RECOMMENDED WEBSITES

- www.extremambiente.es
- www.juntaex.es
- www.estadisticaextremadura.com
- www.rurex.es
- www.rsextremadura.es
- http://sede.juntaex.es/web/portal/tramites

RECOMMENDED PUBLICATIONS

- La Huella Ecológica de Extremadura
- Informe ambiental de 2009
- Inventario de sumideros de carbono
- Informe de seguimiento de la estrategia del cambio climático
- Estrategia de Desarrollo Sostenible
- Plan integral de Resíduos de Extremadura PIREX 2009–2015
- Escenarios regionalizados y mapa de implantación de la cambio climático
- Inventario de gases de efecto invernadero.

Galicia

Statute of Autonomy: Organic Law 1/81, of 6 April (BOE no 101, of 28 April 1981)
Area: 29,574 km^2
Length of coastline: 1,498 km
Capital: Santiago de Compostela **/ Provinces:** 4 **/ Municipalities:** 315
Population 2010: 2,797,653 inhab
Population density 2010: 94.6 inhab/km^2
Population growth 2000–2010: 2.4% **/ 2009–2010:** 0.1%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 4.5
  2,001–10,000 inhabitants: 26.7
  10,001–100,000 inhabitants: 45.6
  100,001–500,000 inhabitants: 23.3
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  15.7% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  12.6%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 8 / Industry: 15.3
  Construction: 9.3 / Services: 67.4
- **GDP MP (2009)**
  €20,056/inhab (Spanish average=100: 87.4%)
  Variation 2008–2009: -2.4%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €14,435/inhab. Growth 2000–2008: 64.2%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 4.3 / Industry: 16.7
  Construction: 12.6 / Services: 66.4

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 12 / Suburban: 6 / Rural: 14
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 g/m^3): 18
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 0

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  146 litres/inhab/day. Between 2000 and 2008 consumption increased by 14.1%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 70.5 / Municipal and other consumption: 14.5 / Economic sectors: 15
- **WASTEWATER TREATMENT (2010)**
  78% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 1.7 / Agriculture: 36.9 / Forest: 60.5 / Wetlands and water bodies: 0.8

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  359,051.8 ha (12.1% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  350,498.9 ha (11.8% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 1,299,621 ha / Non-wooded: 739,953 ha
- **FOREST FIRES (2010)**
  2,871 outbreaks and 1,005 fires affecting 14,540.1 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 443.8 kg/inhab/year
  – Separately collected paper/cardboard: 16.90 kg/inhab/year
  – Separately collected glass: 14.35 kg/inhab/year
  – Separately collected packaging: 6.34 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  14,238 ha. Growth 2001–2009: 621%
- **IRRIGATED AREA (2009)**
  29,572 ha (3.4% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 3.88 / Hydroelectric: 1.13 / Thermal: 1.56
  Nuclear: 0 / Wind: 1.15 / Other renewables: 0.04

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.25
- **HOTEL CAPACITY (2010)**
  62,783 hotel beds (22.4 beds/1,000 inhab) and 6,630 beds in rural accommodation (2.4 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  1,873,069 vehicles. Growth 2000–2009: 30.4%
  669.5 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  1,434,430 passenger cars. Growth 2000–2009: 25.1%
  512.7 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  4,367,648 passengers. Growth 2000–2010: 65.2%
- **PORT FREIGHT TRAFFIC (2009)**
  32.4 million t. Growth 2000–2009: 8.2%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  93 municipalities
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €524.1 million (0.96% of GDP). Growth 2000–2009: 150%

RECOMMENDED WEBSITES

- http://xunta.es
- http://www.inega.es
- http://sirga.medioambiente.xunta.es
- http://www.siam.medioambiente.xunta.es/
- http://www.ige.eu
- http://www.cmati.xunta.es
- http://mediorural.xunta.es
- http://augasdegalicia.xunta.es/

RECOMMENDED PUBLICATIONS

- Publications by the Regional Ministry of the Environment, Territory and Infrastructure. http://www.siam.medioambiente.xunta.es/siam/template_publicacions.jsp?page=index.jsp. Catálogo de Publicaciones. http://www.csbg.org/catalogo/
- Plan de Gestión de residuos urbanos de Galicia 2010–2020. http://www.cmati.xunta.es/portal/cidadan/lang/gl/pid/2854

Rioja

Statute of Autonomy: Organic Law 3/82, of 9 June (BOE no 146, of 19 June 1982)
Area: 5,045 km^2
Capital: Logroño / **Provinces:** 1 / **Municipalities:** 174
Population 2010: 322,415 inhab
Population density 2010: 63.9 inhab/km^2
Population growth 2000–2010: 22% / **2009–2010:** 0.22%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 13.2
  2,001–10,000 inhabitants: 23.6
  10,001–100,000 inhabitants: 15.9
  100,001–500,000 inhabitants: 47.3
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  15.7% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  12.8%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 4.8 / Industry: 25.5
  Construction: 10.9 / Services: 58.8
- **GDP MP (2009)**
  €24,811/inhab (Spanish average=100: 76.9%)
  Variation 2008–2009: -3.2%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €16,518/inhab. Growth 2000–2008: 38.3%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 5.8 / Industry: 24
  Construction: 10.9 / Services: 59.3

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 1 / Suburban: 0 / Rural: 4
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 12
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 4

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  151 litres/inhab/day. Between 2000 and 2008 consumption decreased by 18.8%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 53.1 / Municipal and other consumption: 8.9 / Economic sectors: 38.0
- **WASTEWATER TREATMENT (2010)**
  98% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 1.2 / Agriculture: 41.8 / Forest: 56.7 / Wetlands and water bodies: 0.4

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  166,428.6 ha (33.0% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  167,591.9 ha (33.2% of the AC)
- **WETLANDS INCLUDED IN THE SPANISH WETLANDS INVENTORY**
  49 wetlands (754.6 ha)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 163,206 ha / Non-wooded: 138,270 ha
- **FOREST FIRES (2010)**
  69 outbreaks and 27 fires affecting 336.1 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 410 kg/inhab/year
  – Separately collected paper/cardboard: 28.4 kg/inhab/year
  – Separately collected glass: 21.5 kg/inhab/year
  – Separately collected packaging: 14.2 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  8,634 ha. Growth 2001–2009: 266%
- **IRRIGATED AREA (2009)**
  46,481 ha (21.4% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 4.4 / Hydroelectric: 0.11 / Thermal: 2.64
  Nuclear: 0 / Wind: 1.39 / Other renewables: 0.26

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.16
- **HOTEL CAPACITY (2010)**
  6,030 hotel beds (18.7 beds/1,000 inhab) and 931 beds in rural accommodation (2.9 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  194,981 vehicles. Growth 2000–2009: 35.5%
  604.8 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  131,766 passenger cars. Growth 2000–2009: 29.6%
  408.7 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  24,522 passengers.

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  7 have completed the LA21 process and are implementing Action Plan projects.
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €85.2 million (1.1% of GDP). Growth 2000–2009: 211%

ENVIRONMENTAL REGULATIONS & MEASURES

- Approval of the Air Quality Improvement Plan in Rioja 2010–2015.
- The Regional Ministry of Tourism, Environment and Territorial Policy has launched two mobile recycling points.
- The Biosphere Reserve has applied for UNESCO Starlight Reserve status, which recognises the quality of the sky at night.
- 23.7% of the forest area in Rioja is under certified sustainable forest management.
- Approval of the Public Use Plan for the Sierra de Cebollera Nature Park.
- Forests in Rioja absorb 31% of the CO_2 emissions produced in the autonomous community.
- The Calahorra landfill site will invest over ¤700,000 to recover its energy value at the end of its useful life.

RECOMMENDED WEBSITES

- http://www.larioja.org
- http://www.larioja.org/ma
- http://www.larioja.org/care

RECOMMENDED PUBLICATIONS

- Estrategia de lucha contra el cambio climático en La Rioja 2008–2012
- Plan de mejora de la calidad del aire de La Rioja 2010–2015
- Plan Director de Sanamiento y Depuración 2007–2015 de la Comunidad Autónoma de La Rioja
- Plan Director de abastecimiento de agua a poblaciones de la Comunidad Autónoma de La Rioja 2002–2015
- Plan Director de Residuos de La Rioja 2007–2015
- Plan estratégico de conservación del Medio Natural en La Rioja
- Plan Forestal de La Rioja
- Mapa de lepidópteros de La Rioja
- Mapa de áreas de interés especial de especies protegidas de Flora de La Rioja
- Inventario de lepidópteros de La Rioja (1995–2001)
- Inventario de flora vascular silvestre de La Rioja (1997–1999)

Madrid

Statute of Autonomy: Organic Law 3/83, of 25 February (BOE 51, 1 March 1983)
Area: 8,028 km^2
Capital: Madrid: **/ Provinces:** 1 **/ Municipalities:** 179
Population 2010: 6,458,684 inhab
Population density 2010: 804.5 inhab/km^2
Population growth 2000–2010: 24.1% **/ 2009–2010:** 1.1%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 0.7
  2,001–10,000 inhabitants: 5.2
  10,001–100,000 inhabitants: 20.5
  100,001–500,000 inhabitants: 23.0
  > 500,000 inhabitants: 51.0
- **UNEMPLOYMENT RATE**
  15.8% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  14%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 0.4 / Industry: 9.7
  Construction: 6.9 / Services: 83.0
- **GDP MP (2009)**
  €30,142/inhab (Spanish average=100: 131%)
  Variation 2008–2009: -2.5%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €18,175/inhab. Growth 2000–2008: 42.2%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 0.1 / Industry: 11.8
  Construction: 9.2 / Services: 78.8

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 37 / Suburban: 5 / Rural: 6
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 52
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 3

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  144 litres/inhab/day. Between 2000 and 2008 consumption decreased by 18.2%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 70.4 / Municipal and other consumption: 11.4 / Economic sectors: 18.2
- **WASTEWATER TREATMENT (2010)**
  100% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 13.7 / Agriculture: 36.8 / Forest: 48.6 / Wetlands and water bodies: 0.8

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  110,139.5 ha (13.7% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  320,104.92 ha (39.9% of the AC)
- **WETLANDS INCLUDED IN THE SPANISH WETLANDS INVENTORY (FEBRUARY 2010)**
  23 wetlands (928.6 ha)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 244,869 ha / Non-wooded: 175,224 ha
- **FOREST FIRES (2010)**
  160 outbreaks and 202 fires affecting 101.1 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 510.1 kg/inhab/year
  – Separately collected paper/cardboard: 26.4 kg/inhab/year
  – Separately collected glass: 12.8 kg/inhab/year
  – Separately collected packaging: 21.9 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  6,043 ha. Growth 2001–2009: 215%
- **IRRIGATED AREA (2009)**
  15,267 ha (4.6% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 0.08 / Hydroelectric: 0.02 / Thermal: 0.05
  Nuclear: 0.00 / Wind: 0.00 / Other renewables: 0.02

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.74
- **HOTEL CAPACITY (2010)**
  101,062 hotel beds (15.6 beds/1,000 inhab) and 3,639 beds in rural accommodation (0.56 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  4,293,542 vehicles. Growth 2000–2009: 25.2%
  664.8 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  3,277,367 passenger cars. Growth 2000–2009: 17.4%
  507,4 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  49,892,687 passengers. Growth 2000–2010: 51.3%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  81 (24 of which have already implemented LA21 and are carrying out Action Plan projects). In addition, 27 municipalities have completed the LA21 diagnosis and 14 have drawn up action plans (pending ratification).
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €3,89 billion (2.1% of GDP). Growth 2000–2009: 123%

ENVIRONMENTAL REGULATIONS & MEASURES

- Constantly updated air-quality prediction model, in compliance with European directives on air quality.
- Eco-driving courses as part of the Air Quality and Climate Change Strategy for the Autonomous Community of Madrid. "Plan Azul."
- Implementation of on-line applications to process waste management procedures.
- Restructuring of the environmental legislation on the institutional portal to link it to the Directory of Environmental Legislation (RLMA), guaranteeing automatic and constant updating of legislation affecting all areas of responsibility.
- Enhancement of the Environmental Legislation Bulletin, also using it to communicate aspects of certain administrative procedures to stakeholders (duty to inform, close of deadlines, making data on projects available to the public, etc)
- Update of the www.madrid.org institutional portal following installation of a new content management system.

RECOMMENDED WEBSITES

- http://www.madrid.org
- http://www.madrid.org/rlma_web
- http://gestiona.madrid.org/aireinternet
- http://www.madrid.org/iestadis
- http://www.viaspecuariasdemadrid.org

RECOMMENDED PUBLICATIONS

- Biannual report El Medio Ambiente en la Comunidad de Madrid 2008–2009.
- Informative leaflets on Protected Areas:
  - Parque Regional del Curso Medio del Río Guadarrama y su Entorno.
  - Parque Regional del Sureste.
  - Parque Natural de Peñalara y su Área de Influencia Socioeconómica.
  - Parque Regional de la Cuenca Alta del Manzanares.
- Informational leaflets on footpaths in the Autonomous Community of Madrid.

Murcia

Statute of Autonomy: Organic Law 4/82, of 9 June (BOE no 146, of 19 June 1982)
Area: 11,313 km^2
Length of coastline: 274 km (290 km including Mar Menor and islands)
Capital: Murcia **/ Provinces:** 1 **/ Municipalities:** 45
Population 2010: 1,461,979 inhab
Population density 2010: 129.2 inhab/km^2
Population growth 2000–2010: 27.2% **/ 2009–2010:** 1.1%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 0.4
  2,001–10,000 inhabitants: 4.1
  10,001–100,000 inhabitants: 50.6
  100,001–500,000 inhabitants: 44.8
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  25% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  20.7%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 13.2 / Industry: 12.7
  Construction: 9.5 / Services: 64.6
- **GDP MP (2009)**
  €18,731/inhab (Spanish average=100: 81.6%)
  Variation 2008–2009: -4.9%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €12,463/inhab. Growth 2000–2008: 42.7%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 4.8 / Industry: 14.4
  Construction: 10.6 / Services: 70.2

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 2 / Suburban: 5 / Rural: 1
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 41
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 39

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  159 litres/inhab/day. Between 2000 and 2008 consumption increased by 9.7%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 72.6 / Municipal and other consumption: 7.7 / Economic sectors: 19.8
- **WASTEWATER TREATMENT (2010)**
  100% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 3.1 / Agriculture: 56.6 / Forest: 38.9 / Wetlands and water bodies: 1.5

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  79,105.7 ha (6.8% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  207,181.2 ha (23.4% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 289,435 ha / Non-wooded: 196,585 ha
- **FOREST FIRES (2010)**
  106 outbreaks and 13 fires affecting 801.8 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 526.9 kg/inhab/year
  – Separately collected paper/cardboard: 14.7 kg/inhab/year
  – Separately collected glass: 12.8 kg/inhab/year
  – Separately collected packaging: 8.6 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  60,742 ha. Growth 2001–2009: 257%
- **IRRIGATED AREA (2009)**
  167,830 ha (35.6% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 3.25 / Hydroelectric: 0.03 / Thermal: 2.9
  Nuclear: 0.00 / Wind: 0.1 / Other renewables: 0.21

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.46
- **HOTEL CAPACITY (2010)**
  17,386 hotel beds (11.9 beds/1,000 inhab) and 2,775 beds in rural accommodation (1.9 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  974,575 vehicles. Growth 2000–2009: 44.7%
  666.6 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  683,203 passenger cars. Growth 2000–2009: 39.3%
  467.3 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  1,349,333 passengers. Growth 2000–2010: 762%
- **PORT FREIGHT TRAFFIC (2009)**
  20.6 million t. Growth 2000–2009: 18.3%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  6 have approved an LA21 and are implementing Action Plan projects. In addition, 9 municipalities have completed the LA21 diagnosis and have drawn up action plans (pending ratification).
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €241.5 million (0.89% of GDP). Growth 2000–2009: 132%

RECOMMENDED WEBSITES

- www.murcianatural.carm.es

RECOMMENDED PUBLICATIONS

- El arrui en Sierra Espuña, ¿amenaza u oportunidad? (monograph)
- Patrimonio natural y líneas eléctricas en la Región de Murcia (monograph)
- Paisaje UM versus Espuña (monograph)
- Guía geológica del Parque Regional de Sierra Espuña (monograph)
- Mariposas: Reflejos de colores (brochure)
- Replant: Plan de restauración de zonas incendiadas en la Comarca del Noroeste (brochure)
- Punto de Información y divulgación ambiental (brochure)
- Plan integral de prevención y defensa contra incendios forestales en el P.R. Valle y Carrascoy

Navarre

Statute of Autonomy: Organic Law 13/82, of 10 August, on reincorporation and revision of the Regional Government of Navarre
Area: 10,390 km^2
Capital: Pamplona / **Provinces:** 1 / **Municipalities:** 272
Population 2010: 636,924 inhab
Population density 2010: 61.3 inhab/km^2
Population growth 2000–2010: 17.1% / **2009–2010:** 1%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 14.5
  2,001–10,000 inhabitants: 31.0
  10,001–100,000 inhabitants: 23.5
  100,001–500,000 inhabitants: 31.0
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  11.6% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  10.9%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 3.8 / Industry: 24.5
  Construction: 8.2 / Services: 63.5
- **GDP MP (2009)**
  €29,495/inhab (Spanish average=100: 129%)
  Variation 2008–2009: -2.6%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €19,991/inhab. Growth 2000–2008: 55%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 2.6 / Industry: 28.0
  Construction: 10.0 / Services: 59.4

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 3 / Suburban: 2 / Rural: 3
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in µg/m^3 (2010 limit: 40 µg/m^3): 27
  – No days/year average daily PM_{10} concentration exceeds 50 µg/m^3, excluding African dust outbreaks (2005 limit: 35 days/year): 7

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  131 litres/inhab/day. Between 2000 and 2008 consumption decreased by 17.6%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 51.5 / Municipal and other consumption: 17.2 / Economic sectors: 31.3
- **WASTEWATER TREATMENT (2010)**
  97% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 1.3 / Agriculture: 46.3 / Forest: 52.2 / Wetlands and water bodies: 0.3

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  84,978.2 ha (8.2% of the AC)
- **NATURA 2000 NETWORK, 2010**
  252,997.34 ha (24.4% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 445,671 ha / Non-wooded: 140,842 ha
- **FOREST FIRES (2010)**
  500 outbreaks and 105 fires affecting 646.5 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 457 kg/inhab/year
  – Separately collected paper/cardboard: 51.1 kg/inhab/year
  – Separately collected glass: 25.3 kg/inhab/year
  – Separately collected packaging: 17.7 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  30,843 ha. Growth 2001–2009: 61.8%
- **IRRIGATED AREA (2009)**
  84,651 ha (18.2% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 4.21 / Hydroelectric: 0.24 / Thermal: 2.14
  Nuclear: 0.00 / Wind: 1.57 / Other renewables: 0.26

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.28
- **HOTEL CAPACITY (2010)**
  10,981 hotel beds (17.2 beds/1,000 inhab) and 4,001 beds in rural accommodation (6.3 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  426,962 vehicles. Growth 2000–2009: 28.2%
  670.3 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  294,293 passenger cars. Growth 2000–2009: 22.4%
  462.1 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  291,264 passengers. Variation 2000–2010: -15.6%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  272 (175 of which have already implemented LA21 and are carrying out Action Plan projects). In addition, 161 municipalities have completed the LA21 diagnosis and 11 have drawn up action plans (pending ratification).
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €388.2 million (2.1% of GDP). Growth 2000–2009: 310%

ENVIRONMENTAL REGULATIONS & MEASURES

- In 2009, renewable energy produced 81.15% of all electricity consumed in Navarre.
- 70.11% of the points on the biological water monitoring network sampled in spring and 73.56% of those sampled in the dry season complied with the quality targets set by the Water Framework Directive.
- The tropospheric ozone target value for the protection of human health was reached in three of the four areas designated in Navarre — Pamplona, Highlands and Mid-Navarre — but was not reached in the River Plain area. Real-time information is available by phoning 012, by SMS, or at the www.calidaddelaire.navarra.es website
- Recycling rate for non-hazardous industrial waste: 60.63%. Recovery rate for hazardous industrial waste: 34.36%.

RECOMMENDED WEBSITES

- http://www.navarra.es/home_es/Gobierno+de+Navarra/Organigrama/Los+departamentos/Desarrollo+Rural+y+Medio+Ambiente/
- http://www.navarra.es/home_es/servicios/temas/16/Medio-Ambiente
- http://www.biodiversidad.navarra.es
- http://calidaddelaire.navarra.es

RECOMMENDED PUBLICATIONS

- Estado del medio ambiente en Navarra. Año 2010
- Boletín Entornos de Navarra

Basque Country

Statute of Autonomy: Organic Law 3/79, of 18 December (BOE no 306, of 22 December 1979)
Area: 7,235 km^2
Length of coastline: 252 km
Capital: Vitoria / **Provinces:** 3 / **Municipalities:** 251
Population 2010: 2,178,339 inhab
Population density 2010: 301.1 inhab/km^2
Population growth 2000–2010: 3.8% / **2009–2010:** 0.3%

- **DEMOGRAPHIC DISTRIBUTION (%) (2010)**
  By municipality size
  < 2,001 inhabitants: 5.2
  2,001–10,000 inhabitants: 14.7
  10,001–100,000 inhabitants: 44.5
  100,001–500,000 inhabitants: 35.7
  > 500,000 inhabitants: 0.0
- **UNEMPLOYMENT RATE**
  10.9% (Q4 2010)
- **UNEMPLOYMENT RATE (>15 YEARS) [EU-27=8.9%] (2009)**
  11%
- **EMPLOYMENT BREAKDOWN BY SECTOR (%) (2010)**
  Agriculture: 1.2 / Industry: 22.4
  Construction: 6.9 / Services: 69.4
- **GDP MP (2009)**
  €30,683/inhab (Spanish average=100: 134%)
  Variation 2008–2009: -3.5%
- **GROSS DISPOSABLE HOUSEHOLD INCOME (2008)**
  €20,760/inhab. Growth 2000–2008: 64.5%
- **GVA BREAKDOWN BY SECTOR (%) (2009)**
  Agriculture: 1.0 / Industry: 26.5
  Construction: 9.5 / Services: 63

AIR

- **No OF AIR-QUALITY MONITORING STATIONS IN THE AC (2009)**
  Urban: 21 / Suburban: 13 / Rural: 4
- **VALUES RECORDED ABOVE REGULATORY LEVELS IN URBAN STATIONS IN THE REGIONAL CAPITAL (2009)**
  – Annual mean concentration of NO_2 in $\mu g/m^3$ (2010 limit: 40 $\mu g/m^3$): 28
  – No days/year average daily PM_{10} concentration exceeds 50 $\mu g/m^3$, excluding African dust outbreaks (2005 limit: 35 days/year): 3

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION (2008)**
  139 litres/inhab/day. Between 2000 and 2008 consumption decreased by 9.7%
- **WATER DISTRIBUTION BY SECTOR (%) (2008)**
  Households: 53.3 / Municipal and other consumption: 16.8 / Economic sectors: 29.9
- **WASTEWATER TREATMENT (2010)**
  92.9% of population equivalent was provided with wastewater treatment compliant with Directive 91/271/EEC

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**
  Artificial surface: 3.6 / Agriculture: 31.1 / Forest: 64.7 / Wetlands and water bodies: 0.7

NATURE AND BIODIVERSITY

- **TERRESTRIAL PROTECTED AREA (2010)**
  98,999.25 ha (13.7% of the AC)
- **TERRESTRIAL NATURA 2000 NETWORK (2010)**
  144,969.0 ha (20.1% of the AC)
- **FOREST AREA ACCORDING TO IFN 3**
  Wooded: 397,831 ha / Non-wooded: 97,224 ha
- **FOREST FIRES (2010)**
  69 outbreaks and 47 fires affecting 783.3 ha.

WASTE

- **URBAN WASTE PER INHABITANT (2009)**
  – Total urban waste: 513 kg/inhab/year
  – Separately collected paper/cardboard: 83.2 kg/inhab/year
  – Separately collected glass: 25.4 kg/inhab/year
  – Separately collected packaging: 13.7 kg/inhab/year

AGRICULTURE

- **ORGANIC FARMLAND (2009)**
  1,484 ha. Growth 2001–2009: 161%
- **IRRIGATED AREA (2009)**
  8,881 ha (4% of total agricultural area)

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS (2009)**
  Total: 1.43 / Hydroelectric: 0.07 / Thermal: 1.18
  Nuclear: 0.00 / Wind: 0.09 / Other renewables: 0.09

TOURISM

- **No OF FOREIGN TOURISTS PER INHABITANT (2010)**
  0.42
- **HOTEL CAPACITY (2010)**
  25,044 hotel beds (11.5 beds/1,000 inhab) and 3,588 beds in rural accommodation (1.6 beds/1,000 inhab)

TRANSPORT

- **VEHICLE FLEET (2009)**
  1,286,541 vehicles. Growth 2000–2009: 22.3%
  590.6 vehicles/1,000 inhab
- **PASSENGER CAR FLEET (2009)**
  943,394 passenger cars. Growth 2000–2009: 15%
  433.1 passenger cars/1,000 inhab
- **AIR TRANSPORT (2010)**
  4,217,101 passengers. Growth 2000–2010: 42.2%
- **PORT FREIGHT TRAFFIC (2009)**
  32.43 million t. Growth 2000–2009: 11.2%

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**
  216 have a Local Agenda 21 (200 of which are implementing Local Action Plans, while the rest are in the process of adopting them). In 2010, a new regulatory framework for the Udalsarea21 (Basque Network of Municipalities for Sustainability) was approved. To date, 172 municipalities have signed up and a further 12 new municipalities are expected to join in Q1 2011.
- **INTERNAL EXPENDITURE ON R&D (2009)**
  €1.35 billion (2.1% of GDP). Growth 2000–2009: 193%

RECOMMENDED WEBSITES

- www.ingurumena.net
- www.udalsarea21.net

RECOMMENDED PUBLICATIONS

- Perfil Ambiental de Euskadi 2009
- Informe de Sostenibilidad Local de la CAPV 2009.

INFORMATION SOURCES AND NOTES ON METHODOLOGY

STATUTE OF AUTONOMY, AREA, POPULATION AND POPULATION DENSITY, DEMOGRAPHIC DISTRIBUTION, UNEMPLOYMENT RATE, UNEMPLOYMENT RATE >15 YEARS (COMPARISON WITH EU-27), EMPLOYMENT BREAKDOWN BY SECTOR, GDP MP AND GROWTH 2009–2010 AND GVA BREAKDOWN BY SECTOR

Source: Ministry of Territorial Policy. In Áreas / Política Autonómica / Información económico-financiera / Análisis económico de las Comunidades Autónomas / Indicadores / Indicadores Socioeconómicos. (http://www.mpt.es/areas/politica_autonomica/info_ecofin/2anaeco/indicador_por/indicadores.html).
Data obtained from various sources and updated by the Sub-Directorate-General for Regional Economic Analysis reporting to the Directorate-General for Regional Co-operation.

MUNICIPALITIES

Source: INE. http://www.ine.es/.
In Territorio / Territorio / Distribución de los municipios según su extensión superficial por CCAA y provincias.

POPULATION GROWTH 2000–2010

Source: Compiled in-house using INE data. Population figures for 01/01/2000. Summary by AC and population figures for 01/01/2010. In INEbase / Demography and population / Population figures and Demographic Censuses / Municipal Register / Official population figures: Municipal Register / Population figures referring to 1/1/00 / Summary by autonomous communities.

LENGTH OF COASTLINE

Source: INE. http://www.ine.es/.
In Physical variables and environment / Physical variables / Territory / Main result / Length of Spanish coast by provinces

GROSS DISPOSABLE HOUSEHOLD INCOME (2008)

Source: INE. http://www.ine.es/.
Economy / National Accounts / Spanish Regional Accounts. Base 2000 / Institutional approach. Household income distribution accounts / Main results / Renta disponible bruta de los hogares.

AIR

Source: Air Quality Database. Directorate-General for Environmental Quality and Assessment. MARM

Notes on methodology: The indicator reflects the situation in the capital of the AC in 2009. For the purpose of calculating the exceedances, every station (urban, suburban, rural or background, industrial and traffic) with a suitable volume of data was included. The minimum data volume used for NO_2 was 50% (i.e., 4,380 hours per year), while for PM_{10} the minimum volume was 86% (minimum amount of data established by legislation for the purposes of assessment, i.e., 314 days per year). This distinction is made because the statistic chosen as the indicator for PM_{10} (number of days per year in which concentration exceeded 50 $\mu g/m^3$) reflects isolated episodes and it is vital to obtain comprehensive data to ensure that the statistic is representative. However, in the case of NO_2, as the statistic is a mean, it is considered that a minimum data volume of 50% provides a representative figure.

WATER

- **AVERAGE HOUSEHOLD WATER CONSUMPTION**

  Source: INE. http://www.ine.es/.
  2008: INE, 2010. Survey on Water Supply and Treatment. 2008. Press release of 20 July 2010.
  2000: Water Surveys, 2000 [available in English]. Press release of 12 December 2002.

- **WATER DISTRIBUTION BY SECTOR AND DISTRIBUTION NETWORK LOSSES**

  Source: INE. http://www.ine.es/.
  Survey on Water Supply and Treatment. 2008. Environment statistics / Survey on water supply and sewerage / 2008 / Distribution by Autonomous Community and large groups of users.

- **WASTEWATER TREATMENT**

  Source: Information provided by Spanish EIONET Regional Focal Points.

LAND

- **BREAKDOWN BY LAND USE (%) (2006)**

  Source: Compiled in house using data obtained from the Corine Land Cover 2006 survey, provided by the IGN. Ministry of Public Works.

  Notes on methodology: Forest area includes woodland, areas of natural vegetation and open spaces.

NATURE AND BIODIVERSITY

- **PROTECTED AREA, NATURA 2000 NETWORK, WETLANDS INCLUDED IN THE SPANISH WETLANDS INVENTORY, FOREST AREA, FOREST FIRES**

Source: Directorate-General for the Natural Environment and Forestry Policy. MARM.

Notes on methodology: The Spanish Wetlands Inventory only includes wetlands covered by resolutions published in the BOE.

Information on forest fires from: *Incendios Forestales en España. 1 enero – 31 diciembre 2010. Avance Informativo. Enero 2011*. Provisional Data as at 18 January 2011."

WASTE

- **URBAN WASTE PER INHABITANT**

Source: Data provided by the Spanish EIONET Regional Focal Points.

Notes on methodology: Differences may exist in the methodologies used for calculations by the various autonomous communities, as well as in their definitions of waste..

AGRICULTURE

- **ORGANIC FARMLAND**

Source: MARM, 2010. *Agricultura Ecológica en España Estadísticas 2009*.

- **IRRIGATED AREA**

Source: *Encuesta sobre Superficies y Rendimientos de Cultivos* (ESYRCE 2010). In MARM/Estadística/Encuesta sobre superficies y rendimientos de cultivos.

Notes on methodology: The figures refer to total agricultural area, i.e., arable and fallow land, greenhouses and family smallholdings.

ENERGY

- **INSTALLED ELECTRIC POWER IN MW PER THOUSAND INHABITANTS**

Source: Ministry of Territorial Policy. In Áreas / Política Autonómica / Información económico-financiera / Análisis económico de las Comunidades Autónomas / Indicadores / Indicadores Socioeconómicos.

TOURISM

- **No OF TOURISTS PER INHABITANT AND HOTEL CAPACITY**

Source:

Hotel capacity: Ministry of Territorial Policy. In Áreas / Política Autonómica / Información económico-financiera / Análisis económico de las Comunidades Autónomas / Indicadores / Indicadores Socioeconómicos.

Rural accommodation capacity: INEbase / Services / Hotel Industry and Tourism / Rural Tourism Accommodation Occupancy Survey. 2010.

Population data: figures for 01/01/2010. Royal Decree 1612/2010, of 7 December. In INEbase / Demography and population / Population figures and Demographic Censuses / Official population figures: Municipal Register.

TRANSPORT

- **VEHICLE FLEET AND PASSENGER CAR FLEET**

Source: Directorate-General for Traffic, 2010. *Anuario Estadístico General 2009*. Ministry of the Interior. Directorate-General for Traffic, 2002. *Anuario Estadístico General 2000*. DGT. Ministry of the Interior.

Notes on methodology: The vehicle fleet includes trucks, vans, buses, passenger cars, motorcycles, industrial tractors and other vehicles.

- **AIR TRANSPORT**

Source: AENA. Airport Statistics. Traffic Statistics. Passengers, operations and cargo. Annual reports. Reports for 2000 and 2010.

- **MARITIME TRANSPORT**

Source: State Ports Board (PDE). Port Traffic Statistics. *Anuarios Estadísticos de Puertos del Estado. Anuario Estadístico* (2009 and 2000). Ministry of Public Works.

Notes on methodology: Includes freight traffic (cabotage and foreign), fishing, provisioning and regular traffic handled both by the PDE and regional governments.

URBAN AND INVESTMENT POLICY

- **MUNICIPALITIES WITH A COUNCIL-APPROVED LOCAL AGENDA 21 (2009)**

Source: Information provided by Spanish EIONET Regional Focal Points.

- **INTERNAL EXPENDITURE ON R&D (2009)**

Source: 2009: Ministry of Territorial Policy. In Áreas / Política Autonómica / Información económico-financiera / Análisis económico de las Comunidades Autónomas / Indicadores / Indicadores Socioeconómicos.

2000: INE. Press release of 21 December 2001.

OTHER RELEVANT INFORMATION AND RECOMMENDED WEBSITES AND PUBLICATIONS

Source: Information provided by Spanish EIONET Regional Focal Points.

4. Appendix

I Index of acronyms and abbreviations

II Thematic index of indicators

III Alphabetical index of indicators

IV Contributors to report production and review

INDEX OF ACRONYMS AND ABBREVIATIONS

10YFP on SCP	10-Year Framework of Programmes on Sustainable Consumption and Production
6EAP	Sixth EU Environment Action Programme
AC	Autonomous Community
AE	Autonomous Entity
AEDyR	Spanish Desalination and Reclamation Association (Asociación Española de Desalación y Recuperación)
AEMET	Spanish State Meteorological Agency (Agencia Estatal de Meteorología)
AENA	Spanish Airports Authority (Aeropuertos Españoles y Navegación Aérea)
AEPLA	Spanish Plant Protection Association (Asociación Empresarial para la Protección de las Plantas)
AER	Spanish Tyre Recycling Association (Asociación Española de Reciclado de Neumáticos)
AGUA	Spanish Water Management and Use Action Programme (Programa de Actuaciones para la Gestión y la Utilización del Agua)
AHE	Spanish Herpetological Association (Asociación Herpetológica Española)
ANFFE	Spanish Association of Fertiliser Manufacturers (Asociación Nacional de Fabricantes de Fertilizantes)
APPA	Spanish Association of Renewable Energy Producers (Asociación de Productores de Energías Renovables)
ASPAPEL	Spanish Association of Pulp, Paper and Cardboard Manufacturers (Asociación Española de Fabricantes de Pasta, Papel y Cartón)
AVE	Spanish High-Speed Train (Alta Velocidad Española)
BOE	Spanish Official State Gazette (Boletín Oficial del Estado)
BPIA	Public Bank of Environmental Indicators (Banco Público de Indicadores Ambientales) [MARM]
CAFE	Clean Air For Europe Programme
CAMP	Comprehensive Atmospheric Monitoring Programme
CAP	Common Agricultural Policy
CEDEX	Spanish Centre for Studies and Experimentation in Public Works (Centro de Estudios y Experimentación de Obras Públicas)
CEDRE	Centre of Documentation, Research and Experimentation on Accidental Water Pollution (Centre de documentation de Recherche et d'expérimentation sur les pollutions accidentelles des eaux)
CEMR	Council of European Municipalities and Regions
CES	Spanish Economic and Social Council (Consejo Económico y Social)
CFP	Common Fisheries Policy
CIS	Spanish Centre for Sociological Research (Centro de Investigaciones Sociológicas)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLC	Corine Land Cover (1990, 2000 and 2006)
CLIF	Spanish Forest-Fire-Fighting Committee (Comité de Lucha contra Incendios Forestales)
CNAE	Spanish National Classification of Economic Activities (Clasificación Nacional de Actividades Económicas)
CNE (a)	Spanish National Accounts (Contabilidad Nacional de España)
CNE (b)	Spanish National Energy Commission (Comisión Nacional de la Energía)
CNEA	Spanish National Catalogue of Endangered Species (Catálogo Nacional de Especies Amenazadas)
CNEAM	Spanish National Centre for Environmental Education (Centro Nacional para la Educación Ambiental) [MARM]
CNMB	Spanish National Catalogue of Basic Material (Catálogo Nacional de Materiales de Base)
CORES	Strategic Petroleum Product Reserves Corporation (Corporación de Reservas Estratégicas de Productos Petrolíferos)
CRED	Centre for Research on the Epidemiology of Disasters
CTE	Spanish Building Code (Código Técnico de la Edificación)

DG	Directorate-General
DGT	Spanish Directorate-General for Traffic (Dirección General de Tráfico)
DPMT	Publicly Owned Shoreline (Dominio Público Marítimo Terrestre)
DPSIR	Driving forces, Pressures, States, Impacts, Responses. Theoretical framework used by the European Environment Agency to analyse the environment and classify environmental indicators.
DRR	Disaster Risk Reduction
EC	European Commission
Ecoembes	Ecoembalajes España, S.A.
Ecovidrio	Association responsible for managing recycling of glass packaging waste throughout Spain
ECPF	Household Budget Continuous Survey (Encuesta Continua de Presupuestos Familiares)
EEA	European Environment Agency
EEC	European Economic Community
EEDS	Spanish Sustainable Development Strategy (Estrategia Española de Desarrollo Sostenible)
EEMS	Spanish Sustainable Mobility Strategy (Estrategia Española de Movilidad Sostenible)
EESUL	Spanish Strategy for Urban and Local Sustainability (Estrategia Española para la Sostenibilidad Urbana y Local)
EINECS	European Inventory of Existing Commercial Chemical Substances
EIONET	Environment Information and Observation Network [EEA]
ELC	European Landscape Convention
ELINCS	European List of Notified Chemical Substances
ELT	End-of-Life Tyre
EMAS	Eco-Management and Audit Scheme
EMAU	Spanish Urban Environment Strategy (Estrategia de Medio Ambiente Urbano)
EM-DAT	Emergency Events Database
EMEP/GAW/CAMP	European Monitoring and Evaluation of Pollutants/Global Atmospheric Watch/Comprehensive Atmospheric Monitoring Programme
EMS	Environmental Management System
EMW	European Mobility Week
ENAC	Spanish National Accreditation Body (Entidad Nacional de Acreditación)
EOAT-EOTR	Holiday Dwellings Occupancy Survey-Rural Tourism Accommodation Occupancy Survey (Encuesta de Ocupación en Alojamientos Turísticos-Alojamientos de Turismo Rural)
EPER	European Pollutant Emission Register
EPF	Household Budget Survey (Encuesta de Presupuestos Familiares)
ERDF	European Regional Development Fund
ERPC	European Recovered Paper Council
ESCO	Energy Service Company
ESYRCE	Crop Area and Yield Survey (Encuesta sobre Superficies y Rendimientos de Cultivos)
ETC-LUSI	European Topic Centre on Terrestrial Environment (EEA)
EU-15	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom
EU-25	Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom
EU-27	EU-25 + Bulgaria and Romania
EUROPARC	Federation of Nature and National Parks of Europe
EUROSTAT	Statistical Office of the European Union
EUROWATERNET	European Monitoring and Information Network for Inland Water Resources
FAMILITUR	Spanish national tourism survey [IET]
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO Statistical Database
FEMP	Spanish Federation of Municipalities and Provinces (Federación Española de Municipios y Provincias)

FEVE	European Container Glass Federation
FRONTUR	Spanish Border Survey of Inbound Tourism
GAW	Global Atmospheric Watch
GDP	Gross Domestic Product
GEI	Green Economy Initiative [UNEP]
GHG	Greenhouse gas
GIS	Geographic Information System
GVA	Gross Value Added
HISPAGUA	Spanish Water Information System (Sistema Español de Información sobre el Agua)
HORECA	Hotel, Restaurant and Catering sector
HU	Hydrogeological Unit
IAEST	Aragon Statistics Institute (Instituto Aragonés de Estadística)
ICES	International Council for the Exploration of the Sea
ICLEI	International Council for Local Environmental Initiatives
ICT	Information and Communication Technology
IDAE	Spanish Institute for Energy Saving and Diversification (Instituto para la Diversificación y Ahorro de la Energía)
IET	Spanish Institute for Tourism Studies (Instituto de Estudios Turísticos)
IFN1, IFN2, IFN3	Spanish National Forest Inventory — IFN1: 1966–1975; IFN2: 1986–1996; IFN3: 1997–2007
IGME	Geological and Mining Institute of Spain (Instituto Geológico y Minero de España)
IGN	Spanish National Geographic Institute (Instituto Geográfico Nacional)
IHOBE	Basque Public Environmental Management Company (Sociedad Pública de Gestión Ambiental del País Vasco)
ILO	International Labour Organization
IMF	International Monetary Fund
INB	Spanish National Biodiversity Inventory (Inventario Nacional de Biodiversidad)
INE	Spanish National Statistics Institute (Instituto Nacional de Estadística)
INES	Spanish National Soil Erosion Inventory (Inventario Nacional de Erosión de Suelos)
INM	Spanish National Institute of Meteorology (Instituto Nacional de Meteorología)
IPCC	Intergovernmental Panel on Climate Change
IPI	Industrial Production Index
IPPC	Integrated Pollution Prevention and Control
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
ITOF	International Tanker Owners Pollution Federation
IUCLID	International Uniform Chemical Information Database
IUCN	International Union for Conservation of Nature
JACUMAR	Spanish National Advisory Board for Marine Aquaculture (Junta Nacional Asesora de Cultivos Marinos)
LCA	Low-Cost Airline
LEAC	Land and Ecosystem Account
LIFE	European financial instrument for the environment
MAB	Man and Biosphere
MAHB	Major Accident Hazards Bureau
MAPA	Spanish Ministry of Agriculture, Fisheries and Food (Ministerio de Agricultura, Pesca y Alimentación)
MARM	Spanish Ministry of the Environment and Rural and Marine Affairs (Ministerio de Medio Ambiente y Medio Rural y Marino)
MC	Spanish Ministry of Culture (Ministerio de Cultura)
MCSD	Mediterranean Commission on Sustainable Development
MF	Spanish Ministry of Public Works (Ministerio de Fomento)
MFE50	Forest Map of Spain (Mapa Forestal de España) [1:50,000 scale]
MITyC	Spanish Ministry of Industry, Tourism and Trade (Ministerio de Industria, Turismo y Comercio)
MMA	Spanish Ministry of the Environment (Ministerio de Medio Ambiente)

MPTA	Metropolitan Public Transport Authority Area
MSC	Spanish Ministry of Health and Consumer Affairs (Ministerio de Sanidad y Consumo)
NAFO	Northwest Atlantic Fisheries Organisation
NEDIES	Natural and Environmental Disasters Information Exchange System
NGO	Non-Governmental Organisation
NP	National Park
NRC	EIONET National Reference Centre
ODP	Ozone Depleting Potential
OECD	Organisation for Economic Co-operation and Development
OFICEMEN	Spanish Association of Cement Manufacturers (Asociación de Fabricantes de Cemento de España)
OMM	Metropolitan Mobility Monitoring Centre (Observatorio de la Movilidad Metropolitana)
ONS	Spanish National Drought Monitoring Centre (Observatorio Nacional de la Sequía)
OSE	Spanish Sustainability Monitoring Centre (Observatorio de la Sostenibilidad en España)
OSPAR	Oslo-Paris Convention for the Protection of the Marine Environment of the North-East Atlantic
PA	Protected Area
PACIAP	Spanish Annual Programme for the Integrated Monitoring of Fisheries (Programa Anual de Control Integral de Actividades Pesqueras)
PAND	Spanish National Action Programme to Combat Desertification (Programa de Acción Nacional contra la Desertificación)
PAR	Spanish Action Plan to Combat Noise (Plan de Acción contra el Ruido)
PDRS	Spanish Sustainable Rural Development Plan (Plan de Desarrollo Rural Sostenible)
PEI	Primary Energy Intensity
PEIT	Spanish Strategic Infrastructure and Transport Plan (Plan Estratégico de Infraestructuras y Transportes)
PHE	Spanish Historical Heritage (Patrimonio Histórico Español)
PM	Particulate Matter in the air
PNCA	Spanish National Water Quality, Sewerage and Treatment Plan (Plan Nacional de Calidad de las Aguas: Saneamiento y Depuración) 2007–2015
PNIR	Spanish National Integrated Waste Plan (Plan Nacional Integrado de Residuos) 2008–2015
PNR	Spanish National Reform Plan (Plan Nacional de Reformas)
PNSD	Spanish National Sewerage and Wastewater Treatment Plan (Plan Nacional de Saneamiento y Depuración)
PORN	Spanish Natural Resources Management Plan (Plan de Ordenación de los Recursos Naturales)
PRUG	Spanish Use and Management Master Plan (Plan Rector de Uso y Gestión)
PTA	Public Transport Authority
RAP	Rural Area Plan
RENFE	Spanish National Railway Network (Red Nacional de los Ferrocarriles Españoles)
REPACAR	Spanish Paper and Cardboard Recycling Association (Asociación Española de Recuperación de Papel y Cartón)
RMIP	Spanish Marine Fishery Reserve (Reserva Marina de Interés Pesquero)
ROI (Network)	Spanish Salt Intrusion Monitoring Network (Red de Observación de la Intrusión Salina)
RUSLE	Revised Universal Soil Loss Equation
RW	Railway
SAC	Special Area of Conservation
SAP-BIO	Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean
SCI	Site of Community Importance
SECEM	Spanish Society for the Conservation and Study of Mammals (Sociedad Española para la Conservación y Estudio de los Mamíferos)
SEO	Spanish Ornithological Society (Sociedad Española de Ornitología)
SEPRONA	Nature Protection Service of the Civil Guard (Servicio de Protección de la Naturaleza de la Guardia Civil)

SIA	Spanish System of Environmental Indicators (Sistema Español de Indicadores Ambientales)
SICA	Basic Noise Pollution Information System (Sistema Básico de Información sobre la Contaminación Acústica)
SIGNUS ECOVALOR	Integrated Management System for End-of-Life Tyres (Sistema Integrado de Gestión de Neumáticos Usados)
SIMPA	Simulation of Rainfall and Inputs (Simulación Precipitación-Aportación)
SNAP	Selected Nomenclature for sources of Air Pollution
SNM	Strategic Noise Map
SNS	Spanish National Health System (Sistema Nacional de Salud)
SOER 2005	EEA report: The European Environment — *State and Outlook on the Environment Report 2005*
SPA	Special Protection Area
SPAMI	Specially Protected Area of Mediterranean Importance
STECF	Scientific, Technical and Economic Committee for Fisheries
TCA	Section of road with a high accident rate (Tramo de Concentración de Accidentes)
TERM	Transport and Environment Reporting Mechanism
TMR	Total Material Requirement
TNU	Tratamiento de Neumáticos Usados (management system)
TPE	Tourist Population Equivalent
UAA	Utilised Agricultural Area
UN	United Nations
UNEP	United Nations Environment Programme
UNWTO	World Tourism Organization
UPM	Polytechnic University of Madrid (Universidad Politécnica de Madrid)
USA	United States of America
UTM	Universal Transversa Mercator
UVB	Ultraviolet-B radiation
UW	Urban waste
WA	Water Authority
WFD	Waste Framework Directive
WHC	World Heritage Centre
WISE	Water Information System for Europe
WWF	World Wide Fund for Nature
WWTP	Wastewater Treatment Plant
YIR	Yearly Indicator Reporting (EEA)

SYMBOLS, UNITS AND CHEMICAL COMPOUNDS

<	Less than
>	Greater than
µg	Microgram
€	Euro
1000 t	Thousand tonnes
AOT40	Accumulation Over Threshold: index of exceedance of the ozone threshold
BOD_5	Five-day Biochemical Oxygen Demand
CCl_4	Carbon tetrachloride
CFC	Chlorofluorocarbon
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
COD	Chemical Oxygen Demand
dB	Decibel. Measure of sound pressure level
dB(A)	A-weighted decibel
GRT	Gross Registered Tonnage

GT	Gross Tonnage: measure of tonnage of fishing vessels. In use since 1998, when it replaced Gross Registered Tonnage (GRT)
GWh	Gigawatt-hour
h	Hour
ha	Hectare
HBFC	Hydrobromofluorocarbon
HCFC	Hydrochlorofluorocarbon
hm^3	Cubic hectometre
inhab	Inhabitant
kg	Kilogram
km	Kilometre
km^2	Square kilometre
Kt	Thousand tonnes
Ktoe	Kilotonne of oil equivalent
kW	Kilowatt
kWh	Kilowatt-hour
l	Litre
L_{Aeq}	Equivalent continuous A-weighted sound pressure level. Expressed in A-weighted decibels (A)
L_{den}	Day-evening-night noise indicator. Measured in dB
L_{eq}	Equivalent continuous noise level. Expressed in dB
L_n	Night time noise indicator. Measured in dB
m^2	Square metre
m^3	Cubic metre
mg	Milligram
MW	Megawatt
MWp	Megawatt peak
MWt	Megawatt thermal
N	Nitrogen
N_2O	Nitrous oxide
NH_3	Ammonia
NMVOC	Non-Methane Volatile Organic Compound
NO_x	Nitrogen oxide
O_3	Ozone
P	Phosphorus
P_2O_5	Orthophosphate
PCB	Polychlorinated biphenyl
PCT	Polychlorinated terphenyl
PFC	Perfluorocarbon
p-km	Passenger-kilometre. Unit of measurement used for passenger transport, calculated by multiplying the annual number of passengers by the number of kilometres travelled.
PM_{10}	Particulate matter with a diameter of 10 microns or less
$PM_{2.5}$	Particulate matter with a diameter of 2.5 microns or less
POP	Persistent Organic Pollutant
ppb	Parts per billion
ppm	Parts per million
SF_6	Sulphur hexafluoride
SO_2	Sulphur dioxide
t	Tonne
TJ	Terajoule
t-km	Tonne-kilometre. Unit of measurement used for freight transport, calculated by multiplying the number of tonnes transported by the number of kilometres travelled.
VOC	Volatile Organic Compound

APPENDIX II: THEMATIC INDEX OF INDICATORS

Theme / Indicator Page

APPENDIX III: ALPHABETICAL INDEX OF INDICATORS

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