

Environmental Profile of Spain 2010

Indicator-based Report



2011

The Environmental Profile of Spain 2010 is produced by the Directorate-General for Environmental Quality and Assessment of the Secretariat of State for Climate Change of the Ministry of the Environment and Rural and Marine Affairs.

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Design and layout:

www.masgrafica.com

Published by:

© Ministry of the Environment and Rural and Marine Affairs
Technical Secretariat-General
Publications Centre

NIPO: 770-11-361-2

ISBN: 978-84-491-1139-6

Legal deposit: M-46662-2011



General catalogue of official publications

<http://www.060.es> (Servicios en línea/oficina virtual/Publicaciones)

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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

INTRODUCTION

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 °C 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 °C by as early as 2050 and by at least 4 °C 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.

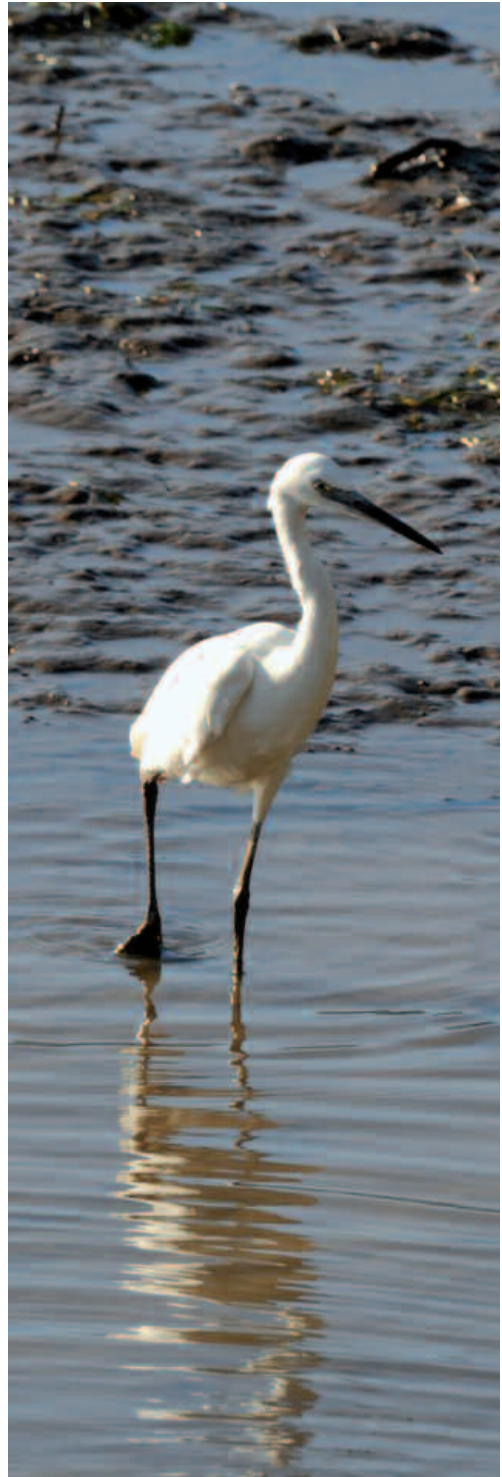
Moving away from specific figures and sectors, this seventh snapshot of the situation in Spain's environment reveals an encouraging general trend — the majority of the

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

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/km² 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.

SUMMARY

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 country'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 km², making Spain the country with the fifth-biggest such area in the EU. Spain also had 1,034 km² 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.

SUMMARY

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

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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 CO₂ emissions intensity (calculated as the ratio between total emissions and GDP) fell sharply. Total emissions dropped from 121,631 kilotonnes of CO₂ equivalent in 2007 to 88,328 kilotonnes of CO₂ 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 CO₂ emissions started in 2008 continued and intensified, falling by 14.47% in 2009. It is worth noting that industry's CO₂ 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, SO₂ 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

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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 CO₂, 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 hm³, with each household consuming 152 m³ 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 hm³).

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 CO₂, 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 NO₂ 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.