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Environmental Profile of Spain 2008

Indicator-based Report

MINISTERIO
DE MEDIO AMBIENTE
Y MEDIO RURAL
Y MARINO

EDITION 2009

PRESENTATION

In the "Environmental Profile of Spain 2008" edition, the Spanish Ministry of the Environment and Rural and Marine Affairs (Ministerio de Medio Ambiente, y Medio Rural y Marino) makes available to the general public accessible information, based on indicators, regarding various aspects of the environment and the productive sectors. A substantial number of the topics that constitute this Profile fall within the scope of this Ministry and, regarding these topics, I would first like to highlight the significant number of legislative proposals presented and approved by the Spanish Parliament during the past and the current session, as is reflected in this document, in order to imbue the sectors of economic activity with the guiding principles of environmental sustainability.

Given the diversity and extent of the responsibilities that fall within the scope of this Ministry, it would not be possible to conduct an assessment, in the reduced space provided by a presentation, regarding the ground covered by the departments of the Ministry since the beginning of the session, but it is actually possible to highlight the efforts made towards the mitigation of climate change, the improvement of air quality, waste management, control of chemicals, sustainable use of water resources, the fight against forest fires and the protection of biodiversity. Among the most significant advances, I would like to draw attention to the progress made regarding the sustainable development of rural and marine environments. These areas comprise all of our natural resources, and they therefore require that the public authorities pay special attention to them in order to reach a sustainable exploitation of said resources.

In order to achieve a greater involvement of all social agents and authorities for a proper coordination of actions, towards the end of last session the Congress passed Act 45/2007, of 13 December, for the sustainable development of the rural environment. The act sets forth the guidelines needed to implement a State policy capable not only of dealing with the continuity and renewal of production activities and the social and economic improvements needed by the rural population, but also with providing access to public services of sufficient scope and quality to mitigate the demographic deficit typical of rural areas. The act provided for the creation of organisations responsible for

drawing proposals to achieve the objectives on which this legislative initiative is based. The composition and operation of these organisations was set forth in Royal Decree 865/2008, of 23 May. Towards the end of last year, the composition and implementation of the organisational structure that will deploy, in a coordinated and progressive manner, the necessary measures to fulfil the established objectives, was finally completed. These organisations include representatives from the ministerial departments, the Autonomous Regions and, through the Sustainable Rural Development Association Committee (Mesa de Asociaciones de Desarrollo Rural Sostenible), the networks for rural development, agrarian and business organisations, trade unions, the confederation of agrarian cooperatives, organisations of women in the rural environment, ecologist associations and the representatives of people with disabilities.

In short, all the agents involved in sustainable rural development, and whose proposals, suggestions and demands will be considered for the development of the First Sustainable Rural Development Programme 2010-2014 (PDRS - Primer Programa de Desarrollo Rural Sostenible 2010-2014) have participated. The implementation of this programme is planned for the last half of this year, and it will help materialise and boost the policy that is being developed by the Ministry of the Environment and Rural and Marine Affairs.

It is worth noting that the development of the PDRS has been taken into account - as it should be - within the guidelines of the Common Agricultural Policy (Política Agraria Común) and, specifically, under the rural development policy for 2007-2013, which, broadly speaking, defines 3 objectives: improving the competitiveness of the agricultural sector, increasing the value of the rural landscape and environment by managing the land and, finally, improving the quality of life in rural areas by promoting the diversification of economic activities. Following these guidelines, as well as the schedule planned in Regulation (EC) 1698/2005, in 2007, the National Strategic Plan for Rural Development (Plan Estratégico Nacional de Desarrollo Rural) and the Rural Development Programmes (Programas de Desarrollo Rural) for the 17 Autonomous Regions were drawn up and were logically integrated within a National Framework for Rural Development.

Act 42/2007, of December 13, regarding Natural Heritage and Biodiversity (Patrimonio Natural y de la Biodiversidad) was passed on the same date as the Rural Environment Sustainable Development Act (Ley de Desarrollo Sostenible del Medio Rural). Both Acts make up a legislative set of rules and complement each other. The principles of

this Act are based on the sustainable use and maintenance of natural resources, the preservation of biological diversity, the genetic diversity of species and populations, and the landscape and geological diversity. This Act includes new instruments to deal with the loss of biodiversity, continues the new policies inspired by the United Nations Convention on Biological Diversity and responds to the new impetus generated by LIE with the "Communal Action Plan for 2010 and Beyond" (Plan de Acción Comunitario para 2010 y Más Adelante).

To achieve the objectives of Act 42/2007 –as described in the report presented to the Cabinet on 5 September 2008 –progress will continue to be made during 2009 regarding its legislative development, which considers the creation of the National Inventory (Inventario Nacional) and the State Plan for Natural Heritage and Biodiversity (Plan Estratégico Estatal del Patrimonio Natural y de la Biodiversidad), the National Catalogue of Habitats in Danger of Disappearance (Catálogo Nacional de Hábitats en Peligro de Desaparición), the Catalogue of Threatened Species (Catálogo de Especies Amenazadas) and the National Catalogue of Invasive Alien Species (Catálogo Nacional de Especies Exóticas Invasoras). In order to coordinate the several public administrations, the Natural Heritage and Biodiversity State Commission (Comisión Estatal para el Patrimonio Natural y la Biodiversidad) has been organised. Finally, as an instrument of co-financing aimed at ensuring territorial integrity, the Natural Heritage and Biodiversity Fund (Fondo para el Patrimonio Natural y la Biodiversidad) will have to contribute to the development, within 3 years, of the management instruments set forth by said Act, implementing those measures that provide support to forest sustainable management, the strategic prevention of forest fires, the custody of territory and the protection of forests and natural areas financed by the General State Administration (Administración General del Estado).

Sustainable Rural Development and the protection of the Natural Heritage and Biodiversity would not be possible without implementing a strict management of water resources that increases the availability of this resource, protects its quality, and rationalises and economises on its use. Within this context, mention should be made of Royal Decree 907/2007, of 6 July, which approved the Regulation of Water Planning (Reglamento de Planificación Hidrológica). This Decree regulates the Water Act (Ley de Aguas) and the Water Framework Directive (Directive 2000/60/EC). Within this legal framework, water planning will be carried out through the Water Basin Plans (Planes Hidrológicos de Cuenca) and the National Water Plan (Plan Hidrológico Nacional). The general goals of water planning focus on achieving the proper protection of Public Water Resources, satisfying the demand for the resource and harmonising regional and sector development. Among other innovations, this regulation incorporates the integration of inland, transitional and coastal waters; the importance of environmental

goals; cost-efficiency economic analysis for measurement programmes; and the setting up of a price policy for water services that encourages rational and sustainable resource management.

It would not be possible to develop sustainable rural activities, protect biodiversity, habitats and wildlife species, and efficiently manage water resources without demanding that those who harm the environment either through their actions or omissions be responsible towards the environment. Royal Decree 2090/2008, of 22 December, which recently came into effect approved the Partial Development Regulation of Act 26/2007, of 23 October, about Environmental Liability. The well-known principle "polluter pays" can be translated now as "polluter must repair". The regulation establishes the method by which those responsible will have to repair the damage done. The Act defines environmental damage as damage caused to wildlife species and habitats, surface or underground waters, shoreline and estuaries, and soil or subsoil, which may have a negative impact on human health and the environment.

Finally, I would like to highlight that the usefulness of the "Environmental Profile of Spain" surpasses that of a mere "handbook" used to look up data and get an outlook on the development of the different variables. Its objective is to contribute –in a specific yet global manner – to a better knowledge of our country's environment and to its connection with the elements that are part of it, a knowledge that is essential to help preserve and improve the environment for the generations of today and tomorrow.

Elena Espinosa Mangana
Minister for the Environment and Rural and Marine Affairs

FOREWORD

The 5th edition of the *Environmental Profile of Spain*: an Indicator-Based Report, for 2008, offers an acclaimed product, which has corrected certain deficiencies and has verified data for 2.5 years. This edition maintains the indicators' basic structure, which makes it possible to analyse trends in the status of the environment and the influence exerted by the several factors that condition it. Environmental and sectorial indicators are presented through 14 chapters together with an introduction which summarises the fundamental characteristics of their development. For the second year, environmental information is presented by Autonomous Regions, including basic data of each Community, both environmental and territorial, together with certain socioeconomic aspects.

As with previous editions, and as usual with this type of document, certain adjustments have been made: changes in methodology for certain figures, which prevent long annual series; introduction of a new indicator if there is relevant information (as is the case for the chapter on water); changes in the presentation of some data to offer more direct and real information (air quality in urban environments); elimination of an indicator if the source has not finished its calculations (as is the case for land cover in coastal areas). All of these changes are inevitable and reflect the vitality of a material that must adapt to different circumstances.

We are indebted to a great number of people for this new *Environmental Profile of Spain* publication, especially to the Spanish EIONET Network, as well as other ministerial departments, institutions, state agencies and Autonomous Regions. The help provided by the different departments of the Ministry of the Environment and Rural and Marine Affairs has been essential to the development and final revision of this document.

The year that has passed since the previous edition has been particularly intense: fundamental changes have taken place in certain areas of the environment, some of which can be seen in this edition already and others that will appear in future editions. Climate change policies have truly become State policies, focused on strategic lines of interaction among nine Ministries, and effectively coordinated by

territorial administrations, especially regarding the application of the emission allowance trading scheme and compliance with international obligations.

The actions are being centred on those areas which have the biggest emission reduction potential: mobility, construction, energy sustainability, together with suitable waste management and prevention, forest policy, drains, and important technical developments and innovations.

The following have been the main lines of work that have been developed: climate change awareness, and the adoption of mitigation and adaptation measures to reduce emissions at the sources and favour forest fixation. The National Integrated Waste Plan (Plan Nacional Integrado de Residuos), the Sustainable Mobility Strategy (Estrategia de Movilidad Sostenible) and the National R&D and Innovation Plan 2008-2011 (Plan Nacional de I+D+i 2008-2011) are an important part of recent actions.

The emissions data used in this edition of the Environmental Profile of Spain 2008 correspond to those from the Spanish National Atmospheric Emissions Inventory 2007 (Inventario de Emisiones Contaminantes a la Atmósfera de España 2007). This inventory showed an increase of 2.1% in greenhouse gas (GHG) emissions compared to 2006. This increase can be attributed mainly to the participation of the electricity generation sector, compared to the stabilisation of emissions from the industrial sectors. The fall in the price of emission allowances in the last phase of the 2005-2007 period, and the inability to keep allowances for the following phase, has certainly caused a lack of incentive to reduce emissions.

The 2008 Inventory is not available yet, but the review of data per sectors is. The outlook is moderately good: the total emissions for the sectors subject to the emission allowance trading decreased 12.4% in 2008 when compared to the previous year. During 2008, in industrial sectors, there was a decrease in emissions of 10.2%, although when production falls, the intensity of emissions grows worse. The electricity generation sector, responsible for over 50% of the emissions produced by the affected sectors, registered a decrease of 16.1% in emissions. It is important to take into account that carbon emissions have decreased 36.3%, while combined cycle emissions have increased by a similar amount: 32.9%. This represents a deviation in thermal generation towards technologies that emit less GHG.

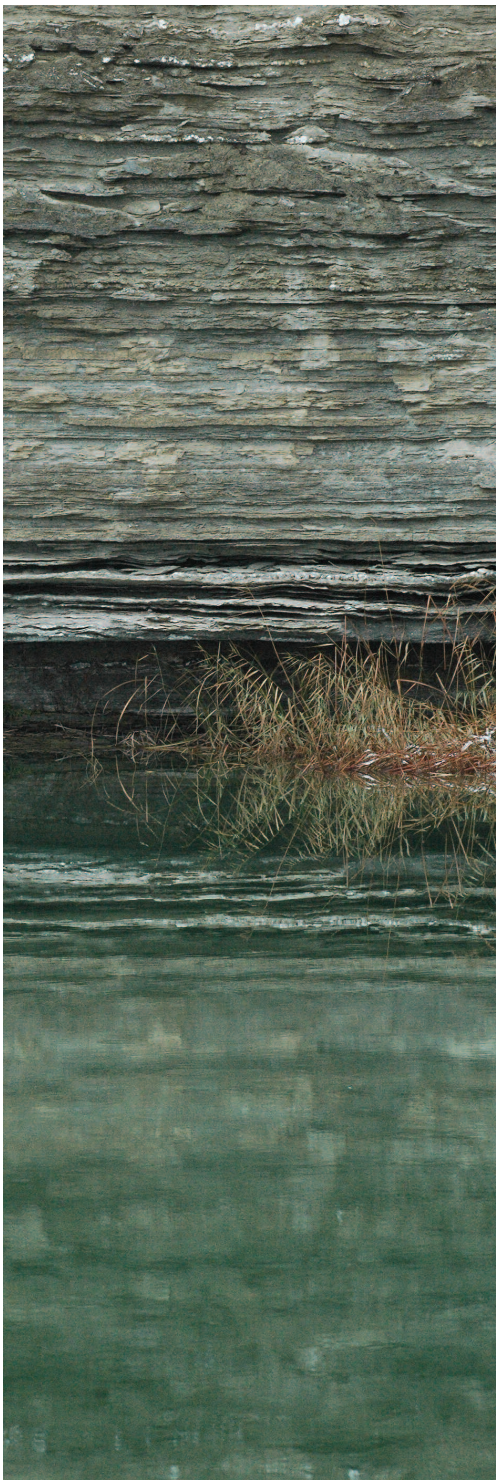
In the energy sector, the main causes for the decrease in emissions reduction were the high prices of energy material and of the tonne of CO_2 in the European market, besides

the continuous improvement of energy intensity and the increasing importance of renewable energies in the context of energy generation. This confirms the change in trend that started in 2005, and which ratifies the intention of the Spanish Administration to comply with commitments arising from the Kyoto Protocol.

This intention surpasses any international obligation, no matter how important. It is connected to the fact that climate change policies can effectively act as a catalyst for the new pattern of economic growth, based on new technologies, sustainable production models and international competitiveness.

This change is supported by the contribution of the administrations, but it is a multiple effort, with many facets, in which the private sector must also participate, with public opinion being particularly important, until the collaboration of every citizen can be obtained.

Teresa Ribera Rodríguez
State Secretariat for Climate Change



Summary

SUMMARY

Each of the indicators used in this document shows the temporary development of a specific aspect of the environment in Spain. There is no global index from which to quantify the general environmental situation or whose figures can be compared to last year's. This is why even the summary of indicators is multi-faceted. A detailed analysis of the average values for each sector allows for a global interpretation: Spain's environmental problems, like those of Europe and the rest of the world, require a continuous effort regarding the application of environmental policies.

Success is not immediate, but in certain cases it is significant and can be identified: atmospheric emissions grow more slowly, water consumption decreases, the state of forests improves, waste generation per inhabitant decreases and recycling increases, organic farmland increases, the use of renewable energies increases, industry emissions decrease, aquaculture increases, tourist pressure stabilises, the environmental efficiency of transport improves, household energy consumption decreases, development of noise maps begins, forest fires decrease, etc.

All in all, this outlook gives hope for a change in habits, in economic transformation and in a new model of production and consumption, all of which are essential for implemented environmental policies to yield positive results.

AIR

Among the main political actions in this field, the European system of emission allowance trading (Directive 2003/87/EC, implemented through Act 1/2005, of 9 March) should be highlighted. The II National Allocation Plan (NAP - II Plan Nacional de Asignación) 2008-2012 should also be noted: it entails an annual decrease of 16.2% when compared to Plan allocations for 2005-2007 and 20% when compared to the industry emissions for 2005. The Spanish Climate Change and Clean Energy Strategy 2007-2012-2020 (Estrategia Española de

Cambio Climático y Energía Limpia 2007-2012-2020), which was approved towards the end of 2007, includes 198 measures and 75 indicators to ensure reduction of greenhouse gas (GHG) emissions, thus becoming a point of reference for the coordination of climate change policies at the regional and municipal level. Act 34/2007, of 15 November, is also an essential legal framework in terms of air quality and atmospheric protection.

During 2007, greenhouse gas emissions (442,322 kt CO_2-eq) increased 2.1% when compared to the previous year; this increase can be attributed mainly to the participation of the electricity generation sector. The emissions which contributed the most were CO_2 (82.8%) followed by CH_4 (8.8%) and N_2O (6.9%). The ratio of GHG emissions per inhabitant in Spain (9.9 k CO_2-eq during 2006) puts us in 12th place in the EU-27, and below the European average. During that year, Spain was also below the European average in terms of emission intensity, i.e. CO_2 equivalent emissions per unit of generated GDP. According to national emission projections from MARM, the effect of the new macro-economic situation and the prospects of growth yield optimistic forecasts regarding GHG emissions, since it is possible to comply with Kyoto's commitments by applying additional measures.

Additional emissions of tropospheric ozone precursor gases decreased 4.6% in 2007 when compared to 2006. There was a slight decrease in the case of NO_x and CH_4, considerable in the case of COVNM (6.3%) and notable for CO (17.3%). With regard to particles, an increase of 2.4% can be seen during 2007 in the case of $PM_{2.5}$ and of 1.9% in the case of PM_{10}. Transport was responsible for most of the particles, followed by non-industrial combustion plants, and energy production and transformation.

The information gathered by the air background pollution monitoring network stations (EMEP/VAG/CAMP network) provides an overview of the status of air quality within a territory not affected by pollution sources. This shows a downward trend regarding SO_2, a stabilisation of PM_{10} and a growth of NO_2. In these cases, none of the pollutants exceeds the applicable limits allowed for health protection. Only in regards to ozone are the average values above the limit set for human health and vegetation protection. Spain's geographic and climatic conditions, together with the photochemistry of ozone and its nature as secondary pollutant, contribute to higher values being recorded in areas far from the main sources (urban or industrial areas).

WATER

This chapter presents a set of indicators that offer information on the status and quality of available water resources. This edition includes a new indicator named "natural water resources", which indicates the total water input through the hydrological cycle based on superficial input (fluvial network) plus groundwater input (aquifers). During the 1985-2005 period, there was a 5% decrease in water resources. For the last year of that period, available data shows an annual average of 153.36 litres per m^2. The effects of climate change are expected to cause a decrease in water input and an increase in irrigation demand, which means that resource management will be a determining factor in order to face the demands of the population.

Reservoir water data for 2008 (as of 2 January 2009) indicates an increase in most river basins (except for Guadiana and Guadalquivir basins), which is reflected in the total peninsular volume that shows an increase of over 15%. The biggest increases have taken place in the Ebro, Catalonia and Galicia basins. Duero basin improved compared to the previous year, but some areas remain at emergency levels. Segura and Júcar basins retain low values,, but their reserves have increased by 30%. The drought monitoring map shows an improvement in 2008, but there are significant deficits in several areas.

With regard to water consumption, the indicator shows a reduction in farms and household consumption. Water distributed through urban supply networks decreased 3.6% in 2006 when compared to the previous year. Average household water consumption was 160 litres per inhabitant per day, 3.6% less than the previous year. The compared evolution of the volume of water for urban supply and of the GDP shows that the growth of both variables was similar until 2004, when water consumption began to decrease, but the GDP continued to increase. This suggests a more efficient use of water.

Farm water consumption was 15,865 hm^3, with a decrease of 3.9% in 2006 when compared to 2005. Irrigation systems have evolved from drip irrigation to gravity-fed irrigation and sprinkler systems. Even though gravity-fed irrigation is still the most widely used system (45.2% of the total used volume), it suffered a decrease of 7.5% in 2006, while drip irrigation increased by 8.3%.

In order to improve water resources in areas with marked water scarcity, desalination of marine or brackish water is performed. In 2008, a significant number of desalination

plants were opened. These plants increased the installed capacity by 11% when compared to 2007. The regions which have increased the most their desalination capacity have been the Valencian Community (85,000 m^3/day) and Murcia (70,000 m^3/day). The Valdelentisco desalination plant, the biggest in Europe, is located in this last area and can reach 70 hm^3/year. Technological advances designed to reduce the energy consumption of desalination plants contribute to reduce the high cost of desalination, estimated at 50%-70% of real production costs.

Nitrate concentration is one of the key parameters used to assess the quality of groundwater masses. In order to control the quality of these waters, EU Directives set a series of indicators, including nitrate concentration expressed as mg/l. According to figures available in 2008 (from 8 of 16 districts), this indicator yields very variable values, from the 26.55% of stations in the Guadiana river basin district with concentrations above 50 mg/l, to the 0% of Basque Country Inland Basins and the Miño-Limia district. The main causes of this type of pollution are the excessive and improper use of nitrogen fertilisers and the slurry discharge from livestock related activities.

Moreover, there is salt intrusion in groundwater when chloride concentrations per milligram per litre (mg/l) are over 1,000. In 2007, only the districts from the Mediterranean basins were affected by salt intrusion: the Segura District showed that 43.75% of monitoring stations presented concentrations exceeding the one indicated; the Ebro District yielded 14.29% and the Júcar District 5.26%. According to the information available for 2008, the Júcar District shows the same salt intrusion percentage, but there is no data yet regarding Ebro and Segura.

Organic pollution of rivers –as a consequence of discharging urban wastewater– is measured using two indicators: ammonium concentration and Biological Oxygen Demand (BOD5). Regarding this last indicator, it should be mentioned that in 2008 there was a slight worsening of the situation: the percentage of monitoring stations showing a lower level of organic pollution fell and the percentage of those stations with bigger concentrations of organic material increased. The presence of ammonium brings about the increase of eutrophication. With regard to this indicator, the data available in 2008 shows a slight worsening of the situation compared to 2007, since stations registering the highest concentration went from 10.4% to 11.9%, while those recording the lowest concentration levels went from 49.7% to 53.2%. It is to be expected that the results of the application of the National Water Quality, Sewerage and

Treatment Plan 2007-2015 (Plan Nacional de Calidad de las Aguas: Saneamiento y Depuración, 2007-2015) bring about an improvement of this situation.

Royal Decree 134/2007, of 11 October, on the management of bathing water quality implemented Directive 2006/7/EC, of 15 February, thus classifying bathing water into four categories (poor, sufficient, good and excellent) and reducing the amount of analysed parameters. Regarding the "bathing water quality" indicator, it should be noted that in 2008 the percentage of good or very good quality coastal bathing water suitable for bathing increased, reaching 99.84% of sampling points. Regarding inland water quality, during 2002-2008 the percentage of "areas not suitable for bathing" decreased to 1.7% last year. 38.4% are areas of very good quality and 59.9% are areas of good quality.

LAND

Land is the upper layer of the Earth's crust, where most of the biosphere is and where human activities take place. It has a complex composition involving organic and mineral matter, and its formation is very slow. It has many functions (it stores, filters and transforms many substances) and it plays a central role as habitat and genetic resource, on top of being the biggest carbon store on Earth.

Land degradation is a serious problem either caused or stressed by human activities: industrial activities, urban sprawl, inappropriate agricultural and forestry practices, etc. The creation of artificial surfaces leads to a decline in habitats, fragmentation of landscapes and a reduction in the space vital to many species. In Spain, these artificial surfaces have expanded, mainly around large cities and along the coast.

The Corine Land Cover 2006 inventory addresses the changes that took place in Europe during 2000-2006, but, when this edition was closed, the data could not be used yet. For this reason, this chapter offers information from CLC 1990-2000, and compares the variations produced in Europe and Spain regarding the different types of land cover. During that decade, artificial surfaces increased by 5.38% (871,241 ha) in Europe and by 25.14% in Spain, and the population grew –respectively– by 2.13% and 15%. Another important change was that of water bodies, which in Europe meant only 1.96% but in Spain reached 12.25%. During this period, changes in agricultural areas, forests and semi-natural areas were quantitatively less important.

With updated data from 12 Autonomous Regions (National Soil Inventory 2002-2012 [Inventario Nacional de Suelos 2002-2012]), this chapter presents the indicator which shows the percentage of land area, in comparison with the regional total, affected by different levels of erosion. With high erosion levels (over 25 t/ha - year), Andalusia takes the first place (22.63%), followed by Catalonia (20.74%) and Cantabria (17.70%). Regarding annual (average) soil loss, Catalonia bears the highest percentage (23.67%), followed by Andalusia (23.17%) and Cantabria (21.23%).

Finally, the "area at risk of desertification" indicator is based on data provided (August 2008) by the Working Paper on the Spanish National Action Programme to Combat Desertification (PAND - Programa de Acción Nacional contra la Desertificación), which determines a series of areas on which policies need to be developed to combat this process based on different parameters (aridity index, soil loss due to erosion, accumulated land area affected by fires and aquifer over-exploitation). Percentages for this zoning are as follows: low risk of desertification: 37% of the national territory; intermediate risk: 19%; high risk: 16%; and very high risk: 2%.

NATURE & BIODIVERSITY

In an attempt to stop the loss of biodiversity, as a European aim for 2010, measures are being applied in Spain derived from Act 42/2007, of 13 December, on Natural Heritage and Biodiversity. The Marine Protected Area concept was added to the existing concepts of Protected Parks, Reserves, Natural Monuments and Landscapes.

The number of protected natural areas in 2008 climbed to 1,523, comprising an area of 6,229,585 ha (land and sea). Protected natural areas now represent 11.8% of the total terrestrial area; this number increases to 26.6% if the Natura 2000 Network is taken into account. The communities with a bigger percentage of territory included in the Natura 2000 Network are still the Canary Islands (46.8% of its territory), Madrid (39.9%) and La Rioja (33.2%).

During 2008, the trend towards forests improvement continues, especially regarding coniferous trees. Damage to forests was caused, among other factors, once again by insects (33% of the damages), abiotic damage (29%) and fungi (13%).

Forest areas continue to increase and will reach 27,747,680 ha in 2010 according to forecasts. The forest areas of all the Autonomous Regions in general have increased,

particularly in Extremadura and the Canary Islands, which have shown an increase of 19% and 16% respectively in the Third Spanish National Forestry Inventory (Tercer Inventario Forestal Nacional), in comparison to the second inventory. The wooded forest area grew in Castile-La Mancha by 57% and in the Balearic Islands by 52%.

Excluding terrestrial mammals, the percentage of endangered taxa included in the Spanish Catalogue of Threatened Species varies between 10 and 35%. In the case of vascular flora, the percentage is lower, about 10%. Figures for fish and amphibians (25 and 18% respectively) are low considering the conservation needs of these groups. Birds and reptiles present about a third of their threatened taxa catalogued, while for mammals the percentage of threatened species reaches 76%.

Communities of urban birds are stable, as has been the case for the last decade. The same can be said of birds connected to aquatic environments and regular sedentary and migratory birds. There has been an increase in bird communities from the Eurosiberian and Mediterranean forests. The trend, however, is not all that positive for bird communities connected to agricultural environments. Due to their diet, populations of insect-eating birds have remained stable, but communities of grain-eating birds are facing a slight fall.

The number of administrative offences reported by the Nature Protection Service of the Civil Guard (SEPRONA - Servicio de Protección de la Naturaleza de la Guardia Civil) has decreased by 12.4% between 2006 and 2007. The number of criminal offences increased in 2007, with forest fires at the top of the list, followed by land use offences and offences against pets.

WASTE

In Spain, and in other EU countries, there has been an increase in waste generation per inhabitant linked to economy growth. An adequate management of this avoids pressures on the environment as it transforms waste into resources that contribute to raw material and energy saving. Therefore, management best practices, along with waste reduction, are the two basic pillars of environmental policy.

In this respect, the new National Integrated Waste Plan 2008-2015 (PNIR - Plan Nacional Integral de Residuos) approved by the Cabinet in December 2008, aims at

setting guidelines for the development of specific policies in order to improve waste management, reducing its generation and encouraging its adequate treatment.

In Spain, during 2007, each inhabitant generated 588 kg of urban waste; this value was quite low compared to the 662 kg produced in 2000 (peak reached in the 1996-2007 period.) The main element of the current trend is that, after the initial growth, there has been a continuous reduction in the urban waste generated per inhabitant since 2003. Although the amount of urban waste per inhabitant is higher than the EU-27 (522 kg/inhab), in the 1996-2007 period, Spain has occupied the ninth position among the countries with the lowest increase in urban waste generation (only 9.7%), slightly higher than the EU-27 increase (7.6%).

Thanks to the extended use of landfill in Spain as a waste management system, the country occupies the sixth position among the EU-27 in relation to its growth. In the 1996-2007 period, total urban waste per inhabitant for landfills grew by 17.4%; at the same time, the EU-27 average fell by 26%. In 2007, about 350 kg/inhabitant was deposited in Spanish landfills. Incineration is another waste disposal system used which permits energy-value recovery. During 2007, a total of 58 kg/inhabitant was incinerated in Spain. This figure is not very high when compared to the average of the EU-27 (104 kg/inhab) and that of other North European countries

In terms of paper-cardboard recycling, the indicator presents an evolution until 2007, when 4.9 million tonnes were collected. The Spanish paper industry is the leader in recycling within the European Union, recycling not only paper used in Spain but also almost a million tonnes imported from other countries. In 2003, the collection rate was 50.5% while in 2007 it stood at 63.7% (close to the EU average). Moreover, the recycling rate in 2003 stood at 61.3% and has increased up to 73.7% in 2007, a value that is above the EU average. The reuse rate (total amount of recovered paper consumption in relation to paper-cardboard production) held very similar values in the 1997-2007 period, reaching a rate of 84.6%. The national paper-cardboard average collected in 2006 stood at 22.1 kg/inhabitant per annum. The highest values by Autonomous Regions (2006) were reached in the Balearic Islands (66.3 kg/inhabitant/year), followed by the Basque Country, Canary Islands and Navarre.

The characteristics of glass make it a material of particular interest in terms of recycling: in addition to eliminating waste, it reduces raw material extraction and saves energy in the manufacture of glass packaging. The total figure for glass

recycling in 2008 reached 716,204 tonnes, 9% higher than in 2007, which were directly deposited by citizens into containers intended for that purpose. This suggests that in the 2001-2008 period the glass recycling rate has almost doubled from 32.5% (2001) to 60.3% (2008), meeting - even exceeding - the European target value for this year, which was set at 60%. In terms of Autonomous Regions, significant increases between 2006 and 2007 have been recorded in Extremadura (35.8%), Murcia (25.8%) and Madrid (25.3%).

In 2006, Spain reached a packaging recovery rate of 60.7%, exceeding the aim set by Royal Decree 252/2006, of 3 March, which established a packaging recovery rate of 60% as a goal for 2009. In terms of its recycling, a 54.0% rate was reached, very close to the 55% established by the Royal Decree to be met in 2009. It is estimated that this rate will be reached in the near future, provided that the growth rate of the last 3 years remains the same.

In 2007, the Integrated Management System (IMS) operated by ECOEMBES recovered 1,312.886 packaging tonnes, 3.6% higher than in 2006. Of that figure, 88.4% was recycled and 11.6% was recovered. The IMS has recycled 56.1% of the packaging that affiliated companies put in the Spanish market during 2007. In that year, 167 new companies became affiliated companies; therefore, the total number amounts to 12,375 companies that manage 90% of the packaging put into the market.

Finally, as regards sewage sludge production and use, the indicator shows that its production increased 9.7% in 2007 in comparison with the previous year. This waste continued to be used mainly in the agricultural sector, accounting for 66.7% of all sludge produced (781,000 t). Landfill reached 168,000 tonnes of dry matter, 13.7% more than in the previous year, while the incinerated sludge reached a volume of 39,000 t of dry matter - a similar amount to the 3 previous years - which seems to indicate a stabilising trend.

AGRICULTURE

European agriculture ministers reached an agreement (20 November 2008) known as the “health check of the Common Agricultural Policy (CAP)” (Chequeo Médico de la PAC) in order to adjust the amendment of the 2003 Common Agricultural Policy for the 2009-2012 period, and face the new challenges imposed by the world economic situation. It concerns a revision that will modernise, simplify and streamline the

European Union agricultural policy, supporting rural development and eliminating some restrictions to farmers, thus helping them to respond better to market tendencies.

In terms of this revision, the European agriculture must manage, in a sustainable manner, natural resources used in productive processes and, particularly, land and water. Moreover, it must supply public-related services which are not directly repaid by the market, such as balanced territory distribution, rural landscape preservation, natural area protection and biodiversity. Within this new framework, the Ministry of the Environment and Rural and Marine Affairs is directing the Spanish agricultural policy.

The use of fertiliser and phytosanitary products to increase production yield and for disease and pest control is very significant due to their associated pollution risk. In 2007 there was an increase in the number of fertilisers used per hectare, from 118.3 kg/ha to 134.7 kg/ha, similar to 2004. This increment can be seen in the three types of fertilisers, but especially in both phosphate and potash fertilisers, which showed increases of 27.5% and 18.4% respectively. In absolute numbers, consumption in 2007 exceeded the 5 million tonnes, changing the stabilising trend of the two previous years. As regards the distribution of fertiliser consumption by Autonomous Regions, there exists a clear link to intensive agriculture, with a more elevated consumption in the Canary Islands, the Region of Murcia and the Valencian Community.

In 2007, however, there was a slight reduction of 0.8% in phytosanitary product (active ingredient) consumption per hectare compared with the previous year, showing a similar level of consumption as that recorded in 2005. The use of herbicides (31% of total) experienced a 3% increase in relation to last year, as opposed to the use of fungicides (25% of total) which fell by 3%. Insecticides kept the same figure in comparison with the previous year. The significant increase (34.3%) in phytosanitary products (both mollusc and rat poisons), probably as a response to the field mouse plague suffered in the same year, and affecting Castile-Leon in particular, must be highlighted.

Farmland devoted to organic farming continued to increase in 2007, when it reached almost a million hectares (988,320 ha), 6.9% more than in 2006. Although the number of workers had a lower increase (4.94%), its total number stood at 20,171 workers. The Organic Farming Area, in comparison with the Utilised Agricultural Area (UAA), reached around 4% at national level. Seven Autonomous Regions exceeded

this percentage, among them, Andalusia (12.1%), the Balearic Islands (9.6%), Canary Islands (8.8%), Navarre (6.0), Catalonia (5.8), Murcia (5.1%) and the Valencian Community (4.4%).

According to this indicator, only Aragon and Cantabria experienced a reduction in 2007 as compared with 2006. The distribution of crop types is similar to that in previous years; pasture, grassland and forage are those with a highest proportion of land cover, followed by forests and forest harvesting, cereals and legumes and olive groves. There was an increase in the area devoted to vegetable crops and root crops, and the area devoted to seed cultivation and nurseries decreased.

The irrigated area fell in 2008 compared to 2007 in relation to the utilised agricultural area, and is set at 13.2%, equivalent to the last five years' average. Eight Autonomous Regions are above this percentage: first the Valencian Community (44.0%), followed by Murcia (33.2%), Canary Islands (25.5%), Catalonia (23.3%) and La Rioja (20.8%). As regards irrigation techniques, in the 2002-2008 period, the area irrigated by localised systems has exceeded the gravity-fed area and the area irrigated by sprinkler systems. Currently, 45.9% of the irrigated area is served by localised systems, 32.1% by gravity systems and 21.5% by sprinkler systems.

In the 2000-2007 period, Gross Value Added (GVA) for agriculture reached a minimum value in 2006, similar to 2000, but it rose in 2007. Other variables had a different evolution; fertiliser and phytosanitary product consumption per hectare were the variables with the most irregular evolution. Likewise, the irrigation area has kept very similar values in the aforementioned period.

ENERGY

The development of a new energy model that reduces pressure on the environment and human health without halting economic activity is a gradual and fluctuating process. Some of these fluctuations are not a direct consequence of economic activity, such as emissions caused by forest fires or the weather; others are related to the introduction of new factors, for instance, the emission allowance trading.

The EU's aim of reducing total greenhouse gas emissions by 20% in 2020 is closely related to energy efficiency (energy consumption/GDP). In this respect, a visible parallel between the evolution of this indicator in the EU and in Spain can also be seen

this year. Although in both cases there is a downward trend, it is more significant in Spain due to the GDP increase. In the 2000-2006 period, primary energy consumption per unit of GDP fell by 4.6%. In 2007, compared to the previous year, this fall was of 1.9%. Final energy consumption by sector shows the following distribution in 2007, according to the IDAE: transport (39%), industry (30%), residential sector (17%), services (10%) and agriculture (4%).

The energy-related CO_2 intensity indicator allows the analysis of energy production in connection with the GDP. In 2007, it shows a moderate increment in comparison with 2006 (1.21%) The abovementioned fluctuations showed in the 1990-2007 series are largely due to variations in weather conditions, particularly in the case of cold winters, and to hydroelectric production. In the period under analysis, emissions intensity has fallen by 5.41%; however, this does not show a clearly defined trend.

In 2007, for the first time in Spain, renewable energies exceeded nuclear energy in terms of electricity generation. Nevertheless, fossil fuels continue to predominate in electricity generation, although there are some variations compared to the previous year: natural gas (31.7%), coal (24.2%), oil (6.5%), renewable energies (19.9%) and nuclear energies (17.7%). Renewable energies contribution in total primary energy consumption has risen from 5.87% in 2005 to 6.97% in 2007. The contribution of renewables in electricity generation has increased from 15.9% in 2002 to 19.9% in 2007. Hydroelectric energy represented 9.8% of electricity generation and wind power represented 8.7% in 2007.

INDUSTRY

In this edition, the situation analysed by the indicators (until 2007) reflects an increase in industry, which grew, even above national economy, as opposed to (as from 2008) the general decrease in production that affects Spain and the whole world economy.

Despite the increase in industry in 2007, a decrease in CO_2 emissions generated by the industrial sector (2% in comparison with the previous year) has been observed. Likewise, NO_x emissions show a downward trend (0.93%), while NMVOC remain almost stable (having a 0.19% increase). These variations must be analysed within the process that took place from 1990 up to 2007, including significant increases in CO_2 emissions (45.24%), NMVOC emissions (26.71%) and NO_x emissions (67.31%). It is also important to highlight that SO_2 emissions fell by 61.36% in the 2000-2007 period.

After the 2006 decrease, the sector's final energy consumption increased again in 2007, showing a 5.40% increase due to a greater consumption of coal (10.12%). Since 2004, the proportion of final energy consumption by industry has decreased in Spain compared to the total energy consumption, standing at 31.16% of the total in 2006 (according to Eurostat). This decrease is almost the same as the one in the EU-15 and more significant than the one in EU-27.

In terms of waste generated by industry, non-hazardous waste generation reached 57 million tonnes in 2007, with a decrease of 1.78% for the whole sector, but revealing major differences depending on each type of industry. While the manufacturing industry saw a non-hazardous waste increase of 14.73%, there was a decrease of 9.86% in the mining and quarrying industry, and of 14.75% in the case of the energy industry. Hazardous waste decreased in 2006 compared with the previous year (4.32%), reaching 2.1 million tonnes, a similar amount to 2003; however, it also reveals major differences depending on the subsector considered.

The aggregated Total Material Requirement (TMR) indicator (2000-2005) drawn up by the INE links GDP, population and consumption of natural resources, variables that have grown almost in parallel in Spain until 2004. In 2005, the TMR only had a 0.29% increase that can be attributed to imports, while other variables continue to rise. This stability seems to suggest greater efficiency in the consumption of resources in the economy, in line with the Sixth Community Environment Programme.

In terms of Spanish company expenditure on environmental protection, a 10.88% total increase can be observed in 2006 compared with the previous year, with significant investment expenditure, which has increased 17.05% and will bring about obvious environmental benefits over the next few years. The number of companies affiliated to EMAS (Eco-Management and Audit Scheme) reached between December 2007 and December 2008 a total figure of 1,038 (36.9% of which belong to the industrial sector, showing a 8.5% increase in comparison with the previous year), putting Spain in the second place of the EU-27 ranking, behind Germany and before Italy.

In 2007, the industrial sector showed a performance which consolidated previous trends, with a high level of growth in Gross Value Added (GVA) in the 2000-2007 period (36.28%), going from €103,415 million in 2000 to €140,937 million in 2007.

FISHING

The European Union fishing industry occupies the third position in the world ranking, even when its capacity to meet sustainability objectives for fishing grounds and species has been reduced. According to Eurostat figures, the fishing fleet of the EU-25 dropped from 88,467 vessels in 2005 to 85,332 in 2007. 10.5% of this decrease arose from reductions in the Spanish fleet.

The European Union fisheries policy is further extending its scope in order to integrate everything related to marine resources, by means of research, technology and innovation, for the purpose of ensuring that economic growth will not be achieved at the expense of sustainability. To achieve these goals, the Council Regulation (EC) 734/2008 of July 2008 on the protection of vulnerable marine ecosystems in the high seas was approved.

On 31/12/2007, the Spanish fishing fleet was made up of 13,006 vessels, of which 12,475 operated in national fishing grounds. Both in terms of vessel power and tonnage, Galicia heads the list of Autonomous Regions with a fishing fleet. Catches in waters adjacent to Spain fell by 3.2% in 2007, when compared with 2006, while total catches (in all fishing grounds: national and international) have increased 6.9%. Catches in waters adjacent to this country have been very irregular compared with the previous year. They decreased on the Bay of Biscay (11.5%), the Mediterranean, including the Black Sea (8.9%) and the Canary Islands (37.5%). On the other hand, they increased in the Gulf of Cadiz, including Portugal (13.0%).

Aquaculture has become a popular alternative to wild fish stocks used for human consumption. Global figures vary significantly in relation to mussel farming, which in 2007 reached 211,983 tonnes, showing almost a 30% decrease in comparison with the previous year.

In terms of fish production in marine aquaculture, a total of 39,995 t (compared with 37,738 t in the previous year) was reached, with an increase in the gilt-head sea-bream (11.32%) and European sea-bass (6.37%) production and a decrease in turbot production (2.88%). Fish production in continental aquaculture has also increased, particularly in the case of the rainbow trout (2.88%). Taking these figures into account, the future of aquaculture as a high-quality protein source is beyond any doubt;

however, it is important to bear in mind the subsequent impact it may have on the environment: eutrophication, use of antibiotics and other chemical products, wild fish consumption as foodstuffs, etc.

Regarding the profitability of this sector, it is worth noting that its Gross Value Added (GVA) (which presents fluctuations since 2000, partly due to the variations in mussel farming) has increased in 2007 in comparison with 2006, a year in which an upward trend was also observed.

TOURISM

In 2007, the number of foreign tourists reached 59.2 million, which represents a new historical record, but at the same time, it shows a slow growth (only 1.7% more than in 2006). Global tourist expenditure rose by 3.5%. Over 60% of international tourists come from three European countries (UK, Germany and France) and choose as their main destination six Autonomous Regions, which receive 90.5% of all tourists. At the same time, residents in Spain took a total of 93.58% journeys within the country and 6.42% journeys abroad.

From an environmental standpoint, tourism exerts significant pressure because of the increase in transport (mainly by air and road), massive tourist concentration on the coast and on accommodation facilities, and the seasonal nature of holiday periods. In addition, it also brings extra resource consumption, particularly of water, additional waste generation and an increase in pollutant emissions, among other factors. In this chapter there are indicators that show some of these environmental pressures. The number of foreign tourists per inhabitant in 2007 has remained at the same rate (1.31 tourists/inhabitant) than in the previous year, in spite of the increase in the total number of tourists due to the parallel population growth.

The pressure on the coast (the number of foreign tourists per kilometre of coast) reveals a slight increase at national level (0.5%) exceeded by five communities; Murcia is the most significant (16%) while the rest show a decrease, particularly on the Bay of Biscay and the Galician coast. From a different perspective, the "Tourist Population Equivalent (TPE) compared against resident population" shows us the pressure at national level (7.63%) and by Autonomous Regions, particularly the high figures of the Balearic Islands (27.63%) and the Canary Islands (16.26%).

Regarding the number of visitors to National Parks, there was a slight general decrease (1%) in 2007, which, together with the increase in area (Monfragüe National Park), put the final figure of visitors/ha at 31.3%, in comparison with last year's 33.6%. Finally (with data from 2008), rural tourism shows an increase in the number of accommodation and beds (almost 10%) but a decrease in the number of visitors (1.86%) and overnight stays (2.32%).

TRANSPORT

In 2005, transport generated 4.6% of total Gross Value Added (GVA) in Spain. In 2007 this sector employed 693,000 people. If related activities, such as those performed by travel agencies, are taken into consideration, this sector employed almost a million people.

In Spain, modal distribution is dominated by road transport, which continues to generate the greatest demand for both passengers and goods. Passenger transport distribution in 2007 shows that transport by road accounted for 89.5% of the total, by air 5.3%, by rail 4.8% and by sea 0.4%. Freight transport distribution in 2007 was as follows: road 83.8%, sea 10.4%, pipeline 3.0% and rail 2.8%.

For passengers, air transport was the fastest growing mode of transport over the 1990-2007 period (270.7%), while in the case of goods, road transport had the highest increase (133.5%), followed by pipeline and sea transport.

Over the 1990-2007 period, greenhouse gas emissions by transport rose by 95.7%, while those of acidifying substances remain stable (with a slight fall of 0.2%). There was also a fall in emissions of tropospheric ozone precursor gases (28.7%). When compared with 2006, the situation in 2007 is characterised by an increase in emissions. This increase exceeds that of 2006 in comparison with the previous year. It is worth noting that despite the growth of emissions, a 0.5% decrease in final energy consumption for all modes of transport was observed.

In 2008, Spanish airports recorded a total of 203.8 million passengers, operated over 2,400,000 flights and transported 630,000 tonnes of goods. Compared with 2007, the number of passengers fell by 3.2%, while goods transport increased slightly. Only Alicante, Girona and North Tenerife airports showed increases in passenger transport in 2008, while at others the decrease was more or less significant, even though some

airports presented significant rises in international traffic, such as Barcelona's, which grew by 20%.

In 2007, air transport used 11.8% of the energy consumed by transport, occupying the third position behind road and sea transport. Regarding this transport mode, it is worth mentioning Directive 2008/1001/EC - which came into force in 2009 - and that includes air traffic activities in a scheme for greenhouse gas (GHG) emission allowance trading within the Community.

As regards waste generated by transport, in 2007 a total of 218,896 t of end-of-life tyres (ELTs) were recycled by means of the two existing integrated management systems. The Spanish National Integrated Waste Plan (PNIR – Plan Nacional Integrado de Residuos), of December 2008, establishes quantitative objectives in relation to prevention, recovery, energy recovery and recycling for this type of waste.

In 2008, total fuel consumption for motorisation climbed to 31.9 million tonnes, which shows a 3.3% decrease in comparison with the previous year. From that amount, diesel represented almost 80%, with a 3.9% decrease compared with 2007, which reveals that the trend towards greater consumption observed in recent years has come to a halt. In terms of bio-fuels, bio-diesel consumption stood at 586.4 kt, thus doubling the amount from last year. Fuel imports represented 71% of total consumption. Moreover, bio-ethanol consumption stood at 180.4 kt, even when production reached 273,377 t, 3.8% lower than last year's figure.

The number of traffic accident fatalities fell for four years running. In 2007, compared to the previous year, this fall was of 7%. In terms of absolute figures, the number of deaths stood at 3,823, but there were 19,295 serious injuries and 123,226 minor injuries as well. The number of accident fatalities has been higher on highways than in urban areas (81% as opposed to 19%). Road safety is a key factor within these figures, as there are fewer accidents on highways and road networks than in two-lane roads.

The relationship between the number of accidents with victims and the vehicle fleet gives us the accident rate. Since 1990, a 48.7% fall of this rate can be observed, standing at 3.32 accidents per 1,000 vehicles in 2007. In 2009, the Accident Concentration Treatment Plan in State Highways Networks (Red de Carreteras del

Estado) - which will be effective until 2012 - has been approved. This plan is aimed at improving accident prevention.

In terms of eco-efficiency in transport, quantified by means of the amount transported (passengers-km and tonnes-km) multiplied by unit of GDP, a continuous downward trend could be identified over the 1995-2007 period.

HOUSEHOLDS

The residential sector (households inhabited permanently) is analysed from the perspective of consumption and the pressure exerted on the environment.

The number of households has risen by approximately 21.5% in the 2001-2007 period, reaching 16.3 million units this year. This increase is due to population growth (10.8% in the same period), but also to the tendency towards the reduction of the number of people per household (in 2007, 46.22% of households was made up of just one or two members). The number of housing units (main and secondary) reached 24.5 million in 2007.

Households play a significant role in energy consumption, waste production, water consumption and CO_2 emissions. This consumption is financed through households' participation in the distribution of income, which has reached €39,443 per household in 2007 in absolute figures, showing an upward trend in the whole series.

Broadly speaking, one of the trends seen in the period under analysis is the relationship between the increase in the number of households and the increase in consumption. Regarding CO_2 emissions, there was an increase of 1.8% in 2007 in comparison with the previous year, when a significant decrease had been experienced. There was a slight decrease in energy consumption, more significant for electrical usage than for heating/air conditioning. Urban waste collected per household decreased from 1,888 t per household/year in 2005 to 1,821 t per household in 2006 according to the most updated figures published by the INE.

As regards water consumption per household, there has been a clearly favourable downward trend (with some fluctuations) since 2000. The awareness-raising campaigns and restrictions imposed in the context of generally low rainfall periods, and even droughts, are very likely to have contributed to this result. The INE calculates that

water consumption per household per year in 2006 stood at 168 m^3, whilst in 2000 the figure was 190 m^3 per household per year, which seems to reveal a consolidated downward trend in consumption.

The number of passenger cars per household has remained stable since 1998 at 1.3 passenger cars, although in 2007 there was a slight rise. In absolute terms, the number of passenger cars in the national vehicle fleet in 2007 stood at 21.8 million, representing a 34.5% increase since 1998, a figure fairly similar to the rise in the number of households in the same period.

URBAN ENVIRONMENT

The trend towards urban and periurban concentration of the population affects all of Europe and it is more evident in regions that offer employment and housing options for immigrant populations, such as several Autonomous Regions in Spain. This is reflected in the "urban pressure on land", quantified through an index that establishes a relationship between growth in towns of more than 10,000 inhabitants and the territory of the community. This index has increased by 13.29 percentage points in the 2001-2007 period in the national territory; the Balearic Islands (29.80%), the Canary Islands (23.96%), the Valencian Community (20.76%) and the Region of Murcia (19.21%) being the communities that showed higher increases in the period under analysis.

In 2007 this indicator shows significant updates. Although it continues to grow at national level (1.18%) and in some Autonomous Regions (Balearic Islands, Canary Islands, Castile-La Mancha, Murcia and Navarre), decreases can be seen in other Communities: Asturias (0.11%), Castile-Leon (3%), Extremadura (1.08%), Galicia (0.04%) and La Rioja (0.40%), which even when they are not very significant might be introducing a change in trend.

Closely related with economic and population growth, this chapter presents the most important data on the 16 metropolitan areas of public transport which reached the amount of 21.3 million inhabitants in 2006 and covered 33.2 million km^2, of which 3,243 km^2 belong to the main city. The public transport infrastructure (urban and metropolitan) within these areas shows a growing extension both in urban (about 9,000 km) and metropolitan (about 45,000 km) bus lines and railways (2,380 km). Also, it is worth noting a greater integration among modes of transport. Despite the fact that

public transport is of significant importance, a third of the urban transport occurs by means of private vehicles. Moreover, journeys on foot are important in medium-sized cities. Due to urban sprawl, private transport represents between 35% and 55% of total public transport in metropolitan areas.

Air quality in the urban environment is related to transport increase. The average situation of air quality in municipalities of more than 100,000 inhabitants shows differences for each pollutant and for each variable evaluated of said pollutant. Generally speaking and for every city with more than 100,000 inhabitants, there are some significant factors: the growth of ozone concentration excess levels up until 2005 and the decrease that started at that point; the slight decrease of particles (average annual concentration and excess levels) and the average annual NO_2 concentration; as well as the decrease until 2003 and the later growth of NO_2 exceed levels.

Regarding particles with a diameter of less than 10μ, for all population bands considered there is a decrease in the number of days per year when average daily concentration exceeds its limit. Regarding ozone, since 2005 there has been a decrease in the number of days that exceeded the concentration of 120 μg/m3 measured as the maximum daily 8-hour running average, for all the population bands analysed, changing this way the upward trend experienced since 2002.

In order to improve quality of life in cities, a wide range of initiatives with local impact have been launched, among which it is worth mentioning the Spanish Network of Cities for Climate (Red Española de Ciudades por el Clima) and the Network of Networks for Sustainable Local Development (Red de Redes de Desarrollo Local Sostenible). This is promoted by the Spanish Ministry of the Environment and Rural and Marine Affairs (Ministerio de Medio Ambiente y Medio Rural y Marino) in collaboration with the Spanish Federation of Municipalities and Provinces (Federación Española de Municipios y Provincias). The first includes 450 municipalities, with over 25 million inhabitants, that jointly and in a coordinated manner, develop policies to reduce CO_2 emissions locally and to have a positive role in climate change.

A relevant indicator in this chapter is related to environmental noise, which presents results from the first stage of the Noise Strategic Maps drawn up in accordance with Act 37/2003, of 17 November. This indicator reveals that 1,463,000 people are exposed to noise coming from main highways and roads, 78,100 from railways and

143,700 from large airports. The chapter also presents an indicator that monitors the number of Sites of Cultural Interest (immovable property category) that receive special protection under Spanish legislation. There are now 15,598 of these sites across Spain.

NATURAL AND TECHNOLOGICAL DISASTERS

In spite of the growing number of catastrophes taking place all around the globe, neither the number nor the magnitude of natural disasters in Spain can be compared with other events that have occurred in other regions of the Earth. Many times, these events can give rise to significant monetary damages and a great number of victims, a number which is usually higher in the case of developing countries. 750 disasters have taken place during 2008 in the entire world, causing at least 220,000 death casualties. Two great catastrophes hit Europe and resulted in significant economic losses but caused no casualties.

In the period 1995-2008, there were a total of 897 deaths in Spain due to natural disasters. 29.3% of that figure resulted from floods, 23.0% were due to maritime storms, 18.2% due to storms and the remaining 9.1% originated in forest fires.

During 2008, a total of 19 deaths were identified in Spain due to the above-mentioned reasons, one more than last year. Heatwaves, particularly important in previous years, did not result in fatal victims in 2007 or 2008. This has been due, in part, to the preventive campaigns developed by the Spanish Ministry of Health and Consumer Affairs.

Regarding rainfall (the lack of which may give rise to drought periods with serious economic and environmental consequences), the figures for the years measured in accordance with Average Rainfalls during 1941-2008 show us that 30.7% of the years within that period have been dry or very dry, 20.6% have been normal and 42.6% have been wet or very wet. Moreover, 3% of said years were extremely dry and the remaining 3% were extremely wet.

2008 saw a recovery in connection with the hydric deficits of the two previous years in spite of the irregular nature of rainfalls, which were lower than average during the first three months of the year (especially in the northern region) but were abundant by the

end of the year. For some Autonomous Regions (or in certain areas), the year has been dry or very dry. It is also worth noting a series of heavy rainfall that took place at the end of September in the Gibraltar Strait area, Murcia, the central region of the Valencian Community and some other areas within the communities of Madrid and Castile-La Mancha.

Forest fires are the cause of some of the most serious natural disasters within Spain, especially during the summer, and they usually result in significant environmental consequences and the loss of human lives. Although fire is a natural process (lightning is one of the typical causes), considering forest fires as natural disasters may seem controversial, as around 80% are of anthropic origin (deliberate or due to negligence). In 2008, the affected area fell to figures that were last recorded several decades ago, reaching a total of 7,636 ha of the wooded area in comparison with the ten-year average of 43,298 ha. This decrease was due, in part, to the preventive actions of the Ministry of the Environment and Rural and Marine Affairs of the Autonomous Regions, as well as to the dissuasive action of the Nature Protection Service of the Civil Guard (SEPRONA - Servicio de Protección de la Naturaleza de la Guardia Civil) and other security-related bodies.

Accidents arising during the road and rail transport of hazardous goods, maritime accidents causing oil spills, and accidents in industrial facilities result in severe environmental damages and are subject to strict regulations. Between years 1997 and 2007, there were over 570 accidents during the transport of hazardous goods, most of which (531) resulted from the road transport of hazardous goods while the rest occurred during rail transport (39). However, in recent years, this number has decreased: in 2007, there were 48 road accidents (as opposed to the 64 that occurred in 2004, a year with a high number of road accidents), while there were only two accidents recorded in connection with rail transport, as opposed to the 10 accidents that took place in 1997. Regarding the Autonomous Regions, Andalusia, Catalonia and Aragon were those with the highest number of this type of accidents during the period under analysis.

These accidents can cause environmental damages to the atmosphere and the hydric resources, as well as soil contamination, the last two being the most affected categories. Out of a total of 630 accidents, 78.8% were soil contamination accidents, 13.5% were water pollution accidents, and 10.3% were related to atmospheric pollution.

Over the period 1991-2007, there were 134 oil tanker accidents off Spanish coasts resulting in spills of over 7 tonnes. The coasts of Andalusia (Gibraltar Strait), Galicia, Canary Islands and Catalonia have been subject to the greatest number of accidents due to the intensity of the traffic and the extension of their coastline. In 2007 there were five oil tanker accidents as opposed to the two accidents of 2005.

In 2008, there has only been one accident in industrial facilities covered by the Seveso Directive, in comparison with the three accidents from 2007 and six from 2006. Therefore, a clearly decreasing trend can be seen, which would be very positive if it can be finally consolidated. In the 1987-2008 period, there were a total of 35 industrial accidents resulting in discharges of dangerous chemical substances. Catalonia has been the Autonomous Region with the greatest number of accidents (13), followed by the Basque Country (5) and Castile-Leon (4).

1. Background

- Social background
- Economic background
- Administrative background
- Environmental policy
- Environmental information

Comprising 17 Communities and two Autonomous Cities, Spain takes up the best part of the Iberian Peninsula in the southwest corner of Europe, very close to Africa. The country includes two cities in the north of Africa – Ceuta and Melilla – and the Balearic Islands in the Mediterranean and the Canary Islands in the Atlantic. Spain is characterised by great geographical, climatic and biological diversity (four of the 10 biogeographical regions that exist in Europe are represented in Spain), which together with other social, cultural, political and economic aspects makes the country plural and unique. Spain has approximately 10,099 km of coastline, which accounts for almost 15% of the coastline in the European Union (EU). The EU-27 has the second largest coastline in the world, behind Canada.

Spain is a constitutional monarchy with a Parliament (Cortes Generales in Spanish) made up of two chambers: the Congress and the Senate. The main basis for legislation is the 1978 Constitution. All Autonomous Regions have their own autonomous Parliaments and Governments. The respective Regional languages are co-official, alongside Castilian Spanish, the official Spanish language of the State.

Spain has a total surface area of approximately 506,000 km^2, making it one of the fifty largest countries in the world and the second largest in the EU-27, with 11.7% of total surface area. France is the largest (12.8%) and Malta the smallest. The surface area of continental Spain amounts to 493,514 km^2, while the Balearic and Canary Islands have a total surface area of 4,992 km2 and 7,492 km^2, respectively, and the cities of Ceuta and Melilla together have a surface area of 32 km^2.

Social background

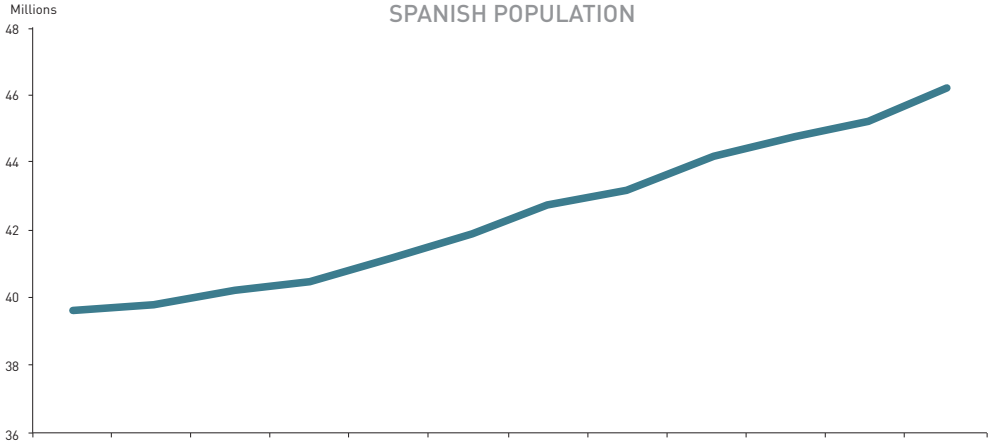
The population of Spain has recorded marked growth in recent years, exceeding the forecasts made in the 1990s by demographers who predicted it would not surpass 40 million in the short term. In 2008 Spain had 46,157,822 inhabitants, an increase of 16.4% over the period dating from 1996 to 2008. During that period, large Regional differences were observed in population growth, with the Balearic Islands recording a 41.1% rise and Asturias a 0.7% decrease.

The largest increases in population have been registered in the

Communities on the Mediterranean coast, in the Canary Islands and in Madrid.

In relation to Europe, Spain is the fourth largest country in terms of population, contributing 9.1% of the total. Only Germany (16.5%), France (12.8%), the United Kingdom (12.3%) and Italy (12.0%) are larger. In this sense, the EU-27 had a total of 497.5 million inhabitants in 2008, the third largest population in the world behind China and India. The increase in population is largely due to net migration (to which a considerable proportion of the increase in the birth rate must be attributed) and natural population growth. Population density in Spain in 2008 stood at 91.2 inhabitants per km^2, one of the lowest in the EU-27 (only eight countries are less densely populated).

SPANISH POPULATION



Source: INE

POPULATION GROWTH 1996-2008 (%)

Source: INE

According to the National Immigration Survey (NIS), the number of immigrants in Spain exceeded four and a half million in 2007 (4,526,522), which represents 10% of the total population of residents in the country. The NIS defines an immigrant as any given person over the age of 16 born abroad who has been living in Spain for at least a year or intends to do so. As regards the EU, in 2007 Germany contributed the largest number of foreign residents in absolute terms in 2007 (7.26 million), followed by Spain, the United Kingdom, France and Italy. These five countries account for 76.6% of the total, according to Eurostat. The situation in Spain in the last few years, characterised by sustained economic growth and an increasingly large labour market which is continuously expanding, together with Spain's strategic geographical location, explains why Spain has become an attractive point of arrival for immigrants.

Economic background

By analysing the standard of living in Spain using the total value of production in a year, Gross Domestic Product (GDP) per capita, we are able to obtain a reference of where the country stands in economic terms. Different standards of living among countries mean the goods that can be bought with the same amount of money vary from country to country. In order to compare standards of living, purchasing power differences must therefore be taken into account.

In order to do so, the price of a «basket» of comparable and representative goods and services is calculated, with the resulting price being expressed in a common conceptual currency called «purchasing power standard» (PPS). The PPS eliminates price differences among countries such that comparing GDP per capita makes it possible to compare the standards of living in the EU as a whole.

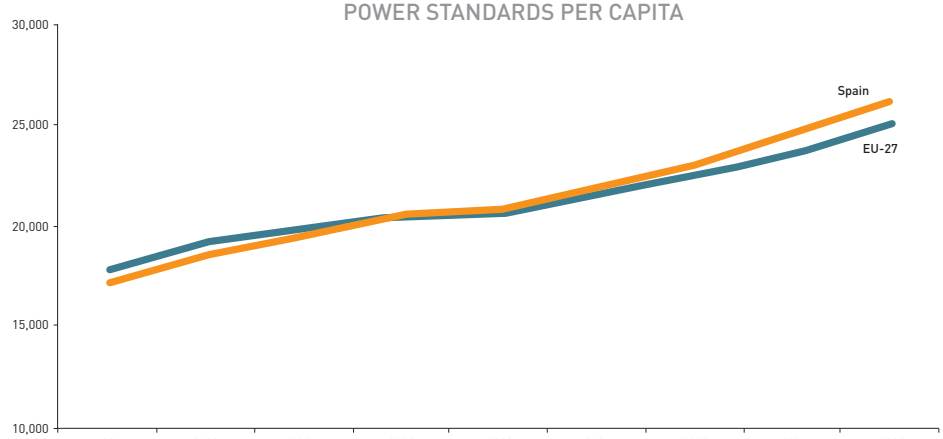
According to the EU Commission, the standard of living in Europe has improved remarkably over the last decade and is now among the highest in the world. Within Europe, Spain was ranked 12th in terms of GDP at market prices (current prices), measured in terms of purchasing power per capita, recording above average scores for Europe since 2002 (5.4% higher in 2007).

Spanish GDP (at market prices and measured in current prices) amounted to 1,095,163 million euros in 2008. GDP has risen constantly over the last few years, although a slowdown has been observed since 2006. In the period dating from 1995 to 2008 alone, net growth in GDP was 144.9%, while Gross Value Added rose by 143.2%. By market sector and over the same period, the largest economic growth rate was recorded in the construction sector (275.5%), followed by industry (96.3%)

and energy (74.1%). The lowest growth rate was registered agriculture, livestock and fishing, which only increased by 49.6% in the period.

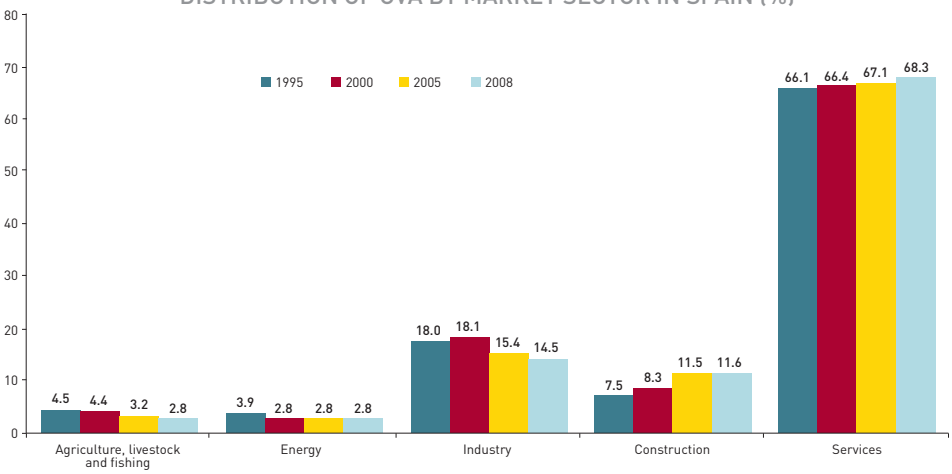
The distribution of GVA, with the constant rise in the services, which account for 68.3% of total GVA, clearly illustrates the enormous importance of this sector. This situation is common to all EU countries, where more than 60% of GDP is generated by the services sector (which includes activities such as banking, tourism, transport and insurance).

GDP AT MARKET PRICES (CURRENT PRICES) MEASURED IN PURCHASING POWER STANDARDS PER CAPITA



Source: Eurostat

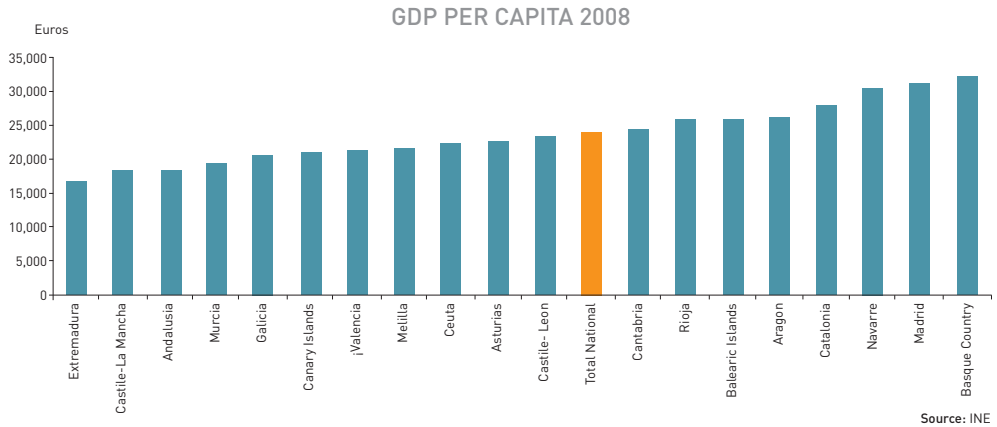
DISTRIBUTION OF GVA BY MARKET SECTOR IN SPAIN (%)



Source: NSI

National net disposable income per capita at market prices amounted to 18,941 euros in 2007 and, in keeping with overall economic development, has recorded constant growth over the last few years. Growth over the period dating from 1995 to 2007 stood at 92.3%, although a decrease in this ratio is observed since 2000, when an annual rise of 7.1% was recorded, to the 3.9% growth rate registered between 2006 and 2007.

The graph below displays GDP per capita by Community of Spain (at market prices and measured in current prices) for 2008 (preliminary data). Eight Communities record figures above the average for the country.



Source: INE

The economically active population in Spain totalled 22,189,900 people in 2007, the activity rate for persons aged between 16 and 64 standing at 72.8%. The economically active population in 2006 was 21,584,800, implying a growth rate of 2.8% between the two years, slightly lower than that observed between 2005 and 2006, which was 3.3%. In 2007, the Communities with the largest economically active populations were Catalonia, Andalusia and Madrid (with more than three million people in each) and the largest rises between 2006 and 2007 were recorded by Murcia and Aragon. The activity rate has risen by 10% over the last 20 years.

The unemployment rate has dropped over the last few years, from over 20% (23.9% in 1994) to 8.26% in 2007. However, this trend collapsed in 2008 when the unemployment rate rose to 13.9% in the fourth quarter.

According to the Spanish Economic and Social Council in its report on the

socioeconomic and employment situation in Spain in 2007, the Spanish economy was one of the most dynamic in Europe, recording GDP growth of 3.8% (nine decimal points higher than the average for the EU-27). However, this progress was slightly down on that recorded the previous year following a slowdown in economic activity as a result, among other external factors, of the downturn in the main driving forces behind economic growth: household consumption expenditure and construction (above all residential).

After the mortgage crisis in the United States in the summer of 2007, which spread to the international financial market, the panorama changed substantially and the Government (along with the main international organisations) was forced on several occasions to lower their forecasts for growth in the Spanish economy. Faced with the escalation of the recession at the beginning of 2008, the Royal Decree-Act 2/2008 of 21st April was passed with measures aimed at boosting economic activity. Among the objectives of this move, it is worth highlighting the following: stimulate household consumption and business activity, curb the deterioration of the real estate market and reduce the negative impact on employment by means of tax and financial measures.

Administrative background

España hoy 2008, published by the Spanish Ministry of Presidency, provides a synthetic and detailed analysis of the basic features of the administrative situation in Spain and how responsibilities are shared between the Central and Regional Governments, from which the points discussed below may be extracted.

The Constitution of 1978 acknowledged and guaranteed the right to autonomy of the nationalities and regions that Spain as a nation comprises and the solidarity among all of them. As a result of the regional organisation of the State, Spain is divided into 17 Autonomous Regions and two Autonomous Cities (Ceuta and Melilla), with political and administrative power being redistributed between the Central and Regional Governments. This process has made Spain one of the most decentralised countries in Europe.

Each Autonomous Region has its own Statute of Autonomy passed by Constitutional Law. This is the Community's basic institutional legislation and it regulates essential aspects such as the organisation and workings of the Regional Parliament and Regional Government, their responsibilities and administration, the Community's hallmarks or distinguishing features, such as the language or civil rights, and relations with the State and other Autonomous Regions. Responsibilities are shared on the

basis of distinguishing between competences exclusive to either the State or the Autonomous Regions, competences shared by both the State and Autonomous Regions and concurring competences in which both the State and Autonomous Regions may intervene.

Exclusive responsibilities – both those belonging to the State and those pertaining to the Autonomous Regions – include the power to legislate and enforce, whereas shared responsibilities may imply a different distribution of legislative and regulatory power between the State and Autonomous Regions, the latter normally retaining executive powers in such cases. Conflicts of responsibility are settled by the Constitutional Court.

Autonomous Regions have a parliamentary government system, its foremost institutions being the Parliament, the President of the Community and the Regional Government. From an economic and financial viewpoint, Autonomous Regions enjoy a great deal of independence, having the power to pass their own annual budgets and to determine their resources by means of taxes, tariffs and surcharges.

The general system for Autonomous Region financing, which also includes taxes transferred by the State and participation in State taxation, is established multilaterally by the State and the Autonomous Regions.

Environmental policy

The Spanish Ministry of Enviroment and Rural and Marine Environmental Affairs (hereafter referred to as MoE), was created in 2008 by Royal Decree 432/2008, of 12th April. This new ministry takes over the responsibilities held by the former Ministry of Agriculture, Fisheries and Food and the previous Ministry of Environment (the latter created in 1996), together with those related to marine protection issues, in close collaboration with the Spanish Ministry of Public Works.

The MoE is in charge of proposing and enforcing Government policy regarding issues such as combating climate change and protecting Spain's natural heritage, biodiversity and the sea, water, rural development, agricultural, livestock and fishing resources and food. One sole ministerial department encompasses all the State's responsibilities linked to the natural environment, with its twofold objective of protecting land and biodiversity, as well as the integral fostering and defending agricultural, fishing, forestry and food production factors; environmental protection policy that also generates wealth and food and rural environmental sustainability.

The Ministry is divided into the following higher and executive bodies directly under the authority of the Minister:

a) Secretary of State on Climate Change

b) Secretary of State for the Rural Environment and Water

c) Undersecretary of Environment and the Rural and Marine Environment

d) General Secretary of the Sea, with the same authority as an Undersecretary

The creation of the new Ministry of Environment and Rural and Marine Environmental Affairs has led to an array of policies that constitute a global development and conservation strategy, particularly where environmental issues are concerned, aimed at making progress in the fight against climate change, the integral management of water, promoting development in rural areas and protecting coasts and maritime resources. Environmental problems have become globalised problems that cannot be confined to city or rural level and which are part of an interrelationship between alterations in the environment and ecosystems, economic systems and the standard of living of citizens.

The steps and initiatives taken by the Ministry to combat climate change, considered authentic State policy, is based on the reduction of emissions, the search for energy savings and efficiency and increasing the importance of renewable energies, while maintaining competitiveness, employment and economic and budget stability. The National Emission Allocation Plan and the Spanish Climate Change and Clean Energy Strategy 2007-2012-2020 are key parts of this policy. The 2008-2012 National Emission Allocation Plan has set itself an ambitious goal: to reduce emissions by 19.3% with regard to the 2005-2007 Plan.

The Spanish Climate Change Strategy is working towards two important scenarios: 2012, when the first stage of the Kyoto Protocol ends and 2020, used by the European Union as a reference for strategic objectives. The Spanish strategy includes 198 measures and 75 indicators in two main areas: climate change and clean energy. The Energy Saving and Efficiency Plan 2008- 2012 establishes a series of measures quantified in terms of objectives, deadlines and cost. The National R&D+i Strategy, where it relates to energy and climate change issues, is another important area of horizontal measures.

Transforming current economic models in low carbon economies involves working in four main areas, which at the same time help to increase energy security and reduce

dependence; increase energy saving and efficiency; reduce fossil fuel consumption in favour of renewable energy sources; consolidate the implementation of new technologies and promote innovation in all production processes.

The Plan to Boost the Internationalisation of the Spanish Economy in sectors linked to Climate Change, made public in March 2009, aims to integrate Climate Change as a cross-sectional element of Spanish business internationalisation policy, setting three primary objectives:

1. Consolidate the presence of Spanish companies in renewable energy and high technology sectors and increase their international competitiveness to combat Climate Change by fostering and boosting their development through national R&D and increasing their technological capacity, thus contributing to create an image of Spain and its business sector associated to low carbon development.

2. Identify and develop new opportunities for Spanish companies abroad.

3. Help achieve the objectives of reducing emissions both on a global scale and also those referring to Spain, taking full advantage of opportunities so that Spain can set projects in motion under the Clean Development Mechanism of the Kyoto Protocol and accomplish the reductions in emissions they generate.

The Plan, designed jointly by the Secretary of State for Trade, the Secretary of State for Economic Affairs, the Secretary of State for Climate Change and the Secretary of State for Research, establishes a framework that must guide all steps taken to support the activity of Spanish companies in the sectors mentioned above.

Spain enjoys a high level of biodiversity with respect to Europe as a whole for biogeographical, cultural and historical reasons. Furthermore, apart from Spain's natural or wild biodiversity, the country is also rich in agrodiversity, not only where seeds and crops are concerned, but also local agricultural systems. Conserving and renovating such systems is vital for the conservation of many natural species.

In this context, the importance of two laws proposed by the MoE stands out in particular. The first initiative, the Natural Heritage and Biodiversity Act, urges people to maintain and conserve the country's natural heritage, biodiversity and resources by making orderly use of them, while the Sustainable Rural Development Act primarily aims to achieve a high level of environmental quality in rural areas by preventing

natural heritage, scenery or biodiversity from deteriorating or by recovering them by means of integrated regulating of the use of the land.

Another initiative on behalf of the Ministry of Environment and Rural and Marine Environmental Affairs that is worthy of mention is the Spanish Sustainable Mobility Strategy, which encompasses a series of proposals to trigger a change in the current model of mobility, making it more efficient and sustainable, reducing its impact and promoting economies that use less coal and consume less energy.

Environmental information

The Aarhus Agreement on access to information, public participation in decision making and access to justice in environmental matters, together with the regional regulations that derived from it, have given rise to a new concept of open and transparent public Administration. The general public has the right to access the environmental information held by public authorities.

International and regional commitments bind public authorities to release environmental information, such as information regarding legislation, the state of the environment, projects, plans and programmes or regarding decisions made that could affect the environment.

As a result of the above, a contribution is made towards complying with the constitutional right that everyone has to enjoy an environment that is suitable for the development of the person and also the obligation shared by all of conserving it.

Act 27/2006, of 18th July, which regulates the rights regarding access to information, public participation and access to justice in environmental matters (which includes Directives 2003/4/EC and 2003/35/EC), establishes in article 8 (referring to reports on the state of the environment) the obligation of public administrations to compile reports on the state of the environment. These reports will be national and regional and, where applicable, local and will include data on the quality of the environment and the pressure it is under, as well as a non-technical summary that can be understood by the general public. This is where this report plays a special role, contributing to compliance and therefore guaranteeing that environmental information reaches as many people as possible.

The European Environment Agency (EEA) is the EU authority devoted to providing sound, independent information on the environment and is designed to be the primary source of information in Europe for those involved in developing, adopting,

implementing and evaluating environmental policy. The purpose of the EEA is to support sustainable development and work towards achieving a demonstrable improvement in Europe's environment by making appropriate, specific, relevant and reliable information available to both political leaders and the general public.

Created along with the information network EIONET by (EEC) Regulation n° 1210/90 of the Council on 7th May, 1990, the EEA is one of the European agencies, with 32 members: the 27 EU Member States, Iceland, Liechtenstein, Norway, Turkey and Switzerland. Five other non-member countries also cooperate.

The EEA is structured as a series of information points differentiated by country and task. Through the EIONET, the EEA has a node in each member or collaborating country (National Focal Point), European Topic Centres (consortiums of prestigious and experienced organisations in one particular subject area that the Agency selects and contracts in order to compile part of its work programme) and Primary Contact Points (institutions that cooperate in each country including National Reference Centres and, in the case of Spain, Regional Focal Points, apart from other expert collaborators).

In Spain, the work of the EEA National Focal Point is carried out by the Directorate General of Environmental Quality and Evaluation at the MoE.

The creation of a shared system of environmental information has been one of the greatest challenges in recent years in this area. It is a reference system of environmental information in Europe, promoted by the EU Commission and in which the EEA plays an important role in coordination and development. The idea originated from the commitment of member States to agree to supply the European Commission with hundreds of pieces of information on all kinds of environmental issues.

The idea of a computer platform (Reportnet) was initially suggested as a tool to which the various people in charge of gathering each piece of required information from each member State could connect and update the information within the given deadlines. The European Commission has now proposed a review of the process by which environmental information is transferred by the member States. They are developing a telematic infrastructure, known as the Shared Environmental Information System (SEIS), which will be shared by EU members to integrate the current systems for European environmental information. This idea was previously considered to a certain extent in the Sixth EU Environment Action Programme.

This Shared Environmental Information System was conceived as a shared network for those providing environmental information, enabling environmental monitoring

throughout Europe, the creation of quality reports, circulation of information amongst National Administrations and European Institutions, and paving the way for the progressive participation of the private and public sectors in general. It is a network system capable of interconnecting information providers, who are responsible for managing data at different levels (locally to transnationally). It is hoped that SEIS will become the reference system for European environmental data. For that to happen it must first integrate the information corresponding to the various information requirements of the member States, ensuring these are made official, and in turn other information and additional services will be added.

In short, there are three stages in the development of European information systems that can be outlined as follows:

- Isolated information system: 1985 – 1995
- Data-transfer information system: 1995 – 2005
- Shared information system: 2005 – 2010

The first stage refers to national information systems, wherein each country was treated as a separate compartment. During the second stage, and through the founding of the European Environment Agency, efforts were focused on creating a metanational system in which national information systems could converge.

The third stage refers to the implementation of the EIONET Network, in which Spain has been a constant participant. The analysis of its results and its work is the foundation for the SEIS project.

SEIS was devised through the need to meet four major objectives:

- To comply with regional and international legal requirements
- A report on the status of the environment, by country, by European and international bodies (G4, OECD, United Nations…)
- Public information on environmental trends, the connection to socioeconomic pressure, the solutions being offered to mitigate environmental damage through political action and guidelines for citizens
- Investigative actions that are often hindered by a lack of access to available data in the countries

A Shared Environmental Information System must have a telematic infrastructure, tools enabling information to be managed, and a coordinated administrative organisation with specific responsibilities. Furthermore, the infrastructure and organisation should be at the service of the environmental content.

In order for SEIS to become a reality, bearing in mind that this is a project with an integrated infrastructure on a European scale, it is necessary to take a global view. In order for it to function in practice, the following are necessary as a minimum:

- A normative framework that covers a common implementation strategy and administrative structure, both in the member States and European institutions
- High-level political agreements and backing, both in the member States and European institutions, run by environmental policy managers

The COM(2008)46 EC Communication "Towards a Shared Environmental Information System (SEIS)" gives recommendations for modernising and simplifying European environmental information management and sets out a series of measures necessary in order to implement SEIS, among which the following should be highlighted:

- A need for political commitment on the principles established in the Communication
- The Commission will give priority to the application of the INSPIRE Directive and to the continued development of the GMES initiative, as a basis for improving the sharing of information and data related to the environment in Europe
- Modernisation of legal provisions regarding the way in which information is provided that must be notified in virtue of environmental legislation. This is expected to come about through a revision of Directive 91/692/EC on the normalisation of reports, which must be updated and amended to meet the SEIS system's principles.

This proposal must be fixed legally, by the Commission, which will give normative support to a telematic system for sending and accessing environmental information.

Lastly, it is important to point out that the development of new technologies has boosted the development of interconnected systems on a European level. SEIS is closely linked to two of these initiatives, also currently in development:

- GMES (Global Monitoring for Environment and Security): Consists of a series of systems for observing the land and environment focused on providing a variety of services related to the environment and safety. It gathers data from land, sea and air stations as well as information from satellites.
- INSPIRE (Infrastructure for Spatial Information in the European Community): This is a directive (currently in the incorporation stage) which establishes an Infrastructure of spatial data for Europe, in which all kinds of geographical information from the member States can be integrated. It provides a cartographical basis on which the rest of the systems that manage georeferenced data can rest.

The three initiatives (SEIS, GMES e INSPIRE) will constitute a major technological impetus in the way environmental data is managed in Europe. Once developed they will allow information to be managed more quickly and with a greater number of variables, which enables reaction time to be reduced and more efficient environmental policies to be created.

Basic information

In this general context, the environmental situation in Spain, generally speaking, is presented loosely through the following descriptive record, similar to that used in the third chapter referencing Autonomous Regions. It compiles territorial, administrative, socioeconomic and environmental information. Most of the subjects are covered further and in greater detail in the corresponding chapters, although the opportunity of presenting them all here together allows for a useful, general overview.

The sources of information are listed at the end of the third chapter as they are practically the same as those used for the records of each of the Autonomous Regions. The only differences are in the information relating to the treatment of waste water, which comes from the Directorate General for Water, and in the information on species of flora and fauna, which comes from the Directorate General for the Natural Environment and Forestry Affairs, both from the Ministry of the Environment and Rural and Marine Affairs.

SPAIN
BASIC INFORMATION

Basic rule: Spanish Constitution of 1978 (Official Gazette 29-12-1978)
Reformed in Official Gazette 28-08-92
Year of entry in EU: 1986
Area: 505,990 km^2
Length of coastline: 7,905 km. Length of maritime terrestrial public domain: 10,099 km (includes ports and river estuaries)
Capital: Madrid **Autonomous Regions:** 17 (and 2 Autonomous Cities)
Provinces: 52 **Municipalities:** 8,110
Population (2008): 46,157,822 inhab.
Population density (2008): 91.2 inhab./km^2
Population increase (2000-2008): 14.0%

DISTRIBUTION OF POPULATION IN % (2008)

By size of municipality

< 2,001 inhabitants: 6.1
2,001-10,000 inhabitants: 15.2
10,001-100,000 inhabitants: 38.7
100,001-500,000 inhabitants: 23.5
> 500,000 inhabitants: 16.4

By age group

< 15 years: 14.4
15-64 years: 69.0
> 64 years: 16.5

ACTIVE POPULATION (THOUSANDS)
23,064.7 (fourth quarter of 2008)

UNEMPLOYMENT RATE
13.91% (fourth quarter of 2008)

AIR

NO. OF AIR QUALITY MONITORING STATIONS IN CA (2007)
Urban: 223 / Suburban: 188 / Rural: 148

AMOUNTS EXCEEDING LEGAL VALUES AT URBAN STATIONS IN MADRID (2007)

- Average annual concentration of NO_2 in µg/m^3 (limit value since 2010: 40 µg/m^3): 60
- Number of days in a year with an average daily PM_{10} concentration of 50 µg/m^3 (limit value since 2005: 35 days a year): 51

WATER

AVERAGE HOUSEHOLD WATER CONSUMPTION (2006)
160 litres/inhab/day. Between 2000 and 2006, this has reduced by 4.8%

DISTRIBUTED WATER BY SECTOR IN % (2006)
Households: 66.8 / Municipal consumption: 8.4 Economic sectors: 23.3 / Others: 1.5

LOSS IN DISTRIBUTION (2006)
16.7%

UNEMPLOYMENT RATE 15 AND OLDER (EU-27= 7.2%) (2007)
8.3%

EMPLOYMENT SECTOR STRUCTURE IN % (2008)
Agriculture: 4.0 / Industry: 15.3
Construction: 11.0 / Services: 69.6

GDP MP (2007)
23,412 €/inhab. Growth 2006-2007: 5.0%

GROSS DISPOSABLE INCOME PER INHABITANT (2006)
14,192 €/inhab. Growth 2000-2006: 37.4%

GVA BREAK-DOWN BY SECTOR (2007)
Agriculture: 2.9 / Industry: 18.0
Construction: 12.2 / Services: 66.8

WASTE-WATER TREATMENT (2006)
77% of population equivalent provided with waste- water treatment compliant with Directive 91/271/EEC (91% under construction)

LAND

LAND-USE BREAK-DOWN, % (2000)
Artificial: 1.7 / Agriculture: 50.2 / Forest: 47.3 / Wetlands: 0.2 / Water bodies: 0.6

INCREASE IN ARTIFICIAL SURFACES, 1990-2000 (%)
25.5

AREA AT RISK OF DESERTIFICATION, % (2008)
Low: 36.99 / Intermediate: 19.20 / High: 15.82 / Very high: 2.03

NATURE AND BIODIVERSITY

PROTECTED AREA (2008)
5,973,158.1 ha of terrestrial area and 256,429.9 ha of marine area (a total of 1,513 declared areas). Protected terrestrial areas represent 11.8% of the total area.

THREATENED TAXA ACCORDING TO IUCN THREATENED CATEGORIES (2008)

	FISH	AMPHIBIANS	REPTILES	BIRDS	TERRESTRIAL MAMMALS	FLORA
Critically endangered (CR)	2	0	5	15	3	308
Endangered (EN)	11	4	9	39	4*	278
Vulnerable (VU)	22	7	9	45	14	610
TOTAL Threatened	35	11	23	99	21	1,196

TAXA INCLUDED IN THE CNEA (2008)

	FISH	AMPHIBIANS	REPTILES	BIRDS	TERRESTRIAL MAMMALS	FLORA
Endangered	4	1	5	21	6	112*
Vulnerable	6	1	1	12*	14	9*
Sensitive to Habitat	0	0	3	3	0	7*
TOTAL	10	2	9	36* 34 taxa	20	128* 126 taxa

*Taxa with population in more than one threatened category.

NATURA 2000 NETWORK (2008)

14,284,177 ha (13,486,994 ha terrestrial and 797,184 ha marine), which represent 26.7% of the total terrestrial area. More specifically, 1,434 SICs, which occupy 12,386,991 ha (11,605,544 ha terrestrial and 781,447 ha marine) and 569 SPAs, which occupy 9,831,544 ha (9,604,863 ha terrestrial and 226,681 ha marine)

BIOSPHERE RESERVES (2008)

39 reserves, 3,323,495.64 ha of terrestrial area and 111,198 ha of marine area. BR terrestrial area represents 6.58 % of the total Spanish area.

RAMSAR WETLANDS (2008)

63 wetlands (281,964.4 ha)

WETLANDS INCLUDED IN THE SPANISH NATIONAL WETLANDS INVENTORY (March, 2009)

140 wetlands (118,253.6 ha [only includes Andalusia and Madrid wetlands])

FOREST FIRES (2007)

10,932 fires which affected 86,112.53 ha. An average of 20,672 annual fires occurred during the decade comprised between 1997-2006, which affected 132,690.07 ha.

WASTE

URBAN WASTE PER INHABITANT (2006)

- Total: 553.3 kg/inhab. Variation 2000-2006: -11.0%
- Mixed: 500 kg/inhab. Variation 2000-2006: -15.0%
- Paper/cardboard: 22.1 kg/inhab. Variation 2000-2006: 52.4%
- Glass: 12.6 kg/inhab. Variation 2000-2006: -16.6%
- Packaging: 18.6 kg/inhab. Variation 2000-2006: 376.9%

AGRICULTURE

ORGANIC FARMLAND (2007)

988,322.7 ha. Growth 2001-2007: 103.7%

IRRIGATED AREA (2007)

3,398,738 ha (13.52% of total agriculture area).

ENERGY

INSTALLED ELECTRIC POWER IN MW PER ONE THOUSAND INHABITANTS (2007)

Total: 2.00 / Hydraulic: 0.41 / Thermal: 1.07
Nuclear: 0.17 / Wind: 0.31 / Other renewable: 0.04

ELECTRICITY CONSUMPTION PER INHABITANT IN MWH (2007)

6.0 MWh/inhab. Growth 2000-2007: 24.8%

TOURISM

NO. OF TOURISTS PER INHABITANT (2007)

Total tourists: 4.56 / Foreign tourists: 1.31

HOTEL CAPACITY (2007)

1,642,417 beds (36.3 beds/1,000 inhab) and 103,455 beds in rural accommodation (2.3 beds/1,000 inhab)

TRANSPORT

VEHICLE FLEET (2007)

30,318,457 vehicles. Growth (2000-2007): 30.2%
670.8 vehicles/1,000 inhab

PASSENGER CAR FLEET (2007)

21,760,174 passenger cars. Growth (2000-2007): 24.7%
481.4 passenger cars/1,000 inhab

TRANSPORT NETWORK DENSITY (2007)

Roads: 32.8 km/100 km^2 / Rail: 3.0 km/100 km^2
Roads: 3.7 km/1,000 inhab / Rail: 0.3 km/1,000 inhab

AIR TRANSPORT (2007)

210,498.760 passengers. Growth (2000-2007): 49.3%

GOODS PORT TRAFFIC (2007)

495.49 million tonnes. Growth (2000-2007): 42.2%

URBAN AND INVESTMENT POLICY

MUNICIPALITIES WITH COUNCIL-APPROVED LOCAL AGENDA 21 (2007)

More than 4,300 municipalities, of which 650 already have an approved Action Plan. Moreover, more than 830 municipalities have completed the A21L diagnosis.

INTERNAL EXPENSES IN R+D (2007)

13,342.4 million € (1.27% of GDP).
Growth 2000-2007: 133.30%

RECOMMENDED WEBSITES

- http://www.marm.es
- http://www.ine.es/
- http://www.sostenibilidad-es.org/
- http://www.eea.europa.eu/
- http://epp.eurostat.ec.europa.eu

FURTHER READING

- MARM. *Environmental Profile of Spain. Indicator-based Report*. Year 2004 - 2007
- MARM. *The Environment in Spain*. Years 1989 - 2007
- Spanish Sustainability Monitoring Centre. *Informe de Sostenibilidad en España (Spain Sustainability Report)*. Years 2005 - 2007
- INE. *Anuario Estadístico de España (Spain Statistics Yearbook)* (since 1858) and *España en cifras (Spain in Numbers)* (since 1999)
- Ministerio de la Presidencia (Ministry of the Presidency), 2009. *España hoy 2008 (Spain Today 2008)*