

Environmental Profile of SPAIN 2013



Perfil
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de España
10
AÑOS
Informando



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MINISTERIO
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Environmental Profile of Spain 2013

Indicator-based report



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Y MEDIO AMBIENTE

Madrid, 2014



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The Environmental Profile of Spain 2013 is a joint work prepared at the Directorate-General of Environmental Quality and Assessment and Natural Environment (National Focal Point of the European Environment Agency in Spain), by the Sub-directorate General of Air Quality and Industrial Environment. State Secretariat for the Environment. Ministry of Agriculture, Food and Environment.

The purpose of this report is to offer an overview of the environmental situation of Spain, providing disaggregated information by autonomous communities with references to the European Union. This 2013 edition is the tenth published report. Therefore, this publication has been contributing to the dissemination of environmental information for ten years.

The report contains 82 indicators, organized in 17 chapters plus one specific section containing information on each autonomous region. Each chapter has an introduction and key messages where an assessment is made on the events that have occurred over the last 10 years. On the other hand, each indicator section includes charts, an explanatory analysis and a notes section, stating the data source and the web links where it is possible to find more information. Likewise, the document begins with a "General Framework" chapter complementing environmental information with social and economic data. The 2012 was the first that had downloadable versions and it was adapted for use in mobile devices, a possibility that is still offered in this 2013 edition, which was closed in June 2014 for data collection purposes.

Director:

Guillermina Yanguas Montero

Coordinator:

Elisa Rivera Mendoza
María Nieves Mestre Morales-Albo

Photographs:

Francisco Parras, Inmaculada Prieto and Photographic Records of the Tragsa Group.



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PRESENTATION

In its 10th anniversary, the **Environmental Profile of Spain** of the year 2013 allow us to know the state of the environment in our country and its evolution, by the assessment of key environmental indicators, in line with the methodology of the European Environment Agency. The report is also a reflection on the changes in the main areas of Spanish environment, with references to the objectives set at European and international level.

The 2013 Environmental Profile of Spain is the result of a decade of work. In 2005, the Ministry of Environment started to carry out this pioneering initiative in Spain, with an annual indicators based report, in order to give a complete picture of the state of the environment in our country.

During the last ten years, this report has provided access to the environmental information and public participation to an ever wider group of managers, politicians, experts, scientists, technicians, social organizations, associations, students, and the general public.

The growing interest of the Spanish population in environmental information shows that our society becomes more aware of the situation and future of their own environment, which reinforces the interest of this publication that addresses the right of access to environmental information.

The 2013 Environmental Profile of Spain has 82 indicators organized into 17 chapters, which are environmental areas such as air, water, soil, nature or waste, in addition to indicators related to productive sectors with an impact in the environment, such as agriculture, transport, industry and tourism. This also includes chapters related to current environmental trends, such as “Green Economy” or “Research, Development and Innovation in the Environment”.

The publication aims at providing comprehensive information of Spain, with references to the European Union and, where possible, at the

regional level. The inclusion of a specific chapter on the Autonomous Communities with disaggregated information by indicators, gives the complete environmental radiography our country.

The main value of this book lies in the working method of its elaboration: it is made by the Spanish members of the Environmental Information and Observation Network, established within the framework of the European Environment Agency. This is one of the largest networks of experts in environment, from both the field of Central State and the Autonomous Communities Governments, and the scientific and research field. This allows us to have the most complete and thorough information available, and, at the same time, it represent a guarantee for preparation and drafting and dissemination.

From its origins the Environmental Profile of Spain has become a reference book. And over the time, it has served as the basis for reporting in the different Autonomous Communities. It is also a reference for other Latin American countries, helping to build bridges between the European environmental culture and the overseas one.

The Environmental Profile of Spain uses the new tools of the technology and telecommunications that allows us to improve every year its dissemination. Initially we published printed editions, and later extended to the electronic devices; from the CD-ROM to the website of the Ministry. In 2012 we offered the applications for mobile devices.

The “smartphone” and “tablet” version, developed in the operative systems, complements the consultation through the website of the Ministry, and has opened access to environmental information to the most demanding sectors, and the younger audience.

Furthermore, by avoiding the print edition the Ministry contributes positively to reduce the environmental impact and costs of this important publication.

Today, this tenth publication, for its ability to disseminate knowledge in the field of the environment, the Environmental Profile has become an effective tool for measuring the degree of transparency and compliance with european policies and to inform how we are working in the integration of the environmental policy in the productive ones. In short, in order to make further progress towards sustainable development, a key objective of the Ministry of Agriculture, Food and Environment, and fulfilling, besides, with the commitment to bring environmental information to citizens.



Isabel García Tejerina

Minister of Agriculture,
Food and Environment



FOREWORD

EXPANDING THE KNOWLEDGE BASE FOR POLICY IMPLEMENTATION AND LONG-TERM TRANSITIONS

The Environmental Profile of Spain 2013, the 10th edition of the Ministry's indicator report, is a concrete example of the type of assessment work that is required at local, nation, regional and European level if we are to be in a position to fully understand the risks and the opportunities that face us as EU citizens in the next 50 years.

Over the next five years the EEA aims to step up the contribution of environment policy to the transition towards a resource-efficient, low-carbon economy in which natural capital is protected and enhanced, and the health and well-being of citizens is safeguarded.

In this, we remain true to our founding missions to support sustainable development and to help achieve significant and measurable improvements in Europe's environment, through the provision of timely, targeted, relevant and reliable information to policy-making agents and the public.

Key to achieving this and all of our aims will be the European Environment Information and Observation Network (EIONET), a partnership linking more than 350 institutions in EEA member and collaborating countries, of which, the Spanish Ministry of Agriculture, Food and Environment is a valued member.

Together our role is build capacity in countries, and to generate two-way quality assured environmental data and information to support policy making at the EU level.

By providing an overview of the situation on the ground, this indicator-based report helps us at European level to increase our knowledge about the environment at national and regional levels by providing specific data, and by monitoring policies – often created at European level but implemented at regional, national and local level - intended to mainstream environmental criteria into the country's production sectors.

This co-creation, sharing and use of knowledge is required if we are to effectively implement existing policy and imagine, create and make real the policies of the future.

For example, the European Union's Environment Action Programme to 2020 (7th EAP) entitled Living well, within the limits of our planet promotes new ways of thinking and innovation in order to realise an ambi-

tious 2050 vision. Building on, and going beyond, existing policy targets, the 7th EAP's three priority objectives are to:

- Protect, conserve and enhance the EU's natural capital;
- Turn the EU into a resource-efficient, green and competitive low carbon economy;
- Safeguard EU citizens from environment related pressures and risks to health and well-being.

Achieving these ambitious objectives involves building and maintaining networks of people and information systems as the basis for sharing and co-creating content, be it data, indicators or assessments, in a transparent manner with other actors at national, European and global levels.

Communications, in the broadest sense of the word, will also play a major role in ensuring a dialogue with stakeholders and society at large. Indeed, targeted information, communication and participation remain important instruments to achieve significant and measurable improvement in Europe's environment, responding to emerging challenges and societal developments.

As The Environmental Profile of Spain 2013 says 'in environmental matters there is no turning back'. I would go one step further – we must move forward! To do so coherently and sustainably we must build a vision but it must be a vision with the firmest foundations in realities. In this context, I congratulate, the Spanish Ministry of Agriculture, Food and Environment's – a valued member of EIONET – on a job well done, not once, but 10 times.



Hans Bruyninckx

Executive Director of the
European Environment Agency

INTRODUCTION

TEN YEARS, TEN THOUGHTS

This 10th edition of the Environmental Profile of Spain shows that this initiative, launched ten years ago, has been a success. It is an example of continuity which, among other aspects, proves that the information –in this case environmental information– is a fundamental tool to ensure the development and evolution of a balanced society which is increasingly demanding.

During ten years, this publication has been accompanying the environmental actions in Spain, those undertaken by the General State Administrations, Autonomous Regions and Local Government Bodies. However, its contents have evolved, new indicators have been added and others changed in order to offer the most demanded and necessary information at any given time. Its structure has been incorporating new chapters according to the current social concerns and the existing political reality, as evidenced in the sections on green economy or in the section on environmental research and development. And, of course, for dissemination purposes, this Profile has taken advantage of information technologies so as to provide the general public with its knowledge. Therefore, communication channels and those channels for the provision of services have been expanded; downloadable applications have been developed so that environmental information can be accessed anywhere and any time with just a phone or a tablet.

This year, together with the presentation by our Minister, we include a prologue written by Hans Bruyninckx, Executive Director of the European Environment Agency (EEA). The EEA is the institution of reference for environmental information within the European Union and the epitome of the elaboration, supply and dissemination of environmental information. Our Environmental Profile started, and has being developed, within the framework of the works and information commitments of the Agency and it is used as background information for the visualization of state of the environment in Spain as regards the European comparative Report, SOER, which shows the international context every five years.

This year, the publication includes a **summary of the key messages** mainly referred to the trend each indicator has followed for the last ten years. Such information is also compared with information on the evolution towards those targets legally established. It is a very interesting analysis which must be read carefully. As we can see, this anniversary is characterized by the word “ten”, which is already part of the report’s title. In this sense, I would like to complete this introduction with the following ten thoughts:

1. As regards **emissions to the atmosphere**, in the last ten years we can see a reduction in the emissions of acidifying and eutrophying substances, as well as a reduction in the tropospheric ozone precursor. There has also been a decrease in the emission of particulates, which is a harmful component to human health. Although this is the trend, it is still necessary to make further efforts and to carry out a follow-up of those policies adopted with the aim of increasing these reductions. The National Plan for Air Quality and Atmosphere Protection 2013-2016 (AIR Plan) undoubtedly contributes, by means of its specific actions and the coordination with other Departments and sectoral plans, to the reduction of urban and background pollution.
2. **Water policies** are a priority in our country. Due to insufficient rainfall levels in many areas for the actual needs, Spain has been a pioneer in the management of water basins, thus becoming a model for other countries. Current Spanish water policies are mainly focused on the completion of the water planning falling within the competences of the Government of the State.

Such planning is undoubtedly contributing to an improvement of the management of this resource while supplying it in the proper volumes and with the proper quality. For example, the report states that once the water year 2012-2013 was over, the reserves represented 66.5% of the total capacity, which is a higher percentage in comparison with previous years and with the average of the last 5 and 10 years. Besides, a reduction in water consumption is noticeable and in 2011 there was a decrease by a 1.4% in comparison to 2010; consumption was 142 litres per inhabitant and day, a 15.5% less than those values registered in 2000.

Regarding inland bathing water, there has been an improvement in the percentage of sampling points with a better quality (whether as “high quality bathing water” or “excellent quality bathing water” according to the new classification), and a decrease in the percentage of sampling points with a worse quality (corresponding to unsuitable bathing water or water with insufficient quality). However, despite of the improvement in the quality of our rivers, it is necessary to keep working to improve this situation.

3. Establishing a **waste management** model based on the prevention of waste generation and the recycling of generated waste which follows the standards of the European Union and hierarchy management established in the Waste Framework Directive. It can be highlighted that between 2003 and 2012 (still provisional data), the generation of municipal waste per inhabitant was reduced by 28.2%. Likewise, landfilled urban waste per inhabitant was reduced by 18.3%. However, it is still necessary to make further efforts so as to avoid as much as possible landfilling as way of waste management. We are positive such an alternative is possible. We have faced similar challenges as regards the recycling and recovery of packaging wastes which, thanks to a proper management, have overcome those targets legally established.

4. It must be taken into account that geographic and climate characteristics of the Iberian Peninsula and island territories make up a natural framework which generates an important **natural wealth** with a wide variety of ecosystems. Spain is undoubtedly one of the countries in Europe with the largest biodiversity. It is also one of the countries which provides European natural heritage with a great number of representative ecosystems, managed by means of special protection regimes. In 2013, protected land areas represented 27.89% of Spanish land areas (including Protected Areas and Natura 2000 Network).

5. One of the main examples of the **protection of natural areas** is carried out by means of the creation of National Parks. The improvement of our Network of National Parks is constant. After the recent establishment of the National Park of Sierra de Guadarrama, the total number of official Protected Areas represent 12.42% of the total land area of Spain.

6. Our more than 10,000 km of **coastline** represent one of our main tourist attractions and, at the same time, one of our most sensitive and valuable environmental asset in our hands. It is a natural resource of greatest financial importance which needs to be properly

protected and managed. The Act on the Protection and Sustainable Use of Coasts, which amended the Law on Coasts, allows for reconciliation between environmental protection of the coasts and the legal protection and enhancement of sustainable financial activities.

7. The advances in the **protection of the marine environment** by means of the development of the first stages of marine strategies, the consolidation of a Network of Protected Marine Areas and the incorporation of natural spaces to such networks as well as the development of the Spanish Inventory of Marine Habitants and Species prove that the Administration is working for the protection of these essential areas.
8. The quality of **bathing water** in our coasts is really good and 88.8% of sampling points of marine bathing water produced a result of “excellent” in the last few years.
9. Among the main challenges we are facing, we may include the scope of the **climate change**. It is essential to keep reducing our greenhouse gas emissions. Spain has one of the lowest GHG rates per inhabitant and per GDP unit in Europe and since 2007 a remarkable reduction in the volume of total emissions has occurred. In 2015, a new international framework regarding climate change will be approved; we must take an active part in the preparation of such framework, and the development of our economic recovery must also be part of it. The recently approved Royal Decree on the promotion of the calculation of the carbon print and the future roadmap for the reduction of greenhouse gases in diffuse sectors, together with the plans to promote the environment (PIMA), which are added to those already implemented, and the application of the Climate Projects on Carbon Fund, will undoubtedly contribute to meeting those new targets adopted regarding the reduction of emissions.

10. **Green economy** as a market grows at an annual rate of 7% since year 2000, which is expected to be tripled by 2030; it has a job-generating capacity way higher than other industries such as the chemical industry or the automotive industry. It has been estimated that, if the EU was able to build and maintain a leading position in clean technologies, the increase in exports may represent more than 17 million Euros per year. The environment is a niche market with a huge growth and job-creation potential, as stated by **PNUMA, the European Commission or even the International Labour Organization**. The Department has worked in order to promote measures which integrate in a cross-cutting manner the environmental element and innovation within all its policies and instruments, such as structural funds, not just for the immediate 2020 horizon but as far as 2030 and 2050. Thanks to the legislative simplification and the application of said cross-cutting actions, the consistency of a safe and clear legislative framework which attracts investment is guaranteed; besides, other direct actions such as Climate Projects on Carbon Fund, the “green employment programme” and “green entrepreneurship programme”, Plans to Promote the Environment, PIMA Air for vehicles and PIMA Sun for the renovation of houses and hotels.

Just like in the previous ten years of history of this publication, a special mention must be made as a reminder that it would have not been possible without the collaboration of all the stakeholders involved, both from the Administration and from the private sector. Once again, my appreciation and warm thanks to all of them.



Federico Ramos de Armas

State Secretary for the Environment.







SUMMARY OF KEY MESSAGES: THE ASSESSMENT OF A PERIOD

SUMMARY OF KEY MESSAGES: THE ASSESSMENT OF A PERIOD

The Environmental Profile report has been sharing information for a remarkable period of ten years. Besides, during most of these ten years, the EU policy has been mainly based on the **Sixth Environment Action Programme**, called «Environment 2010: Our Future, Our Choice» (2001-2012). This programme was followed by the 7th General Union Environment Action Programme to 2020 «Living well, within the limits of our planet» (called «**7th Environment Action Programme**» or «7th EAP») adopted in 2013 by virtue of Decision 1386/2013/EU of the European Parliament and of the Council of 20 November 2013.






The 6th Environmental Action Programme focused on four priority areas of action: **climate change, biodiversity, environment and health and the sustainable management of resources and waste**. These four environmental areas made up the axis of the environmental policy in Europe and, therefore, they can be used as a structure aimed at framing the assessment of the evolution of the state of the Environment in Spain during the last ten years, period which coincides almost entirely with the duration of the 6th Environment Action Programme.

In this edition, we thought it was important to stress such circumstance; that is why we have carried out a specific **assessment of the behaviour of a series of indicators selected** among all those indicators comprising the report and which belong to the priority areas of the 6th Programme by assessing their behaviour in the last ten years. However, this period may vary since it depends on the information available for each indicator. In general, the period under study included years 2003-2012 and, whenever possible, 2004-2013. In some cases, such period included until 2011. Another scenario may arise when the information under analysis is new and therefore there are no comprehensive data series or in those cases in which the methodology applied for the statistical operation used for the assessment of the information changed and the data series has not been fully updated.

Within the structure defined by the four **priority areas** of the 6th Programme, we have included a **summary of key messages** the information for which has been extracted from the analysis of the selected indicators and an assessment of the most remarkable aspects of their evolution. This analysis is shown in a visual manner by means of the use of a series of icons which make its interpretation

easier based on the objectives established by the relevant laws or on the level of compliance with the defined goals as regards those planning instruments adopted in relation to this field in our country.

Assessment has been carried out in accordance with the colour code described in the following table:

IMAGE	DESCRIPTION OF ASSESSMENT CODES EXPLANATION AND ASSOCIATED MESSAGE
	<p>Very positive trend: it shows a major improvement as regards the behaviour of the indicator. Compliance with the objectives established is very likely.</p>
	<p>Positive trend: it shows an improvement as regards the behaviour of the indicator. Besides, if proper measures are implemented, those objectives established may be complied with. In those cases in which the indicator includes several variables, this description is applied when the trend is clearly positive in, at least, half of the variables.</p>
	<p>Stable trend: it shows no improvement in the behaviour of the indicator or in any of the variables comprising such indicator. This description is also applied when, within a ten-year period, the improvement of the indicator or the variables comprising it, did not exceed 10% and when the indicator or the variables comprising it have worsened less than 10%.</p>
	<p>Negative trend: it shows a worsening in the behaviour of the indicator. In those cases in which the indicator includes several variables, this description is applied when the trend is clearly negative in half of the variables. This description is also applied when, due to the characteristics of the indicator, it is not possible to establish a clear trend but the indicator refers to a phenomenon or process involving major environmental consequences, even in those cases in which such event occurred just once.</p>
	<p>Very negative trend: it shows a major worsening in the behaviour of the indicator. Besides, compliance with the objectives established is less likely in these cases.</p>

ASSESSMENT OF THE TREND IN THE PAST TEN YEARS ...

IN RELATION TO THE OBJECTIVES AND PRIORITY AREAS OF ACTION AGAINST CLIMATE CHANGE

- **Emission of Greenhouse Gases (Chapter on Air)**

In the past ten years (2003-2012), GHG emissions decreased by 15.3% in Spain. Besides, a reduction has been recorded in the rate of emissions per inhabitant too, moving from 9.62 t/inhab in 2003 to 7.28 t/inhab in 2012; therefore, Spain is and European country with one of the lowest levels of emissions per inhabitant.



- **Primary energy intensity (Chapter on Energy)**

In the period 2003-2012, the intensity of primary energy expressed in constant currency of 2005 decreased by 13.7%.



- **Intensity of energy-related GHG emissions (Chapter on Energy)**

In the period 2003-2012, the intensity of energy-related GHG emissions at current prices decreased by 33.8%.



- **Renewable energies (Chapter on Energy)**

In the period 2003-2012, primary energy consumption from renewable sources increased by 74% and its share in the structure of primary energy demand amounted to 12.4%. In 2012, Spain was the eighth country of the EU in terms of generation of electric power coming from renewable sources, amounting to 33.5% of the total.



- **Transport emissions of pollutants (Chapter on Transport)**

In the period 2003-2012, the emissions of greenhouse gases from transport have decreased by 16.6%. On the other hand, emissions of acidifying substances decreased by 42.0% and, to an even greater extent, tropospheric ozone precursors have decreased by 53.2%.



- **Passenger vehicle fleet by fuel type (Chapter on Transport)**

In the period 2003-2012, the typical structure of the passenger car fleet made up mostly of petrol vehicles is now one made up by a majority of diesel vehicles. Petrol passenger cars represented 64.7% in 2003 and, in 2012, represented 46.3%; therefore diesel cars went from 35.3% to 53.7% in the same period. Hybrid vehicles represented approximately just 0.12% of the passenger car fleet in 2012.



- **Energy consumption of transport (Chapter on Transport)**

Between 2003 and 2012, transport energy consumption decreased by an overall 10.05%. The highest reduction corresponded to sea transport (45.0%), followed by rail transport (17.4%) and air transport (13.8%). Road transport experienced the lowest decrease, just by 8.0%.



- **Energy consumption by the industrial sector (Chapter on Industry)**

Between 2003 and 2012, final energy consumption by the industrial sector has been reduced by 29.45% from 29,434 ktoe to 20,765 ktoe.



- **Emissions of air pollutants from the industrial sector (Chapter on Industry)**

In the 2003-2012 period, there has been a general decrease in emissions of the main gaseous pollutants emitted by the industrial sector. In particular, PFCs have dropped by 80%, N₂O by 61%, NO_x by 35%, CO₂ by 32% and finally, NMVOC have decreased by 29%. Although to a lesser extent, CO and SO_x were reduced by 13% and 11% respectively. On the contrary, emissions of HFCs have experienced a 50% increase, whereas SF₆ has increased by 17%.



- **Spanish Carbon Fund "Clima Projects" (Chapter on Green Economy)**

Only two years after their implementation, the Climate Projects on Carbon Fund are considered an effective tool to reduce greenhouse gas emissions, with 37 and 49 projects selected in 2012 and 2013, respectively.



IN RELATION TO OBJECTIVES AND PRIORITY AREAS OF ACTION WITH- IN THE SCOPE OF NATURE AND BIODIVERSITY

- **Organic pollution of rivers (Chapter on Water)**

In the last 10 years (2004-2013), there has been an increase in the number of stations with lower DBO_5 and a reduction in the number of stations with higher concentrations, which means that there has been an improvement in the quality of the water in our rivers. Likewise, annual average values regarding ammonium concentrations show a downward trend as regards the percentage of sampling points with higher concentrations.



- **Protected areas (Chapter on Nature)**

In 2013, protected land areas represented 27.9% of Spanish land areas (including Protected Areas and Natura 2000 Network). In 2004 this percentage was 25.95%.



- **Forest land and other forest formations (Chapter on Nature)**

Spanish forests cover more than 27.7 million ha, which represent 55% of the total area of our country. The total wooded area has increased by 83,483 ha in the last ten years.



- **Trends in common bird populations (Chapter on Nature)**

The forest environment keeps a positive trend as regards associated bird population trends, whereas the bushwood environment offers a relative stability characterized by major annual variations. On the other hand, agricultural and urban environments present conservation problems and they are characterized by negative change trends.



- **Organic farming and livestock farming (Chapter on Agriculture)**

In the last decade (2003-2012), the area devoted to organic farming in Spain increased by 142.2% and the number of organic farms increased by 248.6%.



- **Spanish Inventory of Marine Habitats and Species (IEHEM) (Chapter on Coasts and Marine Environment)**

The protection of the marine environment guarantees proper marine use planning in order to ensure a good environmental status. The Act on the protection of marine environments governs the various strategies and the Spanish Network of Marine Protected Areas, which are already being implemented.



- **Spanish Network of Marine Protected Areas (RAMPE) (Chapter on Coasts and Marine Environment)**

The Network of Marine Protected Areas is strengthening year after year thanks to the incorporation of new areas to the network. 24 Special Areas of Conservation (SAC) known as the Macaronesian marine areas and other protected marine areas (such as the "El Cachucho" area) as well as marine reserves of fishing interest in external waters were established in 2013; besides, 39 Special Protection Areas for Wild Birds (SPAs) were declared in July 2014.



- **Road and rail accidents causing environmental damage (Natural and Technological Disasters)**

In the past ten years (2003-2012), there were 511 road accidents and 15 rail accidents with possible environmental damage.



- **Industrial accidents involving hazardous substances (Natural and Technological Disasters)**

Besides, since the approval of the SEVESO Directive, 45 accidents in industrial facilities falling within the scope of this Directive in Spain have been registered and, during the last decade (2004-2013), 19 accidents of oil tankers in Spanish coasts have been registered.



IN RELATION TO OBJECTIVES AND PRIORITY AREAS OF ACTION WITHIN THE SCOPE OF ENVIRONMENT AND HEALTH AND QUALITY OF LIFE

- **Budget allocated to R&D&i in environmental programmes (Chapter on R&D&i)**

Environmental programmes represent 4% of the General State Budget for R&D&i in 2014. In 2005, this percentage was 4.5%.



- **Public financing for R&D&i (Chapter on R&D&i)**

In 2012, 3.4% of total grants corresponded to the environmental socio-economic target. In 2003, this percentage amounted to just 1.9%, reaching its maximum levels in 2009 (5.5%).



- **Fertiliser consumption (Chapter on Agriculture)**

In the last decade, the consumption of fertilisers per hectare, expressed as nutrients, decreased from 130.0 kg/ha to 103.2 kg/ha.



- **Phytosanitary product consumption (Chapter on Agriculture)**

In the past years (2002-2011), phytosanitary product consumption, expressed in kg of active ingredient per hectare, has decreased by 4.8%.



- **Acidifying and eutrophying gas emissions and tropospheric ozone precursors (Chapter on Air)**

In the period 2003-2012, acidifying and eutrophying substance emissions have been reduced by 42%, whereas tropospheric ozone precursors have been reduced by 25.6%.



As regards the Directive on National Emission Ceilings, since 2010 target emission ceilings for SO₂ y COVNM have been met; however, those related to NH₃ have not; compliance with NOx ceilings is subject to review and, if appropriate, to the "adjustment" of emission targets.



- **Particulate matter emissions (Chapter on Air)**

Between 2003 and 2012, the emission of particulate matter has been reduced by 26.1% as for PM2.5 and by 27.0% in PM10.



- **Air quality in urban areas (Chapter on Air)**

In general, there has been a downward trend as regards average values of those indicators assessed for the follow-up of main pollutants (average values of the mean annual concentrations and number of days in which certain concentrations weighted by population are exceeded). This indicator allows to picture the general evolution of the stations in urban environments; however, it does not show compliance with the relevant laws since the indicator does not include those one-time events in which legally established values are exceeded in certain stations.



- **Regional background of air quality for health and plant protection (Chapter on Air)**

Between 2003 and 2012, the average values of the mean levels of sulphur dioxide, nitrogen dioxide and particulates (with diameters below 10 and 2.5 μ) present a downward linear trend (although in 2012 it seems that such trend increases slightly for PM10 and SO₂).



- **Water consumption (Chapter on Water)**

In Spain, between 2002 and 2011, consumption of water from the public supply network has decreased by 12.3%. By sector, such decrease was as follows: 5.1% corresponded to households, 22.2% to economic sectors and 33% to municipal consumptions.



- **Quality of inland bathing water (Chapter on Water) and quality of coastal bathing water (Chapter on Coasts and Marine Environment)**

As regards inland water, there has been an improvement in the percentage of sampling points with a better quality (whether as "high quality bathing water" or "excellent quality bathing water" according to the new classification) and a decrease in the sampling points with a worse quality (corresponding to unsafe bathing water or water with poor quality).

As regards marine water, the percentage of sampling points categorized as excellent was 89%, and only between 1% and 3% of sampling points of marine bathing water produced a result of "poor" in the last few years.



- **Urban public transport (Chapter on Urban Environment)**

The number of passengers using the urban public transport system (bus and underground) has decreased by 2.86% between 2004 and 2013. The strongest decline has been in the users of surface transport, which have dropped by 4.72%, whereas the number of underground users has remained practically unchanged, which has also been the case with the share of private vehicles.



- **Urban Sustainability: The Covenant of Mayors (Chapter on Urban Environment)**

Between 2008 and 2013 a total of 1,570 Spanish municipalities have joined the "Covenant of Mayors". This means a population of 26.5 million inhabitants (almost 56.3% of the population of 2013).



**IN RELATION TO OBJECTIVES AND PRIORITY AREAS OF ACTION
WITHIN THE SCOPE OF SUSTAINABLE USE AND MANAGEMENT OF
NATURAL RESOURCES AND WASTE**

● **Water consumption (Chapter on Water)**

In Spain, between 2002 and 2011, consumption of water from the public supply network has decreased by 12.3%. By sector, such decrease was as follows: 5.1% in households, 22.2% in economic sectors and 33% in municipal consumptions.



● **Changes in land cover: urban surface (Chapter on Soil)**

During the period 2006-2013, the percentage of the Spanish surface included in the category "urban plots" within the official land registry (with the exception of the Basque Country and Navarre) increased by 20,2%. This increase can be deemed as negative for the environment since it is the step prior to the qualification of land as artificial area. However, it is necessary to highlight that, according to preliminary information provided by the CLC 2012, Spain has 3.9% of artificial area, which is a percentage below the average of the EU-27, which amounts to 4.6%.



● **Energy intensity of the economy (Chapter on Green Economy)**

Between 2003 and 2012, the energy intensity of the economy has been lower the average of the EU-28 with a decrease by 14%.



● **Total material requirement (Chapter on Green Economy)**

In the last four years (2008-2011), total consumption of material goods in Spain decreased by 36.2%.



● **Organisations with Eco-Management and Audit Scheme (EMAS) (Chapter on Green Economy)**

In the past years, Spain has increased the number of organisations registered to the EMAS and, since 2012, is the EU country recording the highest number organisations.



- **Environmental taxes (Chapter on Green Economy)**

Between 2003 and 2012, environmental taxes increased by 0.24%. In absolute terms, its trend kept a sustainable growth up to 2007.



- **Urban waste generation (Chapter on Waste)**

Between 2003 and 2012, the generation of total urban waste was reduced by 20.5%, whereas such decrease amounted to 28.2% per capita (2012 provisional data).



- **Urban waste treatment (Chapter on Waste)**

Between 2003 and 2012 (only provisional data are available as regards this last year), urban waste per capita deposited in landfills was reduced by 18.3%, whereas waste incinerated with energy recovery increased by 4.8%. Recycled urban waste per capita decreased by 11.2%, whereas that intended for composting decreased by 51.0% (2012 provisional data).



The Waste Framework Directive establishes a hierarchy according to which prevention is the best treatment option followed by, in this order, reuse, recycling, other recovery methods (including energy recovery) and finally, disposal (deposits in landfills among others). Efforts must be made so as to reduce deposits in landfills as an alternative for the treatment of waste.



- **Packaging waste recycling and recovery (Chapter on Waste)**

In the last 10 years (2002-2011), overall recycling and recovery rates for packaging waste increased by 20.1 and 22.3 percentage points respectively. The overall recycling waste rate increased from 44.3% in 2002 to 64.4% in 2011, whereas the recovery rate increased from 49.8% to 72.1% during the same period.



If compared to objectives set out by Act 11/1997 and Royal Decree 252/2006 reviewing them, since 2008 objectives established for 2009 are met.



- **Environmental protection costs by industrial sector (Chapter on Industry)**

Throughout the period 2002-2011, the industrial sectors have increased their total expenses in relation to the environment by 26.3%. As regards such total expenses, current expenses increased by 70.3%, whereas investment expenses decreased by 23.1%.



- **Household water consumption and waste production (Chapter on Households)**

Each household reduced waste production by 29.6% and source separation of waste increased by 40.6% (2002-2011).

The total volume of water supplied to households decreased by 5.1%, resulting in a reduction in water consumption per household equal to 23.6% (2002-2011).

Between the years 2003-2012, energy consumption per household for electric end uses increased by 10.9%, whereas consumption for thermal end uses fell by 21.5%, thus leading to an overall decrease in total consumption per household of 10.6%.









GENERAL FRAMEWORK

1.1 SOCIAL AND ECONOMIC FRAMEWORK

1.1.1 Population

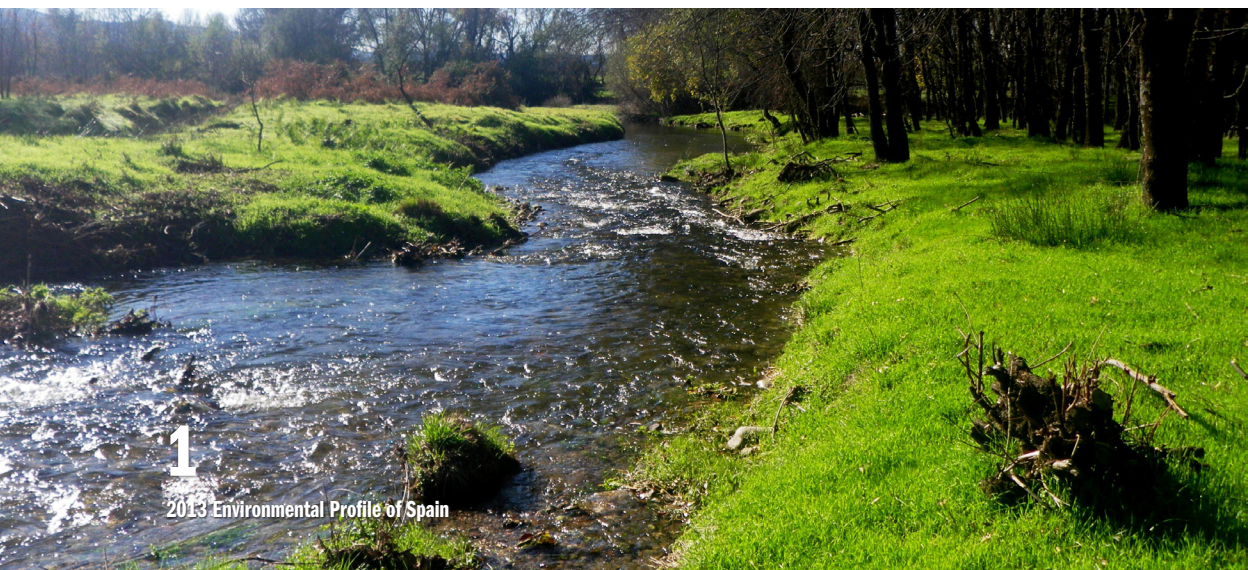
1.1.2 Economic development and productive sectors

1.2 TRANSPARENCY AND ACCESS TO ENVIRONMENTAL INFORMATION

1.3 OPEN DATA: RE-USE OF PUBLIC INFORMATION

1.4 A VISION OF TOMORROW: THE FUTURE OF THE ENVIRONMENT

GENERAL FRAMEWORK



1

2013 Environmental Profile of Spain

1.1 SOCIAL AND ECONOMIC FRAMEWORK

1.1.1 Population

Year 2013 has witnessed the first decrease of the Spanish population. It was -0.29% and breaks the upward trend of past years

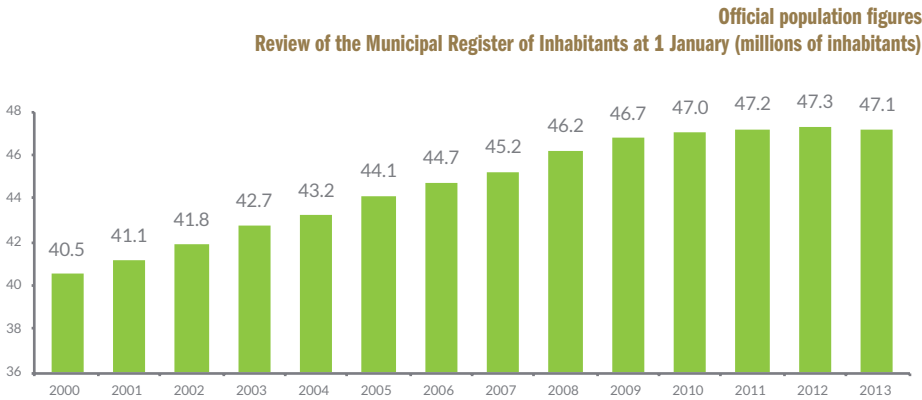
The official **population** figures of 2013 (Royal Decree 1016/2013, of 20 December, which declares official the population figures resulting from the review of the Municipal Register of Inhabitants at 1 January 2013) break the trend of population growth recorded in the last years. This -0.29% decrease, moving from 47,265,321 in 2012 to 47,129,783 inhabitants in 2013, means a consolidation of the trend observed since 2010, characterised by ever lower increases in population (+0.59% between 2009 and 2010, +0.36% between 2010 and 2011, and +0.16% between 2011 and 2012).

Four **autonomous regions** (Andalusia, Catalonia Madrid and the Valencian Community) accrued by 2013 more than a half of the Spanish population (58.6%). On the other hand, that same year, 79.2% of the total population lived in municipalities with over 10,000 inhabitants, whereas the remaining 20.8% lived in smaller municipalities. These figures are in contrast to those existing back in 2000, in which the distribution was 76% and 24%, respectively.

Between 2000 and 2013, the Spanish population has grown by +16.4%. Such growth has been different in each autonomous region. The higher increases have been registered in the Balearic Islands (+31.5%) and Murcia (+28.1%), whereas the lowest figures have been observed in Castile-Leon (+1.6%) and Galicia (+1.3%). Asturias is the only region showing lower population figures in 2013 compared to those existing back in 2000, which means a decrease of -0.8%.

The Spanish National Institute of Statistics (INE) foresees that, if the current demographic trends were the same in the next years, Spain would lose 2.6 million people (-5.6%), thus experiencing a decrease in population to 44.1 million until 2023. Population figures would be reduced in all autonomous regions except for the Canary Islands and the autonomous cities of Ceuta and Melilla.

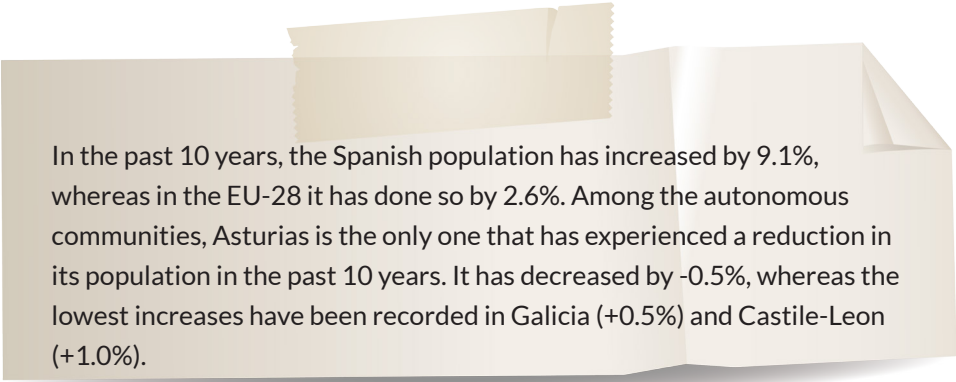
At **European level**, Spain is ranked fifth in the EU in number of inhabitants with 9.3% of the total population of the EU-27 (9.2% of the EU-28, after the entry of Croatia to the EU in June 2013).



Source: INE

With regard to **foreign population**, year 2013 shows another reduction in the number of foreigners registered with the Municipal Register of Inhabitants. If total reduction in 2012 was -0.3%, in 2013 it reached -3.3% with 5,546,238 foreigners (compared to 5,736,258 in 2012). In any case and taking into consideration the above mentioned reductions, between 2005 and 2013, foreign population in Spain has grown by +48.7%.

In the last years, Spain has experienced an outflow of a part of its population abroad in the search for better opportunities. The economic context, with few employment opportunities, has led to an ever-growing gross emigration rate (expressed as number of emigrants per thousand inhabitants), moving from 6.27% in 2008 to 9.55% in 2013.



In the past 10 years, the Spanish population has increased by 9.1%, whereas in the EU-28 it has done so by 2.6%. Among the autonomous communities, Asturias is the only one that has experienced a reduction in its population in the past 10 years. It has decreased by -0.5%, whereas the lowest increases have been recorded in Galicia (+0.5%) and Castile-Leon (+1.0%).

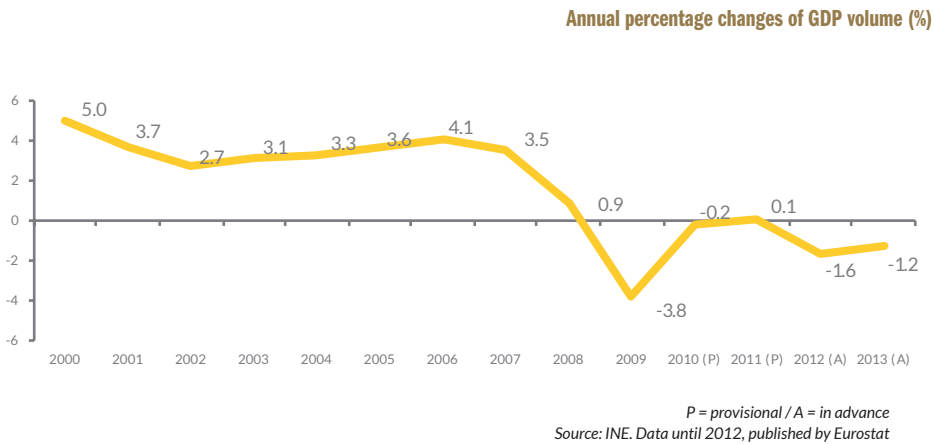
1.1.2 Economic development and productive sectors

GDP dropped by 1.22 in 2013 (in real terms), although after the summer, little increases were recorded on a quarter-on-quarter basis.

The Spanish National Institute of Statistics (INE) has updated the estimates of the accounting series 2009-2012 and the growth in volume of the **Gross Domestic Product (GDP)** of year 2012, which has been reduced by two-tenths whereas in 2011, this reduction has accounted for three-tenths. Likewise, the variation in GDP volume for 2010 (+0.1) and that of 2009 (-0.1) have been reviewed too (now they have become consolidated data).

The report on the Quarterly National Accounts of Spain, Base Year 2008, corresponding to the fourth quarter of 2013 (Press Release of the INE dated 27 February 2014) gives an overview of the GDP evolution in 2013. GDP at current prices is around 1,022,988 million Euros, which means a true variation in terms of volume (on a time-base aggregation of the result of the four quarters) of -1.22% compared to year 2012, when the aforementioned revised reduction of -1.6% was recorded. Such rate reflects the carry-over effect arisen from the de-

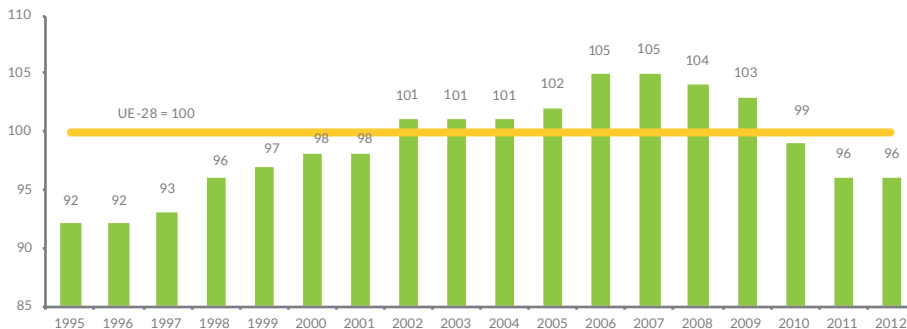
cline of economic activity at the end of 2012 and due to the drop in production, as a consequence of the decrease in national demand. It should be outlined that the pace of contraction of this rate was reduced throughout the year and some progress was made on a quarter-on-quarter basis after the summer, for the first time since 2010.



At **European level**, the increase in GDP by inhabitant (measured in purchasing power parity) experienced by Spain since 1995 took this rate over the average within the EU-2008 between 2002 and 2009. Since 2007, due to the effects of the financial crisis, a downward trend is once again observed in this variable, reaching levels below the European average for the first time since 2010.

Just like in 2011, in 2012, there were twelve countries of the EU-28 that showed GDP values higher than those of Spain –measured in purchasing power parity. The GDP per inhabitant in Spain reached €22,300 in 2012, compared to the average value of €25,500 corresponding to each European citizen within the EU-28 (€25,600 per inhabitant within the EU-27).

GDP per inhabitant in Spain measured in purchasing power parity (EU-28=100)



Source: Eurostat

The analysis of the **Gross Added Value (GAV) by sectors** in Spain shows again that in 2012, the services sector is the most powerful, with almost 71.6% of the total GAV, followed by the industrial sector (17.4%), construction (8.6%) and, finally, agriculture, livestock farming and fishing, with a contribution of only 2.5%. In relation to 2011, the contribution of the services and industrial sectors to the GAV has slightly increased, whereas agriculture remains constant. It is worth to outline the decrease in the construction sector, which back in 2011 contributed with 10.1%.

GDP and GAV by branches of activity (in million Euros)

	2000	2005	2010 (P)	2011 (A)	2012 (A)
Agriculture, livestock farming, forestry and fishing	24,075	24,828	24,696	23,909	23,215
Industry	118,294	148,025	158,144	164,519	163,877
Construction	58,664	110,425	101,834	91,132	80,827
Services	368,565	529,196	670,136	680,202	676,300
GAV	569,598	812,474	954,810	959,762	944,219
Gross domestic product at market prices	629,907	909,298	1,045,620	1,046,327	1,029,002

P: Provisional data. A: Advance data. Source: INE

In 2013, the **number of unemployed people** increased only by +3.9%. This year has been the one with the slowest growth in number of unemployed people since 2007, which was the last year showing a reduction in unemployment figures. Such figures have decreased both for men and women, which had previously

shown an increase in the percentages of unemployed people by gender of +2.3% and +5.9%, respectively.

These figures led to an unemployment rate of 26.4% at the end of 2013, the highest in the whole of the EU, which has an average value of around 10.9%. Croatia, with 17.6% and Portugal with 16.5% are ranked second and third respectively in the countries with the highest unemployment rate. Germany is placed at the other end of the spectrum, with only 6.5% of people unemployed. Since 2007, when Spain registered a rate of 8.3%, this value has kept rising until reaching the percentage of 2013.

Number of unemployed people (in thousands)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	1,912.5	1,837.1	1,833.9	2,590.6	4,149.5	4,632.4	4,999.0	5,769.0	5,995.3
Variation compared to the previous year (%)		-3.94	-0.17	41.26	60.18	11.64	7.91	15.40	3.92
Men	862.9	791.5	815.2	1,311.0	2,292.1	2,529.3	2,689.3	3,098.8	3,168.4
Variation compared to the previous year (%)		-8.27	2.99	60.82	74.84	10.35	6.33	15.23	2.25
Women	1,049.6	1,045.6	1,018.7	1,279.6	1,857.4	2,103.1	2,309.7	2,670.2	2,827.0
Variation compared to the previous year (%)		-0.38	-2.57	25.61	45.15	13.23	9.82	15.61	5.87

Source: INE (Spanish Labour Force Survey)

Sorted out by autonomous regions, the Basque Country shows the lowest unemployment rate in Spain (15.8%). At the other end of the spectrum, Andalusia reaches a rate of 36.3%. As for the rate variation between 2012 and 2013, there are three autonomous regions that witnessed a decrease in unemployment rates (e.g. Ceuta -2.91 points, Balearic -0.87 points and La Rioja -0.58 points). Those are followed by Extremadura, Catalonia, the Basque Country and the Valencian Community, which experienced increases in their unemployment rates by less than a point.

The average value in Spain increased by 1.33 points, moving from an unemployment rate of 25.03% in 2012 to 26.36% in 2013.

The annual percentage changes of chain-linked volume of GDP in the last 10 years (2004-2013) has been 8.7%. A maximum growth of 15.4% has been recorded until 2008, along with a decrease in that year down to the underlined value. As for the purchasing power parity referred to the EU-28, Spain has moved from a value of 101 (EU-28=100) back in 2013, to a value of 96, lower than the European average for 2012.

1.2 TRANSPARENCY AND ACCESS TO ENVIRONMENTAL INFORMATION

The Act on transparency, access to public information and good governance came into force in 2013.

In the age of knowledge, citizens and environmental organisations ask for a more ready and free access to environmental information at no cost, which means a major challenge for the Public Administrations that hold and manage such information. The principle of transparency set up by the Aarhus Convention has inspired the European, national and regional regulations on this matter and it has a guiding function for the Administrations as for their relationships with those citizens requiring access to such information. In the 21st century, public information –and particularly environmental information– is gathered, generated, copied and disseminated by the Administration in order to undertake the public service mission commissioned thereto.

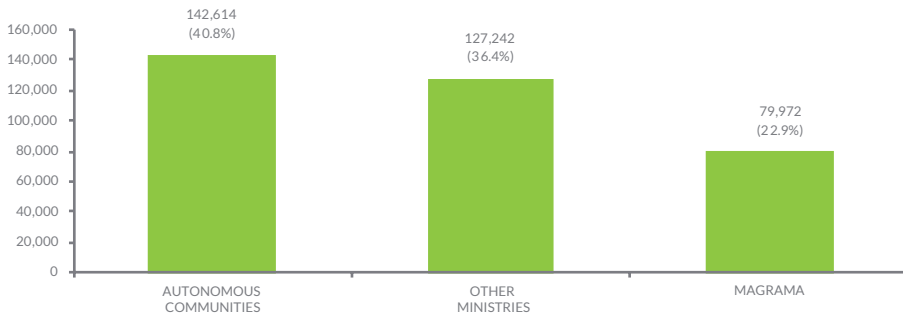
From a legal perspective, the most outstanding measure adopted in 2013 was the enactment and entry into force of Act 19/2013 of 9 December on **transparency, access to public information and good governance**. This act is intended to fulfil three objectives: to increase and reinforce transparency in public activities, to grant and guarantee access to public information as a subjective and objective right and, finally, to define good governance obligations attributable to public officers as well as the legal consequences for non-compliance therewith.

Likewise, as for 2013, it is necessary to outline the implementation of policies on the re-use of public information pursuant to Royal Decree 1495/2011, of 24 October, implementing Act 37/2007 of 16 November, on re-use of informa-

tion from the public sector for other purposes at State level. Therefore, many ministerial departments, organisations and institutions of the public sector at State level approved their own plans on measures aimed at promoting the re-use of information from the public sector. The purpose of these plans is to encourage the use by third parties of such information from the public sector, including environmental information for trade purposes, in a free competition environment, regulating the minimum conditions to which such information processing should abide.

On the other hand, during 2012, there was an increasing demand for environmental information, although there were less requests than in previous years in relative terms. From the collected data, it is inferred that 349,828 requests for environmental information were processed in 2012. 40.77% out of those (142,614 requests, excluding the data of Cantabria, Canarias, Castilla-La Mancha and Ceuta) were filed with the Regional Administrations, whereas the remaining 59.23% (207,214 requests) were filed with the General State Administration.

Number of requests for environmental information filed with ministries and autonomous regions. Total in 2012: 349,828



Source: Citizens Advice Bureau. MAGRAMA

The active dissemination of environmental information, basically through electronic means, remains as a key element for environmental transparency as shown by the data of visitors to the website of the Ministry of Agriculture, Food and Environment, which in 2012 exceeded 11 millions and a half.

1.3 OPEN DATA: RE-USE OF PUBLIC INFORMATION

Act 37/2007, of 16 November, on the re-use of information from the public sector, governs the legal regime applicable to the **re-use of the documents** prepared or controlled by the Administrations and organisations of the public sector. It affects the General State Administration, the Administrations of the autonomous regions and the entities integrating the Local Administration. Likewise, it includes State Agencies and public-law institutions, especially those related or attached to any Public Administration. Apart from the Consortia, this act is also applicable to foundations of the public sector and other associations established by the aforementioned Administrations, organisations and entities.

Re-use means the use of those documents held by the Administrations and organisations from the public sector, controlled by natural or legal persons for commercial or purposes or otherwise, provided that such use is not regarded as a public administrative activity. Exchanging of information between administrations is not included herein.

As for the available formats for re-use of information, the Act establishes that significant efforts will be made so that the documents available for re-use and requests for re-use are processed through electronic means and by means of a multi-channel platform. It is also stated that the Administrations and organisations from the public sector shall provide their documents in any format or language in which those were previously available, trying to procure them through electronic means, provided that it does not entail disproportionate efforts, create new documents, adapt them or continue the publication of a particular document in order to respond to a specific request.

Regarding the conditions for re-use, this Act establishes that the contents of the information should not be altered in any way whatsoever and that the sense given to the information should not be distorted either. Also, the source of information must always be quoted as well as the date of the latest update thereof. Besides, the procedure designed for the processing of requests for re-use is thoroughly described under article 10.

At European level, the background of this Act can be found in the "Green Paper on Public Sector Information in the Information Society" of 1998, prepared by the European Commission. Later on, Directive 2003/98/EC of 17 November

2003 was approved, on the re-use of public sector information, which was transposed to our legal framework through the previous Act, subsequently amended in 2013 by virtue of Directive 2013/37/EU, of 26 June.

In Spain, the first line of action in order to specifically encourage the opening of information from the public sector was approved back in November 2005, within the framework of the Avanza Plan. Back in 2009, the **Aporta Project** was launched, which aimed at ensuring the re-use of information from the Public Sector. This project has three main objectives: to promote a culture that encourages the opening of public data, to permit such opening within the public administration and to support the market of re-use of public information.

There are two essential milestones for the Aporta project, which are: the preparation of a Public Information Catalogue –the first and single access point in Spain to data sources from the public sector at State level, which is available since March 2010– and the preparation of the "2011 Characterisation Study of the Infomediary Sector" (integrated by companies developing applications, products and/or value-added services for third parties using information from the Public Sector). The latter is regarded as the "first snapshot of Open Data in Spain". In October of that same year, the "<http://datos.gob.es/>" portal was launched, which strengthens the commitment of the Aporta project with the opening of information from the public sector. This portal is where the catalogues of information from the public sector are organised and access is provided to the various websites giving public information in a structured and organised manner.

1.4 A VISION OF TOMORROW: THE FUTURE OF THE ENVIRONMENT

It is quite usual to find economic forecasts and news on the evolution of international commodity markets on the media, or maybe certain projections on the growth of the world's population and the increasing need for food, as well as some news on emerging technologies that lead to an ever sophisticated world, yet unimaginable. All of the above, far from being science fiction, is the result of serious foresight exercises. A discipline that, starting from a broad group of statistical methodologies, techniques and tools, tries to offer a vision of tomorrow, normally in the long-run (20-30 ahead from now) which is characterised by a global vision from a qualitative/quantitative perspective, both proactive and multiple and based on different scenarios.

According to the Royal Spanish Academy, the word *prospectivo/a* (from the Latin *prospicere*, which means to look) describes what “makes reference to the future” or to the “group of analyses and studies undertaken in order to explore or predict the future on a certain subject”. Essentially, it is something as simple and as complicated as trying to answer to the question: How would the world be if...? And once we have a clue on these prospects, in the form of indicators or trend analyses, it is then necessary to devise the strategies or policies allowing us to get ready for those events foreseen beforehand, in order to mitigate their negative impacts and promote positive effects.

Prospective analyses, as a discipline, are not new. They emerged in the United States and Europe back in the 50s and 60s, usually related to matters of defence, geopolitics, demography and economics. Their thematic area started to progressively expand to the fields of science and technology, urban planning, regional development and environmental issues. In the past years, debate and research on prospective analysis, its methodology and implementation, have abandoned research centres and moved to those units created within international organisations, discussion groups, governments and national parliaments.

Prospective analyses are not intended to predict exactly what is going to happen and when, something that is absolutely impossible, but rather to provide a knowledge framework on alternative future scenarios and potential consequences thereof, which may help to improve the decision-making process. Prospective analyses are deemed useful whenever their results can actually be implemented.

On the other hand, regarding prospective analyses on environmental issues, the most outstanding examples are the prospects for global temperature increase and other impacts associated to climate change, such as sea level rise due to ice melt at the poles. In the last report of April 2014, the Intergovernmental Panel on Climate Change (IPCC) has estimated that the average temperature will increase in ranges of variation between 1.5°C to over 4°C until year 2100, with respect to the reference period (1850-1900), depending on the various scenarios of greenhouse gases emissions which, in turn, would be subject to different mitigation measures. A message that is apparently simple and straightforward, supported on years of research on highly complex prediction models. Apart from their ability to communicate, forecasts of the IPCC, as a foresight exercise, have become an essential working tool, which is able to influence the political decisions of governments and institutions in order to adopt measures towards a common objective: To reduce climate change impacts on the planet.

Nowadays, the fight against climate change cannot be understood without that look into the future and, in general, it is not possible to plan strategies of environmental protection without thinking about the years to come. An underlying idea of the definition of sustainable development established by the Bruntland Report back in 1987, which is defined as the development that "meets the needs of the present without compromising the ability of future generations to meet their own needs".

Considering the cross-cutting nature of environmental impacts and their long-lasting effect, and taking into account the role of ecosystems as a source of natural resources and physical support of our life and economic activities, prospective analyses from an environmental perspective are highly relevant. In this context, reference must be made to the works performed by institutions such as the OECD (Environmental outlook to 2050: the consequences of inaction) and the United Nations Environment Programme (Global Environmental Outlook) or, at European Level, those undertaken by the European Environment Agency (The European environment: State and Outlook) and the project "Territorial scenarios and visions for Europe" framed within the ESPON Programme (European Observation Network, Territorial Development and Cohesion).

On the other hand, the global and multidisciplinary nature of prospective analyses forces us to undertake this study on **environmental scenarios** in connection with and within the context of other future economic, social or geopolitical

events. This relationship, which goes beyond the integration of sustainability parameters in sectoral activities, is not unambiguous, but rather multiple and systemic. Therefore, environmental analysis is a key element of comprehensive prospective studies, even in those dealing with strategic or socio-economic matters. Some examples of this may be outlined, like the works of the United Nations in connection with the Millennium Development Goals, the "Global trends 2030: Alternative worlds" report prepared by the intelligence services of the United States or the "Spain 2020: long-term prospects" report. Likewise, there are more specific sectoral reports including environmental issues in their analyses; for example, those published on the future of freight transport or extraction of minerals by the French General Commissariat on Analysis and Forward Studies, or the "Foresight Reports" prepared by the British Government Office for Science.

This proves that the field of research covered by environmental prospective analyses may be as wide as the environmental factors affecting our society. The main constraints will be posed by the availability of data series that are long and homogeneous enough in order to build prediction models and perform trend analyses. Construction of results must always be qualified taking into account the uncertainty that surrounds any vision of the future.

In Spain, there is still a broad field of study on environmental prospective analyses that needs to be promoted, both from the point of view of research activities as well as on the relevant applications of this for the management and environmental policies and in connection with sectoral policies.

From the point of view of the Ministry of Agriculture, Food and Environment (MAGRAMA), the reference and methodological framework for environmental prospective analyses is to be found in the activities of the European Environment Agency on information systems for prospective studies (FLIS, which is the acronym for Forward-Looking Information and Services), that the Agency has been developing since 2006. In this context, the MAGRAMA has started collaborating in the FLIS project, through the Sub-directorate General of Analysis, Prospective Studies and Coordination of the Undersecretariat, relying on the support of the Directorate General for Environmental Quality and Assessment and Natural Environment, as the Reference National Centre for forward-looking information and services of the European Environment Agency.

It is about opening a path for systematic and structured reflection on future en-

vironmental scenarios and on those qualitative and quantitative indicators that better describe them, in view of their interaction with the sectors of interest of the Ministry and the global environment. To do so, the first step is to identify the appropriate sources of information and experiences that can provide material for consideration, starting with the ensemble of statistical sources available on environmental issues, both at the Ministry and in other organisations.

At this point, reference should be made to the works of the National Emissions Inventory and Forecasts prepared by the Sub-directorate General of Air Quality and Industrial Environment of the MAGRAMA. Likewise, special consideration should be given to the actions undertaken by the Ministry that, despite of not being exactly prospective analyses, they do provide key approaches and information on environmental prospects. Among others, it is worth to outline: projects on weather forecasts and the extensive database on climate information of the Spanish State Meteorological Agency (AEMET); the consolidated experience in risk management, both in agricultural activities, through the Spanish State Agricultural Insurance Body (ENESA), as well as on environmental issues, such as flood and fire prevention and coast protection, along with the consistent implementation of strategic planning methods in key areas such as water (river basin management plans) and urban development (planning of rural development and regional development co-funded with Community funds).

Definitely, environmental prospective studies pose a major knowledge challenge and an opportunity to rethink current and future environmental problems from a proactive and innovative approach. The current edition of the Environmental Profile of Spain, which celebrates the tenth anniversary of its first release, brings an excellent opportunity to highlight the interest of this discipline and the potential of the Spanish participation in the projects of the European Environment Agency and other international organisations on environmental prospective studies.





INDICATORS: AREAS AND SECTORS

- 2.1 AIR QUALITY AND EMISSIONS TO THE ATMOSPHERE
- 2.2 WATER
- 2.3 LAND
- 2.4 NATURE
- 2.5 COASTS AND MARINE ENVIRONMENT
- 2.6 GREEN ECONOMY
- 2.7 ENVIRONMENTAL RESEARCH, DEVELOPMENT AND INNOVATION
- 2.8 WASTE
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- 2.10 ENERGY
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- 2.12 FISHING
- 2.13 TOURISM
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- 2.16 URBAN ENVIRONMENT
- 2.17 NATURAL AND TECHNOLOGICAL DISASTERS

AIR QUALITY AND EMISSIONS TO THE ATMOSPHERE



In 2013, declared as the "European Year of Air", the 7th EU Environmental Programme was published under the title "Living well, within the limits of our planet". Two of the priority objectives pursued were to turn the Union into a "resource-efficient, green and competitive low-carbon economy" and to "reach high air quality that do not pose a risk or significantly endanger human health and the environment".

The EU, in line with this horizon 2020, must meet these objectives on climate and energy and, by 2050, it needs to make significant progress in reducing GHG emissions by 80-95%, as compared to the levels recorded in 1990. This objective can only be met through the implementation of a package of measures on climate and energy resulting from the "Europe 2020" Strategy and subsequent implementing regulations thereof, such as the "Roadmap for moving to a competitive low-carbon economy in 2050". On the other hand, the Green paper called "A framework for climate and energy policies", published in March 2013, serves as a basis for the preparation of the time frame set for 2013, a fundamental step for the next horizon established in 2050. The objective of ensuring protection of the citizens' health and well-being demands for a high quality of outdoor and indoor air and a reduction in noise pollution to levels similar to those recommended by the World Health Organization.



In December 2013, the European Commission approved the "Clean Air Programme for Europe", which will define the Union's policies on air quality for the next years. Several measures are included to help reduce air pollution, such as the preparation of a new Directive establishing new national emission ceilings for the main six pollutants (SO₂, NO_x, COVM, NH₃, PM2.5 and CH₄) and one draft Directive to reduce contamination resulting from medium-sized heating systems. Likewise, other measures are included to reduce levels of contamination in cities, to support research and innovation and to promote international cooperation activities.

In April 2013, Spain approved the National Plan for Air Quality and Atmosphere Protection 2013-2016: AIR Plan. Such Plan sets the framework in order to improve air quality in our country through specific actions undertaken in coordination with other sectoral plans and with those adopted by the autonomous regions and local government bodies. In the drafting process of this Plan, many autonomous regions and local government bodies have participated along with members of the scientific community and other ministerial departments involved. The Plan was submitted to a public participation process and it was later reviewed by the Environmental Advisory Council. 78 measures are included therein, some of them horizontal, such as the ones concerning aspects like information, citizens' awareness, R&D&I programmes and taxation. There are also other sectoral measures that are intended to reduce emissions in particular sectors: industrial, construction, transport, agriculture, livestock farming, residential, commercial and institutional sectors. Two examples of some of these measures executed in 2013 are: the development of a software required for the implementation of Decision 2011/850/EU on reciprocal exchange of information and reporting on ambient air quality and the Plan to Promote the Environment (PIMA Air Plan), in order to renew the fleet of commercial vehicles with less polluting models.

With the estimated emissions recorded in the "Spanish Inventory of Greenhouse Gases. Years 1990-2012", completed in the spring of 2014, an assessment will be made on compliance with the Kyoto Protocol for the 2008-2012 period. It is a key assessment that will analyse the way in which the policies for reduction of emissions developed in the last years, along with the use of the implemented flexibility mechanisms, have helped Spain overcome the challenge of complying with the Kyoto Protocol.

As for climate change issues, during 2014, an extensive work has been made in developing the "Climate Projects" according to the "Roadmap of Diffuse Sectors



2020" and by promoting an estimate of the "Carbon Footprint". On the other hand, the progress made by establishing a "National carbon footprint register, compensation and carbon dioxide absorption projects" is much relevant in this sense. Measurements of the carbon footprint are extremely useful parameters in order to know the impact of a business activity in terms of greenhouse gas emissions, thus allowing both companies and citizens to implement the appropriate GHG reduction measures. On the other hand, the steps to be followed in order to reduce emissions from diffuse sectors in Spain (households, transport, agriculture, waste, industries not subject to emissions and fluorinated gases trading) mean a major commitment until 2020 to progressively reduce emissions in the aforementioned sectors by 10% with respect to 2005 levels in these sectors which, by the way, are responsible for the generation of 60% of all greenhouse gas emissions in the whole country.



IN THE PAST 10 YEARS (2003-2012)...

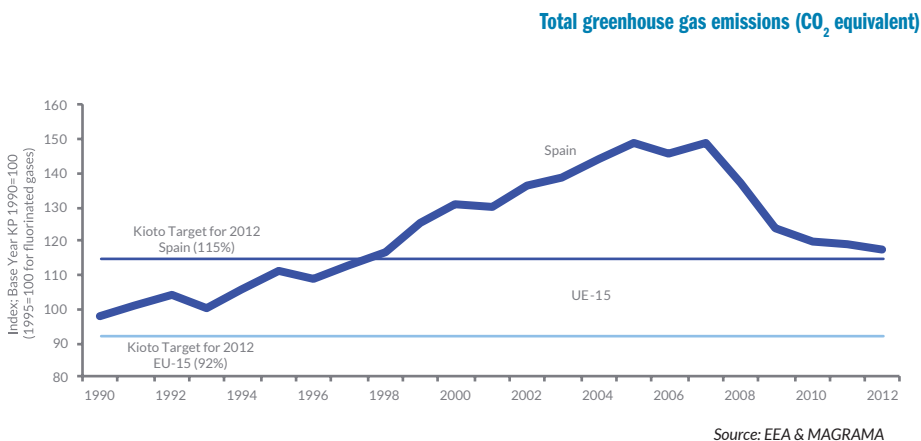
- GHG emissions in Spain have been reduced by 15.3%. Besides, a reduction has been recorded in the rate of emissions per inhabitant too, moving from 9.62 t/inhab in 2003 to 7.28 t/inhab in 2012.
- Furthermore, acidifying and eutrophying substances emissions have been reduced by 42%, whereas tropospheric ozone precursors have been reduced by 25.6%. Among the first ones, it is worth to outline the reduction by almost 70% that has been experienced in the emissions of sulphur oxides, and by a percentage around 34% in nitrogen oxides emissions. As for the ozone precursors, apart from the reduction experienced in the above mentioned nitrogen oxides, it is necessary to point out the decrease of over 20% in Non-methane Volatile Organic Compounds and carbon monoxide.
- The emission of particulate matter has been reduced by 26.1% as for PM_{2.5} and by 27.0% in PM₁₀, which is the most dramatic reduction since 2007.
- Currently, average values of the main pollutants, weighted by population size, do not exceed the legal limits in force. However, this analysis does not override the possibility that, in certain moments and at specific urban areas these values are actually exceeded. In general, throughout this period, a significant decrease in the records of these variables can be noticed (average values of the mean annual concentrations and number of days in which those are exceeded). Nevertheless, regarding the number of hours /year in which this hourly mean concentration of 200 µg/m³ of NO₂, is exceeded, an increase has been recorded in the number of days/year where this 120 µg/m³ concentration has been exceeded as the maximum daily value of the 8-hour moving average of ozone levels. Therefore, an increase has been evidenced in the past years.
- Between 2003 and 2012, the average of the mean levels of sulphur dioxide, nitrogen dioxide and particulates (with diameters below 10 and 2.5 µ) has remained below the appropriate legal values. This also applies to the ozone levels, for which the number of exceedances per year of the maximum 8-hour moving average of 120 µg/m³ and that of the 5-year moving averages of AOT 40, have strictly met the applicable statutory values, although a reduction has been noticed in their average values during these past years.

INDICATORS

- | | |
|--|--|
| • Greenhouse gas emissions | • Particulate matter emissions |
| • Acidifying and eutrophying gas emissions and tropospheric ozone precursors | • Air quality in urban areas |
| | • Regional background of air quality for health and plant protection |

Greenhouse gas emissions

In 2012, Spain was responsible for the emission of 7.28 tons of CO₂-eq per inhabitant, a quantity much lower than the average of the European Union



In 2012, Spain was responsible for 7.5% of the **total emissions of the EU-28**, emitting 7.28 tonnes of CO₂-eq/inhabitant, a figure much lower than the average values recorded in the European Union: 9.0 tonnes of CO₂-eq/inhabitant. In connection with the GDP, Spain was also one of the countries with lower emissions and in order to produce a GDP unit, 0.33 kg of CO₂-eq were released in 2012, whereas in the EU-28, such figure amounted to 0.35 kg of CO₂-eq.

In the analysis of emissions by **economic sector**, it is important to outline the Energy Processing Sector (both due to the percentage it represents but also for the increase it has undergone) with an increasing contribution since 1990 (74.6% contribution) until year 2005 (79.8%) followed by a decrease thereof, which leaves the contribution of this sector in 77.9%. Another sector that has increased its contribution is the one devoted to the "Treatment and disposal of waste", which in 2020 reached 3.8%, a higher percentage than the one of 2.5% registered back in 1990. With regard to the reduction in contributions, "Industrial Processes" and "Agriculture" showed in 2012 contributions of 6.9% and 11.1% respectively, i.e. over two points below their former contributions in 1990. On the other hand, the "Use of solvents" sector (with absolute emission values regarded as marginal compared to the total value) have kept contributing with around 0.5%.



Based on the **type of gas**, CO₂ registered the highest contribution in 2012 (81.2%) just like in previous years. Below are the data on CH₄ (9.5%) and N₂O (7.1%), which show similar and slightly lower percentages, respectively, compared to the values registered in 1990. The contribution of fluorinated gases was somehow over 2.2%, which means a higher percentage to the one recorded back in 1990.

The estimate of these GHG emissions in terms of CO₂-eq for each of the years of the period between 2008-2012 may be summarised as follows: total emissions in 2012 were 17.6% higher to those of the base year, whereas annual average emissions recorded in the 5-year period between 2008-2012 were 23.7% higher.

Total gross emissions of GHG excluding the "Land Use, Land-Use Change and Forestry"-sector (Ktonnes of CO₂-eq)

KP BASELINE YEAR	2008	2009	2010	2011	2012
289,773.21	398,444.15	359,659.15	347,181.00	345,887.15	340,808.59

Source: MAGRAMA

Estimated **total emissions** for Spain in 2012 were 340,808.59 Ktonnes of CO₂-eq. Changes in these emissions with respect to the quantity established for the base year (289,773.21 Ktonnes of CO₂-eq) correspond to 17.6%. Compared to year 2011, a decrease of 1.5% has been recorded, that is, the fourth largest decrease registered in the countries of the EU (only beaten by Italy, Poland and Finland).

NOTES

- This indicator shows the total emission of the six main gases contributing to the greenhouse effect (CO₂, CH₄, N₂O, HFCs, PFCs and SF₆), jointly expressed as CO₂ equivalent, (index 1990=100 and 1995=100 for fluorinated gases).
- Within the framework of the Kyoto Protocol of the United Nations Convention on Climate Change, the EU committed itself to reduce its GHG emissions by 8% within the 2008-2012 period with respect to the levels of 1990. Each member country of the EU has different obligations and Spain must achieve stabilisation of GHG emissions at +15% compared to the levels of 1990.
- The figures of emissions are expressed in terms of CO₂-equivalent (CO₂-eq), taking into account only gross emissions and excluding the net greenhouse-gas sink (capture less emissions) "Land Use, Land-Use Change and Forestry".
- The amount attributed to the base year is 289,773,205.032 tonnes of CO₂-eq, whereas the amount allocated to the Kyoto Protocol commitment as for the 2008-2012 period is 1,666,195,929 tonnes CO₂-eq.
- The LULUCF sector is for "Land Use, Land-Use Change and Forestry". This sector foresees the emissions or absorptions of greenhouse gases arising from forests (including forest fires), cropland management, grazing land management as well as human settlements (resulting from deforestation as well as from the conversion of cropland, grazing land and other types of land in human settlements).

SOURCES

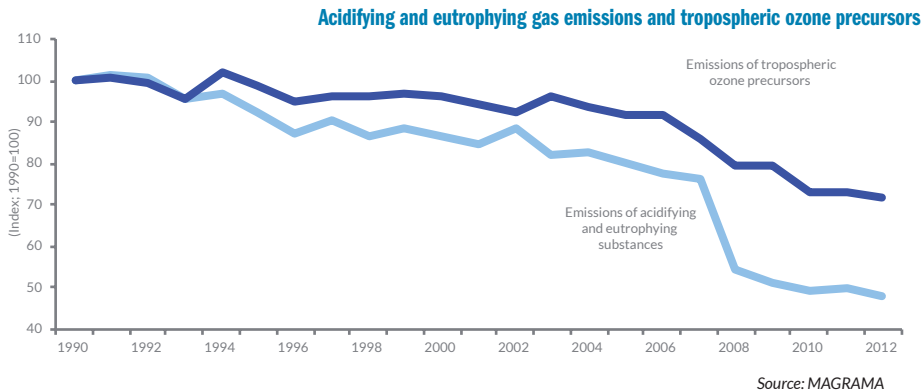
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Acidifying and eutrophying gas emissions and tropospheric ozone precursors

In 2012, another reduction was recorded in acidifying and eutrophying substances emissions and tropospheric ozone precursors, thereby returning to the trend of previous years.



The reduction in emissions of **acidifying and eutrophying substances**, which is noticeable since 1990 (except for isolated increases in 1997, 1999 and 2003) experienced certain continuity in 2012, after its slight increase in 2011. During the 1990-2012 period, these emissions were reduced by 52.3%, whereas in 2012, a decrease of 4.2% was achieved (compared to an increase of 0.63% back in 2011).

According to the type of gas, it is worth to outline the significant reduction in sulphur oxide emissions (81.2%) and nitrogen oxides (30.7%), reductions that contrast with the increase in ammonia emissions, which accounted for 12.9% of the total value of emissions recorded between 1990 and 2012. In the last year, the rate of emissions of these three pollutants was reduced altogether, mainly that of SO_2 , which was reduced by 11.3%, contributing to such decrease to a greater extent. The decrease in SOX emissions has arisen from the reduction in emissions due to combustion in energy industries, which has been influenced by the reduction in activities of coal-fired plants. As for the reduction in NO_x emission, it is necessary to outline the decrease in emissions generated by transport activities, mainly by road transport, and combustion plants.

Tropospheric ozone precursors did also experience a reduction in emissions between 1990 and 2012, which decreased by 28.5%. Back in 2012, these were also reduced by 1.9%, returning to the decreasing trend followed in 2003 that was discontinued in 2011 with a slight increase of 0.15%.

It is important to highlight the reduction in carbon monoxide by 48.4%, the decrease in nitrogen oxides (30.7%) and in volatile organic compounds, which experienced a 24.2% reduction. Methane emissions are the only ones to have increased: 21.6%. In general, emissions of all pollutants were reduced in 2012. The greatest decrease was recorded by carbon monoxide (6.5%), mainly due to the reduction in emissions resulting from transport activities. We should also outline the reduction in nitrogen oxides (3.4%).

In accordance with the **Directive on National Emission Ceilings**, since 2010, our country has been meeting the target emission ceilings for SO₂ and COVNM. Not NH₃ neither NO_x, which compliance is being subject to revision and “fit” of its emission targets.

NOTES

- The indicator chart shows the rates of evolution of aggregated total annual emissions of acidifying and eutrophying substances (SO₂, NO_x and NH₃) and tropospheric ozone precursors (NO_x, COVNM, CO and CH₄), all of them referred to 1990 as the base year (1990=100).
- As for the COVNM, emission of the SNAP 11 group (other sources and sinks) and from sub-groups 10.01 and 10.02 (cultures with and without fertilisers) corresponding to foliar biomass, are not included.
- Acidifying and eutrophying substances emissions are expressed in acid equivalents (potential for hydrogen production), including the emissions weighted according to the following factors: 31.25 acid equivalents/kg for SO₂ (2/64 acid equivalents/gram), 21.74 acid equivalents/kg for NO_x, expressed as NO₂, (1/46 acid equivalents/g) and 58.82 acid equivalents/kg for NH₃ (1/17 acid equivalents/gram). Tropospheric ozone emissions have been calculated through the reduction potential of tropospheric ozone (expressed as COVNM equivalent) In order to weight these values, the factors applied have been as per below: 1.22 for NO_x, 1.00 for COVNM, 0.11 for CO and 0.014 for CH₄.
- The purpose of Directive 2001/81/EC, of the European Parliament and the Council, of 32 October 2001, on national emission ceilings for certain pollutants, consists of limiting the emissions of acidifying and eutrophying substances and ozone precursors in order to protect human health and the environment. On the other hand, Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008, on ambient air quality and cleaner air for Europe has the primary purpose of establishing and defining ambient air quality targets in order to avoid, prevent or reduce harmful effects for human health and the environment.

SOURCES

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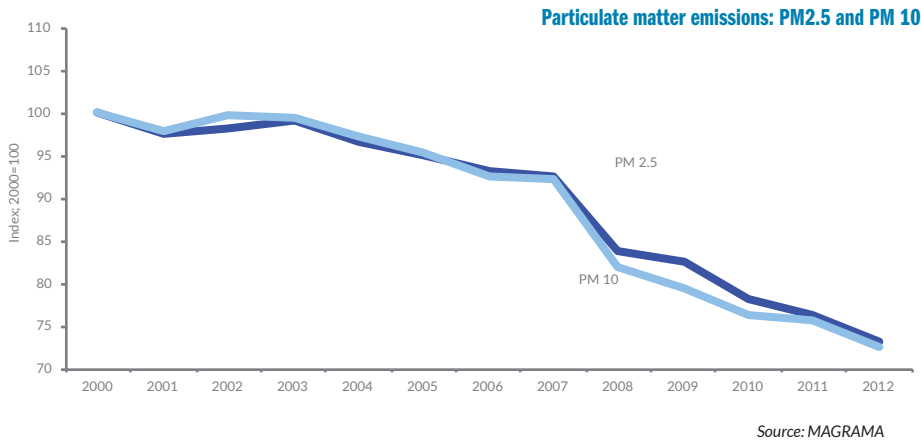
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- <http://www.eea.europa.eu/themes/air>



Particulate matter emissions

Particulate matter emissions keep decreasing in Spain and, since 2007, this reduction has accelerated



The presence of **particulates in the atmosphere** (along with other polluting substances such as gases or aerosols) constitutes one of the main elements for the assessment of air quality. It is one of the most dangerous air pollutants for human health since said particulates may be inhaled and, through the respiratory system and the blood flow they may get to vital systems or organs. They may have a primary origin, in which case they may be released to the atmosphere in an anthropic manner, associated to road traffic and certain industrial and combustion processes, and in a natural way, as dust, soil particles, marine salt particles, spores and pollen. They may also have a secondary origin, when these particles are generated in the atmosphere as a result of chemical reactions caused by precursor gases (SO_2 , NO_x , NH_3 and COVNM).

During the period 2000-2012, emissions of particulates with a diameter below 10 microns (PM10) have decreased by 27.5%; such decrease has been very noticeable since 2007 and, for example, in 2012 it decreased by 4.0%. Particulates arising from the combustion resulting from the production and transformation of energy, transportation and treatment and elimination of waste are the ones with the most remarkable decrease. However, and despite of this downward trend, in 2012, those emissions originating from the combustion in the production and transformation of energy and those arising from waste treatment have

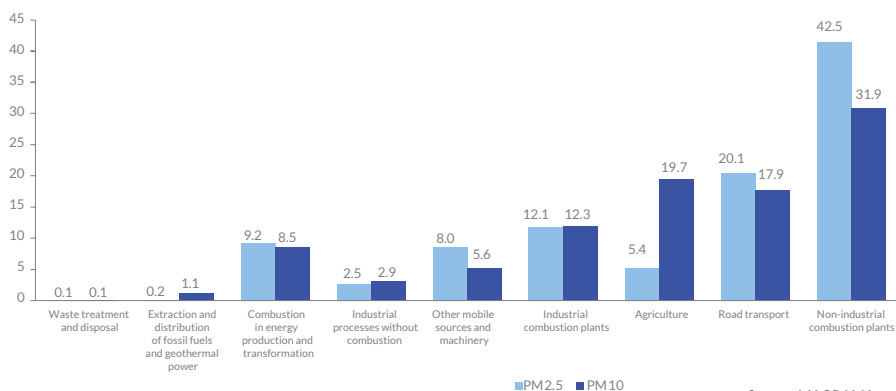
increased up to 12.8% and 8.6%, respectively, although it must be pointed out that these are the only remarkable increases.

On the other hand, the emission of particulates with a diameter below 2.5 microns, have been reduced by 26.8%. By **sector**, those previously included in the PM10 classification have shown the same behaviour in the emission ranking and, likewise, increases in that period have only affected those emissions caused by non-industrial combustion processes and, to a lesser extent, those cause by agricultural activities. Regarding 2011, the decrease in the global volume of PM2.5 emissions amounted to 4.15%.

In 2012, non-industrial combustion plants and transport were responsible for the emission of most particulates in Spain. Non-industrial combustion plants (including commercial, residential and agriculture/livestock activities) are responsible for most of the particulates emitted if the road transport is separated from the rest of means of transport. As for particulates smaller than 10 µm, the agricultural sector should be highlighted too as one of the main sources of particulate matter emissions, primarily due to the management of manure with regard to organic compounds.

In urban areas, the greatest contribution to PM 10 and PM2.5 concentration comes from road traffic, whether from its combustion emissions of those arising from mechanical processes such as the dust resulting from brake, disc, wheels and pavement abrasion. It is important to outline that the concentration of particulate matter has naturally increased in Spain due to air mass intrusions coming from Africa.

Distribution of particulate matter emissions by sectors (%). Year 2012



Source: MAGRAMA



In 2011, Spain contributed with 6% and 6.4% of PM₁₀ and PM_{2.5} particulate matter emissions within the **EU-28**, respectively. It is a rather stable contribution, considering that, since 1990, our contribution has been reaching values around 5.4% and 7%, respectively. Within the EU-28 and between 1990 and 2011, particulate matter emissions were reduced by 32.0% as for PM₁₀ and by 31.2% as for PM_{2.5}. Throughout that period, the reduction experienced in Spain was more relevant for PM_{2.5}, with a decrease of 26.0% (25.0% for PM₁₀), particulates that, due to their size, are much more harmful to human health.

NOTES

- This indicator takes into account the emissions of suspended primary particulates with an aerodynamic diameter of 10 or less and 2.5 μm (PM₁₀ and PM_{2.5}).
- The EU has not established any specific limits of emission for primary particulates, although National Emission Ceilings exist in 2010 for precursors thereof (NO_x, SO_x and NH₃), pursuant to the provisions established in the Directive of National Emission Ceilings (Dir 2001/81/EC) and in the Gothenburg Protocol of the Convention on long-range transboundary air pollution (Council Decision 81/462/EEC of 11 June 1981).

SOURCES

- Ministry of Agriculture, Food and Environment, 2013. Spanish Inventory of Greenhouse Gases. Years 1990-2011. Directorate-General for Environmental Quality and Assessment and Natural Environment

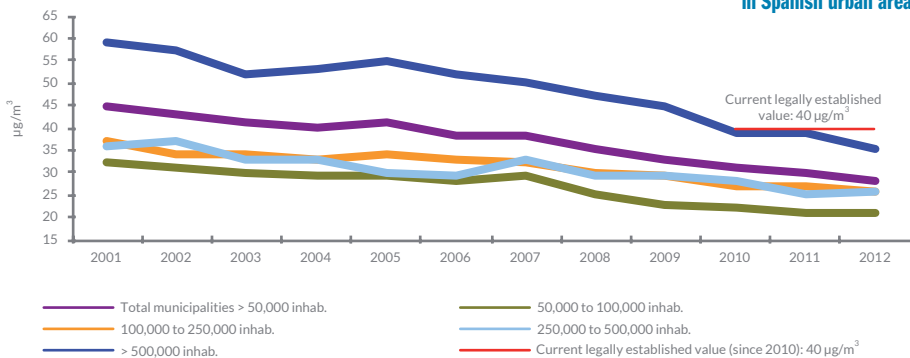
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- <http://www.eea.europa.eu/themes/climate>
- <http://www.eea.europa.eu/themes/air>

Air quality in urban areas

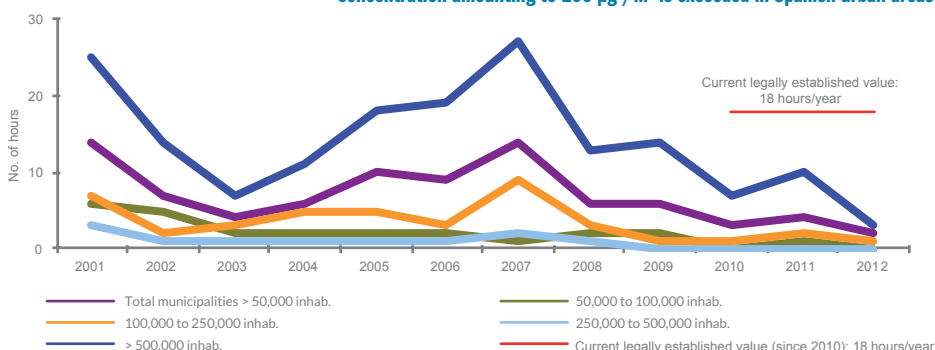
In urban environments, NO_2 and MP_{10} levels kept on the clear decreasing trend as followed in previous years. However, ozone levels have increased due to the lower concentration of nitrogen monoxide, which acts as a "consumer" of the tropospheric ozone as a consequence of the decrease in traffic flow in urban environments. The level in those finer particulates ($\text{PM}_{2.5}$) has not changed significantly.

NO_2 : weighted mean by population of the annual average concentration in Spanish urban areas



Source: MAGRAMA

NO_2 : weighted mean by population of the number of hours per year in which the average hourly concentration amounting to $200 \mu\text{g}/\text{m}^3$ is exceeded in Spanish urban areas



Source: MAGRAMA

The NO_2 average annual concentration, weighted by population, shows a clear downward trend in all population segments in which Spanish municipalities with more than 50,000 inhabitants have been grouped. As early as the year 2001, mu-

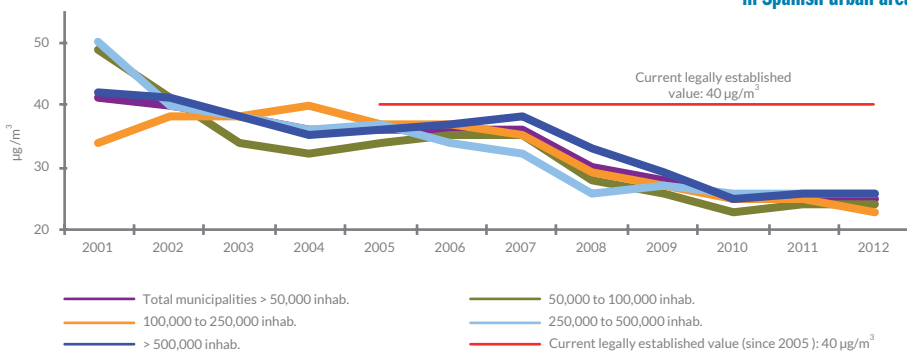


municipalities with less than 500,000 inhabitants show levels under the threshold of $40 \mu\text{g}/\text{m}^3$ established for 2010. And, since the year 2010, municipalities with a population over 500,000 inhabitants also show those same levels.

The weighted mean by population of the **number of hours a day in which the hourly average concentration of $200 \mu\text{g}/\text{m}^3$ is exceeded** in Spanish municipalities falls, since 2008, below the threshold established for 2010 (which is 18 hours/year) in all population segments in which Spain municipalities have been grouped. Before 2010, such were the values for municipalities under 500,000 inhabitants. In 2007, there was an increase in this value in all municipalities, with the exception of those municipalities under 100,000 inhabitants.

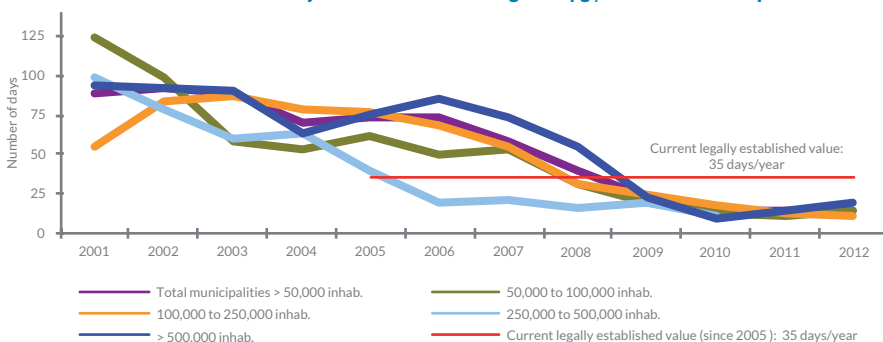
In any case, both variables comply with the thresholds legally established from 2010.

Particulates (PM10): weighted mean by population of the annual average concentration in Spanish urban areas



Source: MAGRAMA

Particulates (PM10): weighted mean by population of the number of days per year in which the average daily concentration amounting to $50 \mu\text{g}/\text{m}^3$ is exceeded in Spanish urban areas.

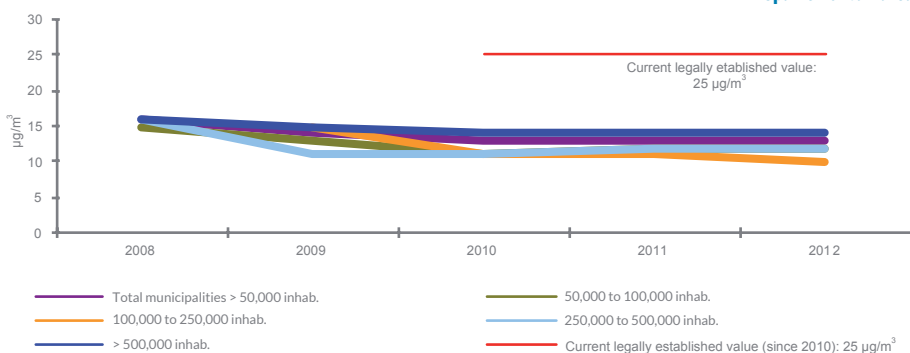


Source: MAGRAMA

The **average annual concentration of particulates** with a diameter under 10 microns, weighted by population, also shows a downward trend in all population segments considered. Such decreasing trend is not continuous, since there are minor isolated increases in certain years. From the year 2003, the $40 \mu\text{g}/\text{m}^3$ established for 2005 has barely been exceeded in any of the population segments defined by size.

The weighted mean by population of the **number of days a year in which the daily average concentration of $50 \mu\text{g}/\text{m}^3$** is exceeded in Spanish municipalities drops, from 2009, below the threshold established from 2005 (which is 35 hours/year). As early as 2006, those municipalities with a population between 250,000 and 500,000 inhabitants met such threshold, which was not exceeded since 2008 in those municipalities with a population between 100,000-250,000 and 50,000 and 100,000 inhabitants.

Particulates (PM2.5): weighted mean by population of the annual average concentration in Spanish urban areas



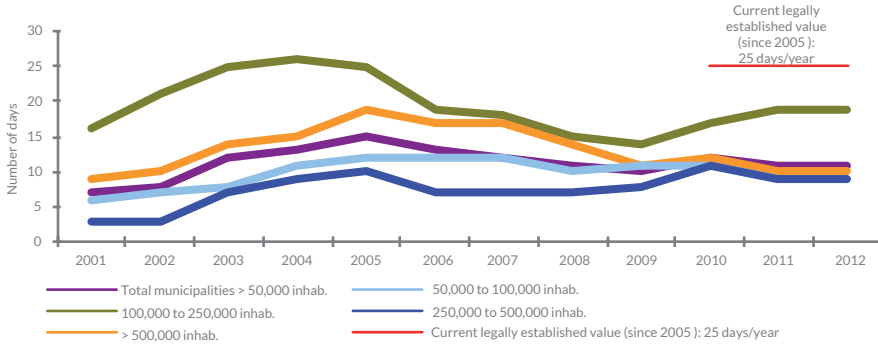
Source: MAGRAMA

On the other hand, the annual average concentration of those particulates with a diameter under 2.5 microns, weighted by population, shows a constant downward trend in all population segments and, since 2008, the legally established threshold amounting to $25 \mu\text{g}/\text{m}^3$ which was defined for 2010 has not been exceeded.

This trend shows that the number of days in which the maximum daily levels of eight-hour running average, calculated for each calendar year as an average covering a three-year period, has not exceeded the 25 days/year target value in the last years. Only in 2004, such value was exceeded by a day in those municipalities between 50,000 and 100,000 inhabitants.



Urban ozone: weighted mean by population of the number of days per year in which the daily maximum of eight-hour running average amounting to $120 \mu\text{g}/\text{m}^3$ is exceeded



Source: MAGRAMA

In 2012, year in which such legally established value must be compulsory met, none of the average values shown has exceeded it. However, during the last years there has been a slight upward trend.

The report of the Ministry of Agriculture, Food and Environment, 2013: "Analysis of the Air Quality in Spain: Evolution 2001-2012" assesses in great detail the air quality for each polluting element, describing the causes for its formation and transformation in the atmosphere as well as its effects on human health and plant life.

NOTES

- The indicator carries out the follow-up of those variables included in the Project for European Common Indicators (ECI) and show the evolution of the weighted mean by population of the annual average concentration of NO₂ and of the number of hours a year in which the hourly average concentration amounting to 200 µg/m³ is exceeded. It is calculated for the total population living in municipalities over 50,000 inhabitants and for each one of the four segments in which populations have been classified according to size (50,000 to 100,000 inhabitants, 100,000 to 250,000 inhabitants, 250,000 to 500,000 inhabitants and >500,000 inhabitants). Thresholds established since 2010 and 2005 by means of the relevant regulations are compared.
- The assessment of PM2.5 is mandatory since year 2010, although the indicator includes data available since 2008.
- The urban ozone indicator, by virtue of current regulations, is based on an average three-year period. Year 2012 is the first one in which compliance is mandatory for the three-year period 2010-2012.
- All stations with sufficient data have been taken into consideration (85% for daily and hourly exceedances and 50% for annual average concentrations). However, it is important to highlight that the average value obtained is a representation of the average situation of that polluting elements and there may be differences between that value and isolated situations that may occur in certain stations in different cities. The total number of stations taken into consideration for the calculation of indicators varies throughout the relevant period, and it also varies in the assessment of each variable, which is a relevant aspect which affects the final result.
- The evolution of SO₂ and CO concentrations is not taken into consideration since in urban areas there are no problems in relation to such elements. Since 2002, the CO threshold has not been exceeded (daily maximum of CO amounting to 10 mg/m³ as eight-hour running average) and from 2009 SO₂ threshold values have not been exceeded either.

SOURCES

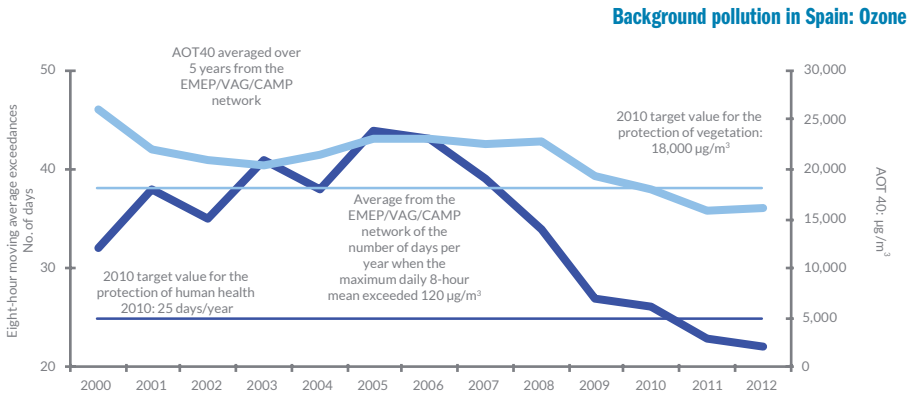
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FURTHER INFORMATION

- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/>
- <http://www.eea.europa.eu/themes/climate>
- <http://www.eea.europa.eu/themes/air>
- Ministry of Agriculture, Food and Environment, 2013. "Analysis of the Air Quality in Spain: Evolution 2001-2012. Directorate-General for Environmental Quality and Assessment and Natural Environment

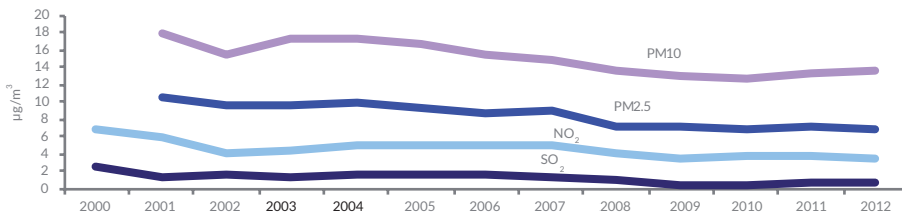
Regional background of air quality for health and plant protection

The average values of the background pollution in Spain are lower than those threshold values legally established for all polluting elements



Source: MAGRAMA

**Background pollution in Spain:
Average concentration of annual average values**



- Critical level for plant protection since 2008: 20 $\mu\text{g}/\text{m}^3$ for SO_2 , in calendar year and winter season
- Critical level for the protection of vegetation since 2008: 30 $\mu\text{g}/\text{m}^3$ for NO_2
- Annual limit value for the protection of human health since 2005: 40 $\mu\text{g}/\text{m}^3$ PM10
- Annual target value for the protection of human health since 2010: 25 $\mu\text{g}/\text{m}^3$ PM2.5

Source: MAGRAMA

The regional background air pollution is the one which appears in those areas away from direct emission sources and which provides information regarding the level of regional pollution caused by anthropogenic, natural, regional or transboundary sources.



Tropospheric ozone is a pollutant which shows high levels of concentration in rural or suburban areas mainly due to the high levels of insolation registered in Spain and to the emissions of its precursors (nitrogen oxides and volatile organic compounds). However, the three-year average value of the EMEP/VAG/CAMP Network of the number of days in which the daily maximum of eight-day averages exceeds the $120 \mu\text{g}/\text{m}^3$ concentration shows, since the year 2011, values under 25 days, which is the target value established since 2010 as threshold for guaranteeing a proper **health protection**. In 2012, there were only exceedances of the information threshold in the stations of Noia and Doñana; no station exceeded the alert threshold.

Likewise, the average value, within the same network, of the fifteen-day running averages of AOT40 is less than the target value amounting to $18,000 \mu\text{g}/\text{m}^3$, established since 2010 for the **protection of the plant life**.

On the other hand, the average values of the average concentrations of sulphur dioxide, nitrogen dioxide with a diameter over 10 microns and under 2.5 microns, of the last years, are lower than those legally established. Besides, the linear evolution shows a general downward trend (although in 2012 it seems that such trend increases slightly for PM10 and SO_2). Therefore, and without taking into account any possible isolated cases in which such legally established values are exceeded, it is possible to state that the background pollution in Spain for these pollutants is satisfactory and so is the protection of the plant life (such as for SO_2 and NO_2) and human health (PM10 and PM2.5) is guaranteed since the established thresholds are not exceeded.



NOTES

- The indicator assesses in a general way the background pollution existing in Spain. In order to do so, the total average value of the average concentrations of all stations included in the EMEP/VAG/CAMP Network is presented for each pollutant and year thus offering approximate information of the atmospheric background pollution in Spain. It does not provide information on the isolated cases of exceedances that may arise in certain stations.
- The acronym AOT40 stands for Amount Over Threshold. This index is defined as the addition of the difference of hourly concentration over $80 \mu\text{g}/\text{m}^3$ (= 40 parts per billion or ppb) and $80 \mu\text{g}/\text{m}^3$ throughout a given period (which, in the case of the protection of the plant life corresponds to the months of May, June and July), only using hourly values collected between 8 a.m. and 8 p.m., Central European Time, each day (pursuant to RD 1796/2003 transposing Directive 2002/3EC; both replaced by RD 102/2011 and Directive 2008/50/EC). In order to get the AOT 40 level from hourly concentrations of ozone in each one of the stations considered, those years with a number equal or exceeding 90% of valid data are used and they are also corrected so that 100% of all possible data are unified. Average values are calculated throughout a five-year period (running averages) and, in lack of the full and consecutive series of annual data regarding AOT 40, average values are calculated throughout a minimum of a three-year period (according to Annex I of RD 1796/2003 transposing Directive 2002/3EC; both replaced by RD 102/2011 and Directive 2008/50/EC).
- The EMEP (European Monitoring Evaluation Programme), created within the framework of the Geneva Convention, measures the atmospheric background pollution. The Global Atmosphere Watch (GTW) is a project created by the World Meteorological Organization (WMO). The CAPM Programme ("Comprehensive Atmosphere Monitoring Programme") created within the framework of the OSPAR Convention aims at the collection of atmospheric inputs in the North-east Atlantic regions and the study of their effects on the marine environment. The EMEP/VAG/CAMP Network, which is used to guarantee compliance with the goals established by these three programmes, monitors tropospheric levels of residual air pollution -or background pollution- and its sedimentation of the earth's surface, so as to protect the environment.
- Royal Decree 102/2011, of 28 January, on the improvement of air quality (transposing Directive 2008/50/EEC of the European Parliament and of the Council of 21 May 2008), established those threshold values for the protection of health and critical levels for the protection of the plant life as regards NO_x and SO_2 .

SOURCES

- Ministry of Agriculture, Food and Environment, 2014. Air Quality Database. Directorate-General for Environmental Quality and Assessment and Natural Environment

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/>
- http://www.aemet.es/es/idi/medio_ambiente
- <http://www.eea.europa.eu/themes/air>
- Ministry of Agriculture, Food and Environment, 2013. "Analysis of the Air Quality in Spain: Evolution 2001-2012. Directorate-General for Environmental Quality and Assessment and Natural Environment



2.2

2013 Environmental Profile of Spain

Year 2013 was declared by the United Nations as the year of "Cooperation in the Sphere of Water" and it coincided with the twentieth anniversary of the proclamation of the World Water Day. On 22 December 1992, resolution A/RES/47/193 was adopted by the General Assembly of the United Nations and, by virtue thereof, 22 March of each year was declared as the World Water Day.

The **7th Environment Action Programme** highlights, among other aspects, the need of improving efficiency in the use of water. This report foresees that, unless significant progress is made in this sense, a global shortfall of 40% in water is likely to occur before 2030. It regards water as one of the elements that makes up the natural capital and therefore, a primary objective is to ensure the protection, conservation and improvement of this resource. To do so, this programme will ensure the mitigation of impacts caused by the pressures on waters, in order to maintain and improve the status referred to in the Water Framework Directive (WFD). On the other hand, the practical framework of the EU on water issues points out the promotion of the main consuming sectors, such as energy and agriculture, as a fundamental challenge in order to achieve a good status of waters, and several market mechanisms are foreseen within a common implementation strategy.



As stated in the WFD, Spain has been a **pioneering country in the management of water basins**, thus becoming a model for other countries. Current Spanish water policies are mainly focused on the completion of the water planning falling within the competences of the Government so that a Water National Plan can be subsequently prepared; such Plan will be aimed at guaranteeing sufficient water volumes -of sufficient quality- in a comprehensive and equal manner for all regions.

In 2013, 13 river basin plans had been approved in Spain. As for the rest of them, which fall under the sphere of the Spanish Government (i.e. Ebro, Tajo, Segura and Júcar), the first three had been favourably informed by the National Water Council at the end of 2013, when the Júcar River Basin Management Plan was at the public information stage.

As regards to the water resources resulting from precipitations in the form of snow –an indicator that was developed in former editions of this report– the Directorate General for Water has been developing the ERHIN Programme since 1983 (Assessment of Water Resources arising from Snowmelt), which lists those river basins of Spanish mountains where the presence of snow is significant in terms of hydrology. The Programme was launched in the Spanish part of the Pyrenees and it has progressively expanded to Sierra Nevada, the Cordillera Cantábrica and the Sistema Central mountains. These resources include those coming from the glaciers existing in our latitudes, which are deemed interesting not for the assessment of water resources –for which they are negligible as a whole– but rather in view of their environmental significance, because of their unique nature. On the website of the ERHIN, hosted in the MAGRAMA portal, a thorough description is provided on the Programme and the evolution of snow reserves, as well as a representation of the movements of existing glaciers dynamics.



IN THE PAST 10 YEARS ...

- For the past 10 years in Spain (2002-2011), consumption of water from the public supply network has decreased by 12.3%. On the other hand, household consumption has decreased by 5.1% and, in the economic sectors, such consumption has dropped by 22.2%, whereas municipal consumption has been reduced by 33%.
- The average peninsular water reserves for the past five years have exceeded those of the last decade.
- Indicators of hydrological drought are useful in order to prevent drought episodes, assess their seriousness and implement objective and adequate measures in order to mitigate any impacts thereof. On the other hand, the status of systems for the exploitation of water resources are classified according to four categories: normal, prealert, alert and emergency. Since March 2010, monthly reports are available on the status of hydrological drought.
- In the past 6 years, the total percentage of stations registering nitrate concentrations over 50 mg/l has slightly decreased, although it is still above 20% in the years for which sufficient data are available allowing to calculate the average value. Likewise, the percentage of stations with chloride concentrations over 1,000 mg/l has also decreased.
- The analysis of the percentage of stations, classified according to their average value of BOD₅, provides an overview of the improvement in the quality of the waters in our rivers in terms of organic pollution, since the number of stations with lower BOD₅ levels has increased and, at the same time, there is a reduction in those with higher concentrations.
- In 2011, the report on the quality of bathing waters was presented for the first time, pursuant to the classification provided for in RD 1341/2007. Generally, from that date onwards, there has been an improvement in the percentage of sampling points with a better quality (whether as "high quality bathing water" or "excellent quality bathing water" according to the new classification) and a decrease in the percentage of sampling points with a worse quality (corresponding to unsafe bathing water or water with poor quality).

INDICATORS

- Water consumption
- Reservoir water levels
- Hydrological drought
- Nitrate pollution of groundwater
- Salinisation of groundwater bodies
- Organic pollution of rivers
- Quality of inland bathing water

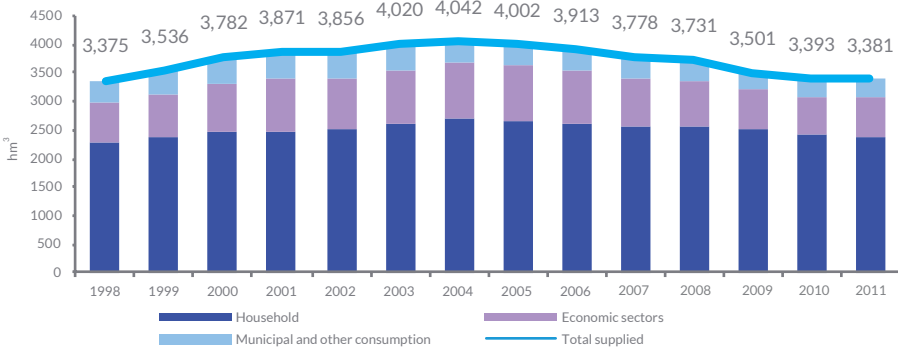




Water consumption

Since 2004, consumption of water distributed through the public supply network has decreased

Breakdown by sectors of consumption of water distributed through the public supply network



Source: INE

In 2011, urban public supply networks distributed 4,513.818 cubic hectometres (hm³) of water. Three-fourths of this figure (3,381.318 hm³) were registered water volumes, that is, volumes measured by users' water meters. The rest of them (1,132,500 hm³) were unregistered water volumes (unmeasured or estimated in terms of flow volumes). This figure does not include water intended for irrigated agriculture which, according to the "2011 Survey on the use of water in the agricultural sector", increased by 16,344.1 hm³ (+1.4% compared to 2010).

The analysis of the water consumption registered shows how the "households sector" experienced a reduction in consumption of 1.17% back in 2011 compared to the previous year, whereas in the group integrated by "municipal and other consumption", including water consumption for garden irrigation, washing down and cleaning of streets and other purposes, such reduction was of 0.52%. However, economic sectors (including the services and industrial sectors as well as livestock activities) experienced an increase in consumption of 2.66%.



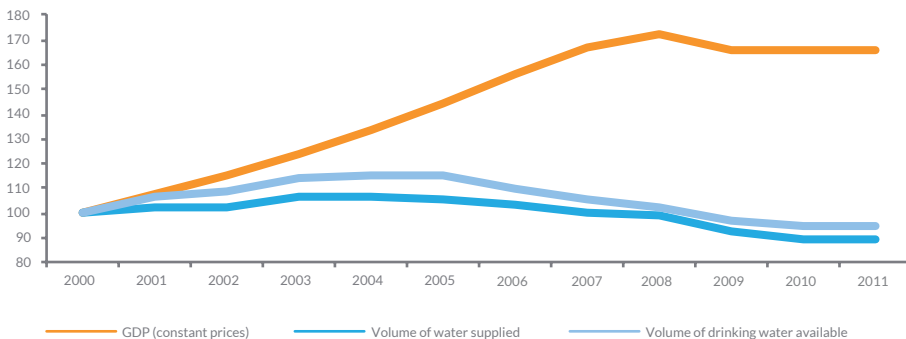
In 2011, the volume of water registered and distributed to households was 2,384 hm³ in absolute terms, and it accounted for 70.5% of the total volume. Economic sectors used a total of 693 hm³ (20.5%), whereas in municipal and other consumption it was 304 hm³ (9.0%).

In 2011, **water consumption per inhabitant** descended to 142 litres per inhabitant and day compared to the 144 litres registered in the previous year (decrease of -1.4%) and to the 149 litres per inhabitant and day of 2009.

If we compare the economic growth, measured as GDP, to water consumption levels, it can be observed that economic growth in Spain has been accompanied by a decrease in demand for water supplied through distribution networks and purified water available. Nevertheless, in 2008, the intensity of such decoupling experienced until that year dropped sharply.

In 2011, the **origin of the water** collected for the production of water intended for human consumption was as follows: surface water (69%), groundwater (30%) and sea water (1%). As for its **sanitary quality**, in 99.3% of official analysis bulletins, published through the National Water Consumption Information System (SINAC), it is qualified as suitable for human consumption.

Comparison between water distributed through the public supply network and GDP (Index: 2000=100)



Source: INE



NOTES

- Water distributed through urban public supply networks is divided into two categories: registered and unregistered water. Registered water is accounted for after being measured at the users' water meters, whereas unregistered water is either calculated from flow volumes –or it has not been measured– and it includes the actual losses (due to leaks, breaks and malfunctions) and apparent losses (i.e. authorised consumption not measured by water meters, plus any other consumption resulting from measurement errors, fraud or other non-physical phenomena).
- Average water consumption in households is calculated by dividing the total volume of registered water distributed to the households by the estimated de jure population.
- Among the primary objectives of the National Water Consumption Information System (SINAC), developed by the Ministry of Health, Social Services and Equality, there is the one to provide information to the customers on the origin of drinking water, its quality and purification processes applied.

SOURCES

Instituto Nacional de Estadística (Spanish National Statistical Office). INEbase:

Water data: Environmental statistics. Environmental statistics on water:

- Survey on water supply and sanitation. Year 2011. Water supply and treatment. Distribution of registered water by autonomous regions and cities and large groups of users. Volume of registered and distributed water by user type
- Survey on water supply and sanitation. Year 2011. Water supply and treatment. Volume of available water (purified and not purified) by autonomous regions and cities. Volume of drinking water available

GDP Data:

INE Base/Economic Accounts/ Spanish National Accounting. Base 2008: Spanish National Accounting. Base 2008. Spanish National Accounting. Gross Domestic Product at market prices and components thereof. Current prices. Table 1. Demand, Supply, Income

Qualitative data on water for human consumption:

Ministry of Health, Social Services and Equality. "Quality of water intended for human consumption in Spain. Technical report. Year 2011. Series of studies, reports and research works

FURTHER INFORMATION

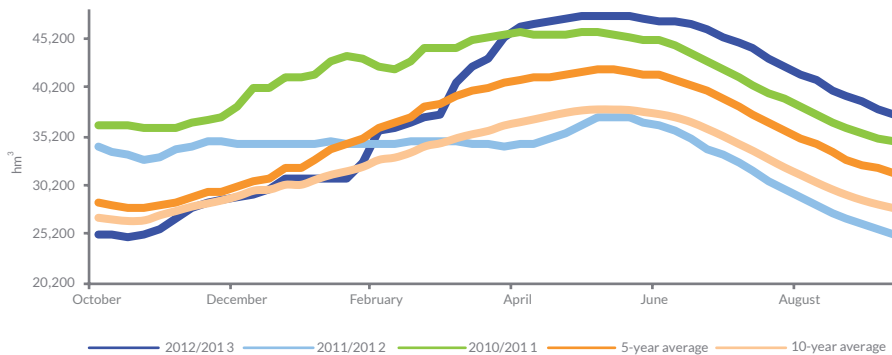
- http://www.ine.es/inebmenu/mnu_medioambiente.htm
- <http://www.msssi.gob.es/profesionales/saludPublica/saludAmbLaboral/calidadAguas/home.htm>
- <http://sinac.msssi.es/CiudadanoWeb/ciudadano/inicioCiudadanoAction.do>



Reservoir water levels

By the end of the hydrological year 2012-2013, water reserves were at 66.5% of the total capacity, a percentage that is higher than in previous years

Peninsular water reserves. Volume of reservoir water by hydrological years (from 1 October to 30 September)



Source: MAGRAMA

At peninsular level, Spain had a total reservoir capacity of 55,343 hm³ back in 2013, 75% of which belonged to the Atlantic watershed and 25% to the Mediterranean watershed. At the beginning of October 2013 (end of hydrological year 2012-2013), stored water reserves accounted for 66.5% of the total capacity; a percentage much higher than in previous years and than the average value for the last 5 and 10 years.

Hydrological trend report: capacity (hm³) and reserves (%) in peninsular reservoirs. Status as 8 October 2013

WATERSHEDS	Total reservoir capacity hm ³	Reserves hm ³	Reserves compared to total capacity (%)				
			2013	2012	2011	5-year Average	10-year Average
Atlantic	41,500	27,968	67.4	47.9	65.0	53.1	51.7
Mediterranean	13,843	8,849	37.2	37.2	47.9	45.6	41.0
Total (Entire Peninsula)	55,343	36,817	66.5	45.2	60.7	51.2	49.0

Source: MAGRAMA



Comparing the situation between January and December, it is possible to see an increase in the total volume of reservoir water at the end of 2013. Such increase was equal to 5,943 hm³, and it was distributed between the 3,784 hm³ stored in reservoirs for **consumptive use**, and the 2,159 hm³ stored for **hydroelectric purposes**.

Total accumulated reserves

	January 2013		December 2013	
	hm ³ / GWh	Total reserves (%)	hm ³ / GWh	Total reserves (%)
Hydroelectric reservoirs	9,191 hm ³	53.0	11,350 hm ³	65.5
Water reservoirs for consumptive use	21,778 hm ³	57.3	25,562 hm ³	67.3
Total reserves	30,969 hm ³	56.0	36,912 hm ³	66.7
Stored power (theoretical maximum capacity available)	8,270 GWh	37.0	12,098 GWh	54.5

Source: MAGRAMA

At the beginning of 2013, the existing total water reserves and stored power available were below the ones recorded during the previous year on the same date, having decreased by 707 hm³ and 2,860 GWh, respectively. The maximum annual reserve was registered in week 22 of the year 2013, with a total reservoir volume of 47,444 hm³. The minimum annual reserve was registered in the first week of the year 2013, with a total accumulated volume of 30,969 hm³.

**NOTES**

- The hydrological year goes from 1 October to 30 September of the following year.
- The Department of Hydrological information attached to the MAGRAMA receives the data generated in the relevant River Basin Authorities, in other Cross-regional Water Administrations, in the Spanish State Meteorological Agency, as well as those supplied by Red Eléctrica de España. After that, information is processed with technical means in order to serve as foundation for the decisions on water management that need to be adopted at national level, taking into consideration any technical, economic and social consequences thereof.
- Its primary purpose is to get real-time information on water reserves and to conduct the appropriate follow-up, analysis and publishing of hydrological data, thus providing actual information on the status of stored water volumes in reservoirs with a capacity over 5 hm³, of the status of management systems, reserves devoted to irrigation activities and supply to populations, main flows at each river basin, rainfall data and information on stored hydroelectric power (estimated) as well as the electric power actually generated thereby.
- Information provided in this section is a summary of the overall hydrological situation in Spain back in 2013. Further information may be found at the website of the Ministry of Agriculture, Food and Environment.

SOURCES

- Data provided by the Directorate General for Water (Sub-directorate General for Sustainable Water Use and Planning). State Secretariat for the Environment. MAGRAMA. Available on the MAGRAMA website: Water/Assessment of water resources/Hydrological Bulletin/Choose date: Analysis of water reserves/Status of water reserves and energy available: total figures at peninsular level/Peninsular water reserves

FURTHER INFORMATION

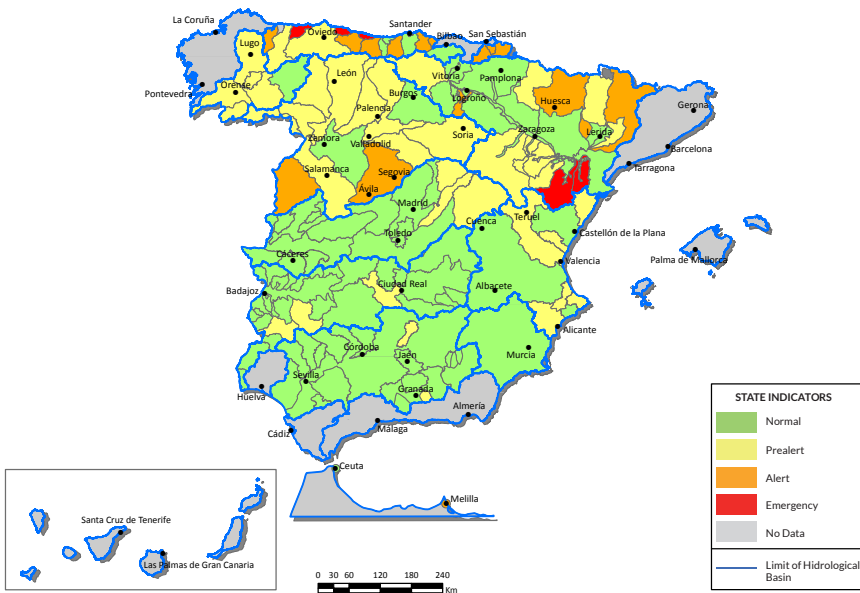
- <http://eportal.magrama.gob.es/BoleHWeb/>



Hydrological drought

During the hydrological year 2012–2013, the average rainfall value was 23% higher than the average historical value

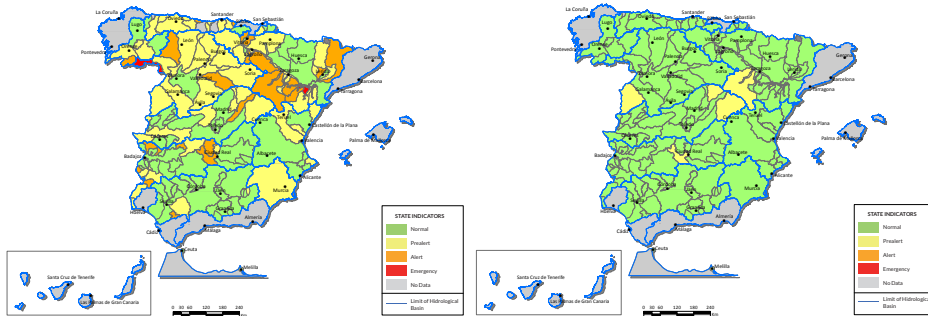
Map of hydrological drought monitoring map. December 2013



Source: MAGRAMA

From the point of view of hydrological droughts, year 2013 may be regarded as a stable period. In fact, all the problems arising from **extreme weather events** were in connection with floods rather than droughts. On the contrary, 2012 was a challenging year, although high rainfall rates were recorded in the last quarter. Therefore, at the beginning of 2013, the situation in terms of hydrological drought had significantly improved. On that date, there were only three systems for the exploitation of water resources (two at the Ebro river basin and one at the Duero river basin) with indicators at "Emergency" values –which is not much relevant– whereas two months before, such figure was 20.

Map of hydrological monitoring map at 31/12/2012 (left) and 31/5/2013 (right).



Source: MAGRAMA

This high rainfall trend intensified during the first months of 2013, especially in the month of March, which was the one with the highest humidity in the entire Spanish territory since 1947, causing serious floods, especially in the river basins of Guadiana and Guadalquivir.

Despite moderate droughts during the months of summer, which was more severe in certain areas of the Spanish territory, the situation was never worrying, keeping global rainfall rates much higher than the average values. Hydrological year 2012-2013 ended on 30 September with an average rainfall value at national level of 799.4 mm, over 23% higher than the historical average value that was calculated at 648.6 mm.

High rainfall rates have clearly influenced hydrological drought indicators, which have maintained "normal" values in general terms throughout the entire previous year. Only occasionally, some systems registered numerical values corresponding to "Alert" and or "Emergency" levels but, in general, these were systems with highly sensitive indicators in short periods, without heavy rainfalls or non-regulated systems with little socio-economic impact.

As of 31 December 2013, the overall hydrological situation could be regarded as "Normal" in general terms, with only five systems reaching "Emergency" values (three at the Western Coast of the Cantabrian Sea, due to the high sensitivity of this area to short drought periods, and two of them at non-regulated subsystems of the Ebro river), but there were not any problems related to hydrological drought.



NOTES

- The authorities responsible for cross-regional river basins (those affecting more than one Autonomous Communities, which are to be managed by the Ministry of Agriculture, Food and Environment) have developed hydrological indicator systems that allow to prevent drought phenomena to a certain extent, by assessing the severity of these events and taking objective and appropriate measures in order to mitigate negative impacts thereof. The hydrological nature of those indicators makes them much useful as a decision-making tool in the management of water resources of river basins.
- Indicators are essential elements of Special Drought Management Plans (PES) of the various river basin authorities. Those indicators are based on measurements of certain hydrological variables in a series of control points at the systems. These values may include: volume stored in certain reservoirs, natural river inputs at surface gauging stations, aquifers' piezometric levels, rainfall in representative stations, and reserves of stored water in the form of snow in those areas where these are significant in relation to the availability of the resources. In other cases, there indicators may also be based on a combination of some of the values above. Indicators classify the situation of each water resource management system with respect to hydrological drought, into four categories: "Normal", "Pre-Alert", "Alert" and "Emergency".

SOURCES

- Data provided by the Directorate General for Water (Sub-directorate General for Sustainable Water Use and Planning), State Secretariat for the Environment. MAGRAMA. Available on the website of MAGRAMA, in the section of the Hydrological Drought Indicators Monitoring Map

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/agua/temas/observatorio-nacional-de-la-sequia/>

Nitrate pollution of groundwater

The quality of groundwater is compromised by the excess of nitrogen fertilisers and their methods of application, as well as by livestock farming activities

Percentage of sampling points with nitrate concentration over 50 mg/l

RIVER BASIN DISTRICTS	2008	2009	2010	2011	2012	2013
MIÑO-SIL	0.0	9.1	4.7	0.0	0.0	0.0
GALICIA COAST	0.0	0.0	2.2	n/d	3.0	0.0
INLAND BASINS - BASQUE COUNTRY	0.0	0.0	0.0	0.0	0.0	0.0
EASTERN CANTABRIAN SEA	1.9	0.0	0.0	0.0	0.0	4.3
WESTERN CANTABRIAN SEA					0.0	
DUERO	12.5	14.6	15.9	8.0	16.2	15.2
TAJO	22.7	16.7	17.1	18.5	16.9	17.4
GUADIANA	26.8	28.7	33.1	36.2	31.1	31.3
GUADALQUIVIR	42.5	30.3	30.9	n/d	n/d	n/d
ANDALUSIAN MEDITERRANEAN BASIN	14.9	13.2	12.5	9.6	5.3	10.5
TINTO, ODIEL AND PIEDRAS	0.0	n/d	12.7	21.4	19.1	23.2
GUADALETE AND BARBATE				11.1	25.6	
SEGURA	26.5	18.4	9.8	23.9	23.0	25.0
JÚCAR	19.7	25.8	15.7	21.6	26.9	n/d
EBRO	57.7	15.7	33.8	23.0	19.7	20.0
INLAND BASINS OF CATALONIA	30.3	36.5	37.2	39.0	41.9	31.5
BALEARIC ISLANDS	37.5	47.4	44.7	41.5	n/d	29.6
GRAN CANARIA	33.3	35.8	35.7	30.8	n/d	n/d
TOTAL	25.9	23.2	22.2			21.1

n/d: no data

*See classification 3 in Annex I

Source: MAGRAMA

In 2013, the highest percentage of sampling points with nitrate concentrations over 50 mg/l was found in the districts of the inland basins of Catalonia, Guadiana and the Balearic Islands. It was only the Guadiana river basin district that registered a slightly higher percentage than the one recorded back in 2012, whereas Catalonia and the Balearic Island reduced such percentage as compared to the figure of previous years.

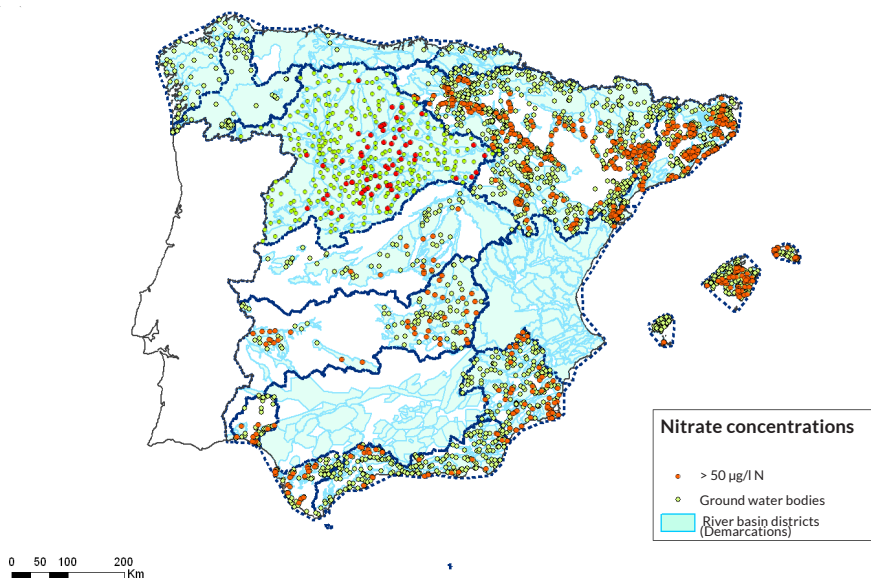


River basin districts of Guadalete and Barbate, as well as those of Tinto-Odiel-Piedras (formerly the Andalusian Atlantic River Basin), the Segura and the Ebro river basins did also reach, in general, relatively high percentages, over 20% or even higher, of sampling points with concentrations exceeding 50 mg/l.

As for the river districts corresponding to the Inland Basins of the Basque Country, Galicia Coast and the Miño river, nitrate pollution was inestimable, since the Cantabrian Basins showed 4.3% of sampling points with indications of contamination.

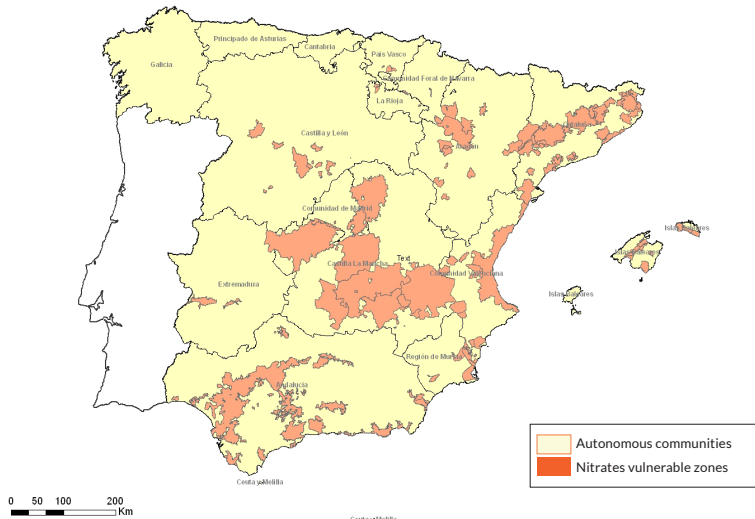
In 2013, the works intended to define the **most sensitive areas** to nitrate pollution arising from agricultural activities were pursued and further expanded.

Sampling points with nitrate concentration > 50mg/l. Year 2013



Source: MAGRAMA

Sensitive areas to nitrate pollution



Source: MAGRAMA

NOTES

- Directive 2000/60/EC, which establishes the European framework for action in the field of water policy includes, among its objectives, the need to prevent groundwater pollution. In order to meet these objectives, rafts of measures should be established including those set out in Directive 91/676/EEC, among others. Furthermore, sensitive areas established in line with Directive 91/676/EEC are included in the register of Protected Areas under Directive 2000/60/EC.
- This European Regulation sets out the criteria and procedures for the assessment of the chemical status of groundwater, as well as any potential measures to be adopted in order to reduce pollutants affecting them. In particular, in order to assess chemical status thereof, certain rules on quality are set out for nitrates, where a maximum admissible concentration of 50 mg/l is established.
- At the end of 2013, river basin districts in the peninsula were distributed throughout 10 cross-regional districts (out of which there was one, the so-called Eastern Cantabrian Sea district, classified as mixed) and 5 regional river basin districts. The rest of Spanish river basin districts are found in the Balearic Islands (one single river basin district), the Canary Islands (7 river basin districts, one for each island) and Ceuta and Melilla (one river basin district per each autonomous city) all of them classified as regional districts. Cross-regional control networks and management thereof are responsibility of the State, whereas regional ones fall within the scope of each autonomous region.

SOURCES

- Data provided by the Sub-directorate General of Comprehensive Management of the Hydraulic Public Domain. Directorate General for Water. Ministry of Agriculture, Food and Environment.

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/agua/temas/estado-y-calidad-de-las-aguas/aguas-subterranas/>
- Viewer of the Information System on Groundwater Resources



Salinisation of groundwater bodies

Salinisation of aquifers in coastal areas, mainly as a consequence of their exploitation, is the phenomenon that most severely affects the quality of groundwater in these areas.

Percentage of sampling points with chloride concentration over 1,000 mg/l

RIVER BASIN DISTRICTS	2008	2009	2010	2011	2012	2013
MIÑO-SIL	n/d	n/d	0.0	0.0	0.0	0.0
GALICIA COAST	0.0	0.0	0.0	n/d	0.0	0.0
INLAND BASINS - BASQUE COUNTRY	0.0	14.3	0.0	6.6	0.0	6.7
EASTERN CANTABRIAN SEA	0.0	0.0	0.0	0.0	0.0	0.0
WESTERN CANTABRIAN SEA					0.0	0.0
GUADIANA	0.0	0.0	0.0	0.0	0.0	0.0
GUADALQUIVIR	0.0	0.0	0.0	n/d	n/d	n/d
ANDALUSIAN MEDITERRANEAN BASIN	n/d	n/d	5.6	3.8	2.9	2.3
TINTO, ODIEL AND PIEDRAS	n/d	n/d	8.5	0.0	0.0	1.6
GUADALETE AND BARBATE				0.0	2.5	
SEGURA	46.9	22.7	37.7	12.2	17.1	16.7
JÚCAR	5.4	0.0	0.0	1.5	0.4	n/d
EBRO	0.0	0.0	0.0	1.2	2.6	2.1
CATALONIA	8.3	6.0	9.5	3.9	3.9	3.0
BALEARIC ISLANDS	n/d	n/d	8.6	8.5	n/d	7.6
GRAN CANARIA	0.0	0.0	5.7	15.4	n/d	n/d
TOTAL	13.2	4.9	9.0			3.8

n/d: no data

*See clasification 3 in Annex I

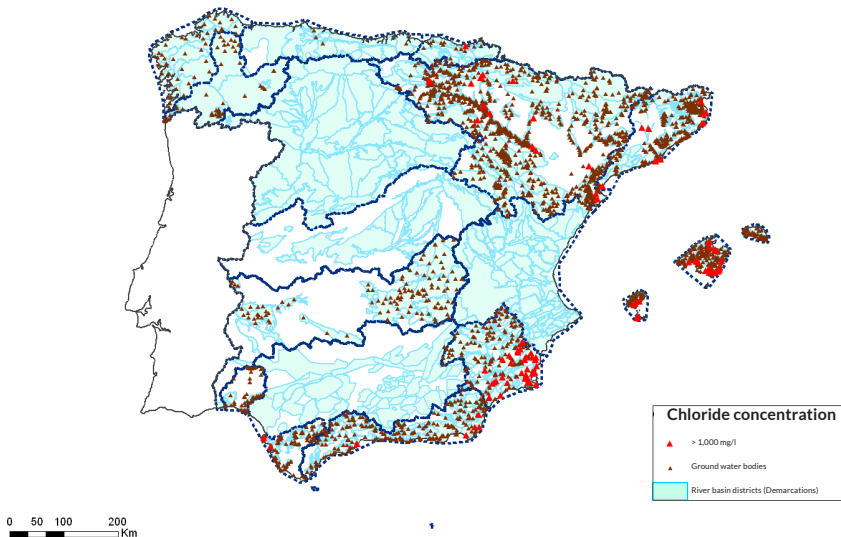
Source: MAGRAMA

Saltwater intrusion normally occurs in coastal areas due to the advance of a salt-water wedge inland, when the freshwater flow towards the sea decreases. This process, which arises as a consequence of inappropriate pumping of coastal aquifers, mainly in order to meet the demands of human consumption, or due to **intensive farming practices**, has led to many problems of pollution in numerous aquifers alongside the Mediterranean coast. On the other hand, soils supporting intensive irrigation practices may also suffer from loss of productivity due to salinity problems.

Throughout the years, the Segura river basin district has also reached the highest percentage of sampling points with chloride concentrations over 1,000 mg/l. During hydrological year 2012-2013, 16.7% of sampling points had registered values over 1,000 mg/l as for chloride concentration. This percentage is slightly lower than the one recorded in the previous year and in years 2008, 2009 and 2010, not that much if compared to 2011.

The rest of river basin districts barely show any significant chloride concentration values. The only percentages that are worth mentioning are registered in the Balearic Islands and in the Inland Basins of the Basque Country.

Sampling points with chloride concentration > 1,000mg/l. Year 2013



Source: MAGRAMA



NOTES

- See the previous indicator notes: "Nitrate pollution of groundwater".
- It must be outlined that chloride concentration allows for the detection of salinisation phenomena.
- This indicator does also detect both the areas affected by saltwater intrusion, as well as those inland areas with chloride concentrations not due to saltwater intrusion processes. These phenomena may also result from natural processes.
- There are no available data on the the Júcar river basin district; which is clearly one of the districts with potential saltwater intrusion problems. Besides, neither the Tajo nor the Duero river basin districts are included here in, since the Spanish part of the district is geographically located inside the peninsula.

SOURCES

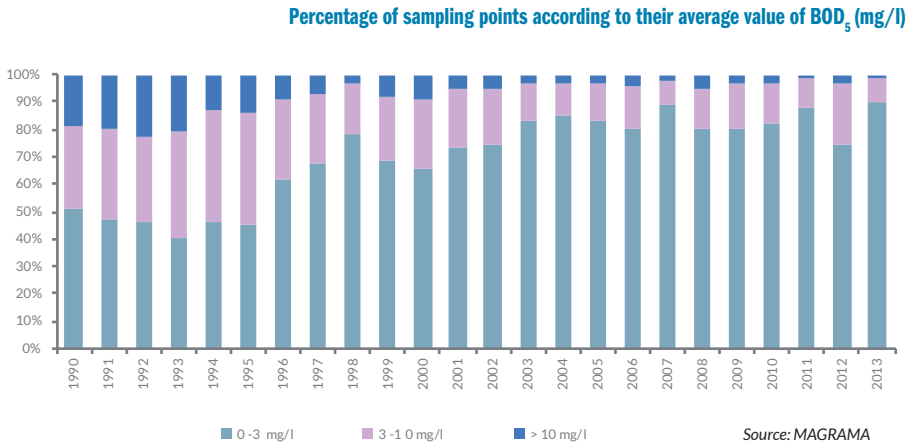
- Data provided by the Sub-directorate General of Comprehensive Management of the Hydraulic Public Domain. Directorate General for Water. Ministry of Agriculture, Food and Environment.

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/agua/temas/estado-y-calidad-de-las-aguas/aguas-subterranas/>
- Viewer of the Information System on Groundwater Resources

Organic pollution of rivers

In 2013, a significant improvement was recorded in the level of organic pollution of river water: An increase in the percentage of points with lower concentrations of BOD₅ and ammonium



In 2013, there was a slight improvement in the degree of **organic contamination of rivers** as a consequence of the increase in the number of stations with lower organic pollution measured as Biochemical Oxygen Demand (BOD₅), which was the year with the highest percentage of sampling points with lower pollution levels. Likewise, there was also a moderate improvement on ammonium concentrations as compared to previous years.

Annex VIII of the Water Framework Directive sets out an indicative list of the main pollutants including the substances having a negative effect on the oxygen balance (which can be measured using parameters such as the Biochemical Oxygen Demand - BOD and Chemical Oxygen Demand - COD). Besides, substances contributing to eutrophication are also collected (especially nitrates and phosphates).

In fact, 2013 was the year with the lowest percentage of highly contaminated sampling points (with a BOD₅ concentration over 10 mg O₂/l). In 2012, sampling points with the highest BOD₅ accounted for 3.23%, whereas in 2013, this value dropped down to 1.23% (15 out of the 1,222 sampling points analysed), having registered an improvement even when compared to the result obtained back in



2011 which was the lowest percentage registered up to that date as for sampling points with the highest BOD₅ level, reaching 1.36% of the total number of sampling points analysed.

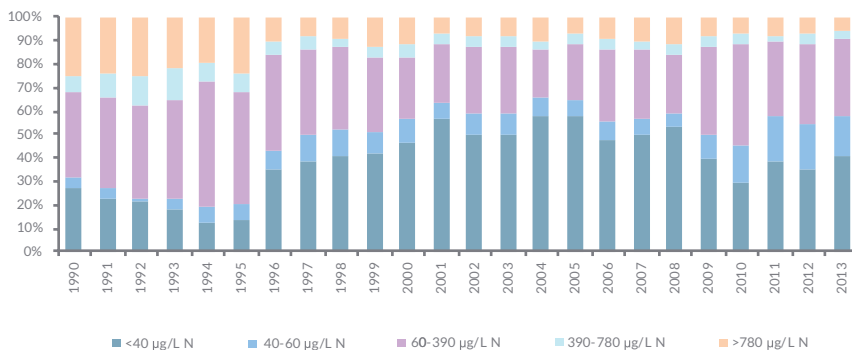
Medium quality sampling points (concentration values of BOD₅ between 3 and 10 mgO₂/l), also experienced an important decrease: From 274 points accounted for back in 2012, a reduction to 109 points was registered in 2013. In percentage terms, this means 8.92% of the sampling points against 22.1% in 2012. On the other hand, year 2013 is to be regarded as the period with the lowest percentage of registered medium quality sampling points.

On the contrary, the share of sampling points with lower BOD₅ concentrations increased from 74.68% in 2012, to 89.85% in 2013, a fact that has contributed to turn this last year into the one with the highest percentage of sampling points with lower organic pollution.

On the other hand, **ammonium** concentration (mainly coming from sewerage networks) is one of the main sources of nitrogen in water systems (and nitrates too), which is why it is responsible for the increase in eutrophication.

Annual average values of ammonium concentration (expressed in µg/l N) show a general decreasing trend in the percentage of sampling points with higher concentrations. The percentage of sampling points with lower concentrations shows an irregular behaviour throughout time: since 1995, an increasing trend started that reached its maximum level at 2004 (58%) to then decrease in a progressive manner and go back to an ascending line since 2010. In 2013, such percentage increased again compared to the previous year, which was the one having the highest percentage of stations with lowest concentrations (<40 µg/l N): 34.62% in 2012 and 40.48% registered in 2013. On the other hand, the percentage of stations with the highest concentrations (>780 µg/l N) was reduced by 0.73% in 2013 compared to the previous year.

Percentage of sampling points by average ammonium value ($\mu\text{g/l N}$)



Source: MAGRAMA

NOTES

- BOD is the quantity of oxygen dissolved in water needed for the aerobic bacteria to oxidise all the biodegradable organic matter present in the water. Values of BOD_5 over $10 \text{ mgO}_2/\text{l}$ are typical of very polluted waters, whereas values below $3 \text{ mgO}_2/\text{l}$ indicate very low organic pollution.
- This indicator shows the percentage of control stations where the average value of BOD_5 falls within these three intervals: From 0 to $3 \text{ mgO}_2/\text{l}$, from 3 to $10 \text{ mgO}_2/\text{l}$ and higher than $10 \text{ mgO}_2/\text{l}$.
- The indicator also reveals the percentage of control stations with an average value of ammonium between the following intervals: $<40 \mu\text{g/L N}$, $40\text{-}60 \mu\text{g/L N}$, $60\text{-}390 \mu\text{g/L N}$, $390\text{-}780 \mu\text{g/L N}$ and $>780 \mu\text{g/L N}$.
- Article 129 of Act 62/2003, dated 30 December, on fiscal, administrative and social measures includes an Amendment to the recast text of the Act on Water, enacted by virtue of Royal Legislative Decree 1/2001 of 20 July, transposing Directive 2000/60/EC of 23 October 2000, establishing a framework for Community action in the field of water policy, into the Spanish legal framework.

SOURCES

- Data provided by the Sub-directorate General of Comprehensive Management of the Hydraulic Public Domain. Directorate General for Water. Ministry of Agriculture, Food and Environment.

FURTHER INFORMATION

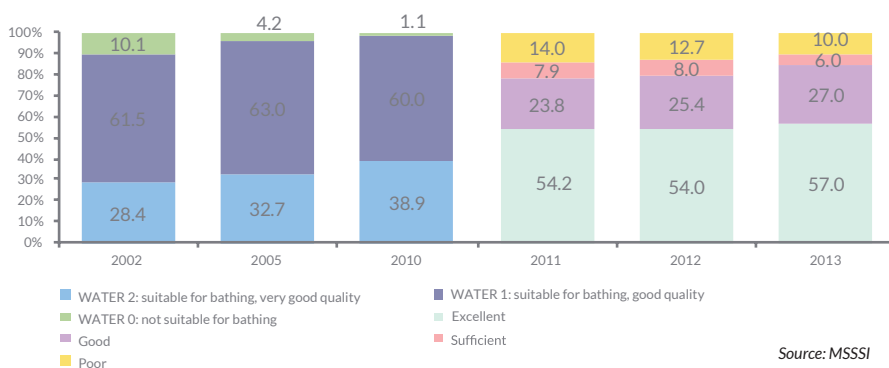
- <http://www.magrama.gob.es/es/agua/temas/estado-y-calidad-de-las-aguas>



Quality of inland bathing water

In the last years there has been an increase in the percentage of sampling points with excellent water quality whereas the number of points with poor water quality has experienced a reduction

Quality of inland bathing water. Percentage of sampling points according to their quality category. Data as from 2011 according to the classification provided in Royal Decree 1341/2007



In 2013, there were 1,876 **bathing zones**, in Spain, 219 of which were inland waters, whereas 1,657 of them were coastal bathing zones (11.7% and 88.3 %, respectively). The number of sampling points in this year's season rose up to 2,161 records, 230 of which (10.6%) were for inland water areas and 1,931 (89.4%) for coastal water areas. The total number of sampling points accounted for 9.8% of the total registered at European level, and it was also 2% higher than the number of sampling points assessed during the previous season, where 2,121 samplings were performed too.

During bathing season 2013, the classification according to the new values was undertaken through the collection of data corresponding to that year and the three preceding years (2010, 2011 and 2012). In order to analyse the quality of bathing waters, assessment methods and statutory parameters defined in annexes I and II of RD 1341/2007 were applied.

The duration of the annual bathing season is quite variable and it depends on the geographic area to a great extent. In the case of **inland bathing water**, bathing



season in 2013 registered an average of 87 days (three days less than 2012). Murcia, with 138 days, enjoyed the longest season, whereas the shortest season was that of Navarra, with only 47 days.

Inland bathing water. Year 2013 No. of sampling points according to their quality category

Excellent	Good	Sufficient	Poor	Not classified or closed	Total
122	58	13	22	15	230

Source: MSSSI

15 out of the 230 sampling points could not be classified (2 of them because of being closed), therefore, the final classification was made with the remaining 215 points. The results are shown in the chart included herein, with 57% being "Excellent", 27% regarded as "Good", 6% as "Sufficient" and 10% considered as "Poor".

Comparison of the number of sampling points for inland bathing water according to their quality category

	2011	2012	2013
Excellent	116	115	122
Good	51	54	58
Sufficient	17	17	13
Poor	30	27	22

Source: MSSSI

The balance of past years is significantly positive and it shows how the number of sampling points qualified as excellent has increased during 2013 as compared to the figure registered in previous years and also, how the number of points qualified as poor has decreased too.

76.5% of **sampling points of the EU** were classified as excellent in 2013, a value that is slightly higher than the one registered in the previous year, in which a value of 72% was reached. It is important to note that 89.7% of the samples were qualified as sufficient. On the other hand, it must be highlighted that, in Europe, most of the sampling points of inland bathing waters are located in lakes (87%).



NOTES

- In accordance with the provisions set forth in Directive 76/160/EEC concerning the Quality of Bathing Water, the Ministry of Health, Social Services and Equality submits an Annual Summary Report on the Quality of Bathing Water in Spain to the European Commission, which points out the most relevant characteristics of health monitoring processes conducted on that water.
- On 15 February 2006, the new Directive 2006/7/EC concerning the Management of Bathing Water Quality was passed. Among other aspects, this directive amended the classification of bathing water establishing four assessment categories, thus reducing the number of parameters considered and defining the quality of waters at each control point for an average period of three years. This Directive was transposed into the Spanish legal framework by virtue of Royal Decree 1341/2007.
- By virtue of the new Directive, this classification must be made using the data gathered at each season, along with those registered in the three preceding years. The new classification sets out four quality types: “poor”, “sufficient”, “good” and “excellent”.
- Bathing seasons are those periods during which a large number of bathers are expected, taking into account the socio-cultural characteristics of the local area and the prevailing weather conditions of the place. In Spain, as an average, the bathing season for inland waters runs from mid-May to the end of September coinciding with the autumn equinox in our hemisphere. On the other hand, for coastal waters, this season goes from May to November, except for the Canary Islands, where this season practically extends through the entire year.

SOURCES

- Ministry of Health, Social Services and Equality, 2014. Quality of Bathing Water in Spain. Technical report. Season 2013. Series of Studies, Reports and Research Works General Technical Secretariat. Ministry of Health, Social Services and Equality, 2014

FURTHER INFORMATION

- <http://nayade.msssi.es/Splayas/ciudadano/ciudadanoZonaAction.do>
- <http://www.msssi.gob.es/profesionales/saludPublica/saludAmbLaboral/home.htm>
- <http://www.eea.europa.eu/publications/european-bathing-water-quality-in-2013/>
- <http://www.eea.europa.eu/themes/water/interactive/bathing/state-of-bathing-waters-1>





2.3

2012 Environmental Profile of Spain

In the year 2013, important milestones were reached at an international level regarding the protection and conservation of land. During the 11th and 12th of June, the first meeting of the plenary assembly of the **Global Soil Partnership** (GSP) was held in Rome; this voluntary mechanism was created in December 2012 by the Council of the Food and Agriculture Organization of the United Nations (FAO). This institution allows member countries and other associated institutions to join efforts towards the preservation of the limited and essential land resources and to revert those alarming degradation trends which are taking place. In order to achieve this goal, the Partnership establishes five pillars of action which include the promotion of sustainable management of soil by means of the harmonization of those methods used to do so as well as other aspects such as encouragement of investments, technical cooperation, policies, education awareness, research and development of the soil profile.

In the first meeting of the plenary assembly of the GSP, participants approved the regulations of the Partnership, the Intergovernmental Technical Panel on Soils was established and action plans for the achievement of the pillars of the Partnership were developed;

finally, the path to be followed by GSP was also discussed. Besides, the plenary assembly supported the proposal to held the World Soil Day on the **5th of December every year** and also to held the International Year of Soils in 2015; such proposals were officially ratified by the General Assembly of the United Nations during its 68th session held in December 2013.

The European Commission has been a basic support for the establishment of the Global Soil Partnership, in line with its Thematic Strategy for Soil Protection. As an example of such support, the GSP has been granted one million Euros for the development of activities planned during 2014 and 2015. Besides, the European Commission is integrating soil protection policies within different actions and programmes. Another example: the Roadmap to a Resource Efficient Europe integrated within the Europe 2020 Strategy the purpose of which is "make sure that, by 2020, European policies integrate their direct and indirect effect on the use of land within the EU and in third-party countries and to guarantee a follow-up of the percentage of occupied land so that in 2050 the net occupation of land is zero". Another remarkable example is the 7th Environment Action Programme approved in December 2013, which calls for the establishment of objectives aimed at the limiting of land occupation. The Commission is working for the unification of those common elements involved in these ongoing processes so as to guarantee that the management of land within the EU is based on sustainability principles. The expected results should be specified in 2015 by means of a report prepared by the Commission on "Land as a Resource". As part of the preparatory process of the report a conference regarding this topic was held on the 19 June 2014, a public event organized by the Commissioner for the Environment Janez Potočnik.

IN THE PAST YEARS...

- During the period 2006-2013, the percentage of the Spanish surface occupied by urban plots (with the exception of the Basque Country and Navarre) increased by 20.2%.
- Between years 2002-2013, those works carried out by the National Inventory of Soils (INES, Spanish Acronym) corresponding to the autonomous communities of Cantabria, Asturias, Navarre, Murcia, La Rioja, Galicia, Balearic Islands, Madrid, Catalonia, Extremadura, Canary Islands, Andalusia, Valencian Community and Castile-Leon (with the exception of the province of Soria) were completed.

INDICATORS

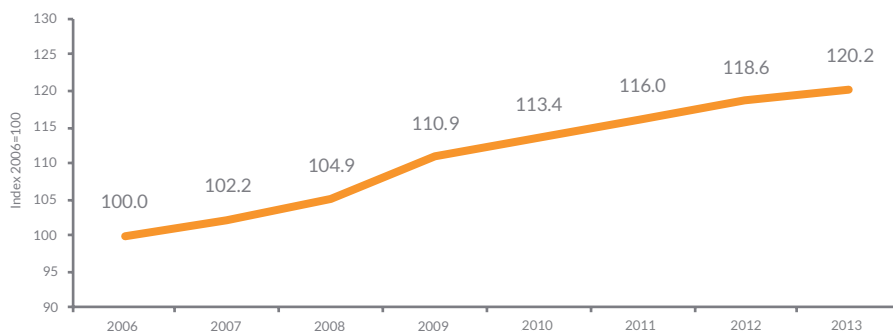
- Changes in land occupation: urban areas
- Areas affected by erosion.



Changes in land cover: Urban surface

In 2013, the area occupied by urban plots was 20% higher than the area occupied in 2006.

Surface occupied by urban plots in Spain.

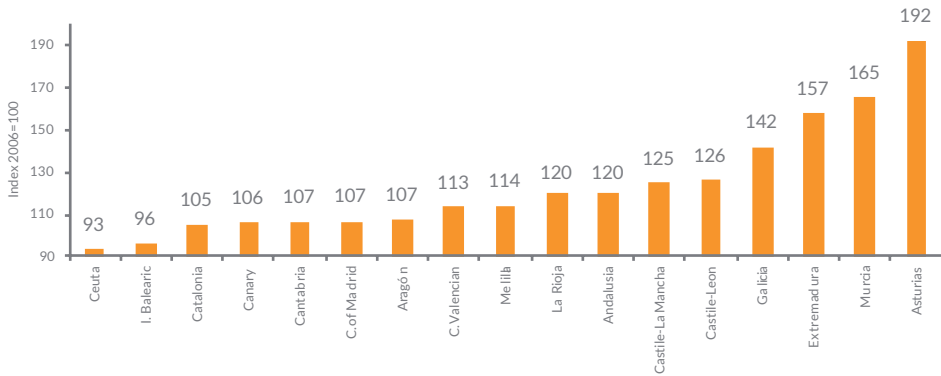


Note: information on the Basque Country and Navarre is not included.
Source: Directorate-General of the Land Registry, MHAP

In 2013, the **total surface occupied by urban plots in Spain** (excluding the Basque Country and Navarre) increased to 1,138,252 ha, 1.35% more than during the previous year according to data collected by the Directorate-General for the Land Registry. This increase means that, in 2013, 2.23% of the total surface in Spain (excluding the Basque Country and Navarre) was occupied by urban land. Out of the total surface of urban plots, 631,613 ha corresponded to constructed urban plots and 506,697 ha corresponded to non-constructed urban plots, which meant an increase by 1.47% and 1.20% respectively. The main increases in 2013 corresponded to the **autonomous communities** of Asturias (+9.9%), Andalusia (+2.5%) and Murcia (+2.1%).

Regarding those percentages recorded in 2006 as regards the surface occupied by urban plots, year 2013 represented an increase of 120.18%. In spite of the fact that figures are still increasing, it can also be noted a moderate trend in the indicator. The autonomous communities that underwent a highest growth regarding the percentage of surface occupied by urban plots with respect to 2006 levels were Asturias (192%), Murcia (165%) and Extremadura (157%).

Evolution in the surface occupied by urban plots with respect to 2006 values. Year 2013



Source: Directorate-General for the Land Registry. MHAP

NOTES

- The Land Registry (*'Catastro Inmobiliario'*) defines, in its methodology document, surfaces of an urban nature. • The data for the Basque Country and Navarre are excluded from the scope of this indicator, as they have their own land registry services.

SOURCES

- Directorate-General for the Land Registry. Ministry of Finance and Public Administrations. Find out more on-line, at the Website of the Directorate-General for the Land Registry: Land Registry: Home / Dissemination of land registry information / Land registry statistics / Real Estate Registry / Urban
- INE: INEBase / Physical Environment and Nature / Physical Environment / Territory / Population Density / Population, surface and density by AR and province

FURTHER INFORMATION

- <http://www.catastro.meh.es>
- <http://www.ign.es/ign/layoutIn/coberturaUsoSuelo.do>



Areas affected by erosion

The provinces of Segovia and Burgos were newly included in the National Soil Erosion Inventory (INES, Spanish Acronym) once its research throughout 2013 was completed.

Soil surface affected by erosion (%). Year 2013

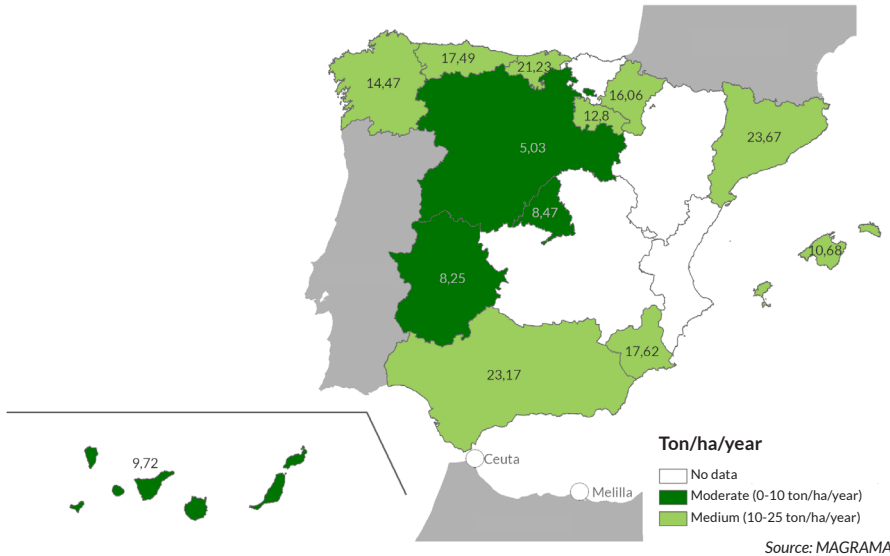
AR	Moderate erosion processes (%)	Medium erosion processes (%)	High erosion processes (%)
Cantabria	59.91	22.39	17.70
Asturias	61.92	21.67	16.42
Navarre	65.64	18.79	15.57
Murcia	66.41	18.13	15.46
La Rioja	65.84	20.43	13.72
Galicia	74.34	13.06	12.61
Balearic Islands	76.62	13.69	9.70
Madrid	81.28	10.89	7.83
Catalonia	54.41	24.86	20.74
Extremadura	83.75	9.81	6.44
Canary Islands	69.25	21.86	8.89
Andalusia	57.61	19.76	22.63
Valencian Community	70.12	16.04	13.83
Castile-Leon (*)	88.32	8.24	3.44

(*) Data referred to the autonomous community of Castile-Leon do not include the province of Soria.
Source: MAGRAMA

During the year 2013, those works carried out by the **National Soil Erosion Inventory (INES)** corresponding to the provinces of Segovia and Burgos, within the autonomous community of Castile-Leon, were completed. Information provided is that corresponding to the percentage of the **soil surface affected by different levels of erosion** in proportion to the total surface of the autonomous regions (which may undergo erosion processes, see notes), with the exception of Castile-Leon, the analysis of which only refers to the eight provinces (León, Valladolid, Zamora, Ávila, Palencia, Salamanca, Segovia and Burgos) which have been studied so far. Data regarding the area of soil affected by **sheet erosion and rill erosion** provided in this chapter result from studies carried out during the period elapsing between years 2002 and 2013.

Taking into account data on **annual soil losses** measured in tons by hectare and year for those **autonomous communities** analysed so far, we can see that four of them have suffered moderate soil losses (between 0 - 10 t/ha and year). Nine of them suffered losses between 10 - 25 t/ha and year and are included in the "medium level" group.

Average annual soil losses. 2013



One of the main objectives of the INES is to locate, measure and analyse the evolution of erosion so as to establish priority areas for the implementation of actions against erosion as well as to define and assess those actions to be carried out.

In comparison to other works with similar characteristics carried out in other European countries in which laminar and rill erosion is also studied, the INES uses a 1:50.000 scale and performs field surveys which improve the application of the RUSLE model while considering other types of erosion (erosion in river beds, erosion gullies, mass movements and wind erosion) thus achieving more innovative and detailed results on the status of erosion in Spain.



NOTES

- The erosion considered in this indicator is the 'sheet and rill' erosion. The percentages of land provided herein refer to the total geographical surface of the autonomous region; the erodible surface is that which may undergo erosion processes, calculated by deducting artificial surfaces, surface water sheets and wetlands from the geographical surface.
- The National Soil Erosion Inventory is based on a working methodology adopted in Europe. It classified results on the calculation of soil losses due to sheet and rill erosion by erosion levels:

1: 0-5 t/ha year	5: 50-100 t/ha year
2: 5-10 t/ha year	6: 100-200 t/ha year
3: 10-25 t/ha year	7: >200 t/ha year
4: 25-50 t/ha year	
- In the indicator, 'Moderate' soil loss interval is defined as 0-10 t/ha year, 'intermediate' as 10-25 t/ha year and "High" as over 25 t/ha year.
- The inventory is divided into five sections according to the various types of erosion:
 - Sheet and rill erosion (quantitative estimate of soil losses, performed by applying the RUSLE model, Revised Universal Soil Loss Equation).
 - Gully and ravine erosion (identification and demarcation of affected areas).
 - Deep erosion (mass movements) (identification of areas potentially at risk and qualitative classification).
 - Bank erosion (qualitative classification of hydrological units according to their susceptibility to torrential phenomena in their drainage network).
 - Wind erosion (identification and classification of areas potentially at risk).

SOURCES

- Data provided by the Directorate-General for Rural Development and Forest Policy, Secretariat-General for Agriculture and Food. Ministry of Agriculture, Food and Environment.

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/desarrollo-rural/temas/politica-forestal/inventario-cartografia/inventario-nacional-erosion-suelos/default.aspx>





2.4

2013 Environmental Profile of Spain

Biodiversity is the most important natural asset. Losing and damaging biodiversity endangers species and habitats as well as the wealth and jobs closely related to a proper and responsible management of nature. The loss of biodiversity, together with the Climate Change, are currently the greatest environmental challenges our planet is facing.

The **Convention on Biological Diversity of the United Nations** states that conservation of biodiversity is a common priority goal since, as confirmed by the Global Biodiversity Outlook, biodiversity is not only dangerously deteriorating but it is also getting worse over the last few decades despite of the efforts which are being made at a global level.

In Europe there are high biodiversity areas, recognized worldwide, in which, as reflected in the 2010 Reference Scenario of European Biodiversity, the loss of biodiversity has accelerated. In line with this document, the EU Biodiversity Strategy to 2020 is aimed at reverting such trend and accelerating the transition of the EU towards an environmental economy which is able to efficiently use its resources.



Spain, by means of the approval of the first Act on National Parks in 1916, was one of the pioneering countries in Europe which committed to the protection of nature. This first act established the early aesthetic and landscaping concept of National Park; such concept was subsequently amended by means of later provisions adopting a more conservationist approach according to which ecological factors started to gain importance when declaring and/or establishing natural areas as new parks. In this regard, the current purpose of National Parks is ultimately to guarantee their conservation and to ensure its public use and the dissemination of scientific information about its cultural and natural values as well as to raise a conservationist social awareness and to enhance a sustainable development.

In 2013, the Spanish Parliament approved the declaration of the **National Park of Sierra de Guadarrama**, which has an area of 33,960 ha located in the autonomous communities of Madrid and Castile-Leon. At the same time, this new National Park includes other areas with different environmental protection regimes: La Cumbre, Circo y Lagunas de Peñalara Natural Park, the Regional Park of the Upper Manzanares River Basin and the Sierra Norte de Guadarrama Natural Park. Besides, it has six areas included in the Natura 2000 Network, and a large portion of its area is located within the Biosphere Reserve (MaB) of the Upper Manzanares River Basin. The Macizo de Peñalara Wetlands, included in the list of Wetlands of International Importance of the Ramsar Convention are located within its perimeter.

Nowadays, with the incorporation of the Sierra de Guadarrama National Park, there are fifteen National Parks integrating the Spanish National Parks Network.

IN THE PAST YEARS..

- In 2013, protected land areas represented 27.89% of the overall Spanish land area (including Protected Areas and Natura 2000 Network). In 2004 this percentage was 25.95%.
- More than 80% of forests included in the Inventory of Forest Damage presented a good conservation status. However, this trend is constant and no improvement overtime is noticeable.
- Spanish forests cover more than 27.7 million ha, which represents 55% of the total area in our country. The total wooded area has increased by 83,483 ha in the last ten years.
- The forest environment keeps a positive evolution as regards associated bird population trends, whereas in agricultural and urban environments and, to a lesser extent, the brushwood environment, present conservation problems.
- The number of basic materials used to obtain reproductive forest material reached 7,893 units in 2013.
- The number of infractions arising from actions carried out by the SEPRONA (Natural Protection Service) decreased from 167,476 open cases to 144,940 infractions registered. On the other hand, the number of arrests arising from these actions decreased from 465 to 368 investigations with direct court intervention.

INDICATORS

- Protected areas
- Forest defoliation
- Forest land and other forest formations
- Trends in common bird populations
- Environmental monitoring
- Forest reproductive material





Protected areas

In 2013, protected land areas represented a 27.9% of the total area, including Protected Areas and Natura 2000 Network

Protected Areas in Spain Year 2013

Protected Area	PA and Natura 2000 Network	PA	Natura 2000 Network
Terrestrial Marina (ha)	14,120,005.99	6,286,147.49	13,778,251.98
Protected sea area (ha)	1,070,564.34	488,312.53	1,028,089.68
Total protected area (ha)	15,190,570.32	6,774,460.02	14,806,341.66
Terrestrial area protected (%)	27.89	12.42	27.22

Source: MAGRAMA

Almost 28% of Spanish territory is protected. This percentage is made up of areas declared as **Protected Areas (PA)** under Spanish laws and those areas corresponding to the **Natura 2000 Network**. It should be noted that, in this sense, part of the areas designated as PA are also integrated within the Natura 2000 Network and, consequently, the **total protected area** is not the result of adding both areas.

In 2013, the total (land and marine) area occupied by **Protected Areas** came up to 6,774,460 ha, as a consequence of the declaration of the Sierra de Guadarrama National Park. The total number of PAs declared comes up to 1.551 and represents 12.42% of the total land area in Spain. The number of PAs is the same than the previous year, since the Peñalara Natural Park is now part of the new National Park.

The **Natura 2000 Network**, consisting of **Sites of Community Importance (SCI)** and **Special Protection Areas for Wild Birds (SPAs)**, covered, in 2013, 27.19% of Spain's total land area. It is important to highlight that data on the the Natura 2000 Network areas do not match those of the total area resulting from adding the SCI and SPA areas, since there are numerous area overlaps between these two kinds of spaces.

As of 31 December 2013, there were 1,448 SCIs registered in Spain; a new SCI within our territory was pending approval by the European Commission. The total SCI area in Spain is 12,742,866.73 ha, of which 11,731,366.44 ha correspond

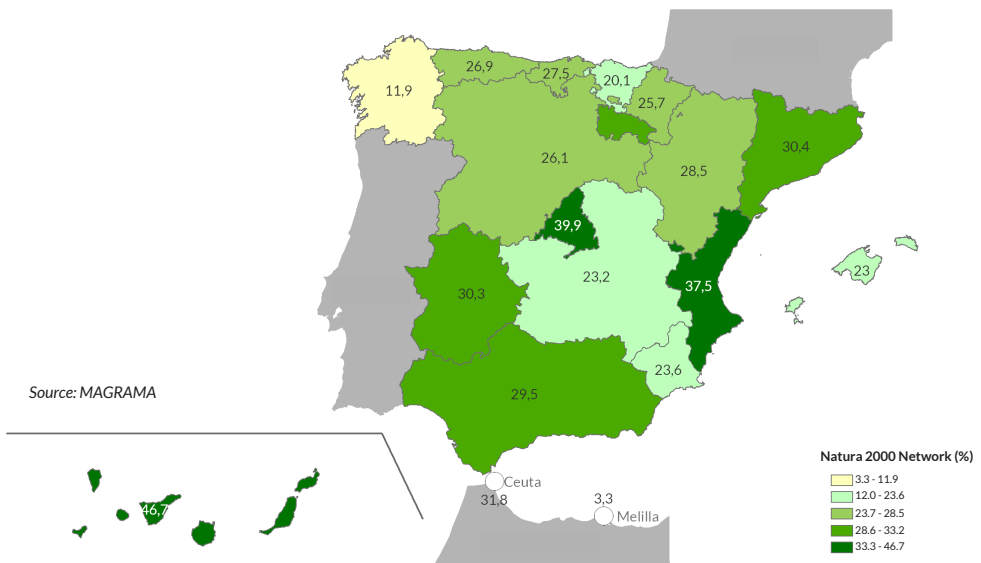
to land areas and 1,011,500.29 ha to marine areas. 23.16% of Spanish land area is protected by means of the SCI regime.

In 2013, the number of **Special Areas of Conservation (SAC)** designated in Spain by the competent administration in charge of their designation and management from SCI came up to 306, out of which 26 correspond to marine areas and 280 to land areas according to data provided by the Ministry of Agriculture, Food and Environment.

The 598 existing SACs in 2013 covered a total of 10,387,662.65 ha, of which 10,121,287.52 correspond to land areas and 266,375.12 ha to marine areas. The Spanish area protected by means of this regime comes up to 19.99%.

Due to their extension, the **autonomous communities** which contribute with the largest areas to the Spanish Nature 2000 Network are Andalusia, Castile-Leon and Castile-La Mancha. As regards the relative area corresponding to each region, the most relevant contributions are those of the Canary Islands (with 46.73% of its area, the Community of Madrid (39.86%) and the Valencian Community (37.46%); on the other hand, those autonomous communities with the smallest contribution percentages are Galicia (with 11.92% of its area), the Basque Country (20.09%) and the Balearic Islands (23.00%).

Land area of the Natura 2000 Network in respect of the overall Spanish area (%)
Year 2013



NOTES

- Act 42/2007, of 13 December 2007, on Natural Heritage and Biodiversity, defines protected areas as "those areas within the Spanish national territory, including inland and marine waters (...) which meet, at least, one of the following requirements and are designated as such:
 - Contain natural elements or systems that are representative, unique, fragile, endangered or of special ecological scientific, scenic, geological or educational interest.
 - Are specifically intended to protect and preserve biological diversity, geodiversity and associated natural and cultural resources."
- The Natura 2000 Network is a European ecological network made up of Sites of Community Importance (SCI) and Special Areas of Conservation (SAC) designated in accordance with the Habitat Directive (Directive 92/43/EEC), as well as by Special Protection Areas for Wild Birds (SPAs) established under the terms of the Birds Directive (Directive 2009/147/EC). Its purpose is to ensure the long-term survival of the species and types of habitats under special risk in Europe and it is the most important tool for the conservation of biodiversity in the European Union. For the designation of SACs, Member States must submit a proposal to the European Commission, for its approval as SIC, including those areas that noticeably contribute to the maintaining or, where applicable, the recovering of the favourable conservation status of natural habitats and the habitats of species of community interest, and where the necessary tools to manage those areas are duly implemented.
- Area calculations have been carried out by using those administrative limits adopted by the Committee of the IEPNB (Spanish Inventory of Natural Heritage and Biodiversity) as of December 2013. The reference used for the Peninsula and Balearic Islands was EPSG 25830 and for the Canary Islands EPSG: 32628.

SOURCES

- Directorate-General for Environmental Quality and Assessment and Natural Environment. Ministry of Agriculture, Food and Environment.

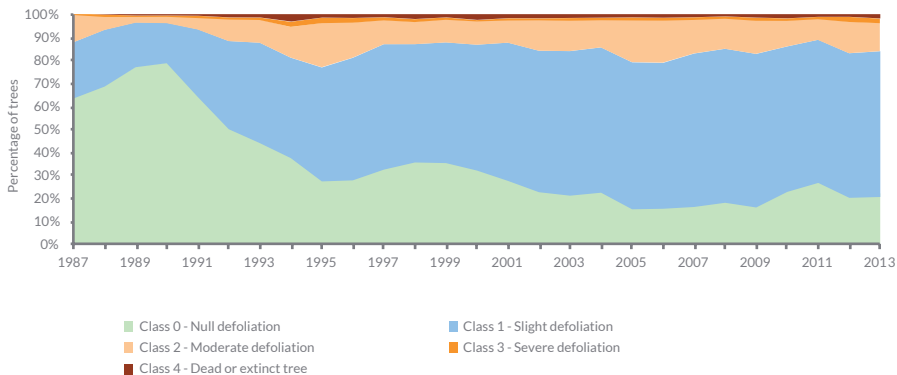
FURTHER INFORMATION

- <http://www.magrama.gob.es/es/biodiversidad/temas/espacios-prottegidos/>
- <http://www.magrama.gob.es/es/parques-nacionales-oapn/>

Forest defoliation

In 2013, the general status of trees presented a slight recovery compared to the previous year

Evolution of defoliation of trees by classes (IDF Spain, 1987-2013)



Source: MAGRAMA

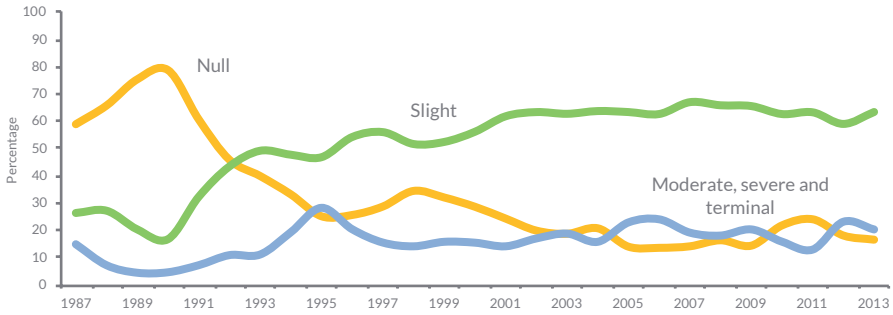
In 2013, 83.4% of tree specimens studied presented a healthy appearance, compared to 82.5% registered the previous year, although it is still far from 2011 levels (88.2%).

14.2% of tree specimens corresponded to defoliations over 25% while in 2012 corresponded to defoliations over 15.9%. The number of damaged trees has decreased, while the number of dead specimens increased slightly reaching 2.4% of trees within this category; this percentage has decreased in the case with broad-leaved trees (1.7%) and it has decreased in the case with conifers (3.1%).

The recovery is more noticeable in the case with broad-leaved trees, with a 79.4% of healthy trees as opposed to the case with conifers, where the percentage of healthy trees has decreased slightly (87.4% in 2013 and 88.6% in 2012).

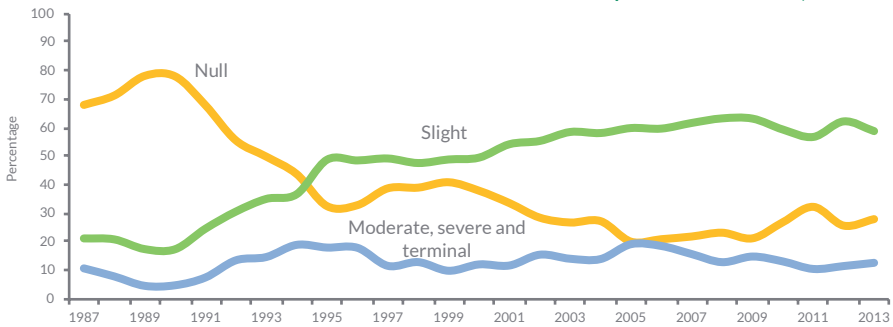


Evolution of defoliation in conifers (IDF Spain, 1987-2013)
(Classes of defoliation 0, 1 and 2+3+4)



Source: MAGRAMA

Evolution of defoliation in broad-leaved trees (IDF Spain, 1987-2013)
(Classes of defoliation 0, 1 and 2+3+4)



Source: MAGRAMA

Most of the dead woodland is due to preventive felling, to the result of forestry activities and deterioration caused by isolated water shortages.

Causes of damage to forests Year 2013
(Only in trees with more than 25% defoliation)

Hunting and livestock	Insects	Fungi	Abiotics	Human action	Fires	Other	Unidentified
0.6	25.3	8.5	39.2	8.2	3.7	11.7	2.7

Source: MAGRAMA

As regards **possible agents causing tree damage** (>25% of defoliation) in forests, there has been a decreased in abiotic damages (draughts mainly), while damages directly associated to biotic agents keep their specific importance. The main increase is due to damages caused by human actions (from 5.8% in 2012 to 8.2% in 2013).

In accordance with field notes, those damages directly related to biotic agents were caused, to a lesser extent, by the actions of defoliating insects, whereas the presence of bark beetles remained constant. Regarding fungi, there has been a remarkable decrease of *Sirococcus conigenus* in aleppo pines, whereas the presence of phanerogamic parasites remains at similar levels compared to previous years.

NOTES

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

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

- Under the International Cooperation Program on the Assessment and Monitoring of Atmospheric Pollution Effects on Forests, the Level-I European Network on Forest Damage is an international large scale systematic network consisting of more than 5,700 monitoring points spread across a 16 x 16 km grid covering all Europe. It was set up in 1986 from a random starting point. This Network annually analyses forest health and assesses the main factors that have a negative impact on it. The Spanish Network currently has 620 sampling points; its design allows, within the framework of the previous Forest Focus Community Regulations and the current financial instrument Life+ (FutMin Project), for the development of monitoring activities on other aspects such as the effects of climate change on forests, sustainable management and the preservation of forest biodiversity.

SOURCES

- Service for Forest Inventory and Statistics (AIEF, Spanish Acronym), Directorate-General for Rural Development and Forest Policy. Ministry of Agriculture, Food and Environment.

FURTHER INFORMATION

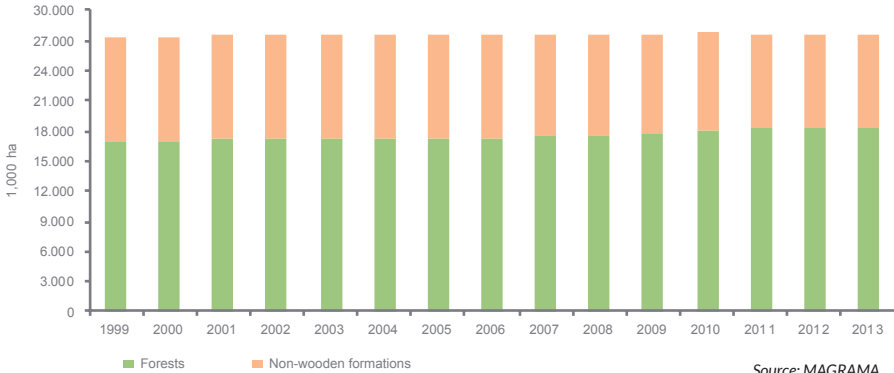
- <http://www.magrama.gob.es/es/desarrollo-rural/temas/politica-forestal/inventario-cartografia/redes-europeas-seguimiento-bosques/default.aspx>
- <http://icp-forests.net>



Forest land and other forest formations

Spain has more than 27.7 million ha of forested land, with woodlands occupying more than 18 million ha

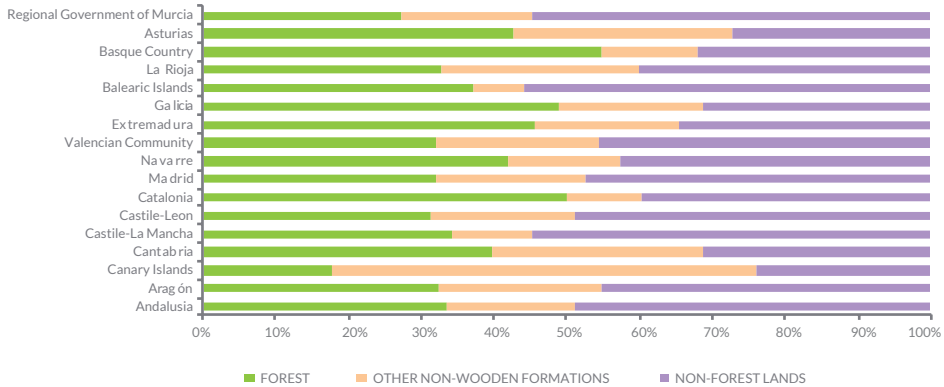
Forest area in Spain



Spanish **forests** cover more than 27.7 million ha, which represent 55% of the total area of our country. More than 66% of forests, 18.3 million hectares, correspond to forested land. The remaining area, 9.3 million, correspond to treeless areas or areas covered by sparse trees.

The Basque Country (55%), Catalonia (49.9%) and Galicia (49.0%) are the **autonomous communities** with the highest percentage of forested areas in relation to their overall areas. On the other hand, the autonomous communities with the lowest percentage of forests in relation to their total area are the Canary Islands (17.7%), Murcia (27.2%) and Castile-Leon (31.3%). The national average amounts to 36.6%.

Percentage of forest area in respect of the overall area. 2013



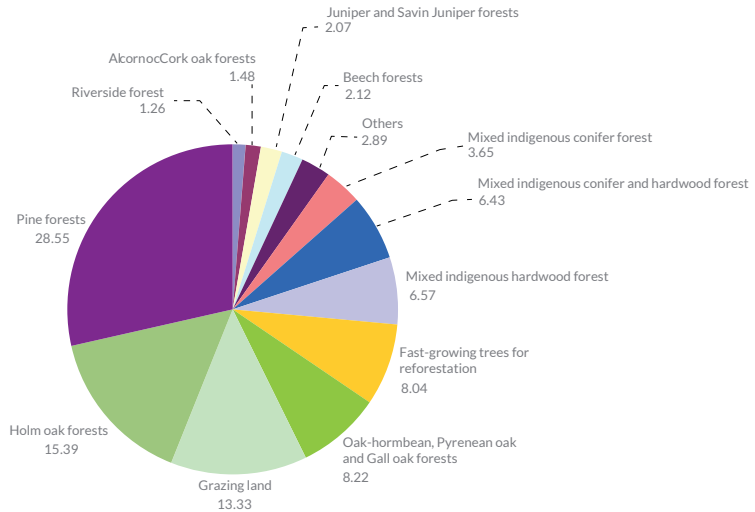
Source: MAGRAMA

The geographic and climatic characteristics of the Iberian Peninsula and island territories have resulted in a highly diverse set of forest ecosystems. According to data provided by the **National Forest Inventory**, 18.1% of forests are made up by a single species while more than 80% of forests are made up of two or more tree species; 2.3% of forests include more than ten species. Besides, even in the forests dominated by one species there is a high presence of non-target species.

Broken down by **species**, the holm-oak (*Quercus ilex*), which occupies an area of 2.8 million hectares as holm-oak woods (15.4% of the total area of our forests), is also the dominant species in 88% of pastures, which adds 2 million extra hectares to its presence. On the other hand, pine woods cover 28.6% of the overall forested land: the *Pinus halepensis*, the *P. pinaster* and *P. sylvestris*, are the species which represent most of the pure wooded areas made up exclusively by conifers.



Distribution of tree formations (%). 2013



Source: MAGRAMA

The **number of trees** is another indicator which shows the good status of our forests. Between the second and third National Forest Inventory (IFN2 and IFN3, Spanish Acronyms) this figure has increased by more than two million. The IFN4 shows that this upward trend continues although the increase has not been as pronounced as it was during the previous period.

NOTES

- According to international criteria, a forests are considered wooded areas in which the Canopy Cover Fraction is greater than or equal to 10%.

SOURCES

- Sub-Directorate-General for Forestry and Woodlands. Directorate-General for Rural Development and Forest Policy. Ministry of Agriculture, Food and Environment.

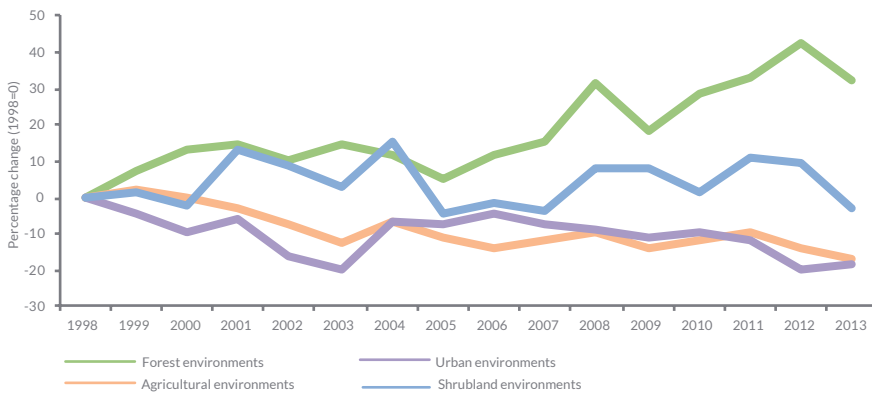
FURTHER INFORMATION

- <http://www.magrama.gob.es/es/desarrollo-rural/temas/politica-forestal/default.aspx>

Trends in common bird populations

As regards bird populations, the main conservation problems that need to be faced are those arisen in agricultural lands and urban areas, whereas in forested lands the positive trend continues

Trends of common bird populations by environment



Source: SEO/BirdLife

Bird populations are subject to constant fluctuations due to natural causes and the impact of human activities. Therefore, birds are a good indicator of the status of ecosystems and of the environmental health of nature. The European Union actually considers wild bird populations as one of the indicators of the quality of life in Europe. The Statistical Office of the European Communities (Eurostat) includes the follow-up of bird populations among the most important indicators for the assessment of sustainability and social well-being.

The indicator used by Eurostat is the **Common Bird Index** and it is one of the main factors included in the **Sustainable Development Indicator**, which uses the status of wild bird populations at the same level as employment rates, energy consumption or life expectancy so as to measure the level of actual well-being of European citizens.

Follow-up works on birds are carried out by volunteers and, in the case with Spain, these works are coordinated by the organization SEO/BirdLife. At a **European** level, these data are compiled and analysed by the European Bird Census



Council (EBCC), which are used for the preparation of the **Pan-European Common Bird Monitoring Scheme (PECBMS)**.

Analysis carried out based on this information provide relevant data which are used for the assessment of the **evolution of ecosystems**. On a general basis, it can be stated that, as regards bird population, Eurostat shows a general decrease in those bird populations associated to farm lands, mainly as a consequence of the progressive abandonment of this environment and, at the same time, the intensification of agricultural and livestock production in Europe. In our country, SEO/BirdLife is developing this task since 1966 and its results can be deemed as representative of the 1998-2013 period.

Trend of common bird populations: variation percentage between 1998 and 2012

Bird communities by environment	Variation (%) in respect to 1998
Birds associated to agricultural environments	-17.0
Tree crops	-14.8
Mediterranean agricultural environments	-29.8
Northern agricultural environments (pastures)	-29.6
Birds associated to forest environments	32.3
Euro-Siberian forests	-1.6
Mediterranean forests	23.1
Birds associated to brushwood environments	-2.7
Birds associated to urban environments	-18.0

Source: SEO/BirdLife

The decrease in the population of birds in agricultural areas is common throughout Europe; in our country it reached a significant value during the 1998-2013 period, in which a reduction by 17% occurred. Agricultural environments in Spain are very different in the Euro-Siberian region as opposed to the Mediterranean region; however such decrease is very similar in both cases coming up to around 30%. In those farm lands occupied by tree crops such decrease, however pronounced, is of a smaller magnitude (14.8%). In urban environments, the health status is not a good one either: the decrease registered for the period considered is 18%.

Those populations associated to tree environments have experienced a slight reduction (2.7%) and those communities associated to wooded lands keep the upward trend (32.3%), although to a lesser extent in comparison to the previous year; there has been an increase by 23.1% in Mediterranean forests (sclerophilous forests) and a reduction by 1.6% in Euro-Siberian forests (deciduous forest).

NOTES

- The trend indicators employed are used internationally within the framework of the Convention on Biological Diversity and have been adopted by the EU to assess fulfilment of its goals and strategic plans in the area of biodiversity. To carry out the monitoring of bird populations, annual samples are taken in the Peninsula, the Balearic and the Canary Islands in 10 x 10 km UTM grid, with a standardised methodology (20 stations, with 5 minute listening repeated twice every spring). There were over 1,000 participants in 2012 (more than 1,000 sample grids, meaning approximately 20% of the Spanish territory) and its distribution is reflected in the table below.
- Population data are obtained by a standardised census for more than one hundred bird species during breeding season throughout Spain. Additionally, those species that share common characteristics, such as being present in certain environments, are grouped together, thus obtaining grouped trend indicators.

Groups of bird communities for which their population trends are assessed by means of this indicator

By environment inhabited	Associated to urban environments	
	Associated to forest environments	Euro-Siberian
		Mediterranean
	Associated to agricultural environments	Cereals
Northern		
Wooded		
By migratory behaviour	Associated to aquatic environments	
	Sedentary birds	
	Migratory birds	Sub-Saharan
		Trans-Saharan
By diet	Granivorous birds	
	Insectivorous birds	
By non-native status	Exotic birds	

SOURCES

- SEO/Birdlife

FURTHER INFORMATION

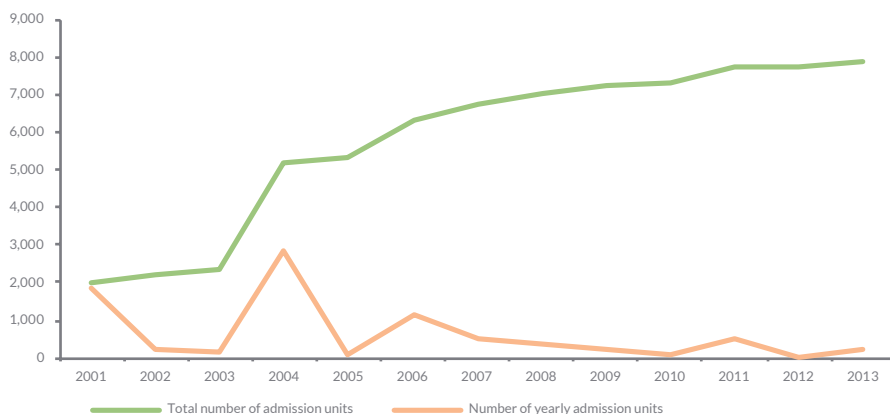
- www.seo.org



Forest reproductive material

In 2013 the number of basic materials of the National Registry increased by 2012 units of approval

Number of Units of Approval of the National Catalogue of Basic Materials



Source: MAGRAMA

The **National Catalogue of Basic Materials (RNMB, Spanish Acronym)** is a core element of the system that regulates the production and marketing of reproductive materials in Spain, as it includes the basic materials, or units of approval, from which **certified forest reproductive materials** in its origin and genetic quality (seeds and plants) can be obtained.

Basic materials are natural populations, plantations and clones from which reproductive materials are obtained for reforestation. The **types of basic materials** currently approved are: seed sources, selected stands, seed orchards, parents of families and clones. The information on these basic materials is compiled in the RNMB and it is organised according to the different categories of forest reproductive material that can be obtained from them (identified, selected, qualified and monitored).

The main objective of the National Catalogue is to provide the final user with a guarantee as to the origin and quality of the forest reproductive material. In turn, it is intended to provide sufficient knowledge to responsible technicians to

facilitate the selection of the type of material and the most appropriate origin for each action.

In 2013, the National Catalogue of Basic Materials increased by 202 new units of approval which, after deducting the corresponding removals (26), amounted to a total of 7,893 authorised basic materials. This is a remarkable difference in comparison to the 10 new units of approval which were registered in 2012. However, this fact does not evidence significant differences regarding the average of the last five years, estimated in 208 new units per year.

Out of 7,893 total units of approval, 7,355 fall within the **identified category** (seed sources and stands), 367 within the selected category (selected stands), 124 within the qualified category and 47 within the monitored category. In terms of area, units of approval cover an approximate area of 5.86 million hectares, which means and increased, in respect to the previous year, of 268.641 hectares authorised for the gathering of forest materials for reproduction purposes.

Units of Approval existing in the National Catalogue of Basic Materials. Year 2012

TYPE OF BASIC MATERIAL	CATEGORY	No. of UNITS OF APPROVAL AS OF 2013	LAND AREA* OF THE UNITS OF APPROVAL (ha)
Seed sources and stands	Identified	7,355	5,837,817.87
Selected stands	Selected	367	19,006.17
Seed orchards	Qualified	25	98.84
	Monitored	2	
Parents of families	Qualified	36	Unquantified Insignificant
	Monitored	4	
Clones	Qualified	63	Not applicable
	Monitored	41	
TOTAL		7,893	5,856,922.88

**It should be noted that areas included in the calculations sometimes overlap with other areas containing different species. Also, for practical reasons, sometimes entire municipal districts or forests are registered, whose land area may be greater than that actually occupied by the forest.*
Source: MAGRAMA.



It must be pointed out that during the last year there has been a significant increase in the number of selected stands for the species "*Quercus suber*", the number of authorised units of which amounted to 88 in 2012 and during 2013, it increased up to 123 authorised units; therefore the opportunities for the collection of forest reproductive materials selected due to the quality of cork in Extremadura and Andalusia have increased remarkably.

It must also be highlighted that during 2013, the Regional Government of Valencia carried out important works for the improvement, review and update of basic materials. 124 new seed sources have been included and 8 seed sources have been removed due to the fact that they no longer comply with legal requirements; likewise, a general geographic review of all basic materials has been carried out which resulted in the modification of data corresponding to 641 seed sources already authorised.

NOTES

- Basic Material comprises populations, plantations and clones from which forest reproductive material (seeds and plants) are obtained for reforestation purposes. The approved types of basic materials, currently characterised by Royal Decree 289/2003, of 7 March, on the sale of forest reproductive material, are: seed sources, stands, seed orchids, clones and clonal mixture.
- Management of the Catalogue implies ecological and phenotypic characterisation of each of the approved materials. This task is carried out by the Directorate-General for Rural Development and Forest Policy (MAGRAMA) in collaboration with regional governments. New basic materials are published in the Official State Gazette (BOE) and are part of the Community List of Approved Basic Materials.

SOURCES

- Service of Genetic Materials. Department of Planning and Forest Policy. Sub-Directorate-General for Forestry and Woodlands. Directorate-General for Rural Development and Forest Policy. Ministry of Agriculture, Food and Environment.

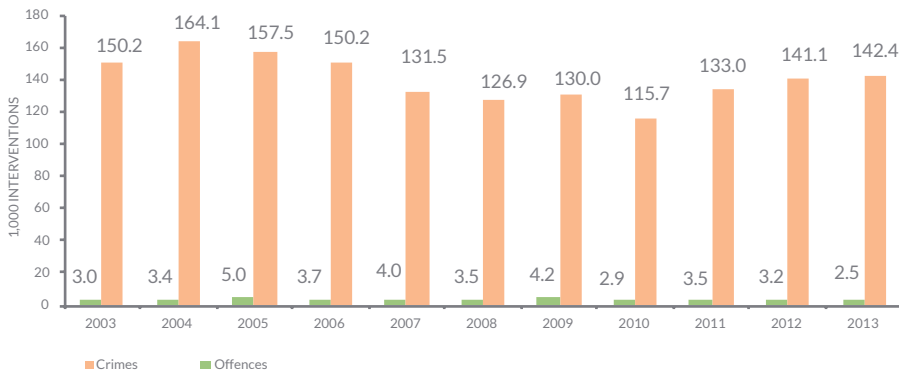
FURTHER INFORMATION

- <http://www.magrama.gob.es/es/desarrollo-rural/temas/politica-forestal/recursos-geneticos-forestales/default.aspx>

Environmental monitoring

In 2013, the number of arrests for environmental crimes increased by 23.5% whereas the number of criminal infractions decreased by 21.0%

Number of actions carried out by the Spanish Guardia Civil concerning environmental matters



Source: Data compiled from SEPRONA

The Spanish Guardia Civil has been entrusted, by virtue of Organic Law 2/1986 on State Security Forces and Law Enforcement Bodies, with the conservation of nature and the environment. As a consequence, and by means of the General Order no. 72 of 21 June 1988, the **Nature Protection Service (SEPRONA, Spanish Acronym)** is established so as to serve as a specialised body within the Spanish Civil Guard in charge of the guaranteeing of the constitutional right of citizens to enjoy a proper environment and of the duty to protect it.

The mission of the SEPRONA is to enforce compliance with the laws aimed at the conservation of nature and the environment, water resources, as well as hunting, fish, forests and all other natural and related resources.

As regards the evolution of those actions carried out by the SEPRONA during the 2003-2013 period, it is noticeable that both in the case with **administrative infractions** and in the case with **criminal infractions**, a clear trend cannot be identified. If we establish temporal segments for the study, it can be noted that as regards administrative infractions, during the last four years, there has been an increase in the number of actions whereas, on the other hand, during the



same four-year period, the number of interventions in relation to criminal infractions has decreased gradually.

During 2013, the overall number of actions carried out by the SEPRONA increased by 0.5% compared to the previous year and therefore the number of interventions recorded in 2012 (144,235) increased to 144,940 open cases during the last year. 98.3% of infractions corresponded to administrative infractions, 1.36% to criminal offences and 0.1% to misdemeanours.

The number of administrative infractions increased by 1% during the last year, reaching in 2013 142,425 cases. On the other hand, the number of criminal infractions decreased dramatically, which amounted to 21% (2,515 actions were registered in 2013). Out of these infractions, 2,320 were classified as **criminal offences** and only 195 as **misdemeanours**. In both cases, the number of criminal offences and misdemeanours decreased by 21.7% and 12.2% respectively during the last year.

**Number of criminal infractions (criminal offences and misdemeanours) and arrests concerning environmental matters
Year 2013**

AREAS IN WHICH THE INFRACTION OR OFFENCE TOOK PLACE	Criminal offences	Misdemeanours	Arrests
Tourism	3	2	0
Livestock Trails	2	1	0
Coasts	1	1	0
Coastal waters	6	0	0
Mining	5	0	0
CITES (International Trade of Wild Flora and Fauna Endangered Species)	7	0	1
Flora, forests, woodlands	15	20	60
Atmosphere		0	0
Historic Heritage	20	2	9
Waste	40	1	4
Health-related laws	78	4	68
Other	104	19	26
Inland waters	107	0	0
Wild Fauna	266	8	80
Land Planning	313	5	13
Domestic animals	380	113	51
Forest fires	964	19	56
Overall total	2,311	195	368

Remark: The item "Others" refers to environmental actions which have not been carried out by SEPRONA.
Source: Data compiled by SEPRONA

Number of interventions carried out by the Spanish Guardia Civil concerning environmental matters

		2009	2010	2011	2012	2013
Infractions	Criminal	4,194	2,946	3,465	3,185	2,515
	Administrative	129,961	115,650	133,002	141,050	142,425
Arrests		930	330	399	313	368

Remark: Only SEPRONA interventions on environmental-related matters are included.
Source: Data compiled by SEPRONA.

As regards the **type of crime**, and taking into account that, for the purposes of data analysis, sometime specific inspections campaigns are carried out in certain fields and, therefore, a particular increase is noticeable in the registry of infractions of such particular field; such is the case with forest fires which is the field with the highest number of infractions in 2013 (964 actions), amounting to 41.6% of the total number of infractions. Crimes against domestic animals is ranked second with 380 actions representing 16.4% of the overall number, followed by crimes related to land planning (13.5%) and crimes against wild fauna (11.5%).

Finally, the **number of arrests** carried out by the SEPRONA in 2013 came up to 368, 23.4% more than during the previous year, in which 298 arrests were registered. Out of the total number of individuals arrested, 21.7% was arrested for crimes against wild fauna, 18.7% for infringements of health-related laws, 16.3% for crimes against flora, 15.2% for causes related to forest fires, 13.9% for infractions related to domestic animals and the remaining 14.4% for other causes.

NOTES

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

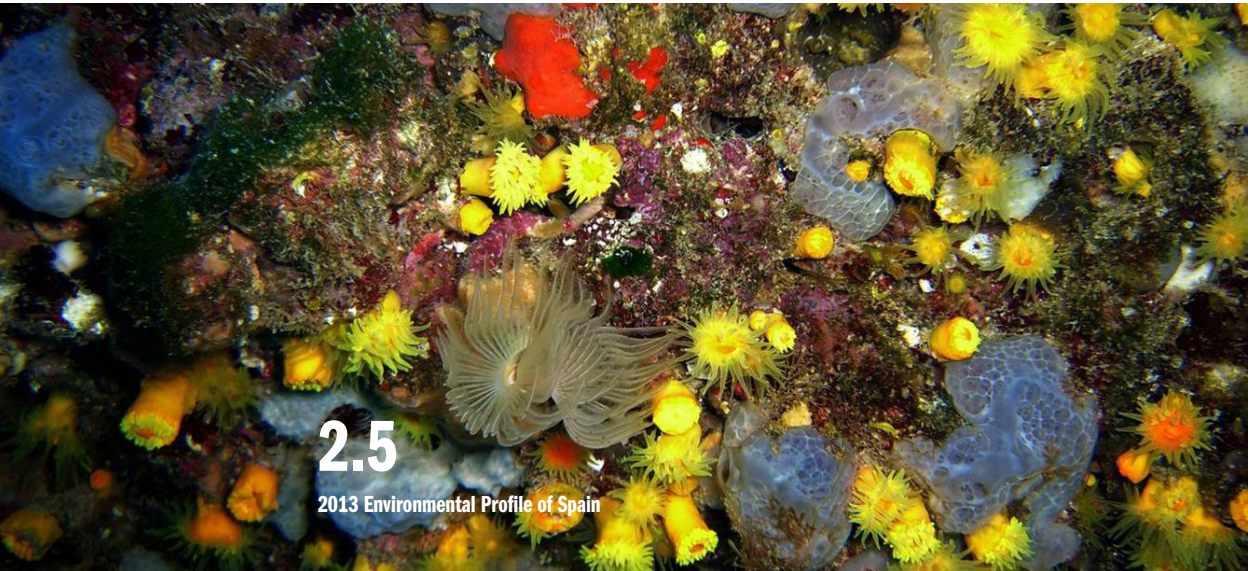
SOURCES

- Nature Protection Service (SEPRONA). Directorate-General for the Police and Spanish Civil Guard. Ministry of the Interior

FURTHER INFORMATION

- <http://www.guardiacivil.org>
- http://www.guardiacivil.es/es/servicios/atencionciudadano_1/

COASTS AND MARINE ENVIRONMENT



2.5

2013 Environmental Profile of Spain

The length covered by the terrestrial/maritime public domain areas of the Spanish coast is over 10,000 kilometres of shoreline, which is regarded as highly sensitive and fragile in environmental terms. This territory is affected by a number of socio-economic interests, which is a fact that forces us to adopt measures intended for its preservation and protection. Nevertheless, these measures are compatible with the development of any potential economic activities and the defence of environmental interests.

The current legal framework is made up by Act 22/1988, of 28 July, on Coasts, subsequently amended by Act 2/2013, of 29 May, on the protection and sustainable use of coasts and amending Act 22/1988, on Coasts. For the development of these rules, several priority objectives have been set –i.e. the protection and preservation of the integrity of the terrestrial/maritime public domain (DPMT) and of the coastal and marine systems, guarantees for access and use of coastal public domain by all citizens and recovery efforts on the coast in urban and degraded areas. The purpose of the new legal framework is to improve legal certainty as for the activities affecting the coasts and to encourage effective protective measures that are also compatible with the promotion of economic activities and job creation. All of the above taking into account the regulation of administrative proceedings set out for the definition



of the terrestrial/maritime public domain and its use regime, as well as those having to do with property restrictions imposed on lands adjacent to the seaside in order to guarantee integrity and public use of the terrestrial/maritime public domain and for the development of the appropriate transitional regime.

As for the **Marine Protected Areas**, a series of spaces have been also included into the Spanish Network of Marine Protected Areas in 2013 by means of two Resolutions dated 2 July 2013, enacted by the Directorate General for Coastal and Marine Sustainability (Spanish Official State Gazette [BOE] No. 165, of 11 July 2013). The spaces included in this way are as follows: the Special Areas of Marine Conservation known as the Macaronesian biogeographical region of the Natura 2000 Network, the Marine Protected Area and Special Area of Conservation of 'El Cachucho', and the marine reserves of fishing interest at State level.

Likewise, in October 2013, the draft ministerial order approving the proposal for inclusion of marine spaces –ESZZ16001 System of western submarine canyons of the Gulf of Lion, ESZZ16002 Menorca Channel, ESZZ12002 Mud volcanoes of the Gulf of Cádiz and ESZZ12001 Galician Bank– in the List of Sites of Community Importance of the Natura 2000 Network was made public, along with the draft ministerial order declaring 39 Special Protection Areas for Wild Birds in Spanish marine waters.

Recently, a draft ministerial order approving the proposal for inclusion in the List of Sites of Community Importance of the Natura 2000 Network of the following places –ESZZ12003 System of submarine canyons of Avilés ESZZ16003 Southern Area of Almería-Seco de los Olivos, ESZZ16005 Alborán Marine Space, ESZZ16004 Illes Columbretes Marine Space and ESZZ15001 Banco de la Concepción– has also been made public.

All these proposals for new marine sites to be included in the Natura 2000 Network are expected to be approved by 2014.

IN THE PAST YEARS...

- As for the protection of marine environments, significant progress has been made with this new rule that guarantees proper marine use planning in order to ensure a good environmental status. The Act on the protection of marine environments governs the various strategies and the Spanish Network of Marine Protected Areas, which are already being implemented.

INDICATORS

- Marine strategies
- Spanish Inventory of Marine Habitats and Species (IEHEM)
- Spanish Network of Marine Protected Areas (RAMPE)
- Demarcated coastline
- Quality of coastal bathing water

Marine strategies

After the completion of the first stage of these marine strategies, several monitoring programmes have been designed since 2013, which should be completed by 2014

Distribution of beaches in the monitoring programme of marine litter Year 2013



Source: MAGRAMA

If the first phase of marine strategies of the five Spanish demarcations was developed during 2012 (initial assessment, good environmental status and environmental objectives) –final documents are available on the website of the Ministry– during 2013 and 2014, extensive work has been made on the design of marine monitoring programmes, which must be finished by July 2014. For this purpose, our Department is keeping in contact with the various autonomous communities and ministerial departments responsible for any kind of monitoring works in marine environments and coordinating different meetings and workshops among experts. The public consultation process is expected to start in 2014.

INDICATOR: LITTERING ON BEACHES

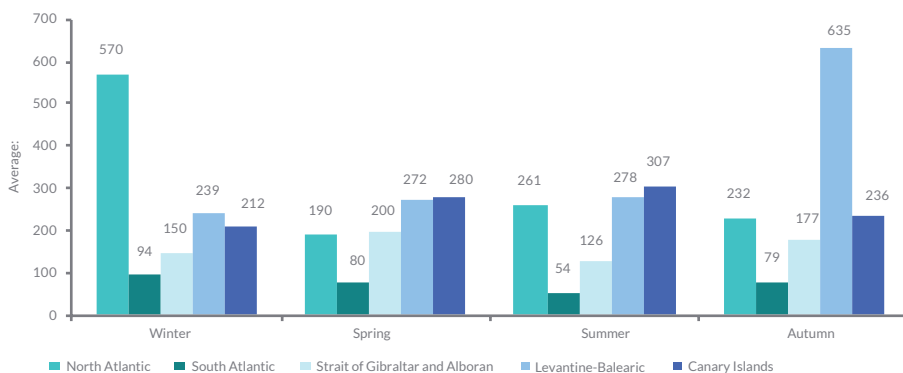
Among the monitoring programmes on marine strategies there is one indicator that makes reference to the littering on beaches. This indicator was already used as a descriptive element of the **Good Environmental Status (D10)**, in order to assess the status of marine environment in the previous phase of the strategy. In order to add new contents and value to the "littering on beaches" indicator,



following some previous actions undertaken by the Ministry within the OSPAR Convention for the protection of the marine environment of the North-East Atlantic, a monitoring network was established at the beginning of 2013 integrated by a total of 25 beaches that meet the appropriate characteristics in terms of length, exposure to open sea, etc., which had been set out as a representation of the problem. 4 seasonal inspection campaigns are conducted on these beaches that are managed by the personnel of the Directorate General for Coastal and Marine Sustainability, all of them in line with the assessment methodology foreseen in the OSPAR.

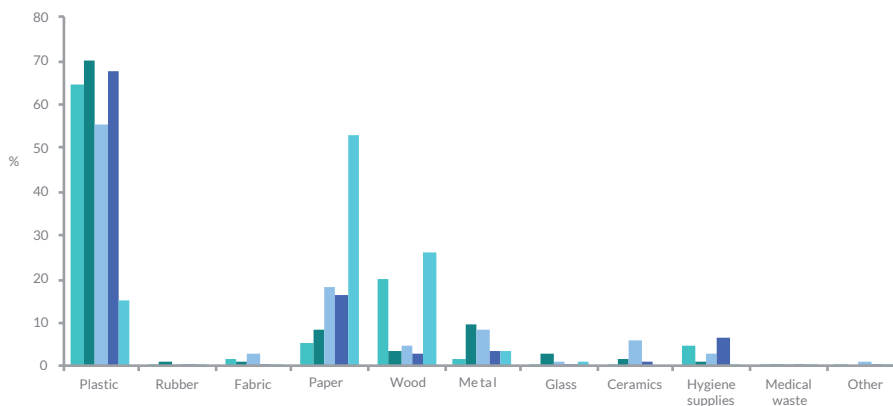
Marine litter detected on a 100-metre transect is classified into different **categories** depending on the type of litter: plastic, rubber, wood, paper and cardboard, glass, metal, fabric, toiletries & sanitary items, medical waste and others. The statistical analysis of the data gathered during the first year of the development stage of the programme has provided, for the first time, a much relevant approach on densities of marine litter accumulated on the beaches of the Spanish coastline (up to that moment this standard information was only available for the OSPAR area, i.e. North Atlantic and South Atlantic Demarcation, but not for the rest of our coastline). Results for the year 2013 are shown in the charts below:

Average No. of objects found during each inspection campaign. Year 2013



Source: MAGRAMA

Distribution of the type of marine litter in a 100-metre transect during year 2013 (%)



	Plastic	Rubber	Fabric	Paper	Wood	Metal	Glass	Ceramics	Toiletries	Medical waste	Others
North Atlantic	64.9	0.4	1.8	5.3	19.8	1.6	0.4	0.4	4.7	0.5	0.1
South Atlantic	70	1.2	1.3	8.4	3.3	9.7	3	1.5	1.2	0.4	0
Estrecho and Alborán	55.3	0.1	2.7	17.9	4.6	8.3	0.8	5.9	2.8	0.4	1.1
Levante and Balearic Islands	67.8	0.5	0.5	16.1	2.9	3.4	0.7	0.8	6.7	0.3	0.1
Canary Islands	15.4	0.1	0.7	52.8	26	3.3	0.9	0	0.2	0.4	0.1

Source: MAGRAMA

NOTES

- This indicator is just an example of the various indicators that must be analysed and the marine strategies used for the assessment and monitoring of the marine environment status.
- Marine Strategies are living documents and all their contents should be updated at least every six years.

SOURCES

- MAGRAMA: Information supplied by the Directorate General for Coastal and Marine Sustainability

FURTHER INFORMATION

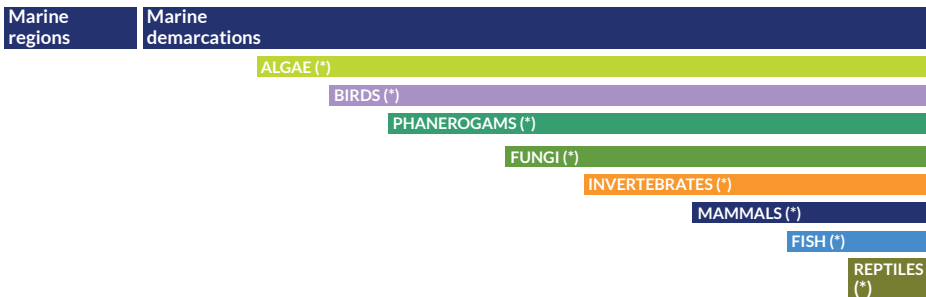
- <http://www.magrama.gob.es/es/costas/temas/estrategias-marinas/default.aspx>
- <http://www.magrama.gob.es/es/costas/temas/default.aspx>

Spanish Inventory of Marine Habitats and Species (IEHEM)

The IEHEM is a key tool for knowledge, planning and management of the natural marine heritage

SPANISH INVENTORY OF MARINE SPECIES (IEEM).

IEEM. No. of taxa identified



Marine Regions and Demarcations	Algae (*)	Birds (*)	Phanerogams (*)	Fungi (*)	Invertebrates (*)	Mammals (*)	Fish (*)	Reptiles (*)
Atlantic North-East R.	571 (51)	58 (50)	12 (7)	0 (0)	1,547 (116)	74 (59)	584 (79)	11 (10)
North Atlantic Marine Demarcation	384 (40)	56 (50)	10 (7)	0 (0)	1122 (80)	70 (59)	366 (65)	11 (10)
South Atlantic Marine Demarcation	279 (38)	53 (49)	11 (6)	0 (0)	430 (84)	67 (59)	414 (64)	11 (10)
Canarian Marine Demarcation	474 (42)	50 (48)	9 (6)	0 (0)	644 (102)	72 (59)	261 (44)	10 (10)
Mediterranean Sea Region	772 (65)	61 (53)	12 (6)	4 (0)	2,469 (126)	70 (59)	566 (76)	11 (10)
Estrecho and Alborán Marine Demarcation	438 (64)	58 (51)	12 (6)	4 (0)	1,996 (124)	69 (59)	439 (74)	11 (10)
Levante-Balearic Islands Marine Demarcation	720 (65)	55 (52)	10 (6)	0 (0)	1,904 (120)	68 (59)	555 (76)	11 (10)

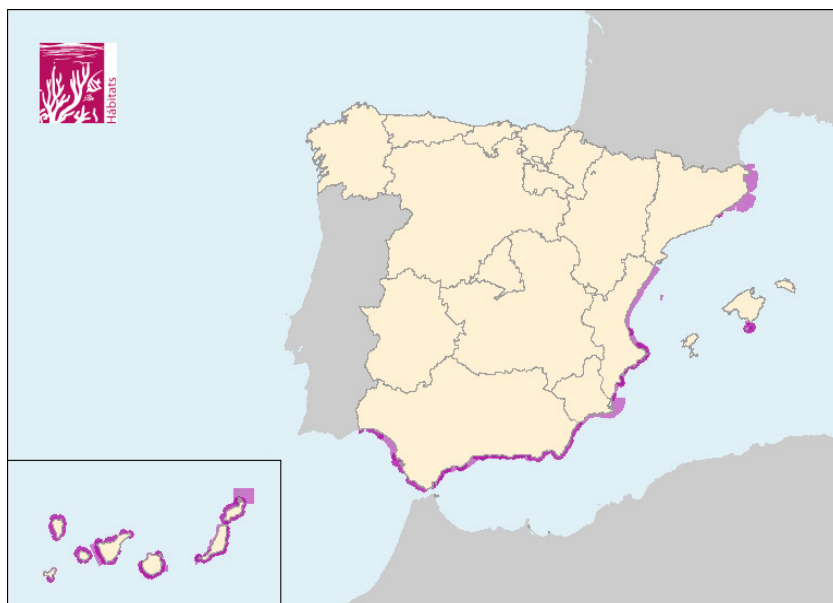
(*) Species with some level of protection.

Source: Directorate General for Coastal and Marine Sustainability -MAGRAMA. Records processed as of 27/02/2014

Above are the **taxa** sorted out by groups identified up to February 2014 within the framework of the Spanish Inventory of Marine Species.

SPANISH INVENTORY OF MARINE HABITATS (IEHM).

IEHM. Marine habitats present in Spanish waters



Source: Directorate General for Coastal and Marine Sustainability - MAGRAMA. Records processed as of 27/02/2014.

The Spanish Inventory of Marine Habitats (IEHM) started developing a **Pattern List of Marine Habitats in Spain** ; a reference list at state level that includes the current 886 marine habitats identified and their biological classification (which can be easily compared with the habitats gathered in other classifications (Act 42/2007, Habitats Directive, OSPAR Convention, Barcelona Convention, EUNIS Classification System, Act 5/2007...), published in the Resolution dated 22 March 2013 of the Directorate General for Coastal and Marine Sustainability. Among the elements that need to be taken into consideration within the components of the Spanish Inventory of Marine Habitats, there is the spacial distribution of marine habitats in Spain. Currently, there is just one small mapped sample, however, further completion of such information has been planned hereinafter. Mapped information shows the data in the relevant area and at municipal level in high detail.



NOTES

- The IEHEM fulfils the obligation of preparing the Spanish Inventory of Natural Heritage and Biodiversity as set out in Act 42/2007, of 13 December, and further developed by R.D. 556/2011, of 20 April, which foresees the contents of components 1.d. Spanish Inventory of Marine Habitats, and 2.b Spanish Inventory of Marine Species.
- The Spanish Inventory of Marine Habitats and Species (IEHM) has been published in digital format in 2013, which includes a Guide to interpreting marine habitats in Spain. The Pattern List of Marine Habitats in Spain and its gateways will be available on the Section "Coasts and Marine Environment" of the Ministry website.
- The number of taxa identified as for birds and phanerogams makes reference to those species regarded as strictly marine. Variation in the number of taxa is the result of the review and updating thereof, which in certain cases has led to a reduction in the number previously recorded, because of considering only marine species stricto sensu.
- While awaiting for the preparation of the Pattern List of Marine Species in Spain, all taxa identified have been reviewed and included in the IEEM.
- The contents of the Spanish Inventory of Marine Habitats have been prepared following the advice of a working group made up by national scientific experts from various fields.

SOURCES

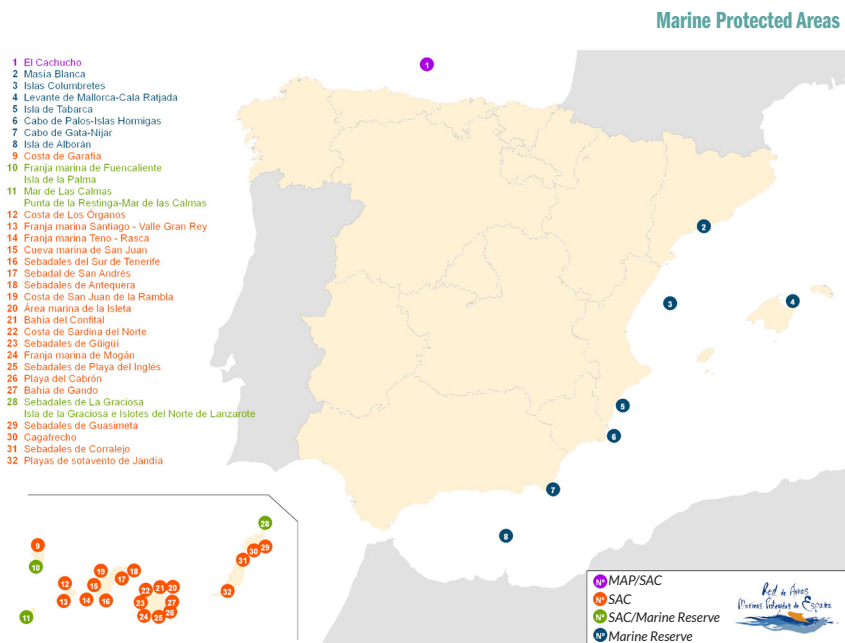
- MAGRAMA: Information supplied by the Directorate General for Coastal and Marine Sustainability

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/costas/temas/>
- <http://www.magrama.gob.es/es/costas/temas/biodiversidad-marina/habitats-especies-marin/inventario-espanol/inventario-habitats-especies.aspx>
- http://www.magrama.gob.es/es/costas/temas/biodiversidad-marina/Lista_Patron_Anexo_web_tcm7-269927.pdf

Spanish Network of Marine Protected Areas (RAMPE)

In 2013, 24 Special Areas of Conservation (SAC) were included in the RAMPE: the Macaronesian marine areas, the Marine Protected Area and Special Area of Conservation of "El Cachucho", as well as the Marine Reserves of fishing interest in external waters



Source: Directorate General for Coastal and Marine Sustainability -MAGRAMA.
Marine species included in the RAMPE (March 2014).

Spanish Network of Marine Protected Areas (RAMPE)

The Spanish Network of Marine Protected Areas was established by virtue of Act 42/2007, of 13 December, on natural heritage and biodiversity, which was subsequently developed pursuant to Act 41/2010 of 29 December on the protection of marine environment. The act highlighted the need of relying on a Master Plan, drafting some criteria for inclusion of areas in the Network and a series of minimum management criteria. On the other hand, Royal Decree 1599/2011 foresees the criteria for inclusion of the areas into the Network.

Integration of marine protected areas into the RAMPE

Following the criteria for inclusion of marine protected areas into the RAMPE, in accordance with Royal Decree 1599/2011, in 2013 the 24 Special Areas of Conservation (SAC) known as the Macaronesian marine areas, which had been declared as such by virtue of Order ARM/2417/2011, were included in the Network along with the "El Cachucho" area, which was declared as Marine Protected Area and SAC pursuant to Royal Decree 1629/2011. Marine reserves of fishing interest in external waters were also included within the network pursuant to the Act on Maritime Fishing applicable at state level.

During the summer of 2014, a further expansion of this Network has been foreseen through the declaration of 39 Special Protection Areas for Wild Birds in Spanish marine waters.

RAMPE Master Plan

The need of preparing a Master Plan for the RAMPE is in pursuance of Act 41/2010. This plan is regarded as a basic coordination tool for the fulfilment of the Network's objectives and it is still at an early development stage. The Master Plan will be drafted as a Royal Decree and, pursuant to the rules for environmental impact assessment and the very Act on the Protection of Marine Environments; it must be submitted to an Environmental Assessment Process prior to its implementation. Likewise, for its preparation and review, a public participation process will be undertaken.

NOTES

- The RAMPE will devise a consistent and managed network of protected marine spaces in Spanish waters in order to ensure protection, conservation and recovery of the natural heritage and Spanish marine biodiversity.
- The RAMPE will be made up by protected spaces located in the Spanish marine environment, representing the natural marine heritage, regardless of the fact that the management and declaration thereof are regulated pursuant to international, community and state rules. Likewise, it is also possible to include those spaces whose management and declarations are regulated pursuant to regional rules in accordance with the provisions set forth in article 36.1 of Act 42/2007, of 13 December, on Natural Heritage and Biodiversity.

SOURCES

- MAGRAMA: Information supplied by the Directorate General for Coastal and Marine Sustainability

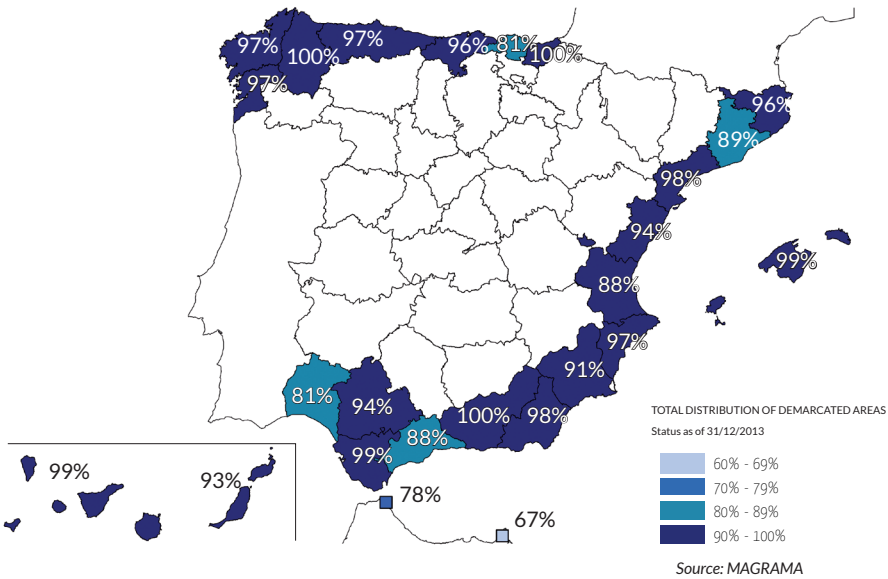
FURTHER INFORMATION

- <http://www.magrama.gob.es/es/costas/temas/>
- <http://www.magrama.gob.es/es/costas/temas/biodiversidad-marina/espacios-marinos-protegidos/red-arreas-marinas/red-rampe-index.aspx>

Demarcated coastline

In 2013, the Spanish coast was demarcated in 95.35% of its total length

Percentage of demarcated coast length. Year 2013



During 2013, statistics on demarcated areas have been reviewed and updated in order to adjust all available data more precisely. To do so, even if around 82 km of demarcated coast length were approved in 2013, the total percentage of demarcated coast dropped from 95.85% in 2012 to 95.35% in 2013, mainly due to the adjustment of the coast length to be demarcated that has shifted from 10,249 km in 2012 to 10,338 km in 2013. Likewise, it is important to outline that the total demarcated coast length may increase if new demarcated coast sections are approved or they may decrease if rendered void by any courts.



Act 2/2013 of 29 May on the protection and sustainable use of coasts and amending Act 22/1988, of 28 July, on Coasts was enacted in 2013. The new act brings new changes into previous laws with the purpose, among others, of improving legal certainty for demarcated coastlines all of that in pursuance of the administrative procedure for demarcation of Public Maritime-Terrestrial Domain (DPMT). Firstly, a review is undertaken on the criteria for demarcation of the public maritime-terrestrial domain and, secondly, higher guarantees are foreseen for citizens both throughout the procedure and after completion thereof.

Therefore, during 2013, the objective was not only to complete the coast demarcation process, but also to make it in a more sensible manner, establishing the appropriate technical criteria that provide legal certainty to the definition of public maritime-terrestrial domain and to the practice of future demarcations.

NOTES

- The Ministry of Agriculture, Food and Environment has launched a project that will allow to look up the demarcation line of the public maritime-terrestrial domain and the private land affected by the protection area easement in the maps of the Spanish coastal areas or in all aerial photographs available. This information can be accessed in three different ways: through the Map Viewer of the Ministry (<http://sig.marm.es/dpmt/>), through the Cadastral Electronic Site of the Ministry of Economy and Finance (<http://www.sedecatastro.gob.es/>) or by accessing to the WMS Service of the Public Maritime-Terrestrial Domain. Following the amendment on the Act on Coasts, this information will be published in full on the electronic site of the MAGRAMA.

SOURCES

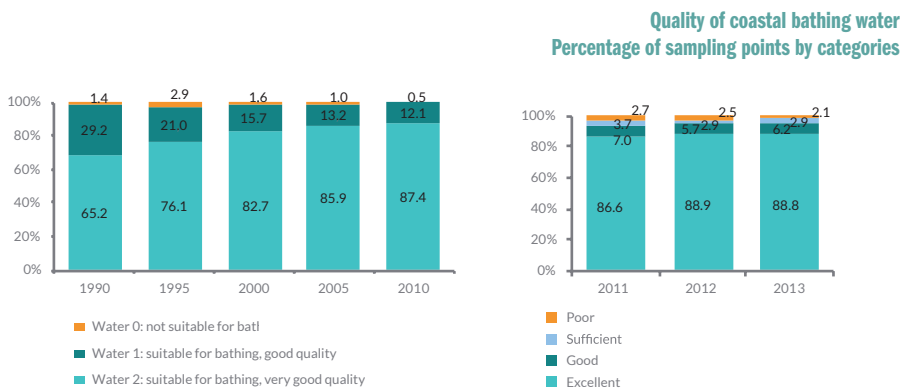
- MAGRAMA: Information supplied by the Directorate General for Coastal and Marine Sustainability

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/costas/temas/gestion-del-dominio-publico-maritimo-terrestre/>

Quality of coastal bathing water

Percentage of sampling points categorised as "Excellent" was 89% in 2013. The "Poor" category dropped by one percentage point in this representation



Source: MSSSI

During the 2013 bathing season, the third period in which the new criteria set by the current laws on bathing water, the official census registered 1,657 **marine bathing areas**, 4 more areas than those gathered in the previous years and 46 more than those included in the season of 2008. Out of the total number of coastal bathing areas, 1,931 sampling points were recorded, being Galicia and Andalusia the autonomous regions registering the highest number of sampling points (445 and 343 respectively).

One sampling point has remained closed during the season of 2013, having collected data on 1,930 sampling points out of the total number of 1,931 registered. Out of those, 1,914 sampling points have been categorised. The distribution of sampling points according to the **classification** of coastal bathing water has been as per below:

Coastal bathing water- Year 2013
 No. of sampling points according to their quality category

Excellent	Good	Sufficient	Poor	Not classified or closed	Total
1,699	119	56	40	17	1,931

Source: MSSSI

Following these results, the 2013 Report on the Quality of Bathing Water in Spain states that 88.8% of the sampling points analysed were categorised as "Excellent", 6.2 % were considered "Good", 2.9% were regarded as "Sufficient" and 2.1% as "Poor". If these results are compared with the classification undertaken in the previous year, it can be observed that there are not any significant variations except for those recorded in the "Poor" category, which experienced a reduction by one percentage point.

Seven out of the 12 **autonomous communities** assessed (including Ceuta and Melilla) were qualified as "Excellent" in over 90% of their sampling points. Ceuta kept getting this qualification for 100% of its sampling points. It is also worth to highlight the situation of Catalonia, the Canary Islands and Murcia, with 95% of their sampling points classified as "Excellent".

NOTES

- Directive 2006/7/EC governs quality management of bathing waters inside the European Union. In Spain, this aspect is regulated through the transposition of this directive into the Spanish legal framework by virtue of Royal Decree 1341/2007.
- Both the Directive and the Royal Decree sort out the quality of bathing water as: "Poor" quality waters; "Sufficient" quality waters, "Good" quality waters and "Excellent" quality waters.

SOURCES

- MSSSI: Quality of Bathing Water in Spain. 2013

FURTHER INFORMATION

- <http://nayade.msc.es/Splayas/home.html>



2.6

2013 Environmental Profile of Spain

It is unquestionable that the development of a green economy brings a wide spectrum of opportunities to promote **financial growth** and encourage **job creation**. Currently, that is the main purpose of both the public and private sectors and society in general. To meet this objective it is necessary to devise a new growth model, based on clean technologies, that reduces **emissions** and, at the same time, a model that is sustainable in terms of resources. To do so, it is essential to foster innovation and technological developments. According to the United Nations Environment Programme (UNEP), water management, agriculture, environmental services for companies, energy efficiency and photovoltaic solar energy are the main five sub-sectors with the highest record of the so-called "green employment".

Within the working framework of green economy there are new development trends based on economic, social and environmental sustainability. The importance of green economy has been increasing in the last few years for it is regarded as a fundamental alternative within the current socio-economic context. On the other hand, its dual nature, both environmental and sustainable as well as a source of employment and economic growth, has supported many of the considerations on sustainable growth.



The 7th **Environment Action Programme** of the EU, published at the end of 2013, confirms the commitment of the EU in promoting the transition towards a green economy and decoupling economic growth from degradation of the environment.

One of its priority areas is focused on developing a resource-efficient economy "achieving more using less". For this purpose, it deems necessary to meet climate and energy objectives set for 2020 and gathered in the "Climate and energy package" and to agree on the next steps to be followed after that date. Besides, it intends to make significant improvements in the use of various products during their entire lifespan, mitigating environmental impact arising from consumption, reducing waste resulting from food and using biomass in a sustainable manner.

On the other hand, the World Bank considers that there is not a single model for green growth but rather multiple strategies to be followed. Therefore, all countries have many chances for achieving a greener and more inclusive growth.

In March 2013, the European Commission's Joint Research Centre (JRC) started coordinating the Bioeconomy Observatory. This term defines economic aspects related to a smart use of biological and renewable resources of the earth and the sea as the basis for productive systems. The "**Bioeconomy Strategy**" of the EU in 2012 (Innovating for Sustainable Growth: A Bioeconomy for Europe) was launched based on the considerations of the **Europe 2020 Strategy** for an efficient use of resources.

Besides, important initiatives have been launched from the Ministry of Agriculture, Food and Environment through certain projects that are aimed at promoting the preservation of biodiversity and green employment (in 2013, subsidies were granted for a total number of 225 projects during the four calls opened by the Biodiversity Foundation). Furthermore, it is important to outline the partnership agreements signed with the Ministry of Labour and Social Security for the promotion of green jobs in sectors related to the environment (agriculture, livestock farming and fishing, forestry activities, industry and tourism, and for matters such as efficient water management, waste management, sustainable rehabilitation or environmental management in general terms). The Spanish network known as "Red Empreverde" is the first platform intended to provide support to entrepreneurs that specialises in green business and it is open to all agents (investors, individuals, companies, etc.) interested in taking economic opportunities that have to do with the protection of the environment.



IN THE PAST YEARS...

- The energy intensity of the Spanish economy has been lower than the EU average and it has decreased by 14.2% between 2003 and 2012.
- Between 2008 and 2011, total consumption of materials has decreased by 36.2%.
- In the past years, Spain has increased the number of organisations attached to the EMAS and, since 2012, it has been the EU country recording the highest number of these organisations.
- Only two years after their implementation, the Climate Projects on Carbon Fund are considered an effective tool to reduce greenhouse gas emissions, with 37 and 49 projects selected in 2012 and 2013, respectively.
- In 2003, there were 8 Spanish patent applications on renewable energies, whereas in 2012, that number rose to 98.
- Environmental taxes have increased by 0.24% for the past ten years (2003-2012), with a sustained growth trend up to 2007 and a subsequent significant decline. Likewise, as % of the GDP, such decrease has been steady since 2003.

INDICATORS

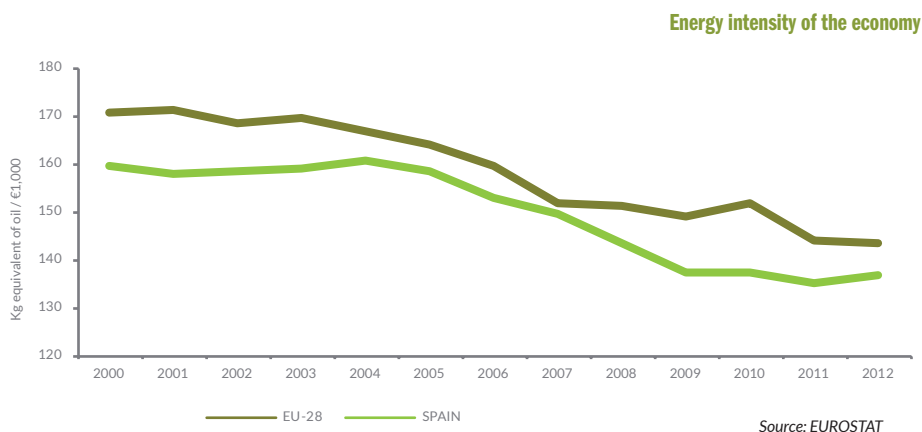
- Energy intensity of the economy
- National consumption of material goods
- Organisations with Eco-Management and Audit Scheme (EMAS)
- Spanish Carbon Fund 'Clima Projects'
- Renewable energy patents
- Environmental taxes





Energy intensity of the economy

The energy intensity of the economy has slowed down since 2009 and it has recorded a slight increase in 2012.



The **energy intensity** of the Spanish economy is lower than the average of the European Union. This means that, in our country, less energy has been required to produce an unit of economic production (measured through the GDP). Energy intensity is one of the methods applied to assess **energy performance**, since it analyses if energy consumption has occurred with a similar or higher level of activities or economic provisions.

Between 2000 and 2012, the decrease experienced in energy intensity of the Spanish economy was 14.5%, whereas such decrease reached 16.0% within the average of the **EU-28**. In both sectors, the trend of such variation was quite irregular, and there were years in which both intensities were quite close and others, such as 2001, 2009 and 2010, in which a significant divergence was recorded.

In 2012, only seven countries of the EU-28 recorded an energy intensity of their economy lower than that reached by Spain, which was 136.4 kg of oil equivalent per €1,000. Ireland, with 82.8 kgep/€1,000 and Denmark, with 87.2 kgep/€1,000, were at the top of the list in terms of energy performance and recorded the lowest values of energy intensity. These countries were followed



by the United Kingdom, Italy, Austria, Germany and Luxembourg. The average of the EU-28 was 143.2 kgep/€1,000 back in 2012.

In May 2013, the Ministry of Industry, Energy and Tourism published the “**Report on the national energy performance target for 2020 – Spain**”, the purpose of which is to update and complete the communication on the indicative target set by Spain for the horizon 2020, thus fulfilling the provisions set forth in article 3 of Directive 2012/27/EU. This report sets the following indicative targets on energy intensity for 2020: “... The estimation of the final intensity improvement for the horizon 2020 is calculated at a year-on-year average percentage of 1.5% as from 2012, a figure that has been calculated from the indicator including non-energy uses. After deducing non-energy uses, the indicator of final intensity is reduced to an average rate of 1.6% for the entire period. In terms of primary energy, the intensity indicator is reduced to a year-on-year rate of 1.6% between 2012 and 2020...”.

In 2012, Spain was the eight country of the EU-28 in terms of generation of electric power coming from **renewable sources** (33.5%, compared to the EU-28 average value of 23.5%). Back in 2005, this percentage was 19.1%, which clearly reflects the trend towards an improvement in energy efficiency in our country, while reducing energy dependency on external sources and increasing the number of "green jobs", which are the two primary objectives of every current political agenda.

In this sense, it is worth to outline that in 2012, 14.3% of the **gross final energy consumption** came from **renewable sources**, while in 2005, such consumption accounted for 8.4%. The target set for Spain in 2020 is reaching 20% and therefore, our country is only 5.7 points away from meeting this objective.



NOTES

- This indicator is meant to assess the relationship between the economic growth experienced by a country and the consumption of energy required to achieve such growth. Its value is calculated every year by dividing the primary energy consumption by the gross domestic product.
- On the other hand, energy efficiency is defined as the use of less energy inputs while keeping an equivalent level of economic activities or services. In turn, the concept of "energy saving" is much broader since it also covers the reduction of consumption through the changing of behaviour patterns or a decrease in economic activities.
- Energy consumption of a certain economy is measured by this indicator and thus, it allows us to get close to the energy efficiency value in general terms. The gross inland energy consumption is calculated through the sum of the gross inland energy consumption of five types of energy sources: coal, electricity, oil, natural gas and renewable energy sources. GDP figures are taken in chain-linked volumes referred to year 2005. This ratio is measured in kilograms of oil equivalent (kgoe) per 1,000 Euros.

SOURCES

- Eurostat, 2014. Information gathered from the Eurostat website. At: Statistics / Statistics by theme / Environment and energy / Dat / Main tables / Energy (t_nrg) / Energy statistics - main indicators (t_nrg_indic) / Energy intensity of the economy (tsdec360)

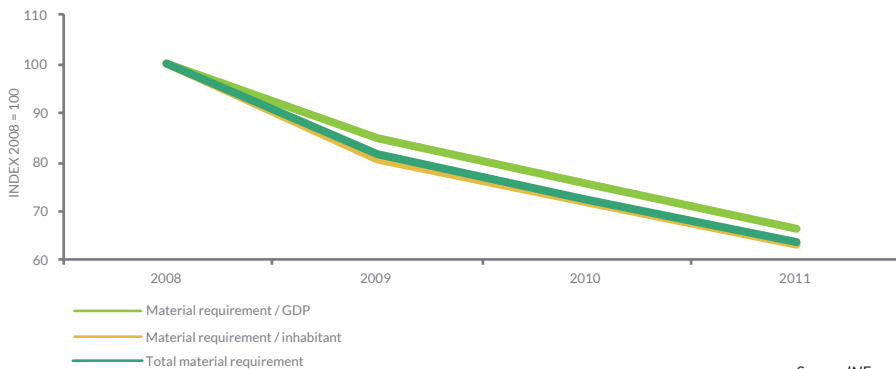
FURTHER INFORMATION

- <http://www.idae.es/index.php/idpag.17/reImenu.329/mod.pags/mem.detalle>
- http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables

Total material requirement

The decrease in consumption of material goods allows for a gradual decoupling between the use of resources and economic growth between 2008 and 2011.

Total material requirement



Source: INE

One of the primary purposes of the 7th Environment Programme of the EU is to "turn the Union into a resource-efficient, green and competitive low-carbon economy".

The **Total Material Requirement** reflects the total amount of materials used in the economic and productive processes developed. This indicators measure the number of tonnes subject to extraction, consumption, transformation and final disposal of chemical substances, raw materials or products used in Spanish economic activities. The total amount and the effective use of natural resources are still part of the development framework of a green economy, being the consumption of material goods an important indicator enabling proper monitoring thereof.

The total material requirement accounted for 516.5 million tonnes back in 2011, which means a decrease by 11.9% from the values recorded in 2010, and 36.2% as compared to those of 2008. Similar to this percentage was the decrease



experienced between 2008 and 2011 as for the **national extraction** of materials (36.0%) and the commercial balance, which is the difference between imports and exports of materials (36.9%). However, in this context of reduction in the commercial balance, it is important to outline the 8.6% growth registered in the amount of exported material.

Total Material Requirement (1,000 tonnes)

	2008	2009	2010	2011
National extraction	661,310.4	546,347.6	481,519.6	423,289.0
Physical/trade balance	147,714.0	113,121.3	104,590.3	93,160.7
Imports	276,818.3	232,248.7	234,149.5	233,417.3
Exports	129,104.3	119,127.4	129,559.2	140,256.6
Total Material Requirement	809,024.4	659,468.9	586,109.9	516,449.7

Source: INE

National extraction of material goods was the main component of the consumption of materials in 2011, accounting for 82% of the total value.

In terms of intensity, it is possible to speak of a **decoupling** between the consumption of resources and economic growth, while during the 2008-2011 period a decrease was observed in the amount of materials consumed in order to produce an unit of economic production of 33.5%. In the same way, the **total amount of materials consumed per inhabitant** did also register a decrease of 36.9%. It is true that this trend has been recorded within an economic context marked by a sharp decline in economic activity and, therefore, in the consumption of resources. In 2011, consumption of materials per million Euros of GDP was 494.4 t, whereas consumption of materials per inhabitant was 11.2 t.

Following the information provided by **Eurostat**, consumption of materials in Spain accounted for 7.14% of the total value of the **EU-27** (total tonnes), being the sixth country with the higher consumption of the EU-27 behind Germany, France, Poland, Italy and the United Kingdom. On the other hand, Spain ranked fifth among the countries with lower consumption in tonnes per inhabitant with 11.2 t/inh.



NOTES

- This indicator shows the total material requirement as calculated by the Spanish National Institute of Statistics. It is the total amount of materials directly used in the economy. The Account of material flows shows the physical material inputs that come into the national economic systems and the outputs to other economies or to the natural environment in physical units (tonnes). This Account allows to get a series of aggregated indicators of the use of natural resources, which may also provide further indicators on resource productivity (eco-efficiency) in relation to the GDP, as well as other economic and employment indicators, and others on the intensity of materials in connection with various lifestyles –according to the size of the population– and other demographic indicators.
- Three material flows are found therein: National extraction, Imports and Exports.
- Variables describing the National Extraction are classified according to the type of material extracted as input for the economy, pursuant to the classification of materials established by Regulation (EU) No. 691/2011 of the European Parliament and of the Council, of 6 July 2011, on European environmental economic accounts (<http://www.ine.es/normativa/leyes/UE/minine.htm#30086>), in Annex III thereof. Imports and exports are classified in pursuance of the provisions established in the Annex to this Regulation, so that variables are classified consistently with the national extraction levels.
- The recent accounting series 2008-2011 on Total Material Requirement reviews any previous data available, updating the data from years 2008 to 2010 as included in the “1995-2010 Accounting Series” (pilot study).

SOURCES

- INE, 2014. Material flow accounts. 2008-2011 Series. At INEbase / Physical environment and environmental issues/ Environmental accounts/ Material flow accounts. Base 2008

FURTHER INFORMATION

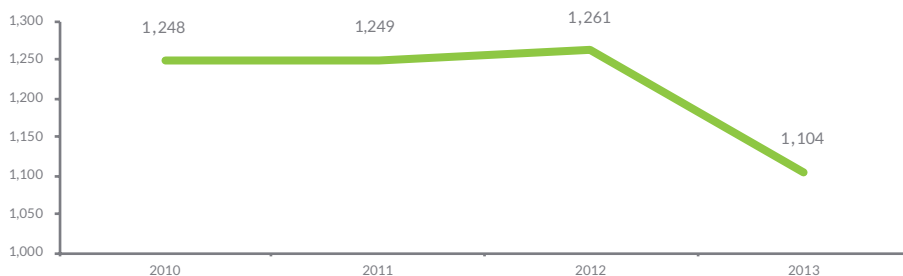
- http://www.ine.es/inebmenu/mnu_cuentas_medioambientales.htm
- http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_ac_mfa&lang=en



Organisations with Eco-Management and Audit Scheme (EMAS)

Year 2013 recorded a decrease in the number of organisations registered with EMAS

Number of Spanish organisations registered with EMAS



Source: MAGRAMA

Year 2013 closed with 1,104 Spanish organisations registered with **EMAS register**. This decrease, as compared to the number of organisations registered in previous years, was due to the effects of the economic crisis which, on the one hand, has led to the closing of some companies and, on the other hand, it has forced the countries to make strong budgetary adjustments, being unable to make the investments required to comply with the accession requirements in certain cases.

Organisations and centres in Spain registered with EMAS

YEAR	ORGANISATIONS	SITES
2010	1,248	1,612
2011	1,249	1,525
2012	1,261	1,561
2013	1,104	1,308

Source: MAGRAMA

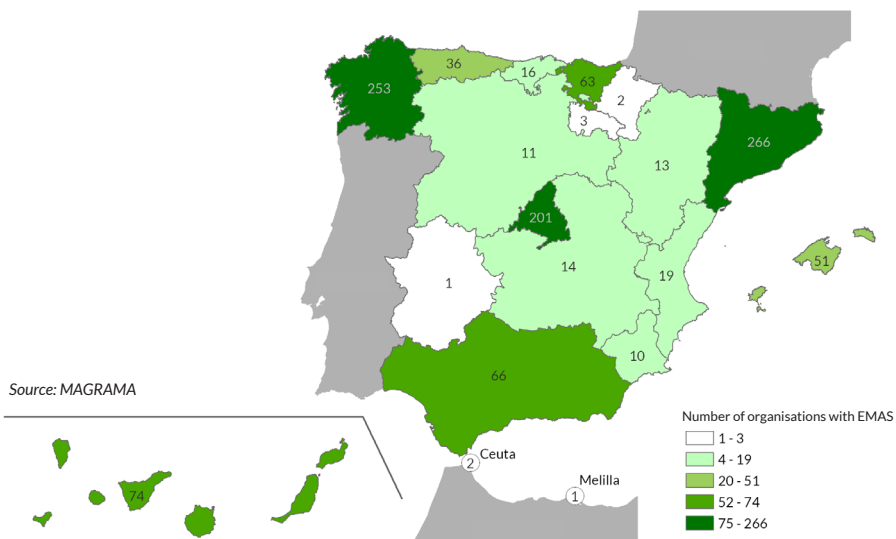
In 2013, 25.4% of the **registered organisations** belonged to the **manufacturing industry sector** (the chemical industry sector together with those organisations devoted to the manufacturing of metal products, graphic arts, food and metallurgy, are the subgroups of activities with the highest contribution to this sector). On the other hand, the services sector represented 72.9% of the total

registered organisations (68% in 2012), which proves once again that this sector is bigger than the industrial sector, in spite of the fact that in the beginning, the EMAS Regulation was originally drafted to be applied to the industry. As for the **services sectors**, the sub-sectors registering the highest contribution were the group of professional, scientific and technical activities that reached a share of 9.8%, and hotel & restaurant services, which accounted for 9.4%. Other relevant sectors, with a contribution of over 5% to the EMAS were as follows: wholesale and retail trade; repair of motor vehicles and motorcycles (6.1%), transport and storage (5.8%), and the one integrated by water supply networks, sewerage activities, waste management and decontamination (5.5%).

Catalonia, Galicia and Madrid were the **autonomous communities** with the highest number of registered organisations in 2013 (65.3% of the total number of organisations in Spain), with over 200 each.

The analysis of the position of Spain within the **European context** keeps outlining the momentum that the Spanish companies have brought into the systems, thus proving the commitment of our business sector in this sense. 2012 was the first year in which Spain, with over 1,261 new registered organisations, held the first position as for the number of organisations attached to the EMAS, a figure higher than those recorded in Germany (1,212) and Italy (1,151).

Total number of organisations registered with EMAS in 2013





The data recorded at the end of March 2014 present a similar situation. Spain, with 1,092 registered organisations, accounted for 30.4% of the total of the EU (3,595 organisations registered). On the other hand, Italy held the second position, with 1,075 organisations (29.9%), followed by Germany, which had experienced a significant reduction, keeping only 685 organisations registered (19.1% of the total). Also, at the end of March 2014, and as compared to the population figures, Spain is ranked third among the countries of the EU, with 24.43 organisations per million inhabitants; a record that is only exceeded by Austria (30.72) and Cyprus (63.75).

With these initial data of 2014, Spain shows again a reduction in the number of registered companies. The reasons underlined above, to which we should add the effects of the updating, maintenance and cleaning tasks undertaken in the European database, are pushing this trend.

NOTES

- The EMAS (Eco-Management and Audit Scheme), is a voluntary standard of the EU that recognises those organisations having implemented an Environmental Management System and which have made a commitment to continuous improvement that is verified by means of independent audits.
- Royal Decree 239/2013, of 5 April, lays down the rules for the implementation of Regulation (EC) No. 1221/2009 of the European Parliament and of the Council, of 25 November 2009, on the voluntary participation of organisations in a community system of environmental management and auditing (EMAS). This Regulation repeals Regulation (EC) No. 761/2011 and Resolutions 2001/681/EC and 2006/193/EC of the European Commission. The State Secretariat for the Environment of the MAGRAMA will deal with the management of the EMAS Register of organisations with centres located in one or more third countries outside the EU, under a bilateral agreement with Spain to this end.

SOURCES

- European EMAS data: information gathered from the EMAS website of the Commission. Available at: European Commission/Environment/EMAS/EMAS documents/Statistics
- Data corresponding to Spain provided by the Sub-directorate General of Air Quality and Industrial Environment. Ministry of Agriculture, Food and Environment, 2013. Directorate-General for Environmental Quality and Assessment and Natural Environment

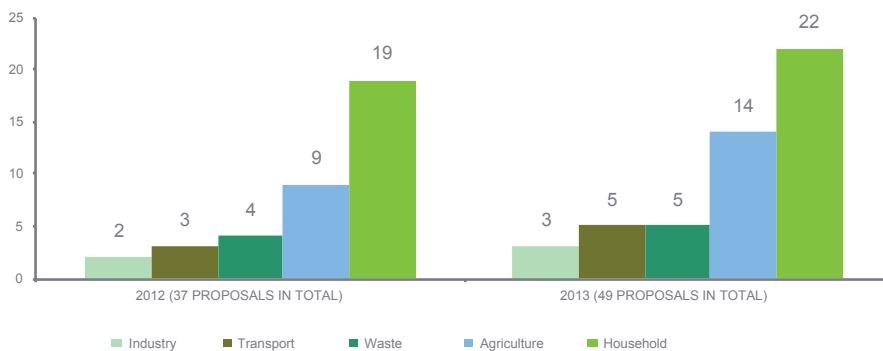
FURTHER INFORMATION

- <http://ec.europa.eu/environment/emas/>
- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-comunitario-de-ecogestion-y-ecoauditoria-emas/>
- <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=0&language=en&pcode=tsdpc410>

Spanish Carbon Fund 'Clima Projects'

In 2013, there was an increase in the number of Clima Projects aimed at reducing greenhouse gas emissions in those sectors known as "diffuse", namely, those that are not fixed sources of emission or subject to emissions trading

Sectoral distribution of the number of contracts of selected clima projects



Source: MAGRAMA

In 2012, the first call for submissions of the Clima Projects was approved and 37 verified emissions reduction purchase and sale agreements were signed. During 2013, the activities of the Carbon Fund have been once again focused on the promotion of activities throughout the national territory through the launching of the second call of the 'Clima Projects'.

The 49 projects selected in the Call of 2013 showed a wide and balanced regional distribution. As for the **sectoral distribution** it is possible to state that it covers all "diffuse sectors" according to the breakdown below: 22 projects in the residential, commercial and institutional sector; 14 in the agricultural sector, 5 in the waste sector, 5 in the transport sector and 3 in the industrial sector. These projects were selected out of a total of 190 projects submitted and, through the execution thereof, it is expected to achieve a reduction of more than a million tonnes of CO₂.



One of the most significant new elements of the call of 2013 was the development of activities under a **programmatic approach**, that aims at reducing transaction costs and increasing the potential for emissions reduction in the proposals. This was regarded as a successful idea considering that 21 out of the 67 submitted proposals were of a programmatic nature and 19 of them actually made it through the final stage. The 19 programmes of activities selected make a total of 67 activities that could be regarded as Independent Clima Projects. These programmes may automatically include new activities throughout a period of three years from the execution of the appropriate agreement and, therefore, the potential for reduction of each of them will increase throughout time.

NOTES

- This indicator evaluates the result of the Clima Projects, developed within the framework of the Carbon Fund. 2012 witnessed the first call for submissions.
- The purpose of the "Clima Projects of the Carbon Fund" is to reduce emissions of the so-called "diffuse sectors", as well as to foster the development of a low-carbon economy, taking advantage of certain niche markets creating job posts and promoting economic activities that are in line with "green economy" principles.
- The Fund foreseen in article 91 of Act 2/2011, of 4 March, on Sustainable Economy is known as the "Carbon Fund for a Sustainable Economy (FES CO₂ for its acronym in Spanish)".

SOURCES

- Data provided by the Spanish Office for Climate Change. Ministry of Agriculture, Food and Environment.

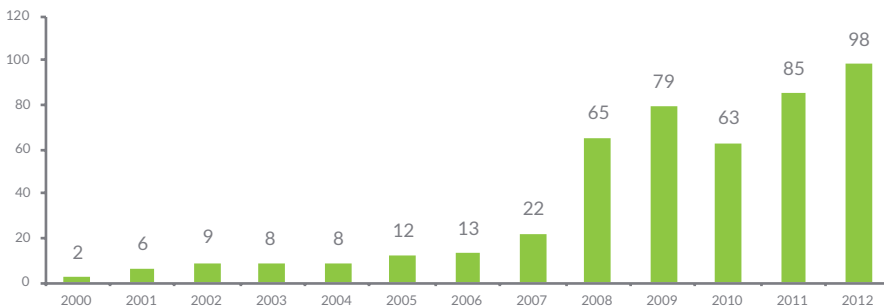
FURTHER INFORMATION

- http://www.magrama.gob.es/es/cambio-climatico/temas/fondo-carbono/Proyectos_Clima.aspx
- Royal decree 1494/2011, of 24 October, governing the Carbon Fund for a Sustainable Economy.

Renewable energy patents

Back in 2012, a total of 98 patent applications on renewable energies were registered in Spain. It was the year with the highest number of patent applications

Number of European patent applications with Spanish origin within the renewable energies sector



Source: Spanish Patents and Trademarks Office (SPTO)

Between 2000 and 2012, the number of European patent applications of Spanish origin within the renewable energies sector had experienced a significant increase: during that period, from the 2 patents registered in 2000 that number increased up to 98 patent applications submitted in 2012. Within the European Union, **Spain is the third country by number of patent applications** within the renewable energies sector. Likewise, **our country also ranks fifth at global level as for the countries with the highest number of patents of this kind**, only preceded by the United States, Japan, Germany and the United Kingdom.

Within the 2000-2012 period, a total number of 470 patents were applied for. Among those, **solar renewable energy** was the one with the highest number of patent applications, with 205 records, representing 43.6% of the total, followed by wind power, with 203 patent applications (43.2%) and ocean power, with 23 registered applications (4.9%).

In the classification according to **the type of applicants** submitting the relevant request, 70% of those applications come from companies, followed by individuals, which submitted 21% of those and public institutions, such as universities, which requested the remaining 9%.



Four autonomous communities were responsible for 60.4% of the requests: Navarra (24%), Madrid (16%), Andalusia (10.2%) and the Basque Country (10.2%). According to the type of facilities, Navarra was responsible for 48.8% of all patent applications on wind power, whereas as for solar energy, Andalusia accounted for 21.5% of the total number of applications of this sector followed by Catalonia and Madrid, which requested a total of 19.5% each.

It is worth to outline that the **European Patent Office (EPO)** has established a new classification scheme for the technical characteristics of the various technologies and that, in general terms, those should fall within the 'clean energy technologies' category. It is a specific sub-sector of those technologies intended for climate change mitigation purposes which, with approximately 200 new categories, have significantly improved the gathering of information to a great extent.

In general, according to the data provided by the SPTO, during 2012, a total number of 148,194 European patent applications was registered, which means 4% increase as compared to the previous year. 1,548 out of those belonged to applicants of Spanish origin, which means an increase by 9.6% as compared to 2011.

NOTES

- Industrial Property Statistics are entirely prepared by the Spanish Patents and Trademarks Office (Independent Body attached to the Ministry of Industry, Energy and Tourism). A Patent is a title acknowledging an exclusive right to operate a patented invention, thus preventing others from manufacturing, selling or using it without the prior consent of the patent holder. As a counterpart, the Patent is made accessible to the general public for general knowledge purposes.
- In order to undertake the study of the European Patents for the renewable energies sectors, those requests submitted from Spain and published within the 2000-2012 period have been taken into consideration. Patents have been obtained considering the first patent holder and if it is directly or indirectly connected with any of the various renewable energy sectors.
- The following are regarded as renewable energies: biomass, CO₂ extraction, transport and storage, cement, construction, the waste industry, the methane industry, the so-called fuel-injection systems for feeding of internal combustion engines, as well as, solar, wind, hydraulic, geothermal and ocean energy.

SOURCES

- Spanish Patents and Trademarks Office (SPTO), 2013. Statistical Analysis of inventions and renewable energy sources. Period: 2000-2012. Ministry of Industry, Energy and Tourism

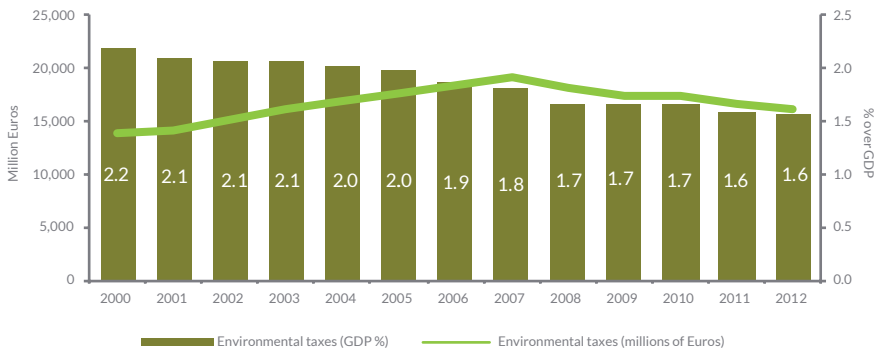
FURTHER INFORMATION

- https://www.oepm.es/es/sobre_oepm/actividades_estadisticas/

Environmental taxes

Although Spain paid 5.2% of all environmental taxes of the EU-28, it is still the country with less environmental taxes per unit of GDP

Environmental taxes in Spain. Expressed as total tax amount and as % of the GDP



Source: EUROSTAT

Environmental taxes may be regarded as a tool contributing to reduce many of the environmental damage caused to the ecosystems, mainly due to promoting significant changes in the behaviour of consumers (basically companies and households), for they act as a deterrent. In any case, their cost will always be lower than the one required to repair the damage caused and get ecosystems back to their original condition.

The evolution of environmental taxes in Spain shows a double trend: on the one hand, a growth line until 2007, the year in which the maximum value was reached, and on the other hand, a strong decline from that date onwards. Between 2007 and 2012, there was a decrease of 15.6% with a slight increase in 2010. However, in spite of this one-off upward trend, the relationship between the total amount of taxes and the total GDP reveals a clear downward trend.

Since the 2000 fiscal year, environmental taxes in Spain have increased by 16.9%, accounting for 3,817 million as of that date and reaching a total of 16,152 million Euros in 2012. During this last year, 81.2% of these taxes have come from the **energy sector**, whereas 16.6% of them were attached to the transport



sector. The remaining 2.2% arose from activities related to the contamination and use of natural resources. Inside the **EU** back in 2012 too, the ratio of environmental taxes arising from the energy sector was somehow lower (75%) while the tax payments coming from the transport sector and contamination/use of resources resulting therefrom were 20.7% and 4.3% respectively.

In 2012, Spain held the last position among the countries of the EU-28 with the lowest environmental taxes/GDP ratio. While environmental taxes within the EU-28 accounted for 2.4% of the GDP in 2011, in Spain, this ratio reached only 1.6%. Denmark was the country with the highest environmental taxes/ GDP ratio (3.9%).

However, in absolute terms, Spain paid 5.2% of the total environmental taxes of the EU-28, thus ranking sixth with 16,152 million Euros, just behind Germany, United Kingdom, Italy, France and the Netherlands.

In November of 2013, the National Statistical Office (INE) submitted the 2008-2011 accounting series of the **Environmental Taxes Account**. This statistical operation is framed within the Regulations of the European Union on environmental accounts. The results obtained have pictured households as the sector with the highest contribution, with 59.8% of environmental taxes, whereas the multiple activity branches did so with the remaining 40.2%. Among the latter, the transport and storage sector accounted for 18.3% of the total amount, whereas, for example, agriculture/livestock, forestries and fishing activities accounted for only 0.7%.



NOTES

- Regulation (EU) No. 691/2011 of the European Parliament and of the Council, of 6 July 2011, on European environmental economic accounts, is the reference framework for the concepts, definitions, classifications and common accounting rules aimed at the preparation of Environmental Accounts and, for the first time, a module has been include in this account for annual transfer thereof.
- The Environmental Taxes Account is split into two end customers that are actually entitled to this tax rate: the activity branches and the household sector. Environmental Taxes have a tax base that consists of a physical unit (or similar) of a certain material that has a negative impact –verified and specific– on the environment. Among those, it is possible to find the following: Taxes on energy, Taxes on transport, Taxes on pollution and on resources. However, value added taxes are excluded from this definition.

SOURCES

- Information gathered from the Eurostat website. Available at: Data / Main tables / Environment (t_env) / Environmental accounts (t_env_acc) / Environmental tax revenues - % of GDP (ten00065)
- INE, 2013: Environmental taxes. 2008-2011 Series. Available at: INEbase / Physical environment and environmental issues / Environmental accounts/ Environmental Taxes Account / Environmental Taxes Account. Base 2008

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- http://www.ine.es/inebmenu/mnu_cuentas_medioambientales.htm
- http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_ac_tax&lang=en
- <http://www.ine.es/jaxi/menu.do?type=pcaxis&path=%2Ft26%2Fp085&file=inebase&L=0>

ENVIRONMENTAL RESEARCH, DEVELOPMENT AND INNOVATION



2.7

2013 Environmental Profile of Spain

2013 was a very important year for R&D&i at all levels: European, national and regional.

In **Europe**, the regulations on the Cohesion Policy came into force for the period 2014-2020 for the purposes of maximising the impact of those funds available from the EU by means of investments addressed to growth areas (R&D&i, ICT, SMEs, etc...), as well as to people (employment and mobility, education, etc...).

Likewise, the so-called "Horizon 2020" was adopted, which is the Research and Innovation Framework Programme for the period 2014-2020, that will provide funding in all stages of the innovation process while maintaining the focus on the excellence of the scientific basis and the strengthening of the industrial leadership in Europe.

This project also includes those new frameworks that govern the **Spanish R&D&i Industry**, namely, the Spanish Strategy of Science, Technology and Innovation 2013-2020 and the National Plan for Scientific, Technical and Innovative Research 2013-2016, approved by the Council of Ministers in February 2013. Both documents are intended for the purposes of acknowledging and promoting talent



and employability, boosting the corporate leadership in R&D&i, promoting scientific and technical research in excellence and developing those activities aimed at the solving of global challenges society is facing.

Finally, **autonomous communities** focused their efforts the preparation of their **R&D&i regional strategies** in the field of Smart Specialization (RIS3) so as to comply with the previous condition (the so-called ex-ante conditionality) for the financing of the funds provided under the terms of the European Regional Development Funds Programme while laying the foundations "of a highly competitive regional market based on the Smart Specialization of the territories so as to organize within the different autonomous regions the social and economic development for which it is necessary to gather the capacity of the existing production fabric, the scientific potential of its agents and the boost to innovation as the engine for change and progress".

IN THE PAST YEARS...

- The Spanish scientific production within the field of environmental sciences shows a remarkable increase during the last ten years, from 1,504 documents in 2003 to 3,799 in 2012. Spain has moved up from position 11 to position 9 within this field in the world ranking.
- During the 2008-2012 period, the General State Administration funded 3,267 R&D&i actions including projects and human resources; funds amounted to 241.2 million Euros.
- Environmental programmes represented 4% of the General State Budget for R&D&i in 2014. In 2005, this percentage was 4.5%.
- In 2012, 3.4% of total grants corresponded to the environmental socio-economic target. In 2003, this percentage was just 1.9%.

INDICATORS

- Main bibliometric indicators in environmental sciences
- Public subsidies for environmental R&D&i
- Budget allocated to R&D&i in environmental programmes
- Public financing for R&D



Main bibliometric indicators in environmental sciences

In 2012, Spain was ranked 9th for the second year in a row in the world classification for scientific production within the field of environmental sciences. Besides, most autonomous regions exceed the world citation averages.

Main bibliometric indicators in environmental sciences in Spain

Years	Number of documents	% international collaboration	% worldwide	World Ranking
2003	1,504	38.5	3.0	11
2004	1,768	34.6	3.4	10
2005	1,925	38.8	3.3	10
2006	2,282	40.1	3.5	10
2007	2,546	39.4	3.6	10
2008	2,777	41.2	3.7	10
2009	2,984	41.5	3.8	10
2010	3,094	44.5	3.9	10
2011	3,582	47.9	4.2	9
2012	3,799	48.3	4.0	9

*See classification 3 in Annex I
Source: SJR – SCImago Journal & C During country Rank. Data compiled from SCOPUS.

In the past decade, there has been a noticeable increase in the **Spanish scientific production on environmental issues**, from 1,504 documents in 2003 to 3,799 in 2012. As regards the percentage of Spanish publications within the area, in relation to the overall number of worldwide publications, Spain went from a representation amounting to 2.95% in 2003 to 3.95% in 2012.

Out of the total number of papers on environmental sciences published in Spain, 48.33% were published within the framework of an international collaboration, 10 percentage points above the percentage of 2013.

In 2012, and for the second year in a row, Spain was ranked 9th in the world classification of scientific production. At a **European level**, Spain was ranked fourth, behind the United Kingdom, Germany and France. However, it is still ahead of countries such as Italy, the Netherlands and Sweden.

That same year, 2012, the Balearic Island, Asturias and Catalonia, were the **autonomous communities** with the highest visibility as regards environmental publications, with citations amounting to 61%, 58% and 55%, respectively, above the global average within this field.

Regarding the **excellence rating**, the Balearic Island, Asturias and Catalonia were also the autonomous communities with the highest value, with 22.64%, 17.82% and 16.3% respectively, which means that these autonomous regions are the ones which present the highest number of publications included in the 10% group of most frequently cited works within this field of study.

Finally, as regards the **indicator "excellence with leadership"** the autonomous communities of Asturias, Balearic Islands and Catalonia are also the ones which stand out, all of which present values over 8%.

Main bibliometric indicators in environmental sciences by autonomous communities. Year 2012

	Number of documents	Citations	Citations by documents	% international collaboration	Standardized Impact	% Q1	Excellence rating	Leadership rating	Rating regarding excellence with leadership
Asturias	101	326	3.2	34.7	1.6	81.2	17.8	68.3	11.9
Balearic Islands	106	345	3.3	67.0	1.6	86.8	22.6	48.1	10.4
Catalonia	1,006	3,131	3.1	58.0	1.6	79.4	16.3	62.9	8.8
Aragón	151	440	2.9	46.4	1.5	76.2	13.3	53.6	8.0
Andalusía	843	2,124	2.5	47.0	1.3	72.4	11.9	65.8	7.1
Castile-La-Mancha.	132	287	2.2	36.4	1.1	68.9	10.6	66.7	6.8
Galicia	339	772	2.3	40.4	1.2	65.2	9.7	72.3	6.8
Valencian Community	388	989	2.6	45.6	1.2	71.1	11.9	60.3	6.7
Madrid	776	2,082	2.7	47.6	1.3	69.7	13.3	59.5	6.6
Canary Islands	103	317	3.1	45.6	1.4	74.8	14.6	58.3	5.8
Navarre	69	105	1.5	37.7	0.8	50.7	7.3	72.5	5.8
Extremadura	77	154	2.0	40.3	1.0	75.3	9.1	74.0	5.2
Basque Country	149	471	3.2	44.3	1.4	67.8	11.4	53.0	4.0
Castile-Leon	155	322	2.1	50.3	1.0	61.9	7.1	53.6	3.9
Cantabria	55	103	1.9	38.2	0.9	78.2	5.5	69.1	3.6
Murcia	143	342	2.4	41.3	1.3	67.8	7.0	64.3	3.5
La Rioja	15	32	2.1	46.7	1.1	73.3	6.7	46.7	0.0

Remarks:

- The overall total of the publications by autonomous region is higher than the overall national total due to those publications carried out in national collaboration, which are included for each one of the participating autonomous regions.
- See definitions in the notes section.

Source: SCImago Journal & Country Rank. Prepared by SCImago Group, Institute of Policies and Public Goods (IPP-CCHS) of CSIC. (consulted on February 2013) from data by Scopus



NOTES

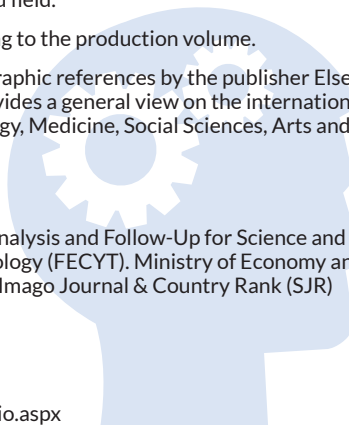
- Number of documents: Total number of documents published in journals indexed in SCOPUS.
- Citations: Absolute indicator of the number of citations received by a certain set of documents.
- Citations by document: Average of citations received by the total volume of scientific production for a certain set of documents.
- Percentage of international collaboration: Percentage of the production published in collaboration with institutions outside the country. For the calculation of this indicator those documents which include more than one institution and, at least one of them is from another country, are taken into consideration.
- Standardized Impact: values (in %) show the relationship between the average of the scientific impact of a country or institution compared to the world average (that has a rating of 1); therefore, a SI of 0.8% means that the country or institution is mentioned 20% less than the world average, while a SI of 1.3% means that is mentioned 30% more than the world average.
- High Quality Publications (%Q1): indicates what percentage of publications of an institution in the journals are in the first quartile (25%) in its category, ordered according to the quality indicator journalsSJR (SCImago Journal Rank).
- Excellence rating: indicates what percentage of scientific publications of a country or institution is included in the total 10% of the most mentioned articles in its field. It is an indicator of high quality research.
- Leadership rating: indicates the percentage of the production of a country or institution as lead contributor, that is, the number of documents in which or the author in charge of the correspondence or, failing that, the main author, belongs to that country or institution.
- Excellence rating with leadership: it is the synthesis of the two previous indicators and makes reference to the works led by a certain country or institution, and that additionally correspond to the total production that is in the 10% which is most frequently mentioned in its category and year.
- World rating: Percentage of the production of a country or institution in relation to the world's overall production within the same period and field.
- Word Ranking: position in the world ranking according to the production volume.
- SCOPUS is a database including citations and bibliographic references by the publisher Elsevier. Subscribers can access through a website. It provides a general view on the international research production in the fields of Science, Technology, Medicine, Social Sciences, Arts and Humanities.

SOURCES

- Information provided by the Department of Metric Analysis and Follow-Up for Science and Innovation. Spanish Foundation for Science and Technology (FECYT). Ministry of Economy and Competitiveness. Prepared with data provided by SCImago Journal & Country Rank (SJR)

FURTHER INFORMATION

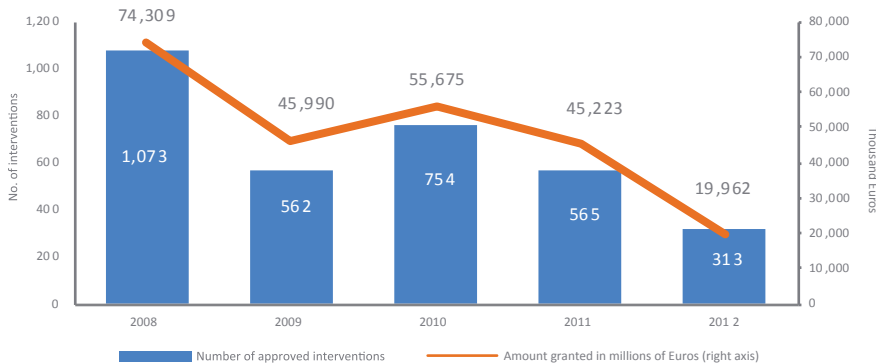
- <http://www.fecyt.es/fecyt/home.do>
- <http://www.scopus.fecyt.es/Presentacion/Pages/Inicio.aspx>



Public subsidies for environmental R&D&i

During the period 2008-2012, the General State Administration allocated 241.2 million Euros for the funding of actions related to environmental R&D&i projects

Number of actions approved and amount granted in R&D&i



Source: FECYT, MEC

This chart shows the evolution of those actions carried out for the environment by means of R&D&i projects and human resources within the 2008-2011 R&D&i National Plan (extended until 2012) and the National Innovation Strategy, which made up and strategic framework in which R&D&i actions of the General State Administration (GSA) have been developed. All actions and funds granted for the different programmes called by the Ministry of Agriculture, Food and the Environment, the National Institute of Agriculture and Food Technology (INIA, Spanish Acronym), the Centre for Energy, Environmental and Technological Research (CIEMAT, Spanish Acronym), as well as the 'Experimental development projects for the environment and eco-innovation' run by the Centre for Industrial Technological Development (CDTI, Spanish Acronym) are included.

For the Period 2013-2020, the **Spanish Strategy of Science, Technology and Innovation** is the tool established so as to reach those general goals regarding the promotion and development of R&D&i activities in Spain. These goals are in line with the ones established by the **European Union** within the framework programme for the funding of R&D&i activities, called "**Horizon 2020**" for the



period 2014-2020, thus contributing to the promotion of the active participation of agents working in the scientific, technological and innovation Spanish System within Europe.

For the period 2008-2012, a total of 3.267 environmental actions were granted; such actions included R&D&i projects and human resources the subsidies for which amounted to 241.2 million Euros, of which 205.8 corresponded to projects and 35.3 to human resources. In 2013, 313 R&D&i-related actions were carried out, the subsidies for which came up to 20 million Euros.

NOTES

- The amount of the actions corresponds to the multi-annual expenditure commitment.
- Those actions related to projects and provisions to human resources are included.

SOURCES

- Data provided by the Department of Metrics of the Spanish Foundation of Science and Technology from data provided by the different participating entities. Ministry of Economy and Competitiveness

FURTHER INFORMATION

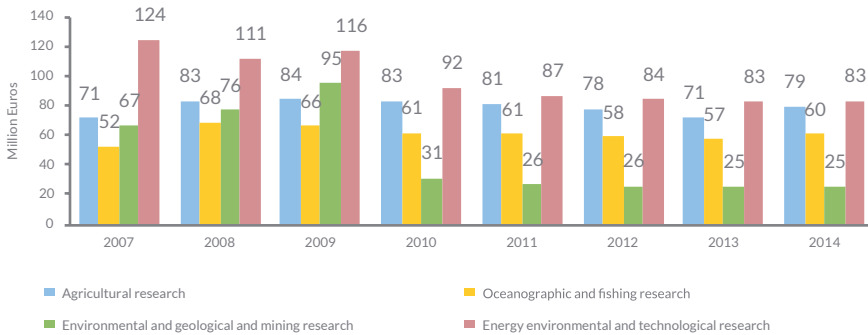
- <http://www.fecyt.es/fecyt/home.do>



Budget allocated to R&D&i in environmental programmes

In 2013, it was decided that 4% of the General State Budget for R&D&i in 2014 was to be devoted to Environmental Programmes

Budget allocated to R&D&i in environmental programmes



Source: MHAP

In the General State Budget, those items allocated to the environment correspond to the Expenditure Policy Programmes no. 46. The following is the corresponding breakdown: 467D Agricultural Research and Experimentation; 467E Oceanographic and Fisheries Research; 467F Environmental, Geology and Mining Research and 467H Environmental, Technological and Power Research. At the end of 2014 and for these four groups of programmes, it was approved to allocate 4% of the total state budget foreseen for R&D&i actions in 2014; therefore, this percentage remains constant in relation to the previous two years.

The chart shows the evolution of the R&D&i Budget regarding the environmental programme during the last eight years. As it can be seen, the item "Environmental, Technological and Power Research" has been granted the highest annual budgetary amount followed by the item "Agricultural Research and Experimentation".

SOURCES

- Data on the R&D&i Budget provided by the Ministry of Finance and Public Administrations, General State Budget

FURTHER INFORMATION

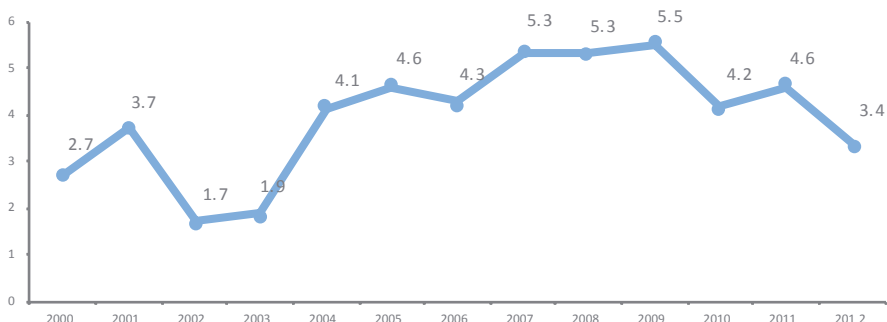
- <http://www.sepg.pap.minhap.gob.es/sitios/sep/sep/es-ES/Presupuestos/Paginas/MenuSitio.aspx>
- <http://www.fecyt.es/fecyt/home.do>



Public financing for R&D*i*

Public financing by means of final credits for the environmental socio-economic objective amounted to 3.4% in 2012

Evolution of the percentage distribution of final credits by environmental socio-economic objective



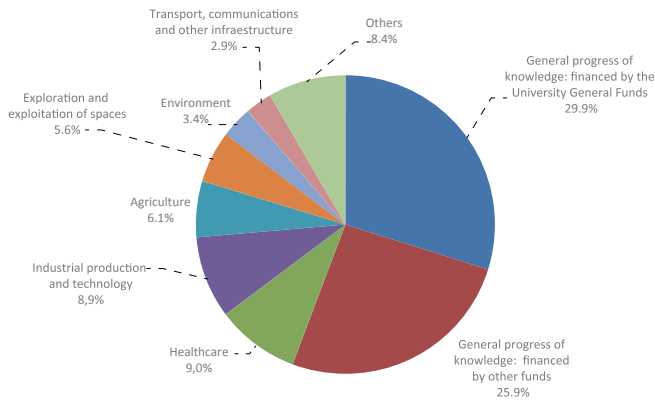
Source: MEC

The GBAORD Statistic (Government budget and appropriations or outlays for R&D) aims at the determination of those financing resources the General State Administration and the Autonomous Regions allocate to Research and Development activities. Besides, it also aims at knowing those **socio-economic goals** governments base their R&D financing policies on; therefore, this statistic gathers those **budgets identified by NABS socio-economic objectives** (Nomenclature for the analysis and comparison of science budgets and programmes), official classification proposed by the **European Union**.

This operation is carried out by the State Secretariat for Development and Innovation of the Ministry of Finance and Competitiveness and it has been included within the **National Statistical Plan** for many years. Its execution is framed within the statistical information requirements of the Organisation for Economic Cooperation and Development (OECD) and EU's Statistical Office (Eurostat).

As regards those environmental final budgetary credits which Public Administrations allocate to R&D, expressed as percentage on the global R&D budget, 3.4% of the total final credits by socio-economic objective corresponded to the environment; this percentage has increased in comparison to that of the year 2002, when it amounted to 1.7% of the total distribution of final credits.

Percentage distribution of final credits by socio-economic objective (based on NABS). 2012



Source: MEC

NOTES

- The Public Financing for R&D&i known as GBAORD Statistic (Government budget appropriations or outlays for R&D), has the goal of determining the financing resources that the Public Administrations- central and regional- allocate for R&D activities by means of the identification of data made up of two stages: budgets approved by the corresponding Parliaments and Assemblies at the beginning of the budgetary year (initial credits) and final budgets, reviewed and approved during the budgetary year (final credits).

SOURCES

- Ministry of Economy and Competitiveness. Statistic on Government budget appropriations or outlays for R&D (GBAORD)

FURTHER INFORMATION

- <http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.8ce192e94ba842bea3bc811001432ea0/?vgnextoid=51714284527e0210VgnVCM1000001034e20aRCRD&vgnnextchannel=fa48c18d48530210VgnVCM1000001034e20aRCRD>
- <http://www.fecyt.es/fecyt/home.do>



2.8

2013 Environmental Profile of Spain

At the end of 2013, the 7th Environment Action Programme of the EU for the 2014-2020 period was published. One of its primary purposes is to "turn the Union into a resource-efficient, green and competitive low-carbon economy". In order to meet this goal, it must be guaranteed that waste is managed in a safe manner and that it is considered a resource. Besides, in order to prevent negative impacts on health and on the environment, the volume of waste generation (both in absolute terms and per capita) must decrease, landfilling practices must be limited to non-recoverable waste and incineration with energy recovery must be a management alternative only for waste that cannot be recovered materially.

In Spain, in November 2013, the "**National Programme on Waste Prevention 2014-2020**" was approved. It is a new tool that, within the framework of current regulations, will help us meet those goals established in the 7th Environment Programme. It is based on four **strategic lines on waste prevention**: the decrease in the volume of waste generated, the reuse of waste and extension on its lifespan, the reduction in the contents of hazardous substances in materials and products and the reduction of their impacts on human health and on the environment. One of its primary objectives is to reduce the volume of waste generated in 2020 by 10% in comparison with the volume of waste generated in 2010.



The development of the Programme requires the participation of a large working scope, in which the following groups must participate as **main agents**: manufacturers, distribution industry, service industry, consumers and end users and public administrations.

This Programme is developed within the planning established by the **National Integrated Waste Management Plan (PNIR, Spanish Acronym) 2008-2015**, which defines the general guidelines of the waste policy regarding prevention by establishing qualitative and quantitative prevention goals for the main waste flows.

As regards the **recycling of paper and cardboard**, which in previous editions had its own section with a specific indicator, it must be pointed out that the collection rate of used paper comes up to more than 70% since 2009. In 2012, such rate amounted almost to 74% (73.9%), with a slight increase of 0.4 percentage points in comparison to the previous year. On the other hand, the recycling rate was 82.3% (it exceeded in 3.1 points that of the year 2011) and the reuse rate regarding used paper was 82.1%, similar to that of the previous year. In **Europe**, the recycling rate was 71.7% in 2012, which means Spain is above the European average.

In this sense, there is an agreement on the huge potential of the waste recycling industry as an employment generator; it is estimated that 400,000 new **jobs** could be created in the European Union (55,000 in Spain) if those materials which are currently not being exploited were recycled.

IN THE PAST TEN YEARS (with data estimated by Eurostat in 2012)...

- Between 2003 and 2012 the generation of total urban waste was reduced by 20.5%, while such decrease amounted to 28.2% per capita.
- Between 2003 and 2012, urban waste per capita deposited in landfills was reduced by 18.3%, whereas waste incinerated with energy recovery increased by 4.8%. Recycled urban waste per capita decreased by 11.2%, whereas that intended for composting decreased by 51.0%.
- In the last 10 years (2002-2011), overall recycling and recovery rates for packaging waste increased by 20.1 and 22.3 percentage points respectively. The overall packaging waste rate increased from 44.3% in 2002 to 64.4% in 2011, whereas the recovery rate increased from 49.8% to 72.1% during the same period.

INDICATORS

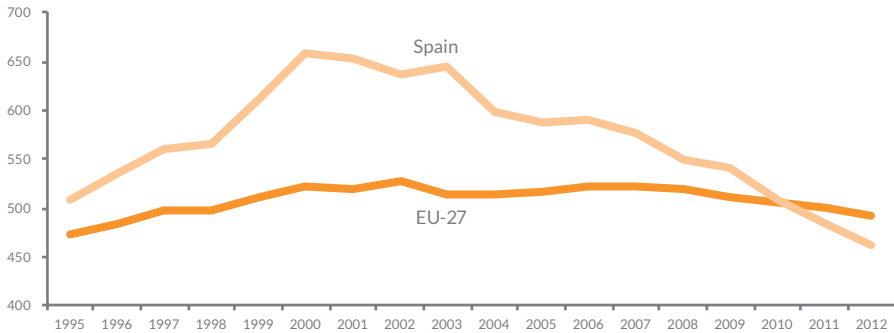
- Urban waste generation
- Urban waste treatment
- Packaging waste recycling and recovery



Urban waste generation

In Spain, the generation of urban waste per capita decreases and, since 2011, this ratio is lower than the European average

Urban waste generation per capita (kg/inhab)



Estimated 2012 data.
Source: Eurostat

In 2000, with 656 kg, the highest volume of **waste generation per capita** of the last years was registered; from that year on a continuous decrease started up to 29.5% in 2012. Thanks to the 464 kg/inhabitant, Spain was in the fifteenth position in the **European** classification of urban waste generation, presenting since 2011 a value below the EU average (which is around 492 kg/inhabitant). The decrease in urban waste generation per capita in Spain was faster than that of the EU, as it can be verified when comparing the slope of the chart.

Regarding the total volume of waste, in 2012 Spain generated 8.8% of the overall waste of the EU-27. It is the lowest contribution of the last years, which is in sharp contrast with waste generated in our country in the EU-27 in 2000 amounting to 10.5%. As regards EU-28 (including Croatia), the contribution of Spain amounted to 8.7% of waste generated in the EU.

Overall generation of urban waste in EU-27 and in Spain (1,000 t)

	1995	2000	2005	2010	2011	2012
EU-27	226,162	252,643	254,024	(+34) 2 53,592	251,307	246,632
Spain	20,076	26,505	25,683	23,774	22,672	21,678
% Spain compared to EU-27	8.9	10.5	10.1	9.4	9.0	8.8

Estimated 2012 data
 *See classification 3 in Annex I
 Source: Eurostat

NOTES

- In 2013 the number of Member States of European Union increased to 28 after the accession of Croatia. The figures for this scope only include the 2004-2012 period, which is why the analysis carried out refers to UE-27. However, those references for 2012 do include data regarding EU-28, since data for that country are available and already incorporated in the records of the European Union.
- The indicator shows urban waste generation expressed in kilograms per inhabitant (kg/inhabitant) and refers to waste collected by municipal services or by related services contracted by local councils as part of a urban waste management system. Most of this waste comes from households, although waste from similar sources, such as retail outlets, offices and public institutions, is also included.
- For compliance with the information requirements of the European Commission and under its criteria, the following are not considered urban waste: construction and demolition wastes, sewage sludge and end-of-life vehicles.
- Act 22/2011 of 28 July on waste and contaminated soils, considers as 'waste' any substance or object that its owner throws away or has either the intention or obligation to throw away. 'Domestic waste' is considered any waste generated in households as a result of domestic activities and those similar to the above generated by services and industries. This category includes waste from electrical and electronic equipment, clothing, batteries and accumulators, furniture and fittings, together with waste and rubble from minor building work and household repairs. Waste generated from cleaning streets, parks, recreational areas and beaches, dead domestic animals and abandoned vehicles will also be considered domestic waste.
- National and European regulations on waste do not include a definition for urban or municipal waste, so in order to comply with the information requirements of the European Commission and Eurostat, municipal wastes are considered to be those generated in households, commerce and services, and include municipal services: cleaning of public streets, parks, recreational areas and beaches as well as dead domestic animals. Each category is assigned a EWL Code (European Waste List) and they must be managed by Local Bodies or Provincial Governments in accordance with section 5 of Article 12 of Act 22/2011.
- Eurostat was the data source used. It must be taken into account that data regarding 2012 are estimations and they may be modified when they become consolidated.

SOURCES

- Eurostat: Sustainable development indicators/Sustainable consumption and production/Resource productivity / Municipal waste generation and treatment, by type of treatment method

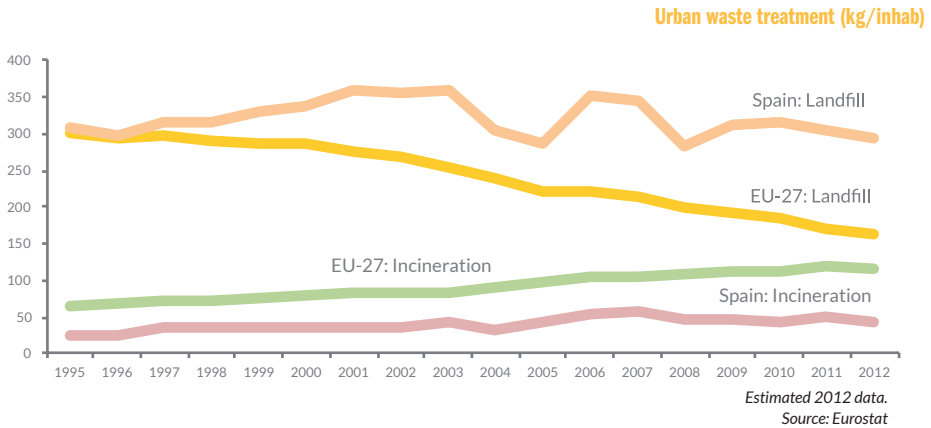
FURTHER INFORMATION

- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/prevencion-y-gestion-residuos/>
- http://www.ine.es/inebmenu/mnu_medioambiente.htm
- <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators/theme2>



Urban waste treatment

The volume of urban waste deposited in landfills decreases, which amounted to 63.4% of the total waste in 2012



In the **EU-28**, around 248.3 million tonnes of urban waste were generated in 2012. Out of such volume, 9% (21.7 million tonnes) were generated in Spain. Since 2006, the total volume of domestic waste generated in Spain is managed in a controlled manner. The EU is also close to such value, which amounted to 98% in 2012.

Per inhabitant, the decrease in the generation of domestic waste has been accompanied by a reduction in the volume of waste **deposited in landfills** which, between 1995 and 2001, decreased by 4.35%, reaching 294 kg/inhabitant during last year. It must be highlighted that in 2001, 361 kg of waste per inhabitant were deposited in landfills (67 kg more per inhabitant than in 2012).

On the other hand, only 9.5% of this type of waste was **incinerated** with energy recovery in 2012. This alternative, although it has doubled its use between 1995 and 2012, has experienced a limited development in Spain during the last years. In fact, in 2012 its use has been noticeably reduced; from 44 kg/inhabitant in comparison to 50 kg/inhabitant which were incinerated in 2011 according to estimations.

Distribution of the destination of urban waste generated in Spain
per inhabitant and year Year 2012

Landfill	Incineration with energy recovery	Recycling	Composting
63.4	9.5	17.0	10.1

Source: Eurostat



Regarding urban waste destined for **recycling**, year 2002 presented the maximum value, with 92 kg/inhabitant, which decreased to 79 kg/inhabitant in 2012. During 2008, **composting** reached maximum values, with 134 kg/inhabitant, from that year on a progressive reduction in the values started, up to the 47 kg/inhabitants estimated for 2012.

It can be deduced that the decrease experimented in the landfill of waste is mainly a consequence of a reduction in the generation of waste rather than a consequence of the use of other management and treatment options.

Urban waste generation and treatment in Spain (kg/inhabitant)

	1995	2000	2005	2010	2011	2012
Waste generated	510	658	588	510	485	464
Waste managed	368	494	517	510	485	464
Landfill	308	337	288	318	305	294
Incineration	24	36	44	44	50	44
Recycling	36	44	84	90	81	79
Composting and digestion	0	77	100	59	49	47
% Treatment/Generation	72	75	88	100	100	100

*Estimated 2012 data
*See classification 3 in Annex I
Source: Eurostat*

NOTES

- In 2013 the number of Member States of European Union increased to 28 after the accession of Croatia. The figures for this scope only include the 2004-2012 period, which is why the analysis carried out refers to UE-27. However, those references for 2012 do include data regarding EU-28, since data for that country are available and already incorporated in the records of the European Union.
- See the previous indicator notes.

SOURCES

- Eurostat/Sustainable development indicators/Sustainable consumption and production/Resource productivity/ Municipal waste generated/Municipal waste treatment, by type of treatment method

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/prevencion-y-gestion-residuos/>
- http://www.ine.es/inebmenu/mnu_medioambiente.htm
- <http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators/theme2>



Packaging waste recycling and recovery

The growing trend of the packaging waste recycling and recovery rates remains constant



The National Programme on Waste Prevention (PEPR, Spanish Acronym) of the Ministry of Agriculture, Food and Environment (November 2013) established that the total volume of **packaging waste** generated in Spain continuously increased until 2007, year from which such volume starts decreasing. In 2011, the volume generated was lower than the volume recorded in 2003.

The recycling of packages is one of the priority areas of the PEPR and it is one of the four strategic lines of such programme: the reduction of the volume of waste generated, the boost to its reuse and the extension of the lifespan and the minimization of negative impacts on human health and on the environment. In that sense, the "total volume of packaging waste/year" is one of the indicators selected for the execution, on a biennial basis starting in 2014, for the assessment of the results of the programme on waste prevention.

The growth of global rates regarding packaging waste recycling and recovery is constant throughout the Spanish territory, which shows the degree of involvement of society and economic sectors as regards its proper management. Since 2004, we have witnessed an ongoing increase of such rates and, as early as 2006, the **recovery global goal** set at 60% was exceeded, and in 2007 the 55% goal established for the **recycling rate** was also exceeded, despite of the fact that both goals were initially established for the 31 December 2008.



There are specific goals for each **type of material**; the following are the rates reached for each one of them in 2011:

Packaging waste recycling and recovery rate (%) 2011

	Glass	Plastic	Paper and Cardboard	Metals	Wood	Others	Total packages
Recycling rate	66.6	32.4	76.6	75.2	53.2	0.0	64.4
Recovery rate	66.6	55.5	82.2	75.2	62.6	2.5	72.1

Source: MAGRAMA

The **Pilot Scheme for the Characterization of Domestic Waste** prepared by the Ministry of Agriculture, Food and Environment in 2011 established that the composition of the standard waste bag, paper and cardboard represented 18.7%, light packaging 14.0% and glass 6.9%. Apart from the organic share, which is the most relevant in terms of quantity amounting to 42.7%, there is a remaining share amounting to 17.6% which would include waste from furniture, electric and electronic devices, batteries and textile waste.

In 2011, **Spain** was classified in the tenth position at the **EU-27** ranking regarding packaging waste recycling, with a value of 64.4%, which for the first time was above the average of the European Union, which came up to 63.6%. Between years 2005 and 2011, the recycling rate increased by 14 percentage points. It is the fourth highest increase experienced among the ten countries with the highest recycling rate in 2011, which was only overcome by Bulgaria (34.3 points), Slovenia (18.3 points) and Ireland (15.3 percentage points).

Regarding **single-use commercial bags**, the adoption of measures on the part of the distribution industry (which consisted basically in the establishment of a certain price per bag), the administrations, and the citizens (by means of the use of reusable bags and other means of carrying) in compliance of the goals provided in the National Integrated Waste Management Plan has caused a decrease in their consumption and, therefore, a decrease in their transformation into waste. Therefore, whereas in 2007 around 13,500 million plastic bags and 2,080 million paper/cardboard bags were produced, generating an annual volume of approximately 98,800 and 41,600 tonnes, respective, in 2011 the generation of waste regarding single-use non-biodegradable plastic bags were reduced to 70,000 t (30% reduction).



The annual report by Ecoembes corresponding to 2012 estimates that 1.7 million tonnes were managed that year and that there were 12,051 companies adhered to the Management Integrated System. There has been a slight reduction in these variables as an indirect consequence of the effects of the global economic crisis in comparison with values of 2011 (3.9% as regards tonnes managed and 37 fewer companies adhered). However, at the end of 2012, 528,606 containers were installed, out of which 344,562 were yellow (for light packaging) and 184,044 were blue, for paper/cardboard thus achieving that 70.3% of domestic packages was recycled (1.2 million tonnes of recycled packages). **Per inhabitant**, in Spain each citizen deposited an average of 11 kg of packages in the yellow container and 15.76 kg of paper/cardboard packaged in the blue container.



NOTES

- The recycling and recovery rate is calculated by comparing the number of tonnes recycled and recovered for their energy value (measured at the point of entry into the recycling and recovery process) with the total packaging waste generated, taken to be equal to the total amount placed on the market. It is assumed that the quantities of reusable packages from previous years that become waste will balance out the reusable packages placed on the market during that year but that continue to be reused. Eurostat estimates the packaging waste recycling rate by means of the coefficient between the amount of recycled packaging waste and the total amount of generated packaging waste (Article 6(1) of Directive 94/62/CE).
- Data on packaging waste refer to domestic, commercial and industrial packages.
- The goals of Act 11/1997, of 24 April, on Packaging and Waste Packaging and Royal Decree 252/2006 of 3 March reviewing recycling and recovery goals of the aforementioned Act, are:
 - A minimum volume amounting to 55% and a maximum of 80% of packaging waste by weight must be recycled.
 - Recycling of those materials contained in packaging waste:
 - 60% by weight for glass,
 - 60% by weight for paper and cardboard,
 - 50 % by weight for metals,
 - 22.5 % by weight for plastics, exclusively quantifying those materials that are turned into plastic again,
 - 15% by weight for wood.
 - Recovery (including recycling and incineration of waste with energy recovery) of a minimum of 60% by weight for packaging waste.
- Established in 1996, Ecoembalajes España, S.A (Ecoembes) is a non-profit public limited company whose purpose is to design and implement systems for the selective collection and recovery of used packages and packaging wastes, with the aim of guaranteeing compliance with the reduction, recycling and recovery targets defined in the Law 11/1997, of 24 April, on packaging and waste packaging.

SOURCES

- Data provided by the General-Subdirectorate for Waste Directorate-General for Environmental Quality and Assessment and Natural Environment. Ministry of Agriculture, Food and Environment.
- Ecoembalajes España S.A. (Ecoembes), 2013. REPORT AND CALCULATIONS FOR 2012
- Eurostat. Information on the website: Statistics by theme / Search Database / Tables by themes / Data / Main tables / Environment and energy / Environment (t_env) / Waste statistics (t_env_was) / Waste streams (t_env_wasst) / Recycling rates for packaging waste (ten00063)

FURTHER INFORMATION

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2.9

2013 Environmental Profile of Spain

Agriculture is a strategic factor due to its substantial contribution to economic growth and employment generation. In the last few decades, agriculture has suffered a remarkable decline in national economy which contrasts with the increase in the production and the quality of the products caused mainly by the intensive use of farming lands, the promotion of sustainable agriculture and livestock industry, the use of fertilisers and the mechanization of irrigation areas. Besides, agriculture contributes in a sustainable way to the maintenance of the population and economic activities in rural environments.

The Common Agricultural Policy (CAP) has been subject from its creation to dramatic changes aimed at facing those new challenges it was encountering. Initially, the CAP aimed at guaranteeing a stable offer of healthy and affordable food, providing a reasonable quality of life for farmers while mechanizing and modernizing the agri-food industry and making sure all regions of the European Union were able to keep their agricultural traditions.

Nowadays, agriculture is facing new challenges, in response to the demands of European citizens. In this regard, the CAP has been progressively developed by increasing its complexity while other



complementary goals gradually became more important, such as the well-being of rural societies, the improvement of the quality of food and its harmlessness, the protection of the environment for the benefit of future generations and the well-being and improvements of the sanitary conditions of animals.

The application of the CAP will have a new horizon from 2014, date from which a discussion process known as "**Reform of the CAP Horizon 2020**" has begun. The strengthening of the production industry and the structuring of the Spanish agri-food systems are the axes on which the position of Spain within the negotiation process of the Reform of the CAP are proposed to be based.

The new CAP arising from this Reform must incorporate all necessary resources, measures and flexibility elements which may allow for its consistent and integrated application, the ultimate purpose of which should be making sure the Spanish agri-food system becomes a referent which guarantees the sustainability and feasibility of the heterogeneous Spanish production geography and that is, at the same time, a generator of wealth integrated within the environment in a sustainable manner.

IN THE PAST 10 YEARS (2003-2012)...

- The consumption of fertilisers per hectare, expressed as nutrients, decreased from 130.0 kg/ha to 103.2 kg/ha.
- Phytosanitary product consumption, expressed in kg of active ingredient per hectare, has decreased by 4.8%.
- The total area devoted to organic farming in Spain increased by 142.2%.
- The number of organic livestock farms has increased by 248.6%.
- The irrigation area in Spain has increased by 6.6% in the last ten years (2004-2013).

INDICATORS

- Fertiliser consumption
- Phytosanitary product consumption
- Organic farming
- Organic livestock farming
- Irrigated area
- Environmental efficiency in agriculture



Fertiliser consumption

Fertiliser consumption as a whole (as a commercial product) increased by 16.8% during the crop year 2012/2013

At a global level, and according to data provided by the International Fertilizer Industry Association (IFA), the crop year 2012/2013, the period between July 2012 and June 2013, was a virtually zero-growth year in the consumption of fertilisers. During that crop year, the consumption of fertilisers reached 176 million tonnes (expressed as nutrients).

In Spain, the consumption of fertilisers in the crop year 2012/2013 progressively matched the nutrient needs of crops and the necessary requirements for the conservation of a farming activity which is sustainable over time. Due to the need of resisting the negative effects arising from the lack of nutrients caused by the extractions performed and after several crop years during which, in some regions, there was an insufficient application of mineral fertilisers aimed at preserving the fertility of farmlands and obtaining a good performance, farmers managed to optimize their use during 2012/2013.

In this regard, and according to provisional data provided by the National Association of Fertiliser Manufacturers (ANFEE, Spanish Acronym), the overall **consumption of fertilisers** (as a commercial product) during 2012/2013 increased by 16.8% compared to the crop year 2011/2012. On a general basis, it can be stated that there is a trend towards the recovery of those standard levels before 2008, the year in which the economic crisis started which was also a period characterized by instability in the production, sales and consumption of fertilisers. On the other hand, during the crop year 2012/2013 production, sales and exports increased by 8.4%, 14.2% and 10.9% respectively.

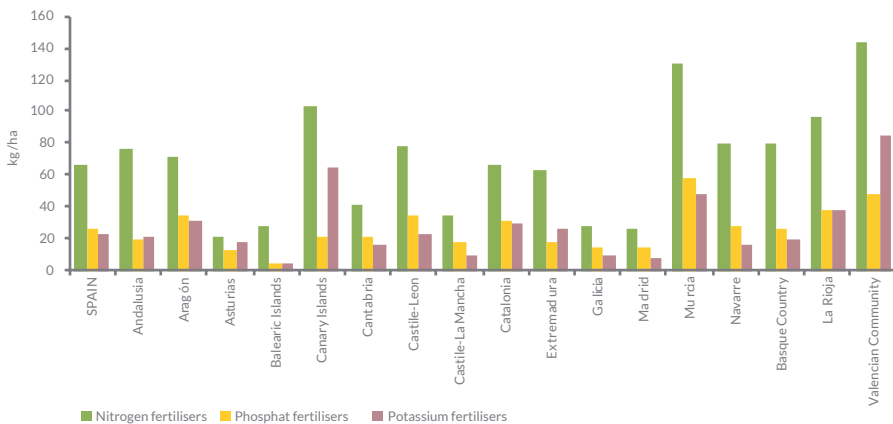
Fertiliser consumption

In commercial product (1,000 tonnes)	2008/09	2009/10	2010/11	2011/12	2012/13
Simple nitrogen	2,023	2,060	2,455	1,994	2,396
Simple phosphate	70	101	206	196	157
Simple potash	90	149	212	190	215
Complex	978	1,458	1,851	1,648	1,936
Total fertilisers	3,161	3,768	4,697	4,028	4,704
In fertilisers (1,000 tonnes)	2008/09	2009/10	2010/11	2011/12	2012/13
Total N	721	813	967	818	980
Total P ₂ O ₅	157	340	390	355	389
Total K ₂ O	178	262	350	315	346

Source: MAGRAMA

The evolution of fertiliser consumption (as a commercial product) used in different crop years is very unequal. In the last crop year (2012/2013), the consumption of simple nitrogen **fertilisers** increased by 20.2% whereas complex fertilisers increased by 17.5% and simple potash fertilisers by 13.2%. However, the consumption of simple phosphate fertilisers decreased by 19.9%. On the other hand, the evolution in the consumption of different fertilising elements (in nutrients) shows an increase in all cases, although to different extents. Nitrogen fertilisers increased by 19.8% whereas potash and phosphate fertilisers increased by 9.8% and 9.6% respectively in the last crop year.

Fertiliser consumption (kg/ha), crop year 2012/2013



Source: Data compiled from ANFEE

As regards fertiliser consumption by **autonomous communities**, those communities with higher levels of mechanization and intensification in farms present much higher consumption volumes. In this regard, the Valencian Community, with a consumption of 277.8 kg/ha was the community with the highest consumption levels during the last crop year, followed by Murcia (236.3 kg/ha) and the Canary Islands (189.6 kg/ha). The **average consumption in Spain** during the crop year 2012/2013 reached 114.9 kg/ha.



NOTES

- The fertilisable area is defined as crop land (excluding fallow and other unoccupied land) and natural grasslands, according to the Annual Statistical Agri-food Report 2013. Ministry of Agriculture, Food and Environment.
- Fertilisers are those products used in agriculture or gardening which, due to their nutritious content, improve the growth of plants, increase their performance and improve the quality of crops; they are also products which, thanks to their specific actions, can modify -as appropriate- the fertility of soils or their physical, chemical or biological characteristics. This category includes fertilisers, special products and organic composts.
- Inorganic or mineral fertiliser: fertiliser obtained by extraction or by physical or chemical industrial processes whose declared nutrients are present in mineral form.
- Simple fertiliser: nitrogen, phosphate or potash fertiliser with a declared content of a single main nutrient.
- Compound fertiliser: fertilisers chemically obtained or those obtained by means of compounds, or a combination of both methods, with a declared content of at least two main nutrients.
- Complex fertiliser: compound fertiliser obtained by chemical reaction, in solution or solid form as granules, with a declared content of at least two main nutrients. In solid form, each granule contains all the nutrients in its declared composition.
- The period used to determine fertiliser consumption runs from July to June of the following year.

SOURCES

- National Association of Fertiliser Manufacturers (ANFFE)
- Survey on Crop Areas and Yields (ESYRCE, Spanish Acronym), 2013. Ministry of Agriculture, Food and Environment.

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/agricultura/temas/>
- www.anfee.com
- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/productos-quimicos/fertilizantes/>
- <http://www.magrama.gob.es/es/agricultura/temas/medios-de-produccion/productos-fertilizantes/>
- <http://www.magrama.gob.es/es/agricultura/temas/medios-de-produccion/productos-fertilizantes/registro-de-productos-fertilizantes/>
- <http://www.magrama.gob.es/es/estadistica/temas/publicaciones/anuario-de-estadistica/default.aspx>



Phytosanitary product consumption

In 2012, the average consumption of phytosanitary products came up to 2.8 kg of active ingredient per hectare, and therefore the downward trend which started in 2011 continued

Phytosanitary product consumption



Source: Data compiled from AEPLA and MAGRAMA

Phytosanitary products play a key role in the agricultural industry since they guarantee a sufficient production of healthy and safe food which is accessible to everyone.

During the Sectoral Conference on Agriculture and Rural Development, held on the 10 December 2012, the National Action Plan (PAN, Spanish Acronym) for the sustainable use of phytosanitary products was approved in accordance with the provisions of Article 4 of Directive 2009/128/EC. The general objectives of the PAN are, on the one hand, the promotion of the integrated management of the plagues which guarantees a positive contribution to the environment by means of a sustainable production model which is compatible with the rational use of phytosanitary products and, on the other hand, the reduction of the risks and of the effects associated to the use of phytosanitary products, in particular within the scope of human health and the environment.

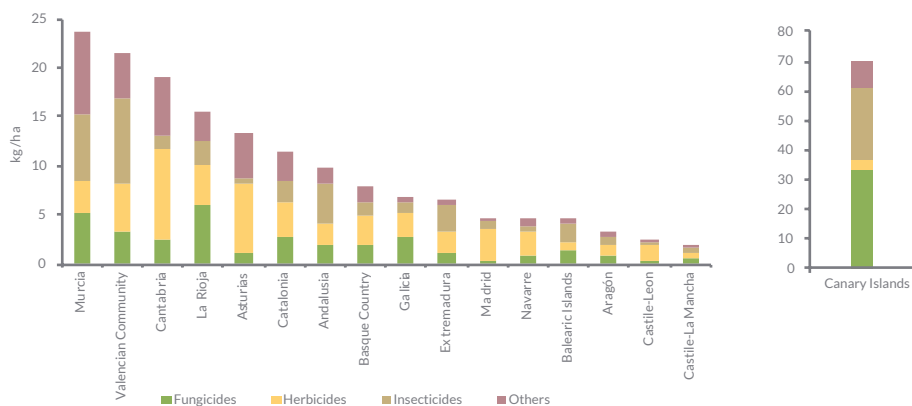
As regards the evolution of the **consumption of phytosanitary products**, expressed in kilograms of active ingredient per hectare, in 2012 there was a slight decrease by 1.6% in the consumption of phytosanitary products mainly



due to the climatic characteristics of the crop year (low levels of precipitations irregularly distributed) and to the significant economic uncertainty (low expectations in relation to the price of agricultural products). In 2012, the **average consumption** of phytosanitary products reached 2.8 kg of active ingredient **per hectare**.

The distribution of the consumption of phytosanitary products by type, according to data provided by the Trade Association for Plant Protection (AEPLA, Spanish Acronym) was 31.6% for insecticides, acaricides and nematocides followed by herbicides (30.0%), fungicides (21.6%) and others (17.7%). If these data are compared to those of 2011, we can see that the consumption of insecticides has increased by 4.2%, whereas the consumption related to herbicides and fungicides has decreased by 1% and 0.5% respectively.

Phytosanitary product consumption Year 2012



Source: Data compiled from AEPLA and MAGRAMA

The **autonomous communities** which develop a higher mechanized and intensive farming present higher consumption levels. In this regard, in 2012 those regions with the highest consumption levels of phytosanitary products per hectare were the Canary Islands, with 69.9 kg/ha, followed by Murcia (23.5 kg/ha), and the Valencian Community (21.6 kg/ha), whereas the regions with the lowest consumption were Castile-La Mancha (1.9 kg/ha), Castile-Leon (2.3 kg/ha) and Aragon (3.2 kg/ha).

**NOTES**

For the calculation of the indicator, 'area treated with phytosanitary products' is considered as the total area of arable land, excluding fallow and other unoccupied land (i.e. the area devoted solely to herbaceous and ligneous crops).

SOURCES

- Phytosanitary products: Trade Association for Plant Protection (AEPLA)
- Treated areas:
 - Survey on Crop Areas and Yields (ESYRCE), 2012. Ministry of Agriculture, Food and Environment.
 - Annual Statistical Agri-food Report, 2012. Ministry of Agriculture, Food and Environment.

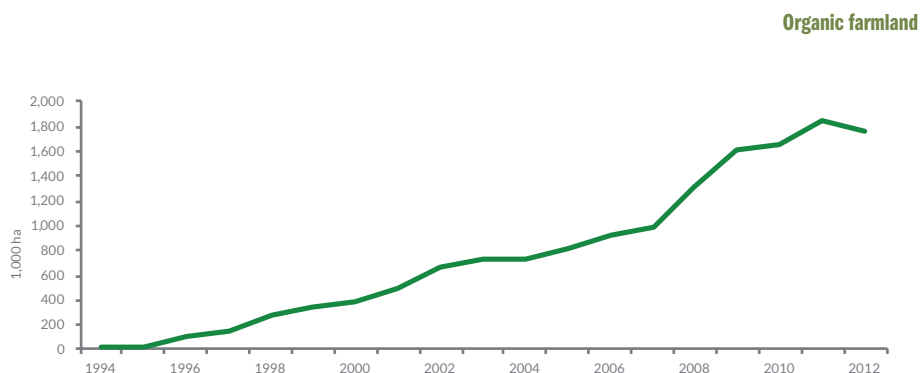
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Organic farming

In 2012, the area devoted to organic farming decreased slightly whereas the certified organic area increased by 9.4%.



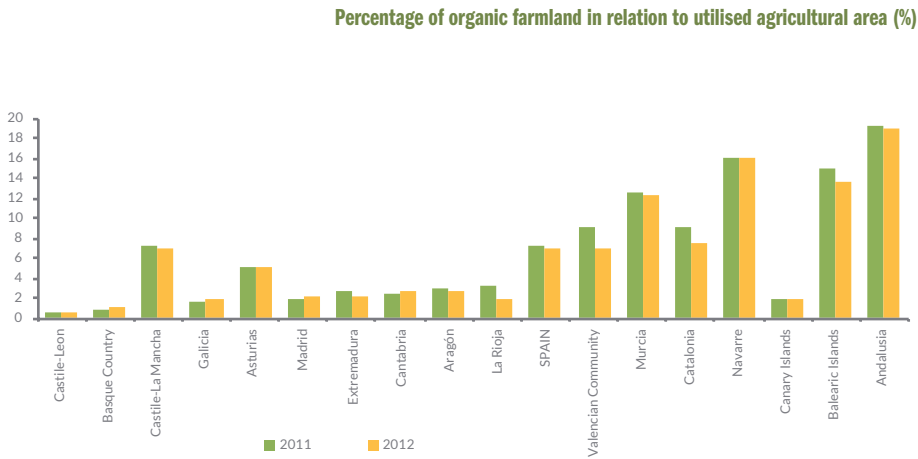
Source: MAGRAMA

Spain, thanks to its favourable climate conditions and its extensive production systems applied to many crops, meets the relevant conditions for the development of organic farming. These factors, together with the guidelines on differentiated-quality policies for food, established by the Ministry of Agriculture, Food and Environment, have helped Spain becoming the first country in the European Union with the largest area devoted to organic farming.

According to data contained in the report "Organic Farming in Spain. Statistic 2012", the area devoted to organic farming decreased slightly during the last year. In 2012, the **total area of organic farmlands**, which include the area of the first implementation year, the conversion area and the certified area, came up to 1,756,548 ha, 4.8% less than in the previous year, in which the area came up to 1,845,039 ha. However, the **certified organic area** increased by 9.4% during that same year, amounting to 1,366,866 ha, which is a very remarkable aspect of the evolution of the production and it also shows the consolidation of the organic industry.

In 2012, 77.8% of the area devoted to organic farming was certified, 8.6% of the area was undergoing conversion processes and 13.6% was qualified as being implemented. A reduction in the number of **organic producers** (primary activity)

is also noticeable since it went from 32,206 in 2011 to 30,462 operators in 2012; however, the ratio organic area/producer remains constant and so does the number of manufacturers and/or processors (secondary activities) which amounts to 2,790 operators.



Source: Data compiled by MAGRAMA

In absolute terms, by **autonomous community**, Andalusia, with 54% of the total area, that is 949,025 ha, is the community with the highest percentage of area devoted to organic farming, followed by Castile-La Mancha, with 16.9% (297,139 ha), Catalonia, with 4.4% (77,401 ha) and Extremadura with 4.2% (74,294 ha).

The analysis of the annual evolution of the area devoted to organic farming by autonomous community shows that, although there has been a general decrease, some regions have registered significant increases during the last year; the main increases were the ones that took place in the Basque Country (24.4%) and Cantabria (15.4%). On the other hand, La Rioja, with a decrease by 39.6% was the community with the highest reduction in relation to the area devoted to organic farming.



Regarding **types of farming**, the area devoted to pasture, grassland and foraging covered 1,010,238 ha in 2012, 57.5% of the total; areas devoted to permanent crops (361,280 ha), 20.6%; crops in arable lands (267,808 ha), 15.2%; and vegetable crops (10,365 ha), 0.6%. In 2012, the percentage of the area devoted to fallow was 6.1%, that is, 106,856 ha.

NOTES

- Utilised Agricultural Area (UAA): Amount of farmland and permanent grassland and pastures. Data from the 'Survey on Areas and Crop Yields' Ministry of Agriculture, Food and Environment (ESYRCE): Ministry of Agriculture, Food and Environment.
- The legislative framework governing organic farming in Spain since 1989 comprises the Regulation on Generic Organic Labelling and, at European level, Regulation (EC) no. 834/2007 of 28 June 2007, on organic production and labelling of organic products, which repealed Regulation (ECC) 2092/91 (Official Journal of the EU 20/07/2007).
- The types of organic farming included in the report Statistic 2012 on Organic Farming have undergone a modification. Until year 2011, total amounts were included in section "Other areas". Since 2012, total amounts are excluded from this section so as to harmonised it with data from Eurostat. According to the definition provided by Eurostat in section "6 Other Areas (Specific Crops)" the following areas are included: Woodland and wild plants (not for livestock uses), Damask Rose, Christmas trees and Other surfaces which are not included within any other epigraph.

SOURCES

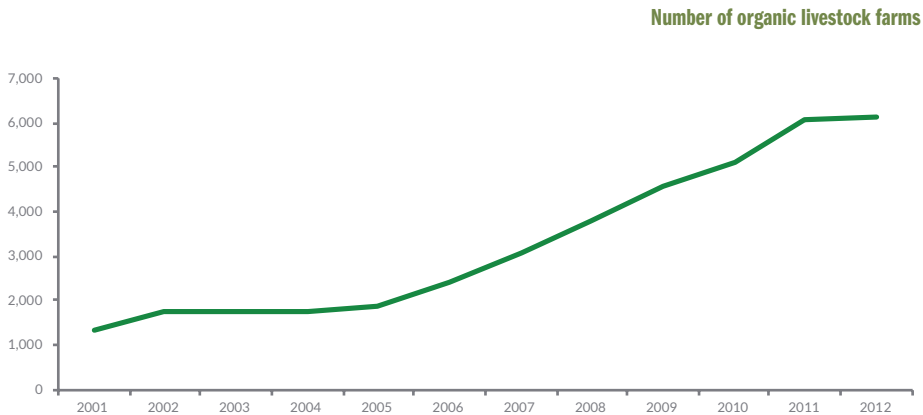
- Survey on Crop Areas and Yields (ESYRCE), 2012. Ministry of Agriculture, Food and Environment.
- Organic farming. Statistics 2012. Ministry of Agriculture, Food and Environment.

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- <http://www.magrama.gob.es/es/estadistica/temas/estadisticas-agrarias/agricultura/esyrce/>

Organic livestock farming

In 2012 the number of organic livestock farms remained constant



Source: MAGRAMA

Organic farming and livestock farming constitute an alternative and sustainable farming production model demanded by society and which is based on the obtaining of higher food safety guarantees, the protection and improvement of the environment and biodiversity, the promotion of indigenous breeds -a high number of which are endangered and/or inter-bred- and the economic and demographic boost to rural areas which are currently aged.

Livestock farming, together with organic farming, represents a development alternative which allows for the creation of stable jobs based on the promotion of farming companies and co-operative systems as well as on local and regional productions, with quality as an added value in the broadest sense.

According to the report "Organic Farming in Spain. Statistics 2012", in our country, the **number of organic livestock farms** amounted that year to 6,104 farms, 0.6% more than in the previous year, in which 6,074 farms were recorded.

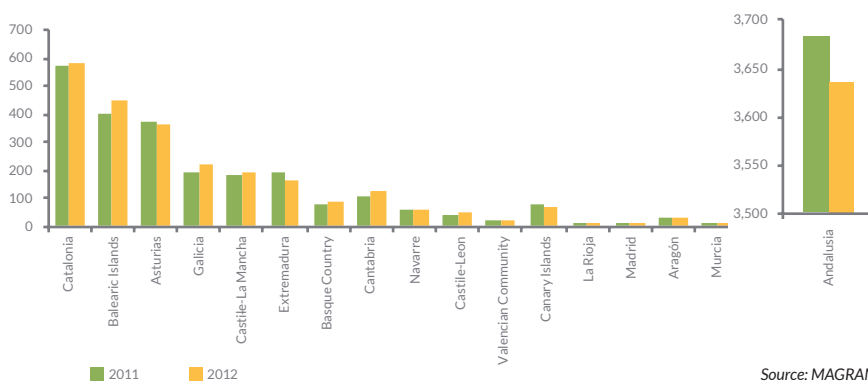
The evolution of organic livestock farming experiences a growth rate which is slower than that of the organic farming due to the difficult conditions surrounding its commercialization and the demanding requirements of the organic breeding.



The breakdown corresponding to the 6,104 farms recorded in 2012 by **farm type** is as follows: 2,992 corresponded to cattle farming (49.0%), 1,739 to sheep farming (28.5%), 633 to goat farming (10.4%), 226 to horse farming (3.7%), 188 devoted to bee-keeping (3.1%), 178 to poultry farming (2.9%) and 148 to pig farming (2.4%). Within the cattle, sheep and goat farms there are **two types of production orientation**: meat and milk production; in the case of cattle farming the number of farms devoted to meat production amounted to 2,901 and the ones devoted to milk production came up to 91; as regards sheep farming 1,691 corresponded to meat production and 48 to milk production and in the case with goat farming 504 corresponded to meat production and 129 to milk production.

The evolution in the number of farms by production orientation shows that there is a homogeneous growth within this field. In 2012, farms devoted to poultry and pig farming decreased by 16.0% and 3.9% respectively, whereas the rest of farming types showed a growing trend, the most relevant ones of which correspond to the increase in the number for horse farms (10.2%) and goat farms (4.8%).

Number of organic livestock farms by autonomous communities



Source: MAGRAMA



Regarding the distribution of organic livestock farms by **autonomous communities**, Andalusia occupies first place with 3,636 farms (59.6% of the total with an annual decrease by 1.3%), followed by Catalonia with 581 farms (9.5% of the total and an increase by 1.4%), the Balearic Islands with 451 farms (7.4% of the total and an increase by 12.5%) and Asturias with 367 (6.2% of the total and a decrease by 2.1%). The communities with the lowest number of farms in 2012 were Murcia (3 farms), La Rioja (11 farms) and the Community of Madrid (17 farms).

NOTES

- The legislative framework governing organic farming and organic livestock farming in Spain since 1989 comprises the Regulation on Generic Organic Labelling and, at European level, Regulation EEC no. 2092/91 on Organic Agriculture and Indications referring thereto on Agricultural Products and Foodstuffs and EC no. 1804/1999 supplementing the aforementioned regulation so as to include Livestock Production.

SOURCES

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Irrigated area

In 2013, the irrigated area with respect to the total agricultural area came up to 14.1%

Irrigation area with respect to the total agricultural area (%)



Source: MAGRAMA

Irrigation is one of the key pieces of the Spanish agri-food system. The development and standardization of this industry made it possible to achieve environmental improvements in irrigated areas; in particular, and due to their relevance, we may include significant examples such as the restoration of aquifers and wetlands by preventing their over-exploitation. Likewise, social improvements are also noticeable, such as the improvement of the quality of life in some depressed rural areas, the settlement of rural population and, ultimately, significant improvements in relation to the diversification, productivity and competitiveness of the Spanish agricultural market.

According to data provided by the Survey on Areas and Crop Yields (ESYRCE) of 2013, the total amount of the **area devoted to irrigation** in Spain comes up to 3,575,935 ha and it has increased by 0.51% compared to 2012. This irrigated area corresponds to 14.1% of the total agricultural area. The previous chart shows the evolution of the irrigated area with respect to the **total agricultural area** for the period 200-2013; as can be withdrawn from the chart, for the aforementioned period the irrigated area has increased by one percentage point from 13.1% to 14.1% as regards the total irrigated area.

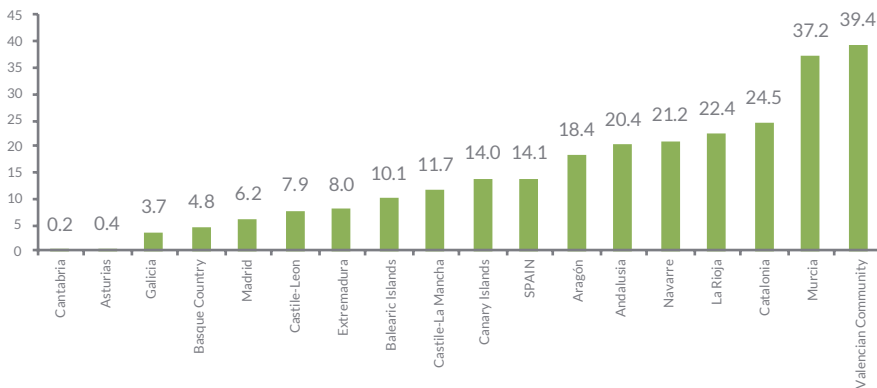
The distribution of the irrigated area by **autonomous communities** in relation to the total agricultural area shows that the communities with the highest percentage of irrigated areas were the Valencian Community with 39.4%, Murcia with

37.2% and Catalonia with 24.5%. In these communities the number of hectares devoted to irrigation came up to 280,667 ha, 180,045 ha and 249,162 ha respectively.

On the other hand, the communities which present a lower percentage of irrigated areas in relation to the total agricultural area were Cantabria and Asturias with 0.2% and 0.4%, respectively.

In absolute terms, the communities with the largest area devoted to irrigation were: Andalusia with 1,037,402 ha (29.0% of the total), Castile-La Mancha with 493,324 ha (13.8% of the total) and Castile-Leon with 436,283 ha (12.2% of the total). Cantabria with 617 ha and Asturias with 1,886 ha were once again the communities with the smallest area devoted to irrigation.

Irrigation area with respect to the total agricultural area (%) 2013



Source: MAGRAMA

The irrigation sector is very dynamic and it is continuously undergoing modernization processes in order to improve its efficiency. If we analyse the distribution of the irrigated area by **type of irrigation system**, according to the Report on Irrigation Systems in Spain 2013 by ESYRCE, the main irrigation systems are: the **localized** system with 48.2%, and the **gravity** system with 28.4% of the irrigated area. Both systems represent more than 76% of the total irrigated area. This is followed by sprinkler irrigation systems (14.9%) and automated irrigation systems (8.4%).

As regards irrigated areas, those **groups of crops** with the largest irrigated area are cereals, with 28.0% of the total, olive trees (20.9%), vineyards (9.7%) and citrus (7.4%).



NOTES

- Irrigated area refers to the area devoted to crop production or pasture improvement that is supplied with water, irrespective of the number of times irrigation is performed per year.
- Total agricultural area refers to the area corresponding to arable and fallow land, greenhouses and family smallholdings.
- The irrigation area has been obtained from the ESYRCE Survey, after deducting the forest irrigated area from the irrigation geographic area, and then adding greenhouse areas.
- As regards the values stated in relation to this kind of irrigation system, for the calculation of the irrigation area, the area comprised of meadows and pastures has been excluded, as well as the irrigation area for black poplars (methodology note on the Survey on Crop Areas and Yields. Report on Irrigation Systems in Spain 2013).

SOURCES

- Survey on Crop Areas and Yields (ESYRCE), several years. Ministry of Agriculture, Food and Environment.

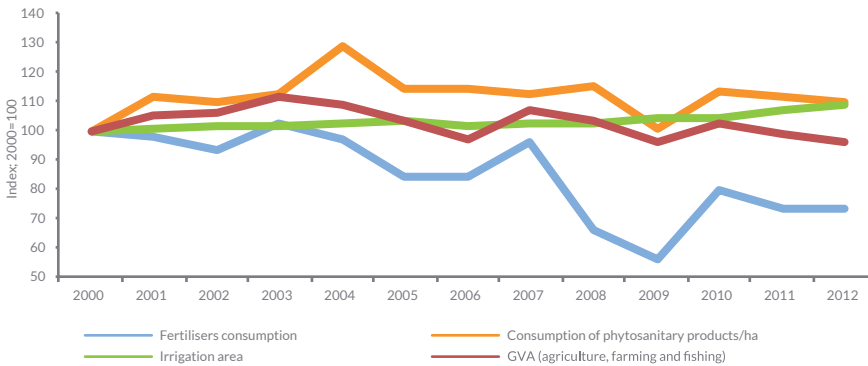
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Environmental efficiency in agriculture

In 2012, there was a decrease in the GVA and in the consumption of phytosanitary products, whereas the irrigated area and the consumption of fertilisers increased slightly

Environmental performance in agriculture



Source: Data compiled from MAGRAMA, AEPLA and INE

The chart shows the environmental performance of the agricultural industry analysed by means of the assessment of the evolution of its economic growth rate and the main pressures it generates. As can be withdrawn from this chart, the relevant variables show behaviours which are very different from one another; besides, even some of the variables studied in an independent manner show a very irregular evolution along the series.

The **Gross Value Added (GVA) of agriculture, livestock farming and fisheries** for the reference period 2000-2012 has decreased by 3.6%. Likewise, in the last year analysed and according to data advanced from 2012 surveys, a year-on-year decrease amounting to 2.9% has been recorded.

The study of the rest of the variables taken into account, considering that the ideal situation for environmental performance is reflected by means of the existence of a clear decoupling between the sector's economic growth (with an upward trend) and the consumption of resources (which show show a downward trend), shows a negative evolution in the consumption of phytosanitary products per hectare, just like the one of the GVA, although to a different extent.



In this regard, and for the reference period 2000-2012, the consumption of phytosanitary products increased by 9.8%, whereas during the last year analysed, just like the trend shown by the GVA, the consumption of phytosanitary products experienced a negative increase, although to a lesser extent compared to that of the GVA (-1.8%).

On the other hand, those variables related to the consumption of fertilisers per hectare and irrigated area show a higher decoupling to the trend shown by the GVA.

The evolution in the consumption of fertilisers per hectare shows a very irregular behaviour over time which is partly conditioned by the climate variability among the different crop years and the price of fertilisers, which is closely related to the variability of the market. In this regard, and for the whole of the reference period, the consumption of fertilisers accumulates a decrease since the beginning of the period amounting to 26.3%. However, if the behaviour of the consumption in the last year is analysed, then there is a slight increase amounting to 1.0% in 2012.

Finally, as regards the evolution of the irrigated area during the period of reference 2012, it is noticeable that this variable is the one showing the lowest decoupling to the GVA, since it experiences slight annual increases along the whole period. In this sense, and for the whole reference time interval, the accumulated increase amounted to 8.6% whereas the annual increase amounted to 1.4% in the last year.



NOTES

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

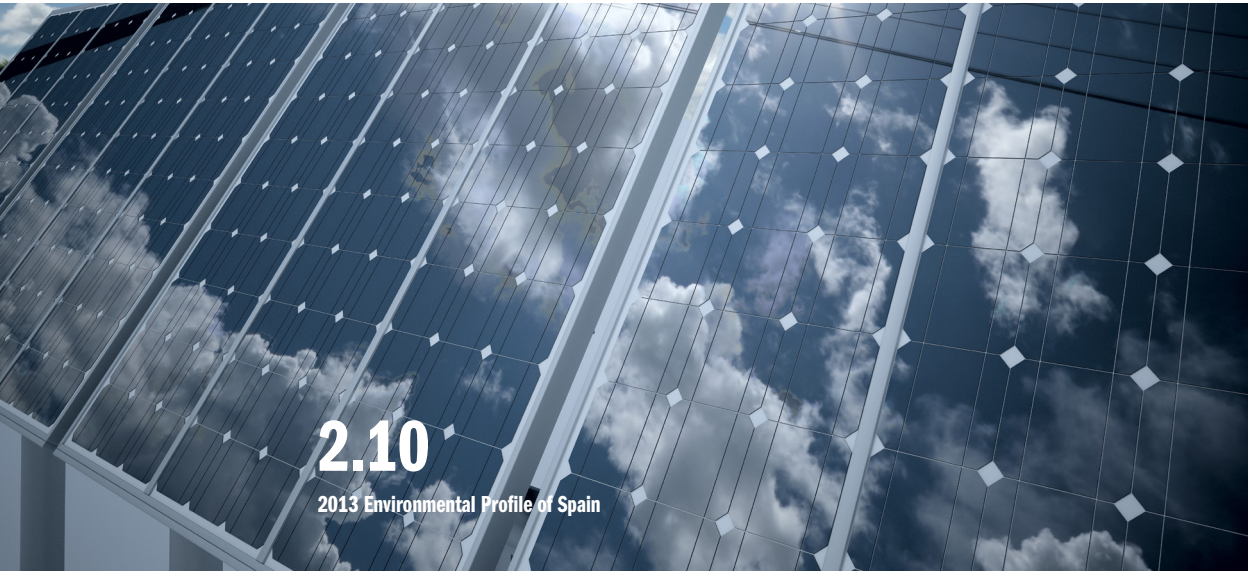
SOURCES

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- Phytosanitary products consumption:
 - Trade Association for Plant Protection (AEPLA)
 - Annual Statistical Agri-food Report, 2012. Ministry of Agriculture, Food and Environment.
 - Survey on Crop Areas and Yields (ESYRCE), several years. MAGRAMA
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2.10

2013 Environmental Profile of Spain

In May 2013, the Ministry of Industry, Energy and Tourism (MINETUR, Spanish Acronym) published the "**Report on the National Energy Performance Target 2020 for Spain**". The purpose of said report consisted of the updating and inclusion of the notification of the indicative target established by Spain for the horizon 2020 in compliance with the provisions of Articles 3 and 24 of **Directive 2012/27/EU on Energy Efficiency**. According to the report of the MINETUR, the saving target is expressed as the "need of reaching accumulated energy savings during the 7-year period comprised between the years 2014 and 2020 -both inclusive-, which are equivalent to the annual achievement of additional savings coming up to an amount of 1.5% of all annual energy sales to end-users of those companies devoted to the commercialization and distribution of energy".

For Spain, the energy saving target -excluding the transport sector, as allowed by the Directive- amounts to 20,426 kilotonnes of oil equivalent (ktoe), considered as the sum between year 2014 and 2020 of the result of the annual average consumption of final energy from the industry sectors and miscellaneous uses (excluding the agricultural and fishing industries) of years 2010, 2011 and



2012, by an incremental coefficient amounting to an annual 1.5%, that is, 1.5% in the year 2014, 3.0% in 2015, 4.5% in 2016 until the achievement of 10.5% in the year 2020. In spite of the previous saving target, the Directive allows to reduce the saving target with a maximum reduction limit of 25% by means of a series of **flexibility mechanisms**. By means of the partial application of one of these mechanisms, the amount of **15,320 ktoe** is obtained, such amount is the **minimum target** with which Spain must comply as provided for by the Directive.

The Directive also requires to express the energy efficiency in terms of absolute levels of primary energy consumption and final energy consumption in 2020.

For Spain, the indicative consumption targets are estimated in 128,669 ktoe (121,622 ktoe excluding non-energy end-uses) for primary energy and 82,956 ktoe for final energy. These consumption forecasts, according to the MINETUR's report, may be amended based on changes in the macroeconomic scenarios of Spain.

IN THE PAST 10 YEARS (2003-2012)...

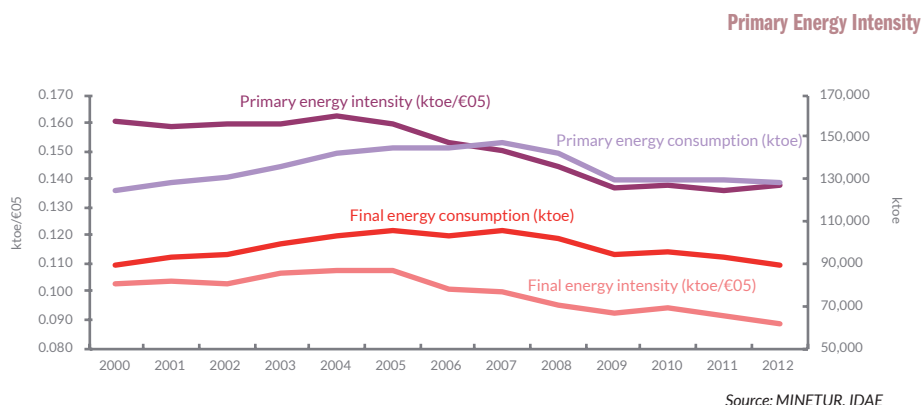
- The intensity of primary energy, expressed in constant currency of 2005, decreased by 13.7%.
- The intensity at current prices of Greenhouse Gas (GHG) Emissions from energy production industries decreased by 33.8%.
- Renewable energy consumption increased by 74% and its share in the primary energy demand structure increased by 5.7%, thus amounting to an increase coming up to 83.7%.
- There was an improvement in the environmental efficiency of the energy sector since the GDP at current prices increased by 31.4%, whereas the primary energy consumption decreased by 5.2% and GHG emissions by 13.1%.

INDICATORS

- Primary energy intensity
- Intensity of energy-related GHG emissions
- Renewable energy
- Environmental efficiency in the energy sector

Primary Energy Intensity

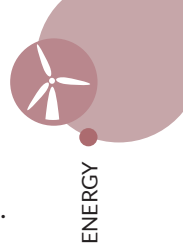
In 2012, primary energy consumption decreased by 0.41%, whereas intensity increased by 1.4%



According to data from the Annual Report on Energy Intensities (2012) of the Institute for Diversification and Energy Saving (IDAE, Spanish Acronym) and the Quarterly Report on the Energy Situation (fourth quarter of 2013) by the MINETUR, between years 2000 and 2004, the **primary energy demand** experienced an almost linear increase accompanied by a moderation in the evolution of the intensity. In 2004, the **primary energy intensity** reached its maximum levels within the series with 0.162 kilograms of oil equivalent per Euro in the year 2005 (koe/€05), and from that point, as stated in the Report on the National Energy Performance Target 2020 for Spain, there is a moderation in the demand with a downward trend and an improvement in the intensity indicator. Between 2004 and 2009, the primary energy demand decreased by 8.5%, whereas intensity decreased by 15.4%, amounting to 0.137 koe/€05 in 2009.

Since 2009, the economic crisis caused certain disruptions in the evolution of the intensity indicator. In fact, between 2009 and 2012 (last year published by IDAE), the intensity of primary energy, expressed in constant Euros, of the year 2005, decreased by 0.73%, and the demand decreased by a similar percentage (0.99%). As regards the previous year, in 2012 there was a slight worsening in the intensity indicator, with an increase by 1.4% up to 0.138 koe/€05 and a decrease by 0.41% in the primary energy consumption.

As regards consumption and intensity levels of primary and final energy, we can see that the primary energy consumption dropped by 0.41% compared to



those values of 2011, whereas the final energy consumption decreased by 4.6%. The differences between the decrease of these two types of consumption were due, according to the report on "The Energy in Spain 2012", to the change in the structure of energy generation, with a higher share of carbon and a decrease in the hydroelectric production. This fact caused generation to have a lower performance in 2012 as regards primary energy. In relation to intensities, the one corresponding to primary energy increased by 1.4% and the one corresponding to final energy decreased by 2.4%. As stated in the report "Energy in Spain 2012", the opposite trends experienced by both intensities was caused by the change in the **structure of electricity generation** with a higher share of fossil fuels and a lower efficiency of transformation processes. On a general basis, according to this report, the intensity indicator of primary energy behaves in a more sensitive manner thus presenting more variations than the final energy indicator since it does not depend solely on the economic activity but also on the hydraulic and wind energy levels of the relevant year.

Within the scope of the **European Union**, the Report on the National Energy Performance Target 2020 for Spain states that the evolution of the primary and final intensities are undergoing a matching process between the indicators of the EU-27 and those corresponding to Spain

NOTES

- IDAE calculates the global intensities, expressed in constant currency of the year 2000, from GDP figures published by the National Statistics Institute in February 2013, in the National Accounts of Spain (CNE) base 2008, in conformity with the new European System of Accounts and in line with the Regulation 715/2010 of the Commission, modifying Regulation (CE) 2223/96 of the Council concerning the adaptations of the national accounts.

SOURCES

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- MINETUR: Energy / Energy Statistics and Balances / Publications on Energy Balances / Quarterly Report / Quarterly Report on the Energy Situation. Fourth Quarter 2013 / Tables III.9 and IV.8
- MINETUR: Report on the National Energy Performance Target 2020 – Spain
- MINETUR: Energy in Spain 2012

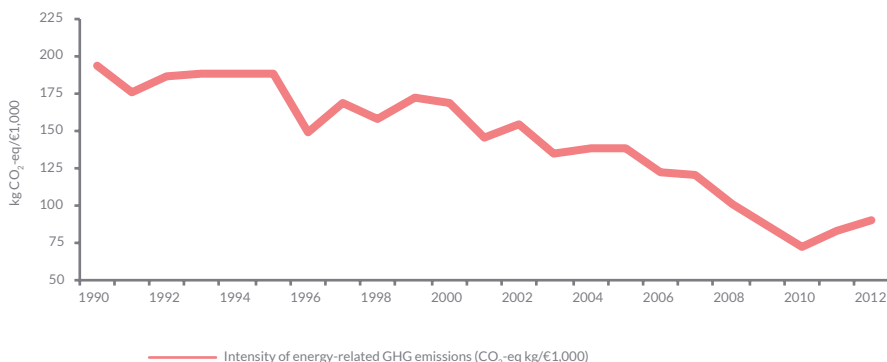
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- <http://ec.europ.eu/energy/efficiency>

Intensity of energy-related GHG emissions

In 2012, the increase of the intensity of energy-related GHG emission continued, reaching a 7.4% more than the previous year

Intensity of energy-related greenhouse gas emissions

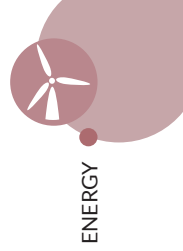


Sources: Data compiled from AEMA and EUROSTAT

The emission of greenhouse gases (GHG) from energy production industries increased in 2012 by 5.6% compared to the previous year, with a total volume of 91,919 kilotonnes of CO₂ equivalent. These emissions represented 29.9% of the total emission of GHG in 2012, two percentage points higher than those of the year 2011, according to data included in the Communication of Spain to the European Commission of 2014 on the Inventory of GHG Emissions in Spain.

The ratio between the emissions and the GDP at current prices results in the **intensity of GHG emissions at current prices**. In 2012, the GDP dropped by 1.66% compared to 2011, according to data from Eurostat, which, together with the increase in emissions, caused the intensity indicator to rise up to 89.3 kg of CO₂ equivalent per each € 1,000 of GDP, that is, 7.4% more than that from the previous year. After having increased for two consecutive years, the intensity of emissions corresponding to the last year analysed reached those values of 2009.

GHG emissions and consequently their intensity are closely related to each year's climatology and therefore the indicator results in lower values in those years with a higher **energy production from hydraulic and wind** sources. Peaks



in the chart show those years in which the production of hydraulic and wind energy was lower and fossil fuels had a higher participation in the energy production industry.

During the period 1990-2012, the reduction in the intensity of GHG emissions from the energy industry amounted to 53.8%. This variation was caused by the significant increase in the denominator of the equation, the GPP at current prices (+56.2%), since GHG emissions during that period not only did not decrease, but increased by 18.3%. However, it is very positive that since 2005, year of reference for the national target of the Strategy 2020, GHG emissions from the energy industry dropped by 26.6%, a reduction 16.6% over the established target.

NOTES

- For the purpose of calculating this indicator, the GHG emissions used are the total emissions of the energy transformation industries (group 1.A.1. according to the standard classification of the CRF-Common Reporting Format of the Intergovernmental Panel on Climate Change, IPCC), which include production activities of electricity and heat (including the energy recovery of waste) as well as oil refineries and manufacture of solid fuels and other energy-related industries.
- The six main GHG covered by the Kyoto Protocol are, in order of importance: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and fluorinated gases, which include perfluorocarbons (PFC), hydrofluoro-carbons (HFC) and sulphur hexafluoride (SF₆), although the two latter have no impact in the energy sector as they are only emitted in industrial processes.
- The emissions of the different gases are expressed in CO₂ equivalent.
- The GDP data are at market prices, calculated at current prices.

SOURCES

- EIONET: Eionet / Reportnet / CDR Repository / Spain / European Union (EU) obligations / Greenhouse gas emissions inventory (280/2004/EC) / Spain Greenhouse Gases Inventory 1990-2012 Ec / Folder B-CRF submission 2014 v1.8 / Files ESP-2014-(1990-2012)-v1.3.xls / Table SUMMARY 2
- EUROSTAT: Data Navigation tree / Database by themes / Economy and finance / Annual national accounts / GDP and main components / GDP and main components - Current prices (nama_gdp_c)
- Intensity of energy-related GHG emissions: compiled by author

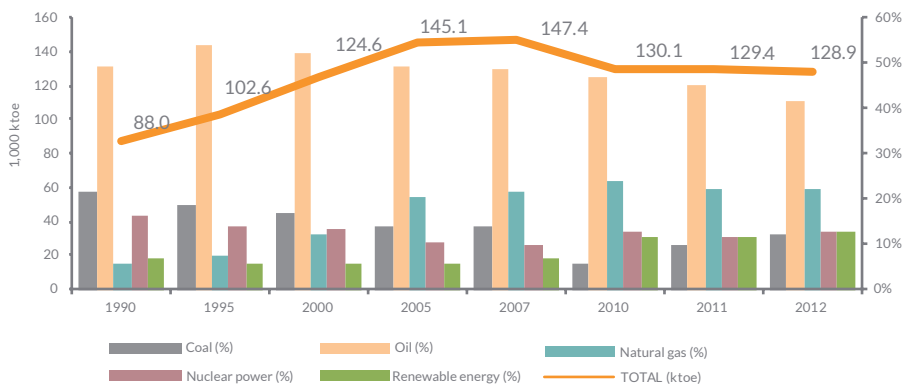
FURTHER INFORMATION

- http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables
- <http://www.ipcc.ch>

Renewable energy

In 2012, renewable energies reached the highest share in the primary energy demand structure of Spain since 1990, amounting to 12.4%

Primary energy consumption and distribution by type of source



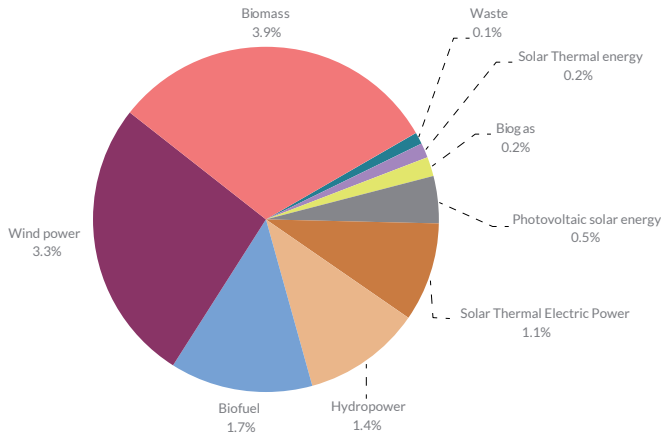
Source: MINETUR

In 2012, the **primary energy consumption from renewable sources** decreased, compared to the previous year, by 8.7%, amounting to 16,004 ktoe. Renewable energies represented 12.4% in relation to the total volume of primary energy consumed in Spain, compared to 11.4% of 2011. This meant an increase by 9.1% in relation to the share of renewable energies within the structure of primary demand, thus reaching the highest rate since 1990. As regards **conventional sources of primary energy**, in 2012, natural gas and oil were still the main sources, despite of the fact that their share decreased compared to the previous year. Oil's share decreased from 45.1% to 41.9% in 2012 and natural gas decreased by 0.5% compared to the previous year. On the other hand, coal increased its share in 2012, from 9.8% to 12%. Nuclear energy experienced another increase (+0.8%). If we take into account all primary energy sources we can see that in 2012 128,908 ktoe were consumed in Spain, which meant a decrease by 0.41% compared to the previous year and by 12.6% compared to 2007, which was the year in which the maximum value was reached with a consumption of 147,426 ktoe.

As regards those levels reached in 1990, the **demand of primary energy** in 2012 increased by 46.5%. Renewable energies have significantly improve their share

in the **structure of the primary energy demand**, from a share amounting to 7.1% in 1990 to a share coming up to 12.4 in 2012. The share corresponding to natural gas has also increased, representing 5.6% of the primary structure in 1990 and 21.9% in 2012. By contrast, the share of coal along the 23 year under analysis has decreased by 9.8%, oil decreased by 7.5% and nuclear energy by 3.7%.

Distribution of primary energy consumption by type of source



Source: MINETUR/IDAE

Note: Note: Reviewed and updated provisional values (April 2014)

According to data from IDAE, in 2012, the main **renewable energy sources** were still biomass (3.9%) and wind (3.3%), which increased by 0.1% and 0.4% respectively. Solar energy (thermal, thermoelectric and photovoltaic energy) increased by 0.8%, thus reaching the third position within the group of renewable energies. On the other hand, biofuels ranked fourth since their participation increased from 1.3% to 1.7%. However, because of the decrease in hydraulic energy, from 2.0% to 1.4%, this type of energy dropped to the fifth position as regards the contribution to the structure of primary demand. Secondary sources remained unvaried; said sources include biogas, urban solid waste and geothermics.

As regards the **structure of electricity generation** in Spain, the share of renewable energies has decreased slightly (-0.6%); they are still in the first position and the distance in relation to the second item in the classification, natural gas, is increasing. The contribution of natural gas to electricity generation decreased by 4.5% in 2012. Within the scope of the EU, Spain fell two positions; it was the eighth country with the highest percentage of electricity from renewable sources (33.5%). Austria ranks first, with 65.5%, followed by Sweden, with 60% of its electricity coming from renewable sources.

NOTES

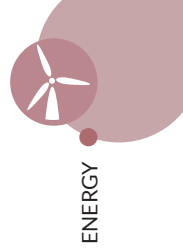
- The sources included as renewable are: biomass, biofuels, waste, wind, solar, geothermal and hydroelectric.
- Non-energy end-use consumptions are included in the consumption of primary energy.

SOURCES

- MINETUR: Energy / Energy Statistics and Balances / Publications on Energy Balances / Quarterly Report / Quarterly Report on the Energy Situation. Fourth Quarter 2013 / Table IV.8
- Contribution of renewable energy to the structure of primary energy and to the structure of electric generation in Spain: Data provided by the Department of Planning and Studies of the IDAE
- EUROSTAT: Data Navigation tree / Database by themes / Environment and energy / Energy / Energy statistics - main indicators / Share of energy from renewable sources (nrg_ind_335a)

FURTHER INFORMATION

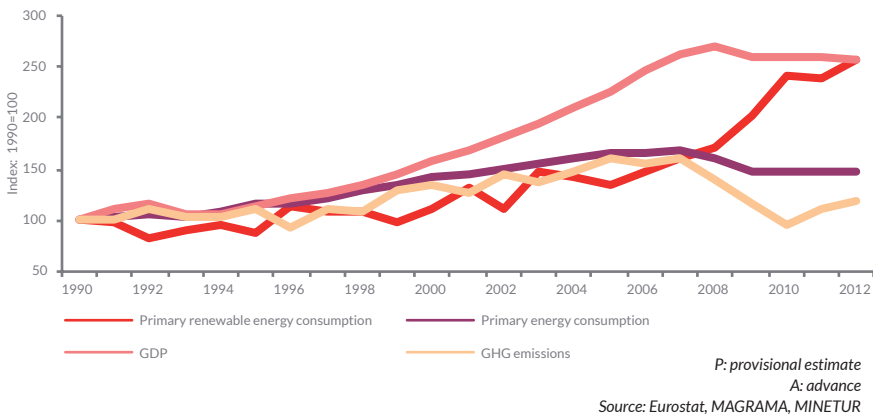
- <http://www.idae.es/index.php/idpag.16/reلمenu.301/mod.pags/mem.detalle>
- <http://www.minetur.gob.es/energia/es-ES/Paginas/index.aspx>
- http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables



Environmental efficiency in the energy sector

The consumption of primary energy from renewable sources is still increasing, although in 2012, the higher share of coal in the demand structure has caused an increase in GHG emissions

Environmental performance in the energy sector



After last year's rise, which came up to 1,046 billion Euros, the **Gross Domestic Product (GDP)** at current prices decreased in 2012 by 1.7%, dropping to 1,029 billion Euros. From the beginning of the economic crisis, an overall decrease by 5.4% has been accumulated. Together with the fall in GDP during the period 2008-2012, the **consumption of primary energy** followed the same trend. Between 2011 and 2012 the trend was less significant since the decrease only amounted to 0.4%; therefore the index reached 146.5% of the values of 1990. In spite of such decrease, the consumption of primary energy from renewable sources grew by 8.7%, thus increasing its share in the structure of the primary energy demand by one percentage point, as shown by the indicator regarding renewable energies.

Despite of the increase in consumption of renewable energies, there was a growth by 5.6% in the emission of greenhouse gases (GHG), which shows a **change in the structure of the primary energy** in the year 2012. This fact is confirmed by data from the MINETUR (Quarterly Report on the Energy Situation. Fourth Quarter 2012) which show that the consumption of coal increased by 22.1%, from 12,698 ktoe in 2011 to 15,510 ktoe in 2012.



As already mentioned, the demand of primary energy is influenced not only by the evolution of the economy but also by the production levels of hydraulic and wind energy of the relevant year, which determines a higher or lower need of using fossil fuels, which are less efficient as regards their transformation into electricity. In spite of the decrease in the environmental efficiency of the energy industry as regards GHG emissions, it is positive that the consumption of primary energy from renewable sources increased in 2012.

As regards the period 1990-2012, GHG emissions increased by 18.3%, while primary energy consumption and GDP increased by 46.5% and 153.2% respectively.



NOTES

- GHG emissions refer to overall emissions of the industries within the energy processing sector (group 1.A.1. according to the CRF-Common Reporting standard classification Format of the IPCC).
- The six main GHG covered by the Kyoto Protocol are, in order of importance: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and fluorinated gases, which include perfluorocarbons (PFC), hydrofluoro-carbons (HFC) and sulphur hexafluoride (SF₆), although this latter have no impact in the energy sector as they are only emitted in industrial processes.
- The sources included as renewable are: biomass, biofuels, wastes, wind, solar, geothermal and hydroelectric.
- Non-energy end-use consumptions are included in the consumption of primary energy.

SOURCES

- MINETUR: Energy / Energy Statistics and Balances / Publications on Energy Balances / Quarterly Report / Quarterly Report on the Energy Situation. Fourth Quarter 2013 / Table IV.8
- Contribution of renewable energy to the structure of primary energy and to the structure of electric generation in Spain: Data provided by the Department of Planning and Studies of the IDAE
- EIONET: Eionet / Reportnet / CDR Repository / Spain / European Union (EU) obligations / Greenhouse gas emissions inventory (280/2004/EC) / Spain Greenhouse Gases Inventory 1990-2012 Ec / Folder B-CRF submission 2014 v1.8 / Files ESP-2014-(1990-2012)-v1.3.xls / Table SUMMARY 2
- EUROSTAT: Data Navigation tree / Database by themes / Economy and finance / Annual national accounts / GDP and main components / GDP and main components - Current prices (nama_gdp_c)
- Environmental performance in the energy sector: compiled by author

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- <http://www.idae.es/index.php/idpag.16/relmenu.301/mod.pags/mem.detalle>
- http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables
- <http://www.ipcc.ch>
- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>
- <http://www.minetur.gob.es/energia/es-ES/Paginas/index.aspx>
- http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database



2.11

2013 Environmental Profile of Spain

In January of 2014, the European Commission adopted a new Communication on the industrial policy of the Union: "For a European industrial renaissance", as a contribution to the debate of the European Council on industrial policy that will be subsequently held in the month of March. This Communication is a call to the member states to recognise the critical importance of the industrial sector in order to promote competitiveness and sustainable growth in Europe and to integrate matters of competitiveness related to the industry into every political agenda.

"**The new industrial policy**" is the title of number 387 of the journal on Industrial Economy, published by the Ministry of Industry, Energy and Tourism (MINETUR) of the Spanish Government, during the first quarter of 2013. In this release, the Ministry states that it is necessary to put every effort into building a more competitive industry, by promoting innovation and devising a stable framework for the development of corporate and industrial activities. For this purpose, in 2013, the MINETUR approved a regulatory framework aimed at the funding of investment projects in order to improve industrial competitiveness or contributing to re-industrialisation processes. From an environmental point of view, those subsidies



will provide funding for activities of **relocation of industrial sites** from previous locations, following the policies for mitigation of the environmental impact caused by production activities. On the other hand, those funds will support the implementation of **plans to improve competitiveness** that are intended to promote an **increase in the energy performance of products**, the **efficiency of processes** as for the consumption of raw materials and waste generation and the **mitigation of environmental impact** of products throughout their entire lifespan.

On the other hand, year 2013 set another milestone in the legal environmental framework of the industrial sector. On 19 October 2013, Royal Decree 815/2013 was enacted, approving the **Regulation on industrial emissions** and implementing provisions applicable to Act 16/2002 on **Integrated Prevention and Control of Pollution**, as amended by Act 5/2013, which came into force in June of 2013. By virtue of the approval of both regulatory instruments –the Act and the Royal Decree– the MAGRAMA has transposed the European directive on industrial emissions into the Spanish legal framework. The purpose of this new framework is to achieve greater administrative simplification, as well as to enhance the level of environmental protection, giving priority to **soil and groundwater**. Likewise, a new chapter has been included therein dealing with the **inspection and control of industrial facilities**.

IN THE PAST YEARS...

- Between 2003 and 2012, final energy consumption by the industrial sector has been reduced by 29.45% from 29,434 ktep to 20,765 ktep.
- Likewise, during that period, there has been a general decrease in emissions of the main gaseous pollutants emitted by the industrial sector. In particular, PFCs have dropped by 80%, N_2O by 61%, NO_x by 35%, CO_2 by 32% and finally, NMVOC have decreased by 29%. Although to a lesser extent, CO and SO_x were reduced by 13% and 11% respectively. On the contrary, emissions of HFCs have experienced a 50% increase, whereas SF_6 has increased by 17%.
- Throughout the 2002-2011 period, industry has decreased its investment in environmental protection by 23.1%, whereas its current expenses have increased by 70.3%, which means an increase of the total expenses by 26.3%.

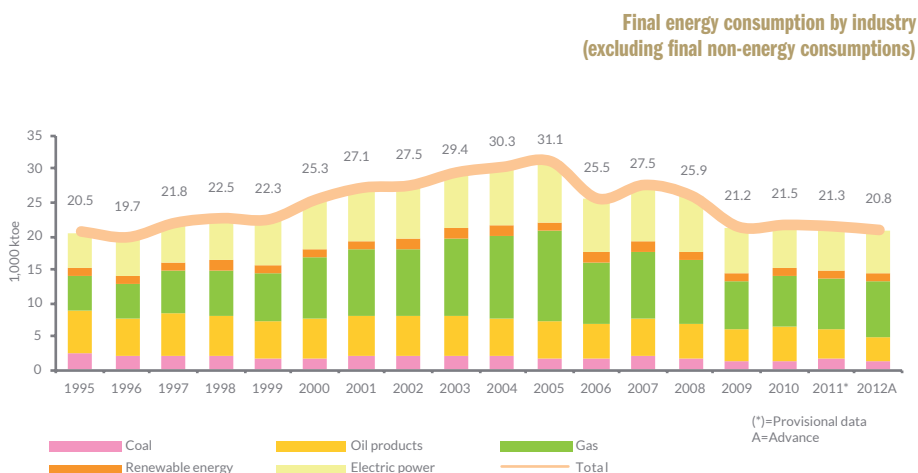
INDICATORS

- Final energy consumption by industrial sector
- Emissions of air pollutants from the industrial sector
- Expenditure on environmental protection by industry
- Environmental efficiency of industry



Final energy consumption by industrial sector

In 2012, final energy consumption by industry decreased by 2.6%.
The use of gas increased its total consumption at the expense of coal



Source: IDAE. MINETUR

According to the Energy Balances of the IDAE, back in 2012, consumption in Spain reached 83,087 kilotonnes of oil equivalent for **end uses** (energy uses are not included), which means a decrease of 4% as compared to the previous year. Following the 'Energy in Spain 2012' report, this decrease was due to a combination of the economic context with the weather and labour conditions. Out of the **total final energy demand** of 2012, 25% belonged to the industry.

In 2012, a decrease was experienced again in the final energy consumption by industry. If in 2011 the decline was of 0.9%, in 2012 there was a 2.6% reduction in consumption, thus moving from 21,325 to 20,765 kilotonnes of oil equivalent (ktep). According to the 'Energy in Spain 2012' report, those reductions recorded in 2011 and 2012 were due to a decline in industrial activity, just as evidenced by the appropriate industrial production indices (IPI) published by the INE (base 2010, which are rectified for seasonal and calendar effects). The average monthly IPI values in 2011 was 98.52, 1.48% lower than in 2010, whereas in 2012, the average IPI was 92.04, 6.58% lower than in 2011. According to the

type of fuel, in 2012, coal experienced the strongest decline, with a decrease of 22.89%, which was mainly due to the 16.1% drop in consumption by the steel industry, the main coal consumer of the entire industrial sector in terms of final energy. Oil products experienced a reduction in demand by 19.97% and so did electricity, with a 1.34% decrease. On the contrary, consumption of natural gas and renewable energies increased by 10.06% and 1.19% respectively.

Within the **European context**, the same trends experienced by the Spanish industrial sector in 2012 were repeated. Final energy consumption by the industrial sector within the EU-28 was 282,317 ktep, 2.4% lower than the previous year according to Eurostat data. These figures represent 25.6% of the total energy consumption for end uses, 0.53 percentage points less than in 2011, thus getting close to the ratio registered in Spain back in 2012 (25%).

NOTES

- The data on final energy consumption by industry gathered from the MINETUR and the IDAE do not include any non-energy consumptions, namely, those products that are consumed by the industry as raw materials, the direct purpose of which is not to generate power.
- Final consumption data of Eurostat do not include any own consumptions of the energy sector and the processing sector.
- The Industrial Production Index (IPI) measures the monthly evolution of the productive activity of the industrial branches, excluding construction, as included in the National Classification of Economic Activities (CNAE-2009). This index assesses the activities included under sections B, C, D and, for the first time in the base 2010, those of division 36 too: Collection, purification and distribution of water of section E of the CNAE-2009.

SOURCES

- IDAE: Home / Surveys, reports and statistics / Final energy balances (1990-2012)
- MINETUR: Energy in Spain 2012
- INE: INEbase / Industry, energy and construction / Industry / Industrial Production Index
- EUROSTAT: Data Navigation tree / Tables by themes / Environment and energy / Energy / Energy statistics – quantities / Final energy consumption, by sector (tsdpc320)

FURTHER INFORMATION

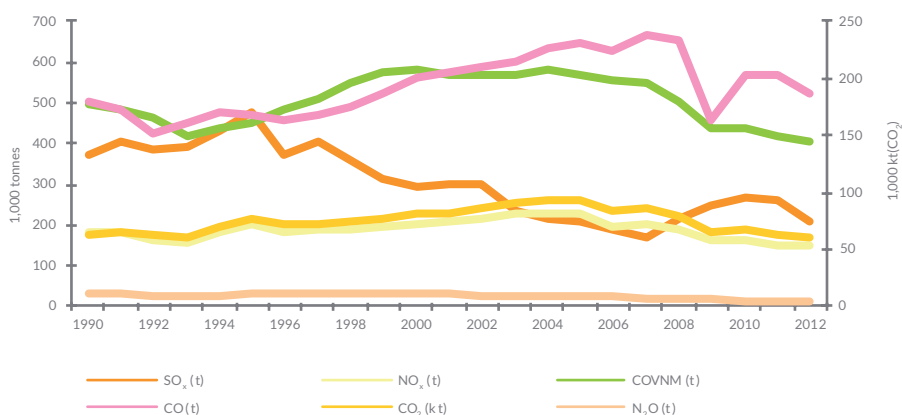
- <http://www.minetur.gob.es/energia/es-ES/Paginas/index.aspx>
- <http://www.idae.es/index.php/idpag.16/relmenu.301/mod.pags/mem.detalle>
- http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables



Emissions of air pollutants from the industrial sector

In 2012 there was a decrease in those emissions coming from the industrial sector

Air pollutants emissions from the industrial sector



Source: MAGRAMA

In 2012 there was a decrease in the number of **total emissions of SO_x, NO_x, NMVOC, CO₂, CO, N₂O** generated by the industrial sector and taken together. If in 2011 the industrial sector emitted a total of 64.8 million tonnes of these gases into the atmosphere, in 2012, that figure decreased by 3.1% down to 62.8 million tonnes. As for the group of fluorinated gases (SF₆, HFC, PFC), a decrease was also experienced by those, moving from 3,574 to 3,478 tonnes (-2.7%).

At an **individual level**, a significant decline in emissions was experienced as for all the gases considered back in 2012. SO₂ experienced the most important decline, -20.6% of emissions as compared to the previous year, mainly due to the reduction in the emissions of this gas from "Industrial Combustion Plants", which are responsible for the 94.8% decrease experienced as for SO₂. It can be inferred that this decrease may be connected with the 16.1% drop in coal consumption as final energy source by the steel industry, which is the main industrial consumer of coal as already mentioned in the indicator analysing the "Final energy consumption by the industrial sector". On the other hand, it is also worth to outline the strong decline experienced by N₂O emissions in 2012, which went from



4,211 to 3,496 tonnes, a 17% decrease as compared to 2011. One of the main reasons for this decline was the "Solvent and other product use" sector, which was responsible for 54.8% of the reduction in N_2O emissions, which went from 1,980 tonnes back in 2011, to 1,588 tonnes in 2012, followed by the "Non-combustion industrial processes", with a 44% share, the emissions of which were reduced from 833 tonnes to 519 tonnes in 2012. The rest (1.2%) was due to industrial combustion plants. This drop was a consequence, to a great extent, of the decline in emissions experienced by the "Non-combustion Industrial Processes" (-37.7) and, to a lesser extent, to the decrease experienced by the sector of "Solvent and other product use". (-19.8%).

The emissions of the rest of gases (NO_x , NMVOC, CO_2 and CO) did also decrease between 2011 and 2012. CO, with a share of 25.7% in industrial sector emissions, as compared to the total emissions, experienced a decrease of 8.1% in the total emissions compared to the previous year. CO_2 and NMVOC, which reached 22.2% and 20.7% respectively, experienced a reduction of 3% and 4.1% each. Likewise, fluorinated gases registered a drop in emissions on an individual basis, mainly as for PFCs, with a 38.1% decrease, followed by SF_6 emissions to the atmosphere, which went from 10.3 to 9.2 tonnes, i.e. a decrease of 10.9%.

The analysis of the **historical series** 1990-2012 reveals that SO_x , NO_x , NMVOC, CO_2 , CO, N_2O , emissions experienced a reduction of 1% taken jointly, being the decrease experienced in SO_x emissions that with the highest contribution to the global result (25.1%), with a 44.2% reduction, followed by the NMVOC, with a share of 14.4% in the total reduction and a decrease of 19% since 1990. With regard to fluorinated gases, an increasing trend was experienced in general terms back in 1990, moving from 369 tonnes to 3,478 tonnes in 2012, which means an increase of 923%. However, within the group of these three fluorinated gases considered herein, PFCs registered a decrease of -95.6%, whereas **HFCs emissions** increased by 1,586.2% and SF_6 by 228.5%.

As for the **contribution of the industrial sector** in terms of emissions of the gases considered, it is important to outline that, back in 2012, the industrial sector was responsible for half of the SO_x emissions in Spain, as well as of 25.7%, 22.2% and 20.7% of CO, CO_2 and NMVOC emissions, respectively. The industrial sector is also regarded as responsible for the total emissions of fluorinated gases (SF_6 , HFCs and PFCs).



NOTES

- For the purposes of this indicator, it is considered that the following groups of the SNAP classification are part of the industrial sector: Combustion in manufacturing industry (SNAP Group 3); Non-combustion industrial processes (SNAP Group 4); and Solvent and other product use (SNAP Group 6). Those categories corresponding to energy transformation and combustion emissions are not included herein, since these are further explained in the chapter devoted to energy, as well as the emissions arising from the extraction and distribution of fossil fuels and geothermal energy.

SOURCES

- Emissions: MAGRAMA, 2014. National Inventories of Emissions to the Atmosphere 1990-2012. Data provided by the Sub-directorate General of Air Quality and Industrial Environment. Directorate-General for Environmental Quality and Assessment and Natural Environment

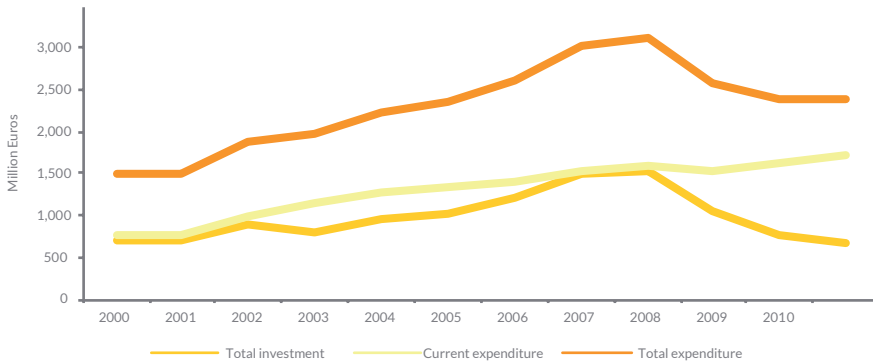
FURTHER INFORMATION

- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>

Expenditure on environmental protection by industry

The decline in total investment for environmental protection within the industrial sector slowed down in 2011. On the other hand, current expenses kept increasing up to 1,705 million Euros

Expenditure on environmental protection by industry



Source: INE

The evolution in the **total industrial expenses in environmental protection** draws a trend that is strongly influenced by the global economic crisis. Between 2000 and 2008, total expense of industries increased by 111%, from 1,483 million Euros and up to 3,129 million Euros. The behaviour of the total expenses in this period was influenced by the **investment**, which draws a similar chart, reaching its maximum value in 2008 with 1,534 million Euros and experiencing an increase of 115% within that period. In 2008, total investment represented 49% of the total expenses of the industrial sector for the protection of the environment. On the other hand, **current expenses** increased almost linearly by 108% between 2000 and 2008.

As from 2008, except for the slight decrease experienced in 2009, current expenses followed the same upward trend until reaching 1,705 million Euros in 2011, an increase of 122% as compared to the figure recorded back in 2000. Also, a strong decline of the total investment was experienced, which led to a decrease of 55% in 2011 as compared to the values of 2008, and 4% less than the percentage recorded in 2000.



Focusing our attention on the last year for which information of the 'Survey on Environmental Protection Expenditure by Industry' is available, as conducted by the INE, back in 2011, the total expenditure remained within 2,380 million Euros, thus experiencing an increase of 0.2% as compared to the previous year. Current expenses devoted to the protection of the environment increased by 5.3%, thus continuing the existing trend. On the contrary, total investment dropped by 10.6%, meaning 28.6% of the total expenses as compared to 2010, the lowest ratio of the historical series analysed. As for the **distribution of investments by environmental areas**, 58% of the investment was made in integrated equipment and installations and 42% in independent equipment and installations. The highest investment was concentrated in the "Protection of air and climate", "Management of wastewater" and "Waste management", accounting for 40.1%, 25.3% and 9.2% of the total investment, respectively. **Industrial sectors** making the highest investment in environmental protection were the "Supply of electricity, gas, steam and air conditioning" with 163.8 million Euros, followed by "Chemical and pharmaceutical industries" (122.5 million Euros) and "Coke and refined petroleum products" (117.3 million Euros). With regard to the current expenses, sectors with the highest amount were as follows: "Food, beverages and tobacco", with 443.9 million Euros (26% of the total figure), "Chemical and pharmaceutical industries" (305.8 million Euros and 17.9%) and "Metallurgy and manufacturing of metal products" (276.9 million Euros and 16.2%).

NOTES

- The purpose of the Survey on the total industrial expenses in environmental protection conducted by the INE is intended to measure the investment made by the companies of the industrial sector. This survey includes industrial companies with more than 10 paid workers having as main activity any of those defined in sections B, C of D of the National Classification of Economic Activities (CNAE-2009).
- The appropriate expenses are classified as follows:
 - Investments in integrated equipment and installations preventing contamination. It is a dual-use technology: both for industrial purposes and for pollution control, taking only the environmental component of the investment in this equipment.
 - Investment in equipment and separate installations the main purpose of which is to treat pollution. These are operating independently from the production process.
 - Current expenses, made up by those operating expenses allocated to the profit and loss account of the General Accounting Plan, which is primarily aimed at the protection of the environment.

SOURCES

- INE: INEbase / Physical environment and environmental issues/ Environmental Statistics / Survey on the total industrial expenses in environmental protection
- INE: INEbase / Physical environment and environmental issues / Environmental Statistics/ Survey on the total industrial expenses in environmental protection / Press release

FURTHER INFORMATION

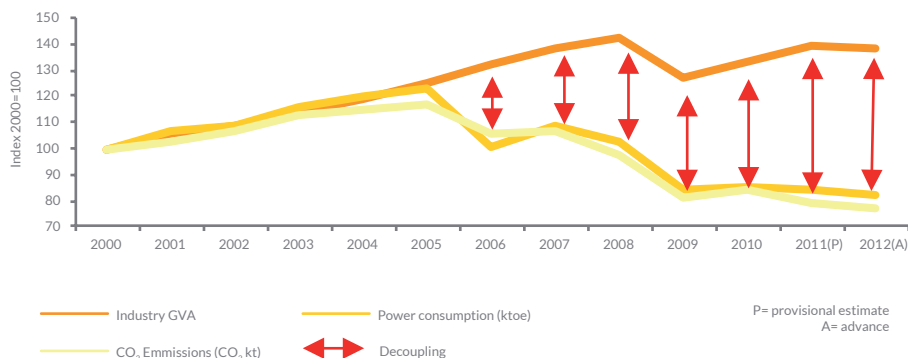
- http://www.ine.es/inebmenu/mnu_medioambiente.htm



Environmental efficiency of industry

In 2012, the relative distance between the GAV of industry and CO₂ emissions increased by 1.8 percentage points at a 2000=100 index, as compared to the previous year

Environmental efficiency of industry



Between 2000 and 2012, the **Gross Added Value (GAV) of the industry** experienced a net increase of 38.6% despite the strong decline suffered back in 2009 due to the impact of the economic crisis. On the other hand, **energy consumption** and **CO₂ emissions** experienced a net decrease of 18% and 23.4% respectively, in line with the 61% increase of the **total expenses in environmental protection** until 2011. This proves that there is a clear distance between the GAV and the consumption of energy and emissions, mainly as from 2006. Therefore, it is possible to speak of a decoupling in the industrial sector between economic growth and environmental impact since 2006 and, consequently, of an improvement in **the environmental performance of this sector**.

Focusing our attention on what happened back in 2002, following the 4% upturn experienced as compared to the previous year, Gross Added Value (GAV) of the industry fell by 0.4% from 164,519 to 163,877 million Euros, followed by a decrease of 2.6% in energy consumption and 3% in CO₂ emissions. Manufacturing, accounting for 76.8% of the total GAV of the industrial sector, experienced a decline of 1.7% in GAV and of 2.7% in its turnover.

NOTES

- In order to calculate the GAV, the INE regards as industrial activities those falling under sections B (Extractive Industries); C (manufacturing industries); D (supply of electricity, gas, steam and air conditioning) and E (supply of water, sewerage activities, waste management and decontamination), of the National Classification of Economic Activities (CNAE-2009). Therefore, agriculture/livestock farming and forestry activities are excluded herefrom, as well as those of the construction and services sector. The GAV is expressed at current prices.
- The indicator on final energy consumption by industry includes energy consumption of the following industries: extractive industries (non-energy extractive industries); food, beverages and tobacco; textile, leather and footwear; pulp, paper and printing industry; iron and steel works foundries; non-ferrous metallurgy, metal processing; transport equipment; construction; other industries (wood, cork and furniture; others).
- For the purposes of CO₂ emissions the following groups of the SNAP classification are regarded as part of the industrial sector. Combustion in manufacturing industry (SNAP Group 3); Non-combustion industrial processes (SNAP Group 4); and Solvent and other product use (SNAP Group 6).
- The data showed on the chart are expressed as referred to the values of year 2000, which has been taken as a basis (100%).

SOURCES

- INE: INEbase / Economy / Economic Accounts / Spanish National Accounting. Base 2008 / Accounting 2000-2012 / Aggregated by branches of activity
- INE: INEbase / Industry, energy and construction / Industry / Industrial Companies Survey / Press release
- IDAE: Home / Surveys, reports and statistics / Final energy balances (1990-2012)
- Emissions: MAGRAMA, 2014. National Inventories of Emissions to the Atmosphere 1990-2012. Data provided by the Sub-directorate General of Air Quality and Industrial Environment. Directorate-General for Environmental Quality and Assessment and Natural Environment

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- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>
- IDAE: Home / Surveys, reports and statistics /
- INE: INEbase / Economy / Economic Accounts/



2.12

2013 Environmental Profile of Spain

Spain is the main European fishing country followed by Denmark, France and the United Kingdom. The fishing sector generates employment for approximately half a million people among fishermen, distributors and processors of sea products, as well as other employees of the aquaculture sector. Therefore, fishing is an important source of employment and economic activity in many coastal regions where, furthermore, labour opportunities are scarce.

However, the fishing sector shows some weaknesses. In this sense, it is important to point out that most populations living in maritime waters of the European Union are over-fished (a phenomenon that affects approximately 80% of Mediterranean species and 47% of Atlantic species). In these areas, the volume of fish captured by the ships exceeds the reproductive capacity of these species, which poses a risk of depletion of fish stock and unbalancing of the marine ecosystem.

Currently, fish catches have dropped to the extent that Europe is being now forced to import two thirds of the fish it consumes. A high number of fishing vessels and fish populations are severely depleted, which undermines the economic profitability of this sector.

As part of the **Common Fisheries Policy (CFP)**, back in 2009, the Commission held an extensive public debate on the management of fisheries in the European Union that was stated in the Green Paper on the Reform of the Common Fisheries Policy. A description



was provided on the challenges to be faced by European fisheries. Besides, an explanation was also given therein on the need to consolidate a sustainable sector from an ecological, economic and social perspective within the framework of a common fisheries policy.

In line with the above, the common fisheries policy aims at restoring sustainability in fish populations thus enabling to offer to the EU citizens stable, safe and healthy food supply in the long run, while ensuring prosperity of the fisheries sector, ending subsidy-dependence and bringing new job and growth opportunities to coastal areas. At the same time, the common fisheries policy also promotes responsibility of the sector as for good sea management.

To this respect, the **European Maritime and Fisheries Fund (EMFF)** is the new fund devoted to maritime and fisheries policies of the EU proposed for 2014-2020. Their ultimate purposes are to assist fishermen in the transition towards a sustainable fisheries model, diversify the economy of coastal communities and provide funding for projects intended to create employment and improve life quality in European coasts.

Through the CFP, the Commission also intends to encourage **aquaculture**. Rearing of fish, crustaceans, molluscs and aquatic plants is one of the most fast-growing sectors, which already supplies almost half of the fisheries consumed in the entire world. At European level, aquaculture represents approximately 20% of the production of fisheries and it directly employs around 70,000 people. Aquaculture in the EU is known for its high quality, sustainability and rules for the protection of consumers.

IN THE PAST YEARS...

- For the past decade (2003-2012) the number of vessels of the Spanish fishing fleet, their power (kW) and tonnage (GT) have reduced by 29.4%, 23.9% and 25.8%, respectively.
- Between the years 2003 and 2012, total catch of the Spanish fishing fleet has decreased by 5.6%.
- The aquaculture production of freshwater and seawater fish and mussels has experienced a 8.7% reduction in the past ten years (2003-2012), mainly due to the major year-on-year variations in mussel production, which accounts for approximately 80% of the total production.

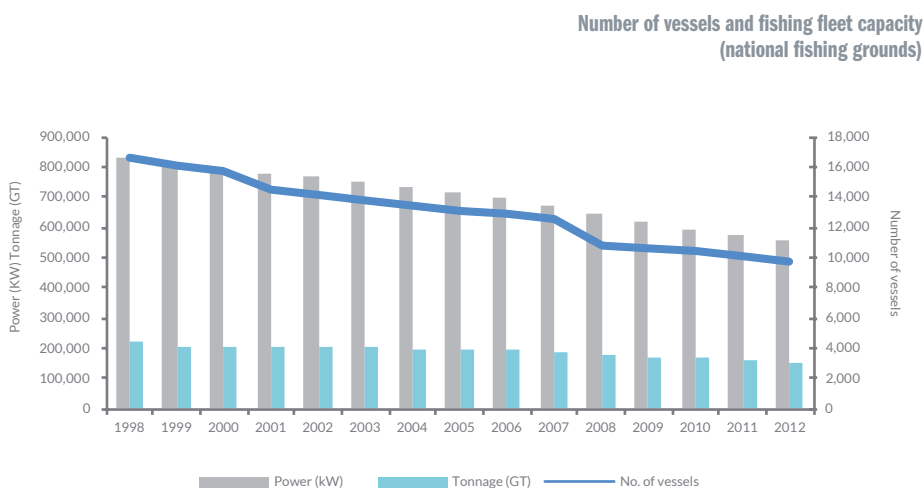
INDICATORS

- Number of vessels and fishing fleet capacity
- Fishing fleet catches
- Aquaculture production
- Environmental efficiency in fishing and aquaculture



Number of vessels and fishing fleet capacity

The decreasing trend in the number of vessels and the capacity of the Spanish fishing fleet decreases steadily



Source: MAGRAMA

Since 1998 and up to the present, the Spanish fleet has adjusted to the Community needs and guidelines. Through this period, such adjustment has meant that the **Spanish fishing fleet** has witnessed a gradual reduction in the number, the power and the tonnage of vessels.

Such a decrease in the number of vessels, power and tonnage (fishing capacity) of the Spanish fleet, is mainly a consequence of the commitment of the Spanish state to reduce the fishing effort, following the guidelines proposed by the Common Fisheries Policy (CFP). This target has been mostly achieved by the implementation of **Fishing Effort Adjustment Plans**, a measure foreseen in Regulation (EC) No. 1198/2006, on the European Fisheries Fund.

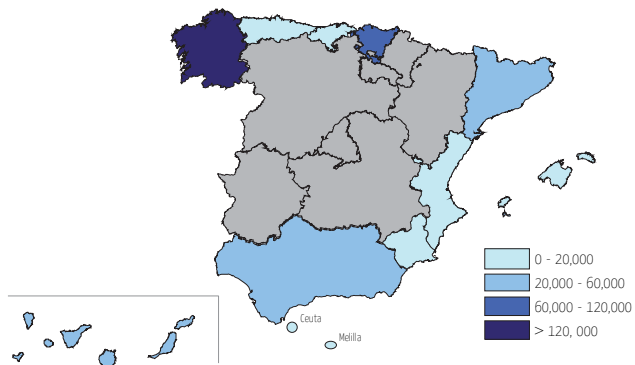
In national fishing grounds, during the 1998-2012 period, the Spanish fishing fleet has decreased by 41.3% in **number of ships**, -30.8% in terms of **tonnage** (GT) and 32.9% in **power** (kW). In 2012, the Spanish fishing fleet was made up by 9,723 vessels, representing a total tonnage of 155,921.02 GT and 559,060.79 kW.

To this fishing fleet, which has decreased by 3.6% on a year-on-year basis, it would be necessary to add the 393 ships operating outside the national fishing grounds in order to get the Spanish total fishing fleet.

As for the distribution of the fleet by **autonomous communities**, those having a higher number of ships are, in this order: Galicia, Andalusia and Catalonia, whereas those with a higher fishing capacity are Galicia, the Basque Country and Andalusia.

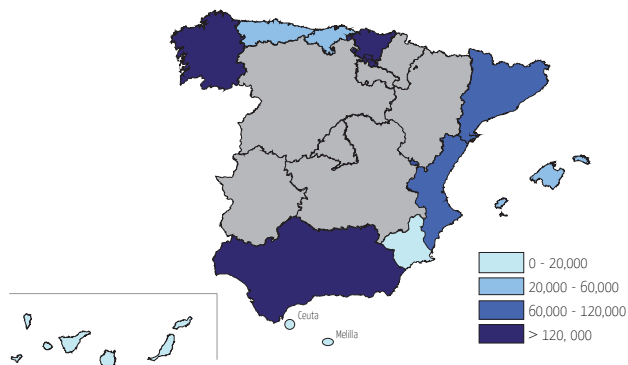
ACs	Tonnage (GT)
Andalusia	44,575
Asturias	7,208
Balearic Islands	3,766
Canary Islands	22,018
Cantabria	8,503
Catalonia	23,039
Ceuta	11,075
Galicia	164,484
Murcia	3,321
Basque Country	78,450
Valencian Community	18,357

Tonnage of the fishing fleet as of December 2012 (GT)



ACs	Power (kW)
Andalusia	131,247
Asturias	20,321
Balearic Islands	21,438
Canary Islands	53,464
Cantabria	20,877
Catalonia	102,399
Ceuta	14,417
Galicia	298,853
Murcia	12,539
Basque Country	130,247
Valencian Community	66,156

Power of the fishing fleet as of December 2012 (kW)



Source: Fishing fleet statistics, MAGRAMA



NOTES

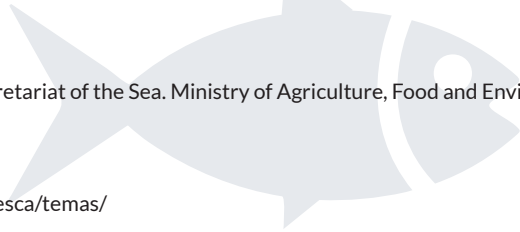
- This indicator refers to the ships of the 3rd list of the General Fishing Vessel Register, integrating the Census of the Operational Fishing Fleet that was operating as of 31 December of each year. Throughout this period, some vessels may change fishing ground and, therefore, the sum of those may provide different results depending on the date considered. An important number of vessels are traditional boats, and some of them do not even have a fixed engine.
- In order to calculate this indicator, pursuant to Regulation (EC) No. 2.371/2002 of the Council, the fishing capacity is expressed through the power, measured in kilowatts (kW) and load capacity (tonnage), expressed in GT (Gross Ton). This unit has been replacing Gross Registered Tonnes (GRT) since 1998.

SOURCES

- Data provided by the General Secretariat of the Sea. Ministry of Agriculture, Food and Environment.

FURTHER INFORMATION

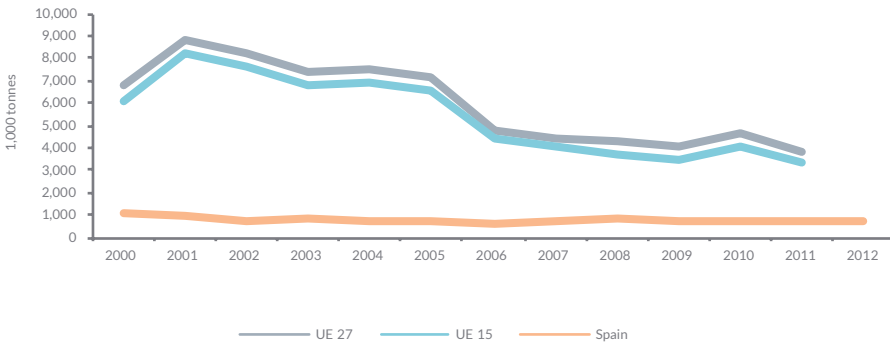
- <http://www.magrama.gob.es/es/pesca/temas/>



Fishing fleet catches

Total catches of the Spanish fishing fleet decreased by 5.1% in the past year

Total catch of the European Union and Spain



Source: Eurostat

Sea fishing catches are those of Spanish fishing vessels in any fishing ground where they operate, whether in **national waters**, in other **Community waters**, or in **third countries or international waters**. The importance of this sector has been analysed through the fishing statistics provided by Eurostat, which annually reports all the catches made in all fishing grounds and fishing areas, where the fishing vessels of the countries of the **European Union** develop their activities. According to these statistics, in 2012 there was a 5.1% decrease in the total fishing catch taken by the Spanish fishing vessels (expressed in live weight) thus going down from 798,559 t in 2011 to 757,829 t in 2012.

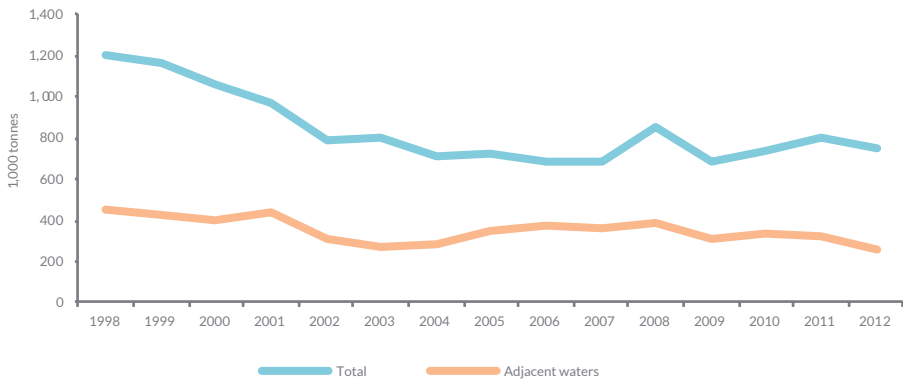
Likewise, fishing catches made by the fishing fleet in **adjacent waters** are in line with the same trend. In the last year, a decrease of 20.6% has been experienced, thus going from 329,472 t of fish in 2011 to 261,406 t in 2012.

In the last year, in terms of distribution of fishing catches in **adjacent waters by geographical areas** it is observed that, except for the Canary Islands, where fishing catches increased, the rest of areas also underwent a decrease in the number of catches.



In 2012, the coastal area of the Cantabrian sea was the one experiencing the highest decrease (26.8%), fishing catches accounted for 100,605 t, whereas in 2011, they reached 137,546 t. Although to a lesser extent, a significant decrease was also experienced by the volume of catches in the Mediterranean area, with a decline of 23.7%, going from 103,505 t in 2011 to 78,985 t in 2012, and in the area of the Gulf of Cadiz, with a 20.7% decrease, thus moving from 81,088 t in 2011 to 64,291 t in 2012. Only the area of the Canary Islands experienced an increase in the volume of fishing catches. In this area, the figure of 7,333 t that had been recorded back in 2011 increased up to 17,525 t in 2012.

Fishing fleet catches



Source: Eurostat

**NOTES**

- In the areas of the Mediterranean, North-East Cantabrian Sea, Gulf of Cadiz and the Canary Islands the data of the EUROSTAT corresponding to the coastal regions of "Mediterranean and Black Sea", "North-East Atlantic, R27-08 c area", "North-East Atlantic, R27-09a area" and Central East Atlantic, 34.1.2 area".

SOURCES

- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Total all fishing areas.
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / Mediterranean and Black Sea
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / East-central Atlantic Canary Islands
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / North-east Atlantic: 1985 onwards Cantábrico Noreste
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / North-east Atlantic: 1985 onwards Golfo Cádiz Portugal
- Spanish fishing fleet catches: own data

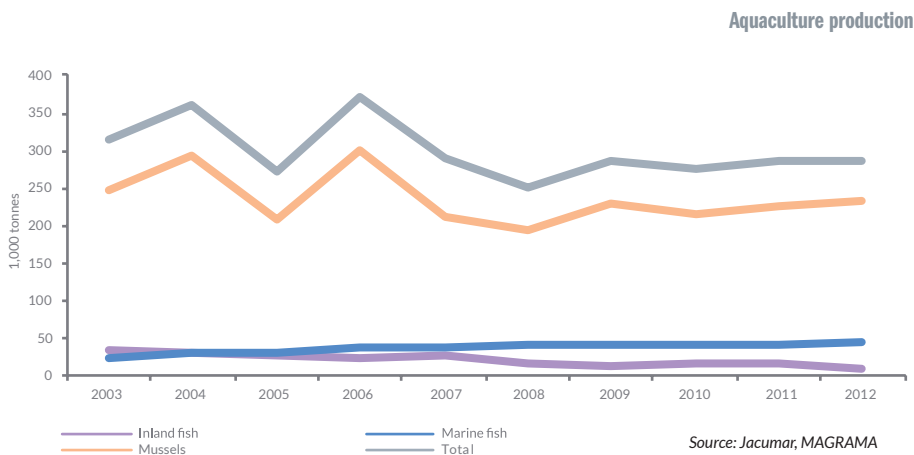
FURTHER INFORMATION

- <http://www.magrama.gob.es/es/pesca/temas/>
- <http://epp.eurostat.ec.europa.eu/portal/page/portal/fisheries/data/database>



Aquaculture production

Aquaculture production reached 286,162.2 tonnes in 2012, a figure that is slightly lower than the one from previous years



Aquaculture is a primary economic activity in many coastal and inland areas of the European Union. The progress in technology and management for the past sixty years has turned aquaculture into one of the main sectors contributing to the food supply at global level. To this respect, according to the FAO, in 2011 aquaculture reached a production of 63.6 million tonnes, which means 49% of all the aquatic food intended for human consumption. This means that the aquaculture sector has already equalled the supply of food from fishing.

Aquaculture practices are conducted in all member states of the EU. The European aquaculture sector is nowadays a highly technological sector that has made significant progress in terms of sustainability, safety and quality of products.

Nowadays, according to the data provided by the **National Counselling Board for Marine Farming (JACUMAR)**, which is the authority in charge of easing coordination and collaboration between the central and the regional administrations in terms of aquaculture, the total aquaculture production in Spain in 2012 reached levels similar to those recorded in the previous year, thus experiencing a slight decrease of 0.3% down to 286,162.19 t.

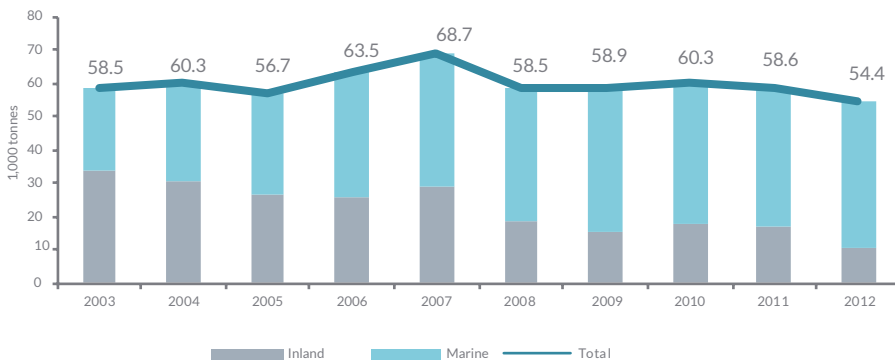
275.937.81 t out of the **total national fish production** came from **marine aquaculture** (only referred to fish and mussels) and 10,224.38 t to **inland aquaculture**. In terms of annual variation of these two groups, it can be observed that inland aquaculture production decreased by 66.2%, while marine aquaculture production increased by 2.2% in 2012.

As for the aquaculture production of fish, both inland and marine, it can be observed how the **production of marine fish** increased by 5.5%, up to 44,183.5 t, whereas **inland production** experienced a significant decline, i.e. -61.0%, which was mostly due to the reduction in the fattening of rainbow trout, which back in 2012 reached 10,224.4 t.

As for the fattening of fish by species, the rainbow trout, which represents 97.0% of the inland aquaculture production, experienced a dramatic 59.9% reduction back in 2012, moving from 16,619.9 t to 9,947.7 t. On the other hand, back in 2012, gilt-head bream and bass were the species recording the highest marine aquaculture production once again. As for the gilt-head bream, fish fattening increased by 11.3%, thus reaching 17,844 t and, in the case of the bass, a slight decrease of 1.3% was registered, with a total value of 14,687.1 t in 2012.

The **production of mussels**, which represents around 81% of the total aquaculture production, experienced a slight increase of 1.8% in 2012, therefore, its production was 231,754.3 t.

Marine and inland aquaculture: fish production



Source: Jacumar, MAGRAMA



The fattening of gilt-head bream, bass, meagre, tuna and fish-farming in stake nets and raft culture systems, etc. concentrates in the Mediterranean and South-Atlantic areas as well as in the Canary Islands, while in the North area we find the fish farms for fattening of turbot, red sea bream, sole and platform systems for mollusc culture. There are also several inland fish farms devoted to the culture of trout, sturgeon, tench and salmon.

In 2012, Spanish aquaculture production comprised 5,132 **establishments**, with an increase of 0.29% during the last year. 4,953 out of those establishments were marine establishments and 179 were based on inland waters.

SOURCES

- JACUMAR, National Counselling Board for Marine Farming. Ministry of Agriculture, Food and Environment.
- Aquaculture production: own data

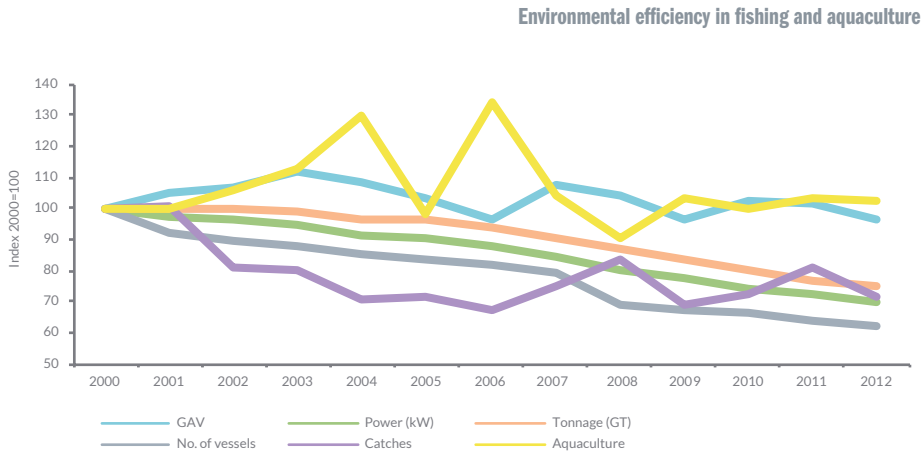
FURTHER INFORMATION

- <http://www.magrama.gob.es/es/pesca/temas/>
- <http://www.magrama.gob.es/es/pesca/temas/acuicultura/>
- <http://www.fundacionoesa.es/>



Environmental efficiency in fishing and aquaculture

In 2012, the decreasing trend of the fleet capacity was pursued and catches, as well as aquaculture production, experienced a further reduction.



Source: INE, Eurostat and MAGRAMA

Pressure over exploited fish stocks, along with an assessment of the economic performance of this sector, allow us to perform a comprehensive analysis of its evolution from the point of view of environmental performance.

In view of the evolution of the variables considered during the reference period 2000-2012, it is possible to infer that, both the **number of vessels** as well as the **power** (expressed in kW) and the **tonnage** (GT), have experienced a strong decline as a consequence of the fleet policies and the continuous adjustments made in this sector throughout that period. During the entire reference period, the number of vessels has experienced a 38.5% reduction, while the power and the tonnage have done so by 30.0% and 25.0%, respectively.

In the last year, it can be observed that such decreases are much more moderate. To this respect, the number of vessels decreased by 3.6%, going from 10,084 vessels in 2011 to 9,723 in 2012; power did also decrease by 2.6%, moving from 573,807 kW in 2011 to 559,060 kW in 2012, and finally, tonnage decreased by 2.3%, from 159,580 GT in 2011 to 155,921 GT in 2012. Those falls, which are



less intense every year, may be attributed to the compliance of this sector with the guidelines set out by the Common Fisheries Policy, which are intended to balance the excessive capacity of the European fishing fleet towards a sustainable activity that respects the environment and preserves our shrinking resources.

In the same period of 2000-2012, as for the evolution of the **level of fish catches**, it is observed that, although a more irregular behaviour has been experienced with two one-off increases in the campaigns of 2008 and 2011, the general trend is –as in the previous case– to reduce the volume of catches, specifically by 28.9%. During the last year, the volume of fish catches experienced a 5.1% reduction, thus moving from 798,559 t of 2011 to 757,829 t in 2012.

Aquaculture may be regarded as an alternative means of fish production. In Europe, it accounts for almost 20% of the fish production and it is already famous for its high quality and sustainability. In Spain, during the 2000-2012 reference period, aquaculture experienced a 2.7% growth although in the last year aquaculture production was slightly reduced. Throughout the 2003-2012 period, a moderate decrease of 8.7% is recorded.

On the other hand, in economic terms, 2012 witnessed a 2.9% decrease in the **Gross Added Value (VAB)** of the sector devoted to agriculture, livestock farming and fisheries altogether and at current prices. In 2011, this value reached 23,909 million Euros, while in 2012 it was 23,215 million Euros. As for the evolution of the GAV during the 2000-2012 reference period, it can be observed that, despite some slight changes of trend, all in all, GAV experienced a reduction of 3.6% throughout this period.

**SOURCES**

- GAV: Spanish National Accounting. INE
- No. of ships, power and tonnage: General Secretariat of the Sea. Ministry of Agriculture, Food and Environment.
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Total all fishing areas
- Marine aquaculture: Jacumar, General Secretariat of the Sea. Ministry of Agriculture, Food and Environment.
- Environmental efficiency in the fishing sector and agriculture: own data.

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/pesca/temas/>
- http://www.ine.es/inebmenu/mnu_cuentas.htm
- <http://epp.eurostat.ec.europa.eu/portal/page/portal/fisheries/data/database>
- <http://www.magrama.gob.es/es/pesca/temas/acuicultura/>



2.13

2013 Environmental Profile of Spain

2013 was an excellent year for international tourism. According to the latest barometer of the **World Tourism Organization** from January 2014, arrivals of international tourists increased despite the economic crisis by over 5.0% up to 1,087 million tourists. In particular, back in 2013 there were 52 million tourists more than in the previous year, thus consolidating the figure of inbound international tourists above one billion for the second year running –exceeding the maximum figure reached in 2012.

These results, which are well above the expectations, reflect the capacity of the tourism sector to adapt to the changing conditions on the markets, as well as to encourage economic growth and job creation.

Main inbound world tourism data. Years 2012 and 2013

Tourist destinations	No. of tourists in 2012 (in millions)	No. of tourists in 2013 (in millions)	2013/2012 increase (%)
Europe	533.9	562.8	5.4
Asia-Pacific	233.6	247.7	6.0
America (North and South)	163.0	168.9	3.6
Middle East	51.8	51.9	0.3
Africa	53.1	56.1	5.6
TOTAL	1,035	1,087	5.0

Source: World Tourism Organization "World WTO Tourism Barometer". January 2013.



Europe led this growth in absolute terms, welcoming a total annual amount of around 563 million tourists. By subregions, Central and Eastern Europe, along with Southern-Mediterranean Europe, recorded the highest figures with 7% and 6% increases, respectively.

Relatively, the highest growth was experienced in the Asia-Pacific area, with a 6.0% increase (above 5.4% in Europe). At this destination, the number of international tourists increased by 14 million, reaching 248 million. Arrivals of international tourists to America registered a 3.6% increase (3.6%) (six millions more tourists than in the previous year), thus reaching up to 169 million tourists. Africa, with 56 million tourists, attracted thirteen million more. And finally, with almost no growth, the Middle East, with 52 million tourists and following a more heterogeneous and unstable trend.

In Spain, 60.7 million foreign tourists arrived in 2013, an increase of 5.6% compared to the previous years, being their preferred destinations Catalonia, the Balearic Islands and the Canary Islands, and exceeding the 10 million visits to the protected areas integrating the National Parks Network.

IN THE PAST TEN YEARS (2004 - 2013)...

- The number of foreign tourists has increased by 13.2% reaching 60.7 million in 2013.
- Change in the number of foreign tourists per kilometre of coastline has experienced a 13.4% increase during the last decade (2004-2013), reaching up to 6,941 tourists per kilometre in 2013.
- The number of overnight stays in hotels for the 10 main tourist destinations in Spain experienced a 30.2% increase. In 2013, 169.3 million of overnight stays were recorded, which results in an equivalent population of 463,853 people.
- The number of visitors to the National Parks has experienced a 8.0% decrease between 2004 and 2013. The number of visitors to the National Parks reached 10.2 million in 2013.
- As for rural tourism, the number of overnight stays increased by 25.8%; the number of travellers did so by 42.5% along with the capacity (94.8%) and number of accommodation units (82.7%).

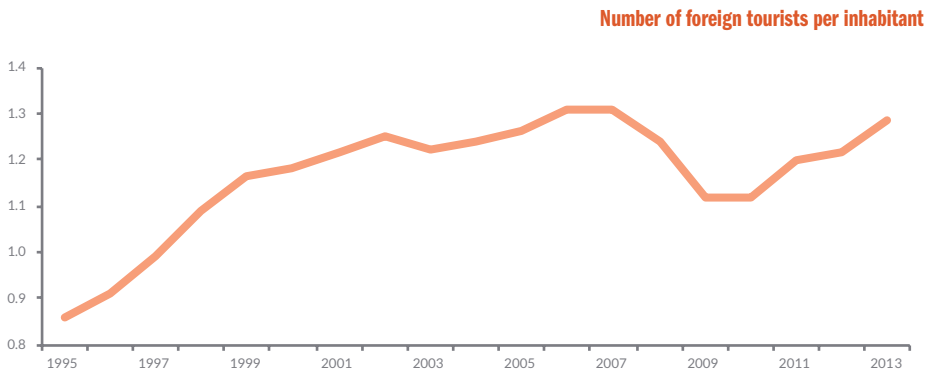
INDICATORS

- Foreign tourists per inhabitant
- Foreign tourists per kilometre of coastline
- Equivalent Tourist Population (ETP) in areas with the highest number of overnight stays
- Number of visitors to National Parks
- Rural tourism: accommodation, capacity, travellers and overnight stays
- Trends in the main variables affecting tourism in Spain



Foreign tourists per inhabitant

In 2013, Spain recorded a rate of 1.29 foreign tourists per inhabitant

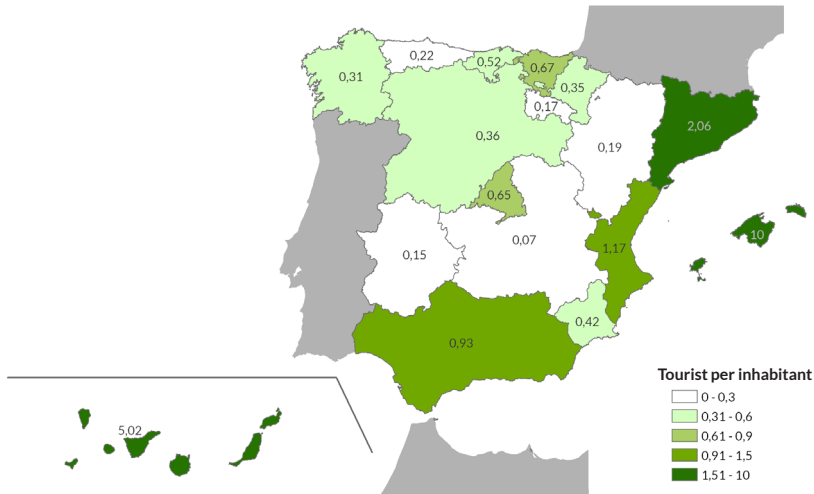


Source: INE. IET

In absolute terms, Spain received a total of 60.7 million **foreign tourists** in 2013; 5.6% more than in the previous year (57.5 million in 2012). This figure consolidates this growing trend for the third year in a row and the values reached are rather close to those recorded back in 2006 and 2007. In 2013, the Spanish population decreased by 0.3%, down to a total of 47.1 million inhabitants. When looking at the ratio between the number of **foreign tourists and Spanish nationals**, we see again that there has been a growing trend since 2010, with a rate of 1.29 tourists per inhabitant in 2013.

Those 60.7 million foreign tourists led to a total of 389 million overnight stays.

Number of tourists per inhabitant. Year 2013



Source: Data compiled with data from INE and IET

As in previous years, distribution of tourists per inhabitant throughout the various **autonomous communities** is highly atomized: only three autonomous communities exceed the national average rate and, most of them reach values that are way below the average. In 2013, only the Balearic Islands with 10.0 tourists/inhabitant, followed by the Canary Islands, with 5.02 tourists/inhabitant, and Catalonia, with 2.06 tourists/inhabitant exceeded the average value. On the other hand, the Valencian Community and Andalusia reach values close to the average, with 1.17 tourists/inhabitant and 0.93 tourists/inhabitant, respectively. The communities with the lowest rate are Castile-La Mancha, with 0.07 tourists/inhabitant, and Extremadura, with 0.15 tourists/inhabitant.

In absolute terms, Catalonia, with 25.7% of the **total of visitors**, was the preferred destination of international tourists back in 2013, with 15,588,203 registered arrivals, followed by the Balearic Islands, with 18.3% and 11,111,328 tourists, and the Canary Islands, with 17.5% and 10,632,679 tourists.



Number of foreign tourists by means of arrival

	2004	2012	2013	2013/2012 Change (%)	Change 2013-2004(%)
Airport	38,523,886	46,159,427	48,762,922	5.6	26.6
Road	12,097,005	10,098,671	10,838,330	7.3	-10.4
Seaport	2,574,127	1,078,502	953,726	-11.6	-62.9
Rail	403,809	127,896	106,095	-17.0	-73.7
TOTAL	53,598,827	57,464,496	60,661,073	5.6	13.2

Source: Institute for Tourism Studies, 2013 (provisional data for the last year)

Again, the most widely used **means of transport** by foreign tourists back in 2013 was the plane (80.4%), followed from a distance by road transport (17.9%), maritime transport (1.6%) and railway transport (0.2%).

In the last decade (2004-2013) it can be observed that, except for air transport, which increased by 26.6%, the rest of routes of entry have experienced a downward evolution. However, between 2012 and 2013, it can be observed how, apart from the increase in the access by airport (5.6%), access by road did also experienced a 7.3% increase. The rest of means of arrival has followed the general trend, with a 11.6% decrease in sea transport and 17.0% in railway transport back in 2013.

NOTES

- This indicator relates the number of foreign tourists to the resident population. It is useful to show the tourist load of the multiple tourist destinations, but it is also desirable to keep a balanced ratio between the number of visitors and the resident population in order to ensure sustainability of this sector. Within the national scope, this rate is lower than the one recorded in surrounding countries, such as France and Italy, but it has increased quite much in the Mediterranean coastal areas and, especially, in the three above referred autonomous communities.
- Tourist: a person who travels from his/her place of residence to another population and stays there for at least one night for reasons other than carrying out a paid activity.
- Tourism carrying capacity of an area: a concept that is used in connection with the sustainability of tourism. It is calculated based on the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic and socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction (UNEP).

SOURCES

- Institute for Tourism Studies (IET, spanish acronym). Tourist Movement on Borders (FRONTUR). 2013 (provisional data)

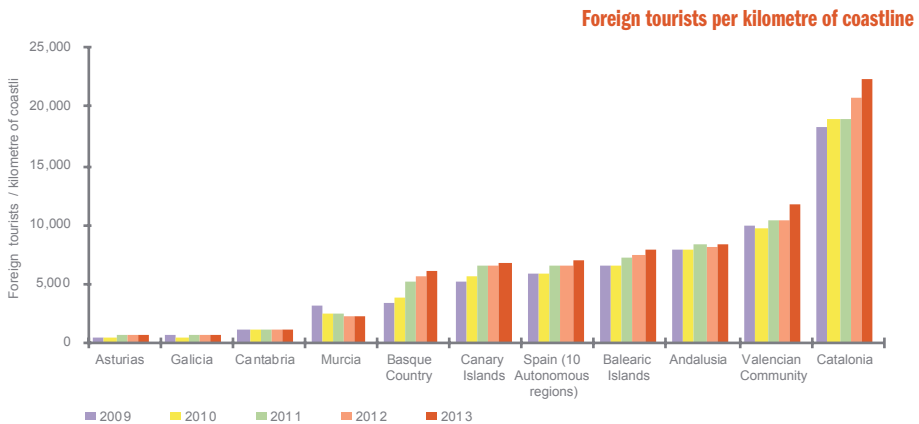
FURTHER INFORMATION

- <http://www.iet.tourspain.es>
- <http://www.iet.tourspain.es/es-ES/turismobase/Paginas/default.aspx>
- <http://www.iet.tourspain.es/es-ES/estadisticas/frontur/informesdinamicos/paginas/anal.aspx>



Foreign tourists per kilometre of coastline

In 2013 there were 6,941 foreign tourists per km of coastline, which led to a 6.9% increase



Source: IET / INE

The evolution experienced in the number of foreign tourist per kilometre of coastline for the past five years shows that Catalonia reached 22,301 tourists per km of coastline in 2013. This first position is followed by the Valencian Community, with 11,528 tourists per km, Andalusia with 8,339 tourists per km and the Balearic Islands with 7,781 tourists per km. All these autonomous communities exceed the **average rate**, which in 2013 reached 6,941 **tourists per km of coastline**, 6.9% higher than the figure recorded in the previous year. At the other end of the spectrum we find the autonomous communities of Galicia and Asturias, with 570 and 580 tourists per km of coastline, respectively.

In absolute terms, these figures mean that 60.7 million foreign tourists visited our coasts in 2013, representing 90.1% of the total number of foreign tourists arriving to our country. Once more, with 15.6 million foreign tourists, Catalonia is the Autonomous Community with the highest number of tourists, followed in this case by the Balearic Islands, with 11.1 million, and the Canary Islands, with 10.6 million tourists. On the other hand, the coastal communities with the lowest tourist inflow were Asturias and Cantabria, with 232,745 and 310,699 tourists, respectively.

Foreign tourists per km of coastline

Autonomous Communities	2012	2013	2013/2012 Change (%)
Asturias	584	580	-0.6
Galicia	575	570	-0.9
Cantabria	1,014	1,094	7.9
Murcia	2,126	2,266	6.6
Basque Country	5,506	5,961	8.3
Canary Islands	6,405	6,717	4.9
Balearic Islands	7,259	7,781	7.2
Andalusia	7,967	8,339	4.7
Valencian Community	10,346	11,528	11.4
Catalonia	20,658	22,301	8.0
Spain (10 Autonomous Communities)	6,495	6,941	6.9

**See clasification 3 in Annex I
Source: IET / INE*

If we compare 2012 and 2013, it is the Valencian Community the one featuring the highest increase (11.4%), followed by the Basque Country (8.3%), Catalonia (8.0%) and Cantabria (7.9%). At the other end of the spectrum, we find those communities that have experienced a decline in the number of tourists, with significant drops, such as Galicia (-0.9%) and Asturias (-0.6%).

After grouping these data by areas, 41.2 million foreign tourists were attracted by the Mediterranean coast (75.3% of the total), 2.8 million (5.2% of the total) chose the Cantabrian coast and Galicia, whereas 10.6 million preferred the Canary Islands as tourist destination (19.4% of the total). These figures mean a rate of 10,655 tourists per km of coastline for the Mediterranean area, 1,179 for the northern area and 6,717 for the Canary Islands.



NOTES

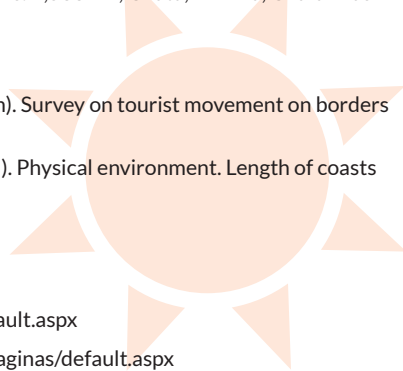
- This indicator sets the ratio between the number of foreign tourists visiting the Spanish coasts and the appropriate coast length thereof. When looking at the autonomous communities it is obvious, once again, that there is a great imbalance between tourist destinations in Northern Spain and those located by the Mediterranean Sea. In spite of the above, it must be taken into account that these figures are not only in connection with the number of tourists but also depend on the coast length which in the three above mentioned autonomous communities is beyond 4,500 km (Galicia, Balearic Islands and Canary Islands).
- The coast length considered for the calculation of this indicator is the one provided by the INE (coast length by provinces) with data supplied by the Directorate-General of the National Geographic Institute. Total coast length of the provinces considered is 7,876 km (excluding minor islands and islets of peninsular provinces).
- This institution also provides other data taking the coast by sections, which results in the figures below: Cantabrian Coast: 1,086 km; Atlantic Coast: 1,728 km; Mediterranean Coast: 2,058 km; Balearic Islands: 1,428 km; Canary Islands: 1,583 km; Ceuta, Mellilla, Chafarinas and islets: 32 km. Total: 7,915 km.

SOURCES

- Institute for Tourism Studies (IET, spanish acronym). Survey on tourist movement on borders (FRONTUR), 2013 (provisional figures)
- National Statistics Institute (INE, spanish acronym). Physical environment. Length of coasts and borders. Coast length by provinces

FURTHER INFORMATION

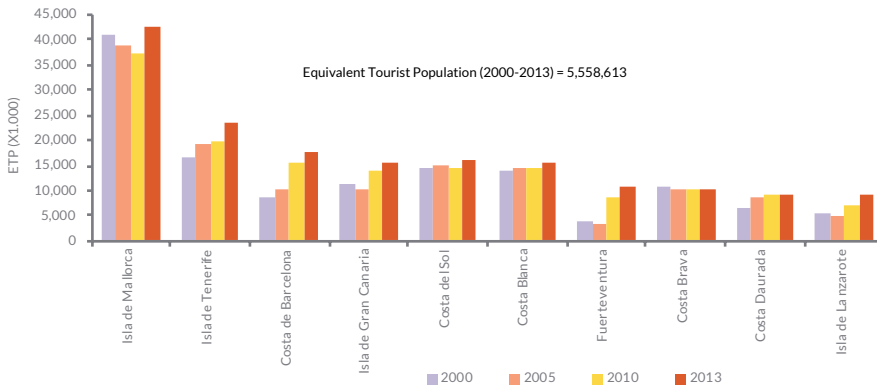
- <http://www.iet.tourspain.es>
- <http://www.magrama.gob.es/es/costas/temas/default.aspx>
- <http://www.iet.tourspain.es/es-ES/turismobase/Paginas/default.aspx>
- <http://www.iet.tourspain.es/es-ES/estadisticas/frontur/informesdinamicos/paginas/anal.aspx>



Equivalent Tourist Population (ETP) in areas with the highest number of overnight stays in hotels

The Equivalent Tourist Population for the 10 destinations with the highest number of overnight stays in hotels was 463,853 people in 2013.

Equivalent tourist population in areas with the highest number of overnight stays in hotels



Source: INE

The Hotel Occupancy Survey published by the National Institute of Statistics gathers, among other variables, the statistics of the **average stay** for the 38 main **tourist areas (EOH)** in Spain with provisional data for 2013. Out of these tourist areas, a sample has been taken of the 10 of them with the highest tourist inflow and a study has been undertaken on their evolution for the 2000-2013 period.

The evolution in the number of overnight stays in these areas is expressed as Equivalent Tourist Population (ETP). This concept provides a better overview on the population pressure supported by these areas with a high tourist inflow, since overnight stays turn into the "number of people residing in a place over the entire year".

Just like in previous years, in 2013, the tourist areas with the highest inflow have been those on the coast. The island of Majorca, recording a figure way above the rest, 42.3 million overnight stays (115,843 of ETP), the island of Tenerife, with 23.4 million (64,135 of ETP) and the coast of Barcelona with 17.4 million overnight stays (47,653 of ETP) were the areas with the highest tourist inflow. On



the other hand, Lanzarote, which in 2012 had surpassed the destination Ibiza-Formentera in figures, finally consolidated in the tenth position in 2013, with 9.1 million overnight stays (24,859 of ETP), compared to the 8.5 million registered in Ibiza- Formentera (23,378 of ETP). Overall, these 10 areas with higher tourist inflows received a total of 169.3 million overnight stays, which in terms of ETP mean a total of 463,853 people.

With regard to non-coastal destinations, it is worth to outline that the Pyrenees registered a total of 2.9 million of overnight stays in 2012 (7,939 of ETP).

Equivalent Tourist Population (ETP) in the 10 areas with the higher numbers of overnight stays in hotels (2002-2012)

	2000	2001	2002	2003	2004	2005	2006
ETP	363,443	364,260	346,733	358,709	356,312	372,199	412,118
Index	100	100.2	95.4	98.7	102.8	107.3	118.9
	2007	2008	2009	2010	2011	2012	2013
ETP	410,352	410,338	384,227	410,620	452,976	451,356	463,853
Index	118.3	118.3	110.8	118.4	130.6	130.2	133.8

Source: Own data gathered from the Hotel Occupancy Survey conducted by the INE

From the analysis of the evolution of the Equivalent Tourist Population during the **2000-2013 period**, it can be observed that 2,028.5 million overnight stays have been reached which, in terms of Equivalent Tourist Population (ETP), i.e. those people with permanent residence in these destinations, would result in a population increase of 5,557,487 inhabitants. By areas, the island of Fuerteventura was the area with the highest increase, three times the number of overnight stays in that period (10.6 million overnight stays in 2013). In order of growth, it is followed by the coastal areas of Barcelona (105.2%) and the island of Lanzarote (72.8%). Throughout this period, only the Costa Brava experienced a slight decrease (3.6%).

As for the number of **overnight stays in the last year** it is observed that, except for the island of Majorca, which registered a negative year-on-year rate (-0.3%), the rest of areas recorded positive rates, among which it is worth to outline the rises experienced by the island of Lanzarote (8.5%), the costa del Sol (5.6%) and the costa Blanca (5.0%).

NOTES

- The ETP indicator is calculated by dividing the number of overnight stays of resident and non-resident tourists in hotels by 365 days. From an environmental point of view, the interest of this indicator relies on focusing our attention in the areas with higher tourist inflow, by monitoring the evolution thereof over time.
- Preferred tourist destinations in Spain are, in general, "mature" destinations, among which we may find the ten areas selected for this indicator, areas that need to receive a special treatment from all the agents involved in order to achieve a full conversion of the sector towards sustainable patterns.
- Some initiatives that are worth mentioning in line with the improvement of tourist attractions and sustainability thereof are as per below: A) The "Q" Mark for Tourist Quality, awarded by the Spanish Tourist Quality Institute. Establishments are assessed by an external auditor that verifies the provision of high-quality services. Currently, there are 2,204 establishments certified for this mark. B) The European Charter for Sustainable Tourism in Protected Areas (ECSTPA), an initiative of the EUROPARC Federation, has the primary global purpose of promoting the development of tourism under a sustainability approach in protected areas throughout Europe. The ECSTPA is both a method and a voluntary commitment that guides the managers of protected areas and the companies in defining their strategies jointly, and C) the Spanish tourism portal (<http://www.spain.info/es/>), which takes into account the cultural agenda of the various national destinations.

SOURCES

- National Statistics Institute (INE, spanish acronym). Hotel Occupancy Survey (EOH) 2000-2013. Hotels and other hotel establishments

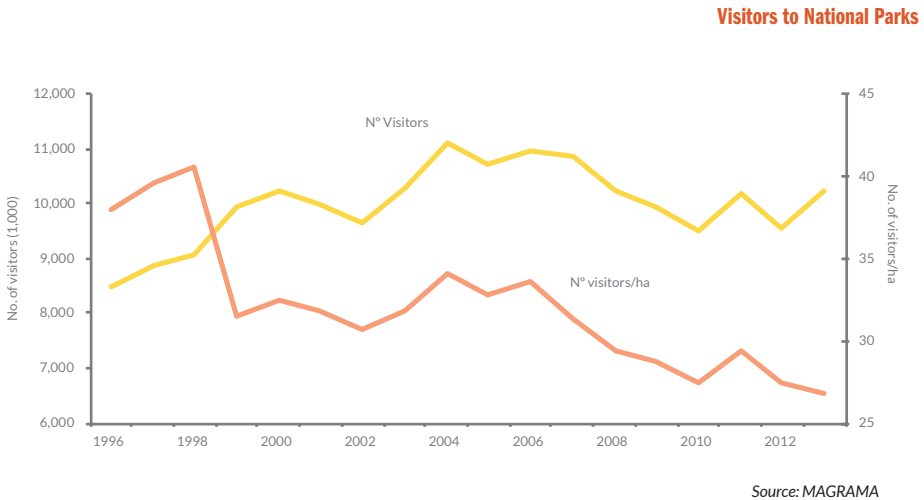
FURTHER INFORMATION

- http://www.ine.es/inebmenu/mnu_hosteleria.htm



Number of visitors to National Parks

In 2013, the number of visitors to Spanish National Parks increased by 7.3% as compared to the previous year



The first National Parks Act, passed on 8 December 1916, made it possible for Spain to become one of the pioneer countries in Europe in regarding the protection of nature as a public interest goal. The purpose of National Parks (NP) is, among others, to ensure preservation of these spaces, to make them available for public use and to improve the scientific knowledge on their cultural and natural values, as well as to promote social awareness on the need for conservation of the environment through the exchange of know-how and lessons learned on sustainable development.

After the declaration of the Sierra de Guadarrama National Park in 2013, a new natural space was added to the Network of National Parks, which was made up by 14 NP until then. It was a new space qualified with the highest protection status and having a surface area of 33,960 hectares distributed throughout the Autonomous Communities of Madrid (21,714 hectares) and Castile-Leon (12,246 hectares).

From the analysis of the **number of visitors to our National Parks**, it can be observed that this figure has increased by 7.3% in 2013, thus recording a total

of 10,243,206 visitors. However, during the previous year this figure reached 9,543,599 visitors instead. This significant increase was recorded almost in every National Park, except for the Archipiélago de la Cabrera NP (-37.3%) and that of Sierra Nevada (-10.2%). The highest increase in the number of visits occurred in the Tablas de Daimiel NP, which experienced a 84.6% increase, going from 135,611 visitors registered in 2012 to 250,295 visitors in 2013. This park is followed by the Teide NP and the Islas Atlánticas de Galicia Terrestrial and Maritime NP, with an increase in the number of visitors of 23.7% and 13.3%, respectively

In **absolute terms**, in 2013, the **Teide NP**, with 3,292,247 visitors was the one that received the highest number of visitors over the year, followed by the Picos de Europa NP, with 1,545,830 visitors and the Timanfaya NP, with 1,452,365. The National Parks with lower number of visitors were the Archipiélago de Cabrera NP and the Cabañeros NP, accruing 67,809 and 84,616 visitors, respectively.

Visitors to National Parks in 2012-2013

National Parks	Area (ha)	2012		2013	
		Visitors	Visitors/ha	Visitors	Visitors/ha
Aigüestortes i Estany de S. Maurici	14,119	299,658	21.2	272,372	19.3
Archipiélago de Cabrera	10,021	108,188	10.8	67,809	6.8
Cabañeros	40,856	81,150	2.0	84,616	2.1
Caldera de Taburiente	4,690	354,901	75.7	375,180	80.0
Doñana	54,252	282,817	5.2	277,173	5.1
Garajonay	3,984	752,095	188.8	817,220	205.1
Marítimo Terrestre Islas Atlánticas de Galicia	8,480	280,798	33.1	318,034	37.5
Monfragüe	18,396	259,408	14.1	278,400	15.1
Ordesa y Monte Perdido	15,608	607,450	38.9	589,400	37.8
Picos de Europa	64,660	1,566,124	24.2	1,545,830	23.9
Sierra Nevada	86,208	680,162	7.9	611,095	7.1
Tablas de Daimiel	3,030	135,611	44.8	250,295	82.6
Teide	18,900	2,660,854	140.8	3,292,247	174.2
Timanfaya	5,107	1,474,383	288.7	1,452,365	284.4
Sierra de Guadarrama	33,960	---	---	11,170	0.3
TOTAL	382,271	9,543,599	25.0	10,243,206	26.8

Source: Autonomous Body of National Parks (OAPN). MAGRAMA, 2013



Likewise, the “**Number of visitors to National Parks**” indicator, as compared to the **surface area** of the protected space, registered an average value of 26.8 visitors/ha back in 2013. National Parks receiving the higher number of visitors per hectare were the Timanfaya NP (284.4 inhabitants/ha), followed by the Garajonay NP (205.1 visitors/ha) and the Teide NP (174.2 visitors/ha). On the other hand, those Parks with a lower number of visitors per hectare were the Cabañeros NP (2.1 visitors/ha), the Doñana NP (5.1 visitors/ha), as well as the Sierra Nevada NP (7.1 visitors/ha).

NOTES

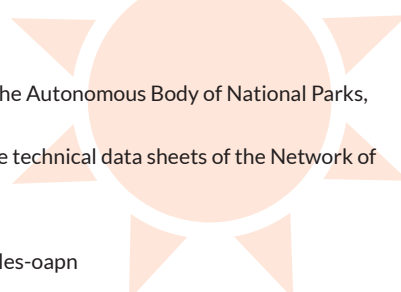
- By virtue of Act 7/2013, of 25 June on the declaration of the Sierra de Guadarrama National Park, the number of National Parks attached to the Parks Network was expanded. This new National Park has a surface of 33,960 hectares belonging to the Autonomous Communities of Madrid and Castile-Leon.
- The data gathered in the table on the Sierra de Guadarrama National Park make reference to the visitors recorded during the months of 2013, after it was declared National Park (pursuant to Act 7/2013 of 30 June), and that information only makes reference to the visitors of the section belonging to Castile-Leon. Such an imbalance in the number of visitors will be solved in 2014, since by then there will be available data for the entire year and for both sections of the park.
- Resolution of 21 January 2014, on National Parks, passes the Agreement of the Council of Ministers of 10 January 2014, which extends the boundaries of the Tablas de Daimiel National Park by adding adjacent land for a total surface area of 1,102.52 hectares.
- All data from 2012 have been reviewed, and so they may differ from the figures of that year published in previous editions of such report.

SOURCES

- Data provided by the Documentation Service of the Autonomous Body of National Parks, 2013
- Surface areas of National Parks gathered from the technical data sheets of the Network of National Parks. MAGRAMA

FURTHER INFORMATION

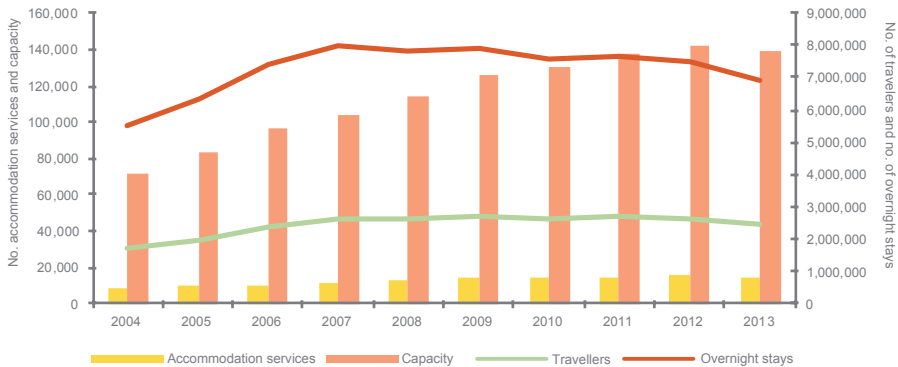
- <http://www.magrama.gob.es/es/parques-nacionales-oapn>



Rural tourism: accommodation, capacity, travellers and overnight stays

2013 witnessed a decrease in tourist attractions within rural tourism, alongside with a reduction in the number of tourists and overnight stays

Rural tourism: accommodation, capacity, travellers and overnight stays



Source: INE

The expression 'rural tourism' makes reference to a tourism alternative that responds to a growing interest on the part of many visitors for rural heritage, culture and a wide range and variety of activities carried out in open natural spaces. Territory is the main resource of tourist activities, apart from its support and setting. This type of tourism has a positive impact on rural populations and, what is more, it promotes environmental, social and economic balance from a sustainable development-based approach.

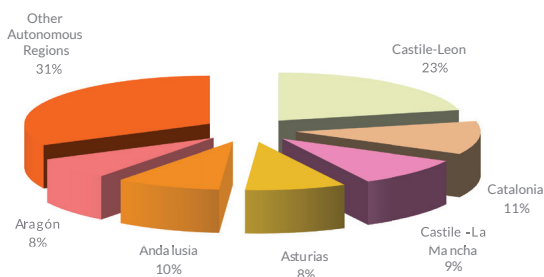
In 2013, the main rural tourism indicators, i.e. accommodation, capacity, number of tourists and overnight stays have undergone a similar evolution albeit to a different extent. In line with the provisional figures available, the **number of rural accommodation units** has decreased by 2.3% in the past year, going from 15,395 to 15,044 accommodation units. In this sense, the **number of beds available** has also decreased by 2.2%, going from 142,468 to 139,266 beds in 2013. Likewise, although to a greater extent, the **number of users** has also decreased by 6.4% in the past year, going from 2,670,386 to 2,500,411 visitors, which also means a reduction in the **number of overnight stays**, which in the past year experienced a



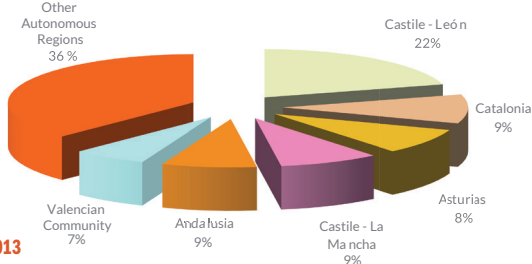
strong decline of 8.2%, reaching 6.9 million overnight stays in 2013.

According to the provisional data supplied by the Tourist Accommodation Register, the six **autonomous communities** with the highest number of tourist accommodation units in rural areas were similar to those pointed out in the previous year: Castile-Leon with 3,432 accommodation units, followed by Catalonia (1,646), Andalusia (1,454), Castile-La Mancha (1,408), Asturias (1,276) and Aragon (1,146). All these communities as a whole amount up to 10,361 establishments, 68.9% of the total.

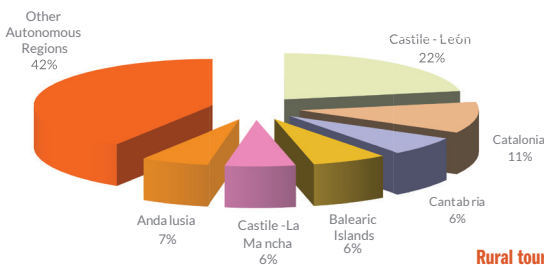
Rural tourism: distribution of the number of accommodation units. 2013



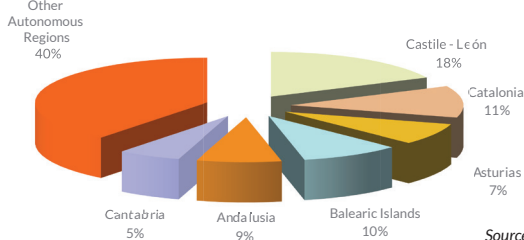
Rural tourism: distribution of the number of beds. 2013



Rural tourism: distribution of the number of travellers. 2013



Rural tourism: distribution of the number of overnight stays. 2013



Source: INE

From the point of view of the **number of beds available by autonomous communities**, Castile-Leon, with 30,038 beds (21.6%) is the community with the greatest offer of rural tourism, followed by Catalonia with 13,266 beds (9.5%) and Andalusia with 12,509 beds (9.0%). At the other end of the spectrum we find the communities with lower number of beds which are, once again, La Rioja (967 beds) and Murcia (1,745 beds).

As for the **number of inbound rural tourists received** in 2013, Castile-Leon is, once more, the community receiving the highest number of tourists with 548,979 travellers, followed by Catalonia (265,358) and Andalusia (185,155). Once again, Murcia (26,012) and La Rioja (26,123) are the communities with lower number of inbound visitors. Finally, when analysing the **number of overnight stays**, Castile-Leon is again the autonomous community with the highest record, with 1,236,350 overnight stays as opposed to Murcia, which is the autonomous community with the lowest figure with 60,778 overnight stays.

Overall, in 2013, the average number of overnight stays in these establishments was 2.8 days, a figure that is quite similar to the one recorded in the previous year, whereas the **number of new jobs directly created by the sector** reached 21,474 new jobs, 0.7% less than in the previous year.

NOTES

- Rural tourism accommodation is integrated by those establishments or household units intended to provide tourist accommodation at a certain price, with or without other additional services, which are registered with the Tourist Accommodation Register of each autonomous community. Usually, these establishments share certain common features such as, for example, being located in buildings with an architectural design typical from the area or in country houses that carry out agriculture and livestock activities (agritourism).
- Act 45/2007, of 13 December, for sustainable development of the rural environment, encouraging the promotion of rural tourism through a proper regulation of tourist attractions and by means of the improvement of tourist demand, paying special attention to sustainable tourism in priority rural areas and to agritourism or tourism related to agricultural activities. The Programme for rural sustainable development (PDRS) for the 2010-2014 period is already underway in line with the provisions set forth in Act 45/2007.

SOURCES

- National Statistics Institute (INE, spanish acronym). Tourist Accommodation Occupancy Survey, 2013

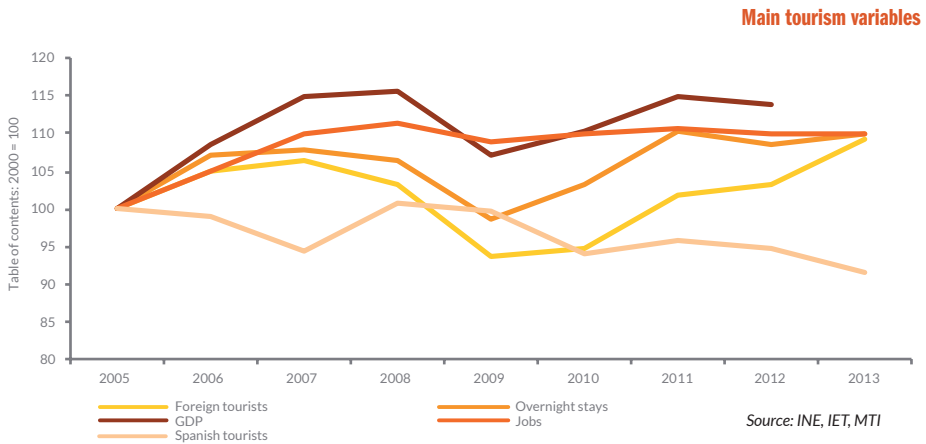
FURTHER INFORMATION

- http://www.ine.es/inebmenu/mnu_hosteleria.htm



Trends in the main variables affecting tourism in Spain

In 2013, the variables assessing the situation of tourism show positive trends. It has not been that way for national tourism, which has decreased again



The contribution to the Gross Domestic Product (GDP) coming from all tourism activities at current prices for the 2005-2012 period has been assessed taking into account two accounting series. On the one hand, for the 2005-2008 period, the Base 2000 has been taken, while for the period going from 2009 to 2012, the accounting series has been according to Base 2008. During this last period, it is possible to identify two clear cycles in the behaviour of the GDP: one first cycle with a positive growth until 2008 (+6.3%), suddenly interrupted in 2009, year in which the GDP decreased by 7.3% as compared to the previous year, and, a second cycle as from 2010, in which there was a rather high annual growth (3.1%) followed by another decline (3.2%) until 2012, which is the last year for which data supplied by the INE are available. Overall, during the 2005-2012 period the **contribution of tourism to the GDP** increased by 13.9%. During the last year, this contribution has gone from 112,908 million Euros in 2011 to 112,035 million Euros in 2012 in absolute terms.

Taking into account the reduction of the GDP in the past years, as well as the general situation of economic instability, the main variables of tourism show a consistent and positive behaviour in the last year, except for the journeys by Spanish nationals, which have experienced the third year-on-year decrease in a row.

Year 2013 has brought the recovery of **international tourism**, both as for the number of inbound tourists as well as for the consumption associated thereto. To this respect, Spain has been the chosen destination of 60.7 million **international tourists**, which means a 5.6% increase as compared to the previous year (an increase of approximately 3 million tourists). Although to a lesser extent, overnight stays increased by 1.6% in 2013, thus reaching the figure of 389 million. This rebound in the number of arrivals made **tourist spending** increase up to 59,082 million Euros, thus recording a year-on-year increase of 9.6% and resulting in a **tourist spending per person** of 975 Euros with an **average stay** of 9 days.

As for the **domestic tourism of residents**, their journeys have recorded a slight year-on-year decrease since 2008, only interrupted in 2009, year in which those experienced a certain rebound. This behaviour mirrors the uncertainties arising from the economic instability and the fragility of the national job market. In the past year, the number of journeys by Spanish tourists has decreased by 3.2%, thus going from the 158.7 million journeys recorded in 2012 down to the 153.7 million registered in 2013.

On the other hand, **job creation** related to tourist activities has remained rather constant for the past year (+0.1%). During 2013, the number of registrations with the Social Security Scheme reached 1,936,225, a figure that was higher than the 1,934,542 registrations recorded in the previous year.

NOTES

- In the overall calculation of overnight stays, the number of overnight stays of both Spanish residents and foreigners of the surveys on hotel occupancy, camping sites occupancy, tourist apartments and rural tourism accommodation for the year series from 2005 to 2013 has been taken into account.
- For the GDP, the Base 2000 accounting series has been used for years 2005 to 2008, whereas the Base 2008 accounting series has been applied for years 2009 to 2012.

SOURCES

- INE: GDP at constant prices. Spanish Tourism Satellite Account. Base 2000
- INE: GDP at constant prices. Spanish Tourism Satellite Account. Base 2008
- INE: National tourism (overnight stays of resident tourists)
- INE: Occupancy Surveys (overnight stays of foreign tourists)
- INE: Inbound tourism (number of foreign tourists)
- Ministry of Employment and Immigration (quoted by the IET): Number of registrations with the Social Security Scheme from all tourism activities.
- Institute for Tourism Studies (IET): FAMILITUR (Journeys by Spanish Nationals)

FURTHER INFORMATION

- <http://www.iet.tourspain.es>
- http://www.ine.es/inebmenu/mnu_hosteleria.htm
- http://www.ine.es/inebmenu/mnu_cuentas.htm



2.14

2013 Environmental Profile of Spain

The "Infrastructure, Transport and Housing Plan. PITVI (Spanish Acronym) (2012-2024)" was officially presented for public discussion at the end of 2013. After its final preparation and subsequent approval, this plan will cover all actual mobility needs within a framework aimed at the recovery of economic and employment growth. The development of the appropriate infrastructure and transport policy is essential for the improvement of the quality of life of citizens and the competitiveness of economy, strengthening social and territorial cohesion in Spain.

The General Secretariat for Transport of the Ministry of Development, by means of the coordination of the Division of Transport Forecasting and Technology, has implemented the **Transport and Logistics Observatory in Spain (OTLE, Spanish Acronym)**. Its purpose is to provide a comprehensive overview on the reality of transport in Spain. Different bodies and divisions within the Ministry have taken part in its preparation, as well as other Departments from other Ministries, since all agents related to transport and mobility could participate (<http://observatoriotransporte.fomento.gob.es>). The PITVI uses the Observatory as a follow-up and assessment tool for the Plan itself as well as for transport policies.



The development and updating of a Database is one of the basic elements of the Observatory, since it is its main source for the preparation of indicators and the annual report. The first of these reports was the one corresponding to 2013, which was published in February 2014. The Observatory, together with the relevant reports, indicators and the database, have become a reference for the obtaining of information on this sector and for the progress related to the integration of the environment within its development.

The reduction in the impacts of transport is one of the current main concerns. The high dependence on fossil fuels, in spite of the improvements in the efficiency of engines and the management of demand, makes it difficult to reach international and Community targets on this topic. In this regard, the Communication of the EU "Clean Power for Transport: European Alternative Fuels Strategy", COM(2013) 17 final, of 24 January 2013, proposes the development, for all means of transport, of a global strategy on alternative fuels and the path for its implementation. Its target, in the first place, consists of the establishment of a long-term political framework aimed at orienting the technological development and the investments required for the implementation of such fuels and, in the second place, the creation of trust among consumers. The main tool of this strategy is a directive, -the approval of which by the Council and publication in the Official Journal of the EU is scheduled for the second semester of 2014- which may be used as a general guideline for the development of alternative fuels within the EU.

Nowadays, sustainable mobility in Spain is supported by means of different strategies and tools, among which we may highlight: measures arising from the National Plan for Air Quality and Atmosphere Protection 2013-2016; incentive policies for the use of less polluting vehicles (such as the PIV E or PIMA AIRE plans) and Clima Projects, which are focused on the acquisition of verified emissions reductions within the so-called "diffuse sectors", which include land and sea transport (an important part of air transport is subject to the emissions trading regime).

On the other hand, it must be taken into consideration that, as an economic sector, transport has been clearly affected by the global economic situation thus experiencing a decrease in the population employed in this sector since 2007, the year in which the maximum value, amounting to 890,000 jobs, was reached. Between 2012 and 2013, decrease has amounted to 2.1%, which is lower than



the one recorded throughout the two previous years; such decrease resulted in 713,000 jobs in 2013. It is the sector with the highest reduction as regards relative expenditure, which, in 2006, represented 14.8% and, in 2012, 11.8% (with an average of € 3,321 per household) and 4.9% lower than the one registered in 2011; therefore, the downward trend followed in previous years continues. For example, the registration of new vehicles is one of the parameters which experienced a significant reduction in 2012.

IN THE PAST YEARS...

- The emissions of greenhouse gases from transport have decreased by 16.6%. On the other hand, emissions of acidifying substances decreased by 42.0% and, to an even greater extent, tropospheric ozone precursors have decreased by 53.2%.
- The typical structure of the passenger car fleet made up mostly of petrol vehicles. Petrol passenger cars represented 64.7% in 2003 and, in 2012, represented 46.3%; therefore diesel cars went from 35.3% to 53.7% in the same period. Hybrid vehicles represented only 0.12% of the passenger car fleet in 2012.
- Between 2003 and 2012, transport energy consumption decreased by an overall 10.05%. The highest reduction corresponded to sea transport (45.0%), followed by rail transport (17.4%) and air transport (13.8%). Road transport experienced the lowest decrease, just by 8.0%.
- Until 2007, there had been a generalized increase, to different extents, in those variables related to transport. During that year, the GVA (Gross Value Added) of the sector is decoupled -such value keeps an upward trend- from the rest of variables, which present a decrease in their values. The most significant decoupling is the one experienced by freight transport, followed by GHG emission, energy consumption and passenger transport.

INDICATORS

- Emissions of air pollutants from transport
- Passenger vehicle fleet by fuel type
- Transport energy consumption
- Main transport variables

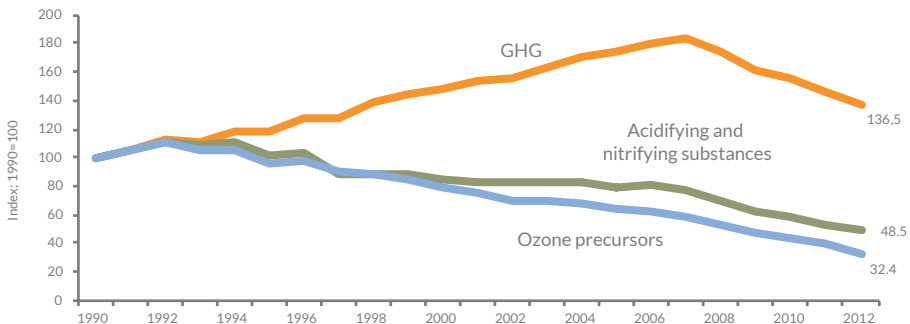




Emissions of air pollutants from transport

Since 1992, there has been a decrease in acidifying and eutrophying gases, whereas GHG emissions started decreasing in 2007

GHG emissions, acidifying and eutrophying substances and tropospheric ozone precursors from transport



Source: MAGRAMA

The contribution of transport to global warming and to the acidification and eutrophication of the environment may be analysed based on the evolution of the aggregated gases which contribute to these processes.

Greenhouse Gases (GHG) emissions resulting from transport increased by 36.5% from 1990 to 2012. In that year, emissions represented almost 24% of the national overall volume, the majority of which corresponded to road transport. However, in the last ten years (2003-2012) these emissions decreased by 16.6%. During the last year of this period, the reduction of emissions amounted to 7.0%, that is, the highest annual reduction since 2007. The replacement of energy sources for transport by alternative fuels, produced from low- or neutral-carbon sources such as methane, hydrogen, sustainably produced biofuels or electricity, is one of the main challenges. Another major challenge is to speed up the renovation of the vehicle fleet on the part of users so as to introduce the latest technological developments as regards efficiency and reduction of polluting emissions from the engines.

Acidifying substances decreased by 51.5% between 1990 and 2012, and by 9.0% in the last year of this period; although this decrease is not the most significant one, it is one of the most representative decreases within such time lapse. On the other hand, the **tropospheric ozone precursors** were the agents which experienced the highest reduction, since they decreased by 67.6% since 1990. Likewise, 2012 was the year with the highest decrease in the volume of these pollutants within the relevant period, amounting to 18.7%.

Particulate matter emissions also presented a very significant downward trend during the period 2000-2012, amounting to 47.7% as regards PM_{2.5} and 42.1% as regards PM₁₀. In relation to the last year, the reduction experienced by both sizes of particulate matters was also one of the most significant reductions (12.4% and 11.1% respectively)

2013 was one of the most important years as regards the reduction of polluting emissions resulting from transport, which meant a consolidation of the trend followed during the last years. Besides, it must be taken into consideration that this sector is one with the highest impacts on the environment in general and on the quality of life and the health of citizens in particular.

As regards the **EU-27**, average emissions from new passenger cars amounted to 132.2 g of CO₂/km in 2012 and to 127.0 g of CO₂/km in 2013. The amount corresponding to 2012, although it is still provisional, is already below the target established for 2015 (130 g of CO₂/km). In **Spain**, the trend of average CO₂ emissions corresponding to new vehicles shows a very significant decrease since 2006, and, since 2012, presented levels below the target established for 2015. The target amount foreseen for 2021 is 95 g CO₂/km.

CO₂ average emissions of new passenger cars in Spain
(grams of CO₂/km)

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
156.8	156.4	157	155.3	155.3	155.6	153.2	148.2	142.2	137.9	133.8	128.7	122.4

Source: EEA



NOTES

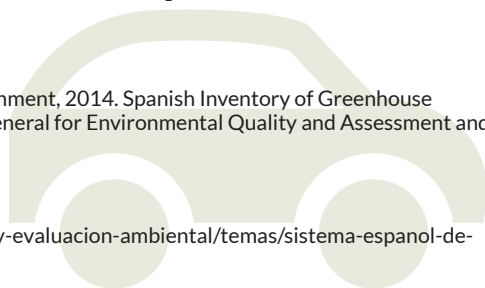
- GHG emissions are expressed in CO₂ equivalent (calculated based on the global warming potential of each gas -see chapter "Air"-). Acidifying and eutrophying substances emissions are expressed in acid equivalents (potential for hydrogen production), including the emissions weighted according to the following factors: 31.25 acid equivalents/kg for SO₂ (2.64 acid equivalents/gram), 21.74 acid equivalents/kg for NO_x, expressed as NO₂, (1/46 acid equivalents/g) and 58.82 acid equivalents/kg for NH₃ (1/17 acid equivalents/gram). Tropospheric ozone emissions have been calculated based on the reduction potential of tropospheric ozone (expressed as COVNM equivalent). In order to weight these values, the factors applied have been as per below: 1.22 for NO_x, 1.00 for COVNM, 0.11 for CO and 0.014 for CH₄.
- The emissions resulting from the following SNAP categories (Selected Nomenclature for Sources of Air Pollution), within the following groups are linked to the transport sector: 7 (road transport), 08 02 (railways), 08 04 02 (national sea traffic within the EMEP), 08 05 (air traffic) y 01 05 06 (compressors for pipeline transport).
- Regulation (EC) No. 443/2009 of the European Council and of the Council, of 23 April 2009, establishes the performance standards for emissions of new passenger vehicles, as part of the integrated approach the EU is taking to reduce CO₂ emissions of light vehicles. Member States are required to record any information related to each new passenger car registered within its territory and to provide the Commission with it. The European Environment Agency (EEA) is in charge of the managing of a database including information on manufacturers in accordance with the Regulation. This Regulation has been amended by virtue of Regulation (EU) No. 397/2013 of 30 April regarding the monitoring of CO₂ of new passenger cars and, subsequently, amended by Regulation No. 333/2014 of 11 March so as to define the modalities needed for reaching the 2020 target aimed at reducing CO₂ emissions from new passenger cars.

SOURCES

- Ministry of Agriculture, Food and Environment, 2014. Spanish Inventory of Greenhouse Gases. Years 1990-2012. Directorate-General for Environmental Quality and Assessment and Natural Environment

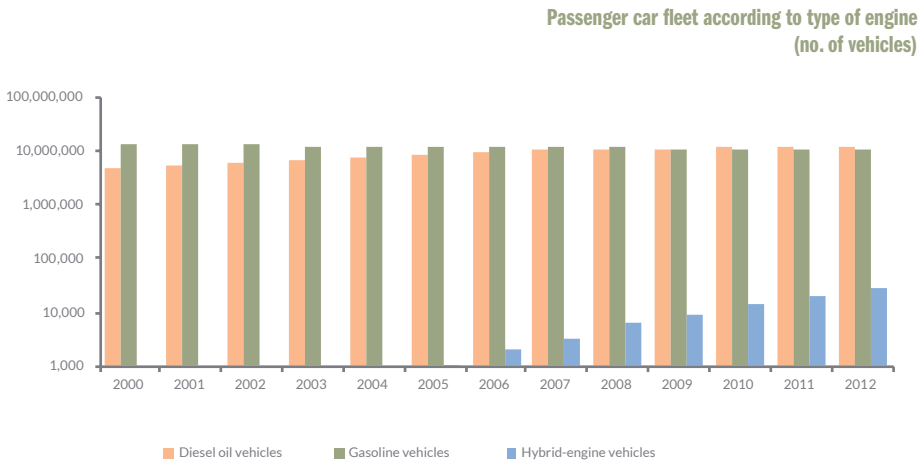
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- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>
- <http://www.eea.europa.eu/data-and-maps/data/co2-cars-emission-6>



Passenger vehicle fleet by fuel type

The passenger car fleet decreased significantly the number of vehicles with petrol engines; likewise, the amount of vehicles manufactured with diesel engines increased. Besides, the number vehicles with hybrid engines also increased.



Source: MAGRAMA

The evolution of the passenger car fleet in Spain shows an increase in the amount of cars with **diesel engines** and a decrease in the number of those cars which need **petrol** as fuel. 2009 was the first year in which the number of passenger cars with diesel engines exceeded the number of petrol engines; such difference has been increasing each year. In 2009 such difference amounted to 188,996 passenger cars, while in 2012 amounted to 1,660,734. During the period between 2000 and 2012, diesel passenger vehicles increased by 153.9% whereas, on the other hand, petrol passenger vehicles decreased by 19.6%. As a whole, the passenger car fleet increased by 27.3%.

In this context, it must be pointed out that there has been an increase in the number of vehicles with **hybrid engines** which, in 2012, exceeded 27,000 vehicles. A "hybrid vehicle" is deemed to be any vehicle with at least two different power sources and with two different power storage systems (on vehicle) for the purpose of vehicle propulsion.

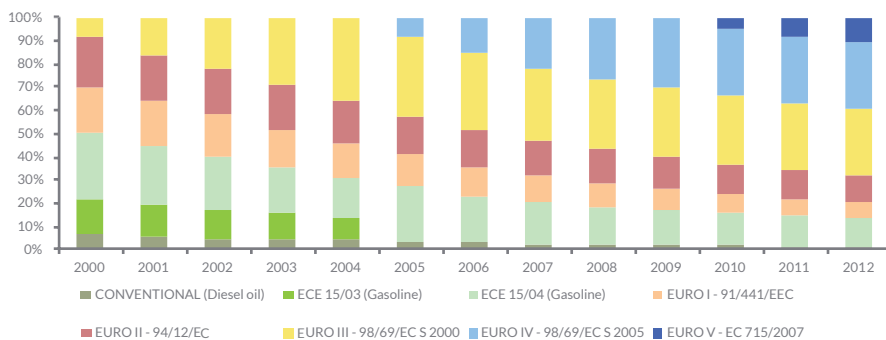


As regards the distribution of the fleet in 2012, 53.7% were diesel vehicles and 46.3% were petrol vehicles. On the other hand, hybrid vehicles which used petrol as main fuel source barely represented 0.12% of the vehicle fleet, although it must be taken into account that during 2005 less than a thousand hybrid vehicles were registered.

The developments in the definition of common **specifications and requirements** in relation to emissions from motor vehicles, established so as to limit the levels of pollution caused by road vehicles, have given rise to a gradual modification in the characteristics of the passenger car fleet. By means of the ongoing renovation of the car fleet and the subsequent implementation of more advanced Euro norms (which govern the emission limits for the certification of vehicles), the reduction of polluting emissions caused by the transport industry is being progressively accelerated.

The evolution of the Spanish car fleet, arising out of the application of the different norms, is clearly shown in the chart below. The disappearance in 2005 of those passenger cars which complied with regulation ECE 15/03 corresponding to petrol cars which were certified during period 1980 - 1984 and which were required to comply with the emission limits provided by virtue of Directive 78/665/EEC was an important turning point.

Distribution of the fleet of passenger cars classified per type of fuel according to the Euro norm



Source: MAGRAMA

Distribution of the fleet of passenger cars classified per type of fuel according to the Euro norm (%) Year 2012

CONVENTIONAL (Diesel)	ECE 15/04 (Petrol)	EURO I - 91/441/EEC	EURO II - 94/12/EC	EURO III - 98/69/EC S 2000	EURO IV - 98/69/EC S 2005	EURO V - EC 715/2007
1.49	13.10	7.26	12.37	29.04	29.07	7.68

Source: MAGRAMA

NOTES

- Data on hybrid vehicles refer to petrol models. No accounting is made for other models. Data from an estimation made by the General Traffic Directorate in relation to certain manufacturers.
- The graph 'Fleet of passenger cars according to engine type' is represented in logarithmic scale due to the difference in the scale of the hybrid vehicles.
- Regulation (EU) No. 136/2014 of the Commission of 11 February 2014, amends Directive 2007/46/EC of the European Parliament and of the Council, Commission Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 5 and Euro 6), and Commission Regulation (EU) No 582/2011 as regards emissions from heavy duty vehicles (Euro VI).

SOURCES

- Ministry of Agriculture, Food and Environment, 2014. Spanish Inventory of Greenhouse Gases. Years 1990-2012. Directorate-General for Environmental Quality and Assessment and Natural Environment

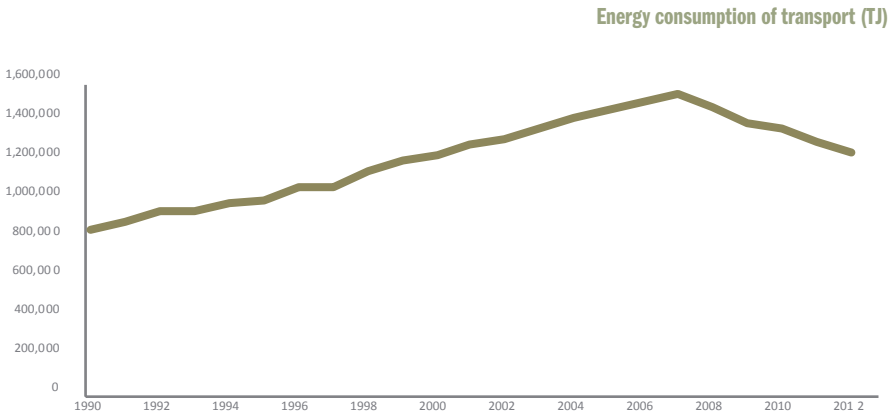
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- <https://sedeapl.dgt.gob.es/IEST2/>
- <http://movele.es/>



Transport energy consumption

Transport energy consumption increased until 2007, year in which a downward trend started. In 2012 consumption fell back to 2000 levels



Source: MAGRAMA

The **consumption of energy in transport** increased by 87.1% between 1990 and 2012. It reached a historical high in 2007, year from which an ongoing decrease started, which was simultaneous to the global economic crisis which, in 2012, reached 20.51%. By means of transport, the decrease experienced by energy consumption of **sea transport** must be highlighted since, between 2007 and 2012, it reached 41.3%. On the other hand, **air transport** decreased its consumption by a significant 34.6%, whereas consumption in relation to **road transport and rail transport** decreased by 19.0% and 14.8% respectively.

This downward trend of the last few years strengthened in 2012 with an overall reduction amounting to 5.1%; air transport was the sector with the highest reduction in energy consumption between 2011 and 2012 (by 14.0%). Road transport decreased by 5% and rail transport decreased by 6.9%. Sea transport was the only sector which experienced an increase in energy consumption during 2012, amounting to 3.9%, largely because of the rise in freight transport due to an increase in the volume of exports.

The **distribution of energy consumption by means of transport** show a very similar trend throughout the period; road transport is the means which presents the highest consumption share, which amounted to 92.7% in 2012. It is noticeable the way the share related to the consumption of energy between air transport and sea transport have matched; the former presented a lower consumption until 2006 whereas, since 2007, air transport contributed to the total balance with a higher share.

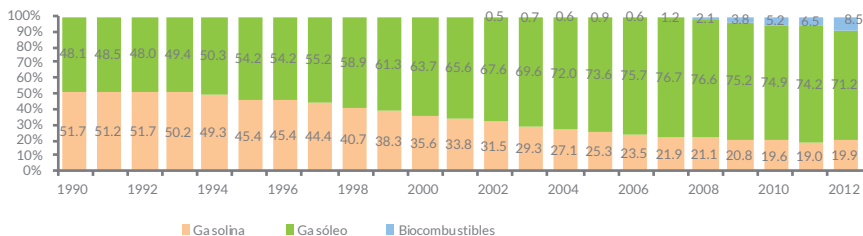
Distribution of energy consumption by means of transport (%)

TYPE	1990	1995	2000	2005	2007	2012
Road	87	87.7	90.2	90.2	90.9	92.7
Air	3.4	3.3	4.3	4.3	4.4	3.6
Sea	8.8	8.4	5	4.6	4.1	3.0
Rail	0.7	0.5	0.4	0.3	0.3	0.3
Other	0	0.1	0.2	0.6	0.3	0.4

Source: MAGRAMA

The **distribution of the energy consumed in road transport by fuel type** shows the introduction of biofuels into the market, which reached 8.5% in 2012, as well as the increase in the consumption of petrol-based energy as a consequence of the evolution of the vehicle fleet.

Distribution of energy consumption by fuel type in relation to road transport (%)



Note: LNG and gaseous fuels are not represented due to scale problems.
 Their contribution ranges between 0.2% and 0.4%
 Source: MAGRAMA



The **intensity of final energy** consumed by the transport industry in 2012 amounted to 0.036 kilogram of oil equivalent per Euro generated in the flow of the global economy of the country. This means that, in order to produce a unit of GDP, the transport industry generated such volume of energy. In 2000, that intensity amounted to 0.042 kilograms of oil equivalent, which means that, during that period, intensity decreased by 16.14%. The trend shows that since 2000 there was a period of stability until 2007, year in which a downward trend starts: between 2007 and 2012 such decrease amounted to 17.2%. During the last year, intensity decreased by 5.9%.

In the **European context**, in 2012, Spain was the fifth country in energy consumption in relation to the transport industry, after Germany, France, the United Kingdom and Italy. That same year, according to Eurostat, such consumption in our country amounted to 33,348,90 ktoe, which represented 9.5% of the total consumption recorded in UE-28, which came up to 351,080.0 ktoe. In the last 10 years (2003-2012), Spain has experienced a reduction in the consumption of final energy related to the transport industry amounting to almost 10%, thus becoming the fourth country within the EU as regards reduction of energy consumption.

NOTES

- IDAE calculates the intensity of the transport industry, expressed in constant currency of the year 2005, from GDP figures published by the National Statistics Institute in February 2014, in the National Accounts of Spain (CNE) base 2008, in conformity with the new European System of Accounts and in line with the Regulation 715/2010 of the Commission, modifying Regulation (EC) 2223/96 of the Council concerning the adaptations of the national accounts.

SOURCES

- Ministry of Agriculture, Food and Environment, 2014. Spanish Inventory of Greenhouse Gases. Years 1990-2012. Directorate-General for Environmental Quality and Assessment and Natural Environment
- Institute for Diversification and Energy Saving (IDAE), 2014. Annual Report on Energy Intensities of the IDAE. Transport Section
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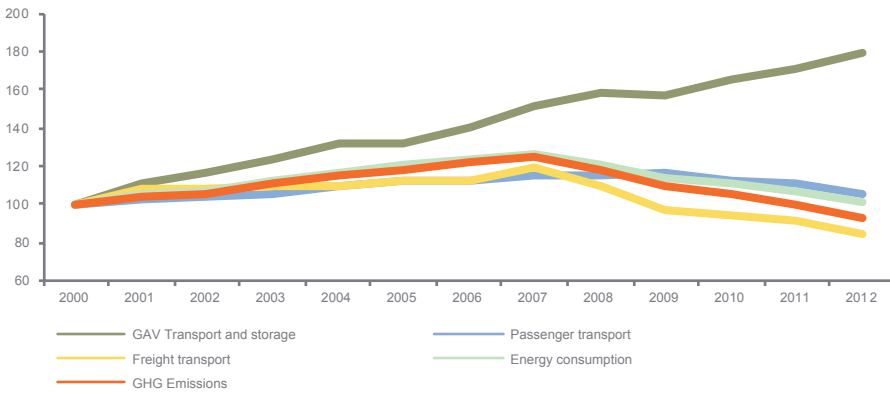
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Main transport variables

Since 2007, there has been a decoupling of the GVA of the sector and the consumption of energy together with the demand of passenger and freight transport

Main variables of transport: travellers and freight transport, energy consumption and GVA of the sector (Index 2000=100)



Source: Ministry of Development, INE and MAGRAMA

As regards the last 13 years, 2012 was the year in which the **transport industry reached its highest share of the overall Gross Value Added (GVA) of the Spanish economy** (expressed in current prices), which amounted to 5.3% of the total. Between 2000 and 2012, the economic growth of the industry came up to 80% (whereas the total GVA grew to a lesser extent: 68.5%). This progression was virtually unvaried throughout the period, showing a slight decrease in 2009.

On the other hand, **passenger transport** grew to a much lesser extent, by just 5.5%; it followed that same trend until 2007, year in which the opposite trend started: between 2007 and 2012 there was a decrease by 8.8%. **Demand in freight transport** experienced a decrease by 15.7% during that same period; such decrease exceeded 28.9% between years 2007 and 2012. As regards both variables, 2007 was the year in which a turning point took place since there was a very significant change in the trend caused by the decoupling between both variables and the GVA.

Energy consumption in 2012 virtually returned to the 2000 levels, only 0.8% higher than the ones recorded during that year. In 2008, a series of successive



annual decreases as regards the overall amount of energy consumption started after the peak that took place in 2007 amounting to 1,502.7 PJ. Between 2011 and 2012, the decrease came up to 5.1%, dropping back to 1,194.4 PJ.

In this sense, the **emissions of greenhouse gasses** from transport, completely related to the consumption of fossil fuels, represented 24% of the total net emissions and, between 1990 and 2012, such emissions decreased by 36.5%. However, between 2000 and 2012, they dropped by 7.6%, thus showing the same behaviour than that of the trend related to the demand of transport, with a peak in emissions in 2007 and a subsequent decrease.

The **passenger transport system** is characterized by a predominance of the road transport (with almost 91.5% share in 2012); this share has hardly changed in the last few years, with the exception of an increase in the demand of railway services in those corridors with high speed lines. **Road transport** is also the main exponent of freight transport (80.7% in 2012), followed by sea transport, with almost 13% of the freight transport carried out.

Distribution by means of transport as regards domestic passenger and freight transport (%)
Year 2012

	Road	Rail	Air	Sea	Pipeline
Passengers (p-km)	91.45	5.58	2.63	0.35	
Goods (t-km)	80.67	2.50	0.01	12.99	3.83

Source: Ministry of Development

In 2012, the **demand of domestic passenger transport** matched those values of 2003, with a slight decrease by 0.35%. However, in the case with freight transport, the reduction was much higher during these ten years, coming up to 21.1%. The significant decrease experienced since 2007 coincided with the beginning of the international economic crisis and the deficit in the trade balance, which affected freight transport to a great extent.

2007 was the year in which the highest **figure as regards passengers in Spanish airports** was recorded, with almost 208.5 million, including domestic and international traffic. After a one-time decrease, in 2011 there were signs of recovery: 203.3 million passengers were recorded during that year, although in



the last two years (2012 and 2013) that volume of traffic suffered another drop, decreasing down to 186.4 million passengers. Such decrease amounted to 8.3%; 16.3% as regards air operations.

NOTES

- The indicator is calculated by presenting in a direct manner the annual information of the four variables in index terms, with the year 2000=100.
- The unit of measurement used for passenger traffic is passenger-kilometre (p-km) and is calculated by multiplying the annual number of passengers by the number of kilometres travelled.
- The unit of measurement of freight transport is the tonne-km (t-km), calculated by multiplying the number of tonnes transported by the number of kilometres travelled.
- The energy consumption does not include figures corresponding to international air transport and sea transport.

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- Ministry of Development, 2013. Transport and infrastructures. Annual report 2012
- Ministry of Agriculture, Food and Environment, 2014. Spanish Inventory of Greenhouse Gases. Years 1990-2012. Directorate-General for Environmental Quality and Assessment and Natural Environment
- INE, 2014. Spanish National Accounting. Gross Value Added by branches of activity. INEbase / Economy / Economic Accounts / Spanish National Accounting. Base 2008 / Accounting 2000-2012 / Aggregated by branches of activity / Table 3 Gross Value Added: current prices
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2.15

2012 Environmental Profile of Spain

In 2013, the "Environmental Indicator Report 2013" was published by the European Environment Agency. The subjects assessed therein were: food, water, energy and housing, which were analysed from the approach of green economy, by focusing on the connections between the use of resources and human wellbeing. The report outlines the dramatic change in the number and size of households between 1990 and 2010. While the number of households of the EU-28 grew by 23%, over the same period, population increased by only 6%, which means that there are more and more households but less people living in them. Some of the reasons behind this trend may be attributed to the increase in wealth throughout the member countries, but also to sociological changes and demographic decrease. The report states that the decrease in the size of households has led to an increase in the pressure over the environment, leading to a higher consumption of resources and energy, both due to the construction of households as well as to the subsequent use thereof.

The second priority purpose of the seventh Environment Action Programme (7th EAP) is to turn the European Union into a resource-efficient, green and competitive low-carbon economy. To do so, among other aspects, the EAP is aimed at guaranteeing that by 2020, all structural changes in production, technology and innovation, as well as consumption patterns and lifestyles will have



reduced the overall environmental impact caused by production and consumption, in particular, on the food, housing and mobility sectors. To do so, the 7th EAP outlines the need of relying on a more consistent policy framework for a sustainable production and consumption, and to encourage consumer demand for sustainable products and services from an environmental approach.

In April 2013, and for the purpose of assessing the trends in consumption patterns at households, the EEA published the assessment on the **Household expenditure by consumption categories** indicator, revealing different pressure intensities. This indicator shows the trends of total expenditure in goods and services consumed by European households for each of the 12 categories falling under the "Classification of individual consumption by purpose (COICOP)". The report states that, in general terms, between 1995 and 2010, there was a relative decoupling between consumption of goods and services and environmental pressures resulting thereof. It is possible to observe two effects of this relative decoupling during the assessed period: On the one hand, such decoupling has to do with the allocation of the expenditure to other consumption categories with lower environmental pressure intensities, even towards less impacting goods and services within the same consumption category (e.g. decrease in the use of private vehicles in favour of railway transport within the transport category). On the other hand, a decrease has been observed in the intensity of environmental pressures over multiple consumption categories, due to the improvements made in the production processes of goods and services.

IN THE PAST TEN YEARS...

- Within the 2002-2011 period, the gross disposable income per household increased by 17.9%, whereas the average expenditure per household did so by 38.3%.
- Between the years 2003-2012, energy consumption per household for electric end uses increased by 10.9%, whereas consumption for thermal end uses fell by 21.5%, thus leading to an overall decrease in total consumption per household of 10.6%.
- Between 2002 and 2011, the total volume of water supplied to households decreased by 5.1%, resulting in a reduction in water consumption per household equal to 23.6%.
- Within the 2003-2012 period, the number of passenger cars per household decreased by 2.1%, whereas mopeds dropped by 17%. Motorcycles per household increased by 55%.
- Between 2002 and 2011, each household reduced waste production by 29.6% and source separation of waste increased by 40.6%.

INDICATORS

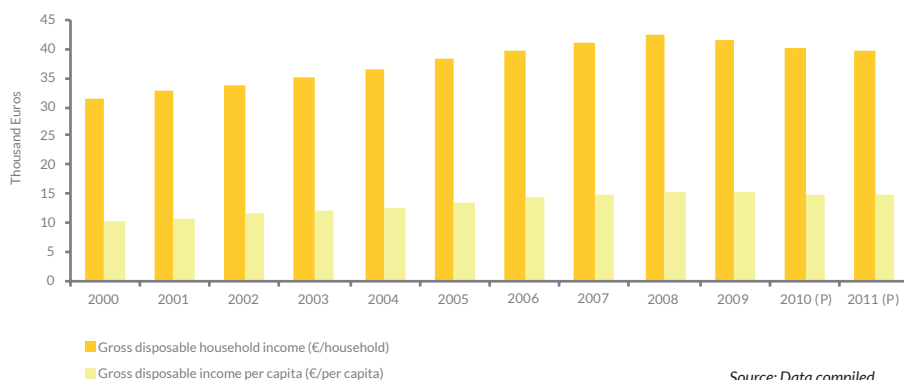
- Gross disposable household income
- Energy consumption per household
- Water consumption per household
- Number of passenger cars, motorcycles and mopeds per household
- Urban waste production per household
- Environmental efficiency in the household sector



Gross disposable household income

The average budget of Spanish households experienced a reduction by 415 Euros as compared to year 2010. Nevertheless, the decreasing trend of this indicator regained stability with a 1% decline as compared to the 3.2% recorded over the previous year

Gross disposable household income



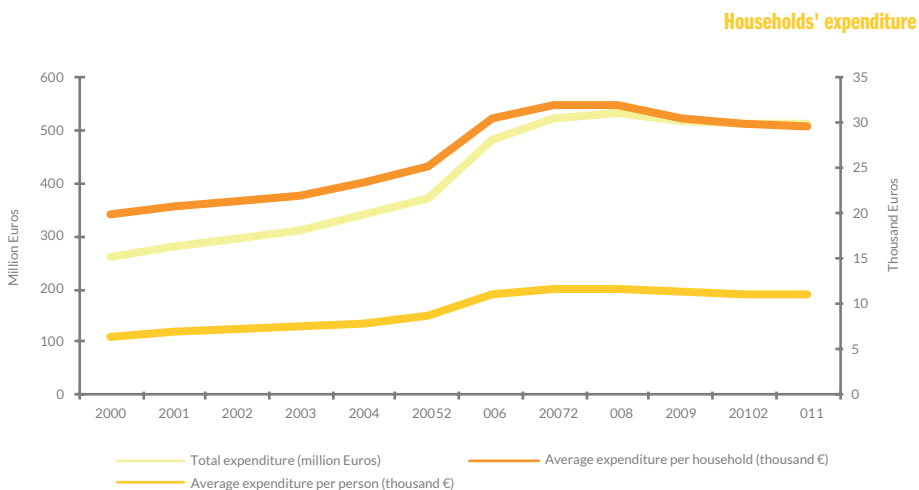
Source: Data compiled
from the INE and Eurostat

According to Eurostat, In 2011, the **number of households** increased up to 17.3 million (around 1% as compared to the previous year), while the **gross disposable household income** reached 691,493 million Euros, 0.03% below the figure of 2010, according to the provisional data of the INE. This unequal variation in the number of households and the overall gross disposable household income meant that, in 2011, each household had 415 Euros less than in the previous year. In percentage terms, this means that this figure has fallen 1.03 points below the values reached during the previous year. If the data on gross disposable household income are expressed in Euros per inhabitant, the same decreasing trend is observed therein. In 2011, the **gross disposable household income per capita** was 14,992 Euros/inhabitant, 0.15% less than in the previous year.

Within the scope of the **autonomous communities**, according to the INE (press release of 27 December 2013 on Spanish Regional Accounts), the Basque Country was the region with the highest gross disposable household income per capita, with 20,058 Euros/inhabitant, 33.8% above the national average. This

autonomous community is followed by the Autonomous Community of Navarre, with 19,167 Euros/inhabitant, and the Community of Madrid, with 17,989 Euros per inhabitant. If we take as basis of comparison the **national average of gross disposable household income per inhabitant**, there were ten regions that exceeded the average figures, whereas nine autonomous communities recorded values below the average.

In parallel with the decrease of the gross disposable household income in Spain during 2011, the **average disposable household income in current terms** did also decrease by 1% down to 29,482 Euros/household according to the data of the Survey on Family's Budgets of the INE. As for the **average expenditure per person**, it has barely changed as compared to 2010, having experienced a 0.21% decrease down to 11,137 Euros per year. According to the INE, if we take into account the **total expenditure of all the households based in Spain**, 2011 levels were the same in current terms as those of the previous year, whereas in constant terms, a 2.8% decrease was recorded. With regard to the **distribution of expenditure**, the Survey on Family's Budgets points out that, in 2011, Spanish households allocated 31.3% of their budget (9,228 Euros) to the "Household, water, electricity and fuels" group. Therefore, this item of expenditure has increased by 6.5 percentage points since 2006. This item is followed by the group of "Food and non-alcoholic drinks", which has received 14.4% of the entire household budget, a percentage quite similar to the one allocated thereto back in 2006.



Source: INE



According to the INE, in general terms, the greatest decrease experienced in disposable income and expenditure of each household as compared to the ratio of these variables per inhabitant is due to the current population dynamics in Spain, which leads to an increase in the number of households and to a decrease thereof in terms of size.

NOTES

- In order to provide a graphic representation of the gross disposable income for the 2000-2011 year series, it has been necessary to use the data of the INE calculated according to two different bases: Base 2000 for years 2000 to 2007, and base 2008 for the 2008-2011 series.
- Households' expenditure (total, average and per capita) is expressed in current terms, except for those cases in which it has been specifically recorded at constant prices.

SOURCES

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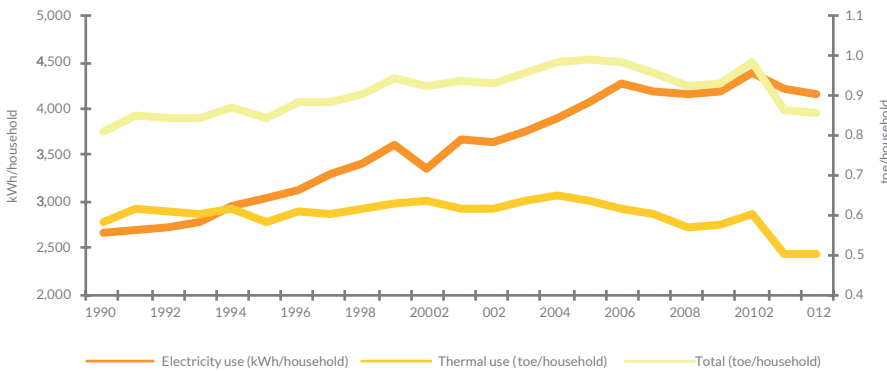
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Energy consumption per household

Year 2012 showed a moderate decreasing trend in energy consumption per household, with a reduction of 1.4% in consumption for electric end uses and 0.6% in energy consumption for thermal end uses.

Energy intensity of households

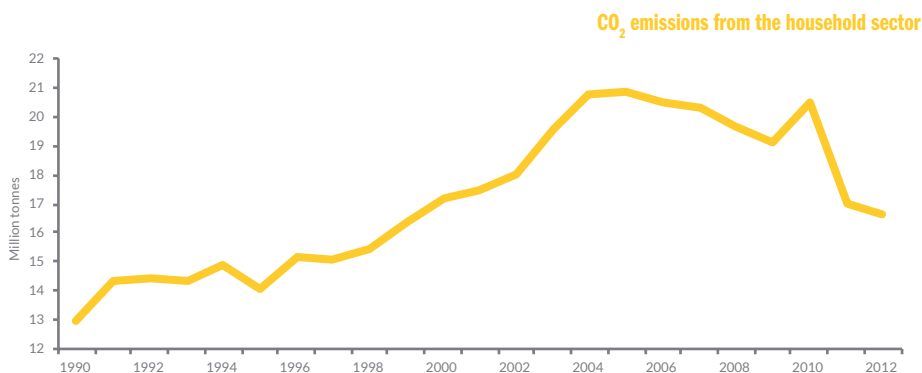


Source: MINETUR/IDAE

According to the data provided by the IDAE, over the year 2012, 14,867,754 tonnes of oil equivalent (toe) were consumed by the 17.3 million of households existing in Spain in that year according to Eurostat. This entailed a reduction of 0.94% in consumption as compared to the previous year, while the figure of the number of households remained practically unaltered (-0.01%). Therefore, the decreasing trend of **energy consumption per household** that began in the previous year has moderated. If back in 2011 12.06% less energy was consumed by each household than in 2010, in 2012, this percentage decreased only by 0.94% or 0.857 toe/household. The greatest change in energy consumption back in 2012 was related to **electric end uses**, with a 1.4% decrease as compared to the previous year. In 2011, 4,209 kWh/households were consumed, whereas in 2012 this value reached 4,150 kWh/household. As regards to energy consumption for **thermal end uses**, there was only a decrease of 0.6%, going from 0.503 toe/household to 0.500 toe/household.



Between 1990 and 2012, the **total energy consumption per household** increased by 5.7%. According to the breakdown by end uses, energy consumption per household for **electric end uses** increased by 55.2% during such period, going from 2,674 kWh/household in 1990, to 4,150 kWh/household in 2012. However, energy consumption for **thermal end uses** decreased by 13.9%, from 0.581 to 0.500 toe/household. Concerning the maximum values of the historical series reached back in 2010 as for electrical end uses (4,400 kWh/household) and for thermal end uses back in 2004 (0.650 toe/household), in 2012 consumptions of energy decreased by 5.7% and 23%, respectively.



Source: MAGRAMA

As regards to **CO₂ emissions**, back in 2012 the whole of the **residential combustion plants** with a nominal power under 50 MWt (SNAP 02 02 02) emitted a total of 16,658 kilotonnes of CO₂, i.e. 2% less than in 2011, thus reaching similar values to those recorded back in 2000. With regard to the 1990-2012 period, CO₂ emissions grew by 28.3%. **In terms of tonnes of CO₂ per household**, back in 2012 0.96 t of CO₂/household were emitted, 2.5% less than in the previous year.



NOTES

- Data on energy consumption include final consumptions of renewable energies for thermal end uses (biomass and solar thermal energy).
- Data on CO₂ emissions only refer to carbon dioxide but not to any other greenhouse gases.

SOURCES

- Energy intensity of households: Data provided by the Department of Planning and Studies of the IDAE/MINETUR
- EUROSTAT: Data Navigation Tree / Database by themes / General and regional statistics / Regional statistics by NUTS classification / Regional labour market statistics / Regional socio-demographic labour force statistics - LFS annual series / Number of households by degree of urbanisation of residence and NUTS 2 regions (1 000) (lfst_r_lfsd2hh)
- EIONET: Eionet / Reportnet / CDR Repository / Spain / European Union (EU) obligations / Greenhouse gas emissions inventory (280/2004/EC) / Spain Greenhouse Gases Inventory 1990-2012 Ec / Folder B-CRF submission 2014 v1.8 / Files ESP-2014-(1990-2012)-v1.3.xls / Table SUMMARY 2

FURTHER INFORMATION

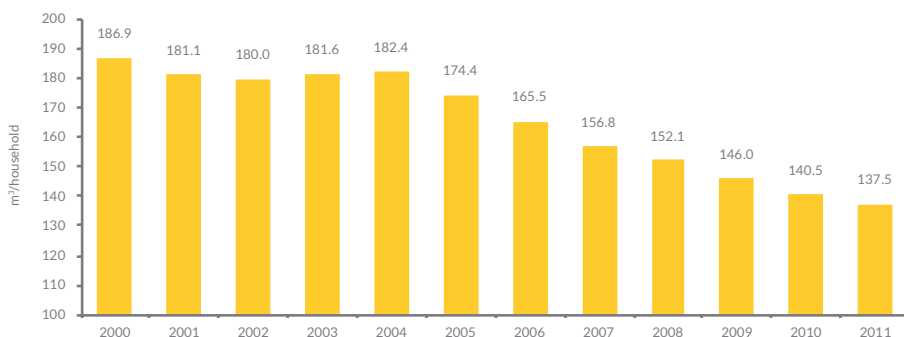
- <http://www.idae.es/index.php/idpag.802/relcategoria.1368/relmenu.363/mod.pags/mem.detalle>
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- http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database



Water consumption per household

Water consumption in Spanish households pursued its decreasing trend in 2011, both as for the total water consumption (1.17% less than in 2010) as well as for the volume distributed to each household (2.16% less than in the previous year)

Water volume distributed to households



Source: Data compiled
from the INE and Eurostat

The last information available from the INE as regards to the **households' water consumption** comes from 2011, when such consumption decreased once more. In this way, if back in 2010, consumption by Spanish households reached 140.5 m³/household on average, in 2011, 137.5 m³/households were consumed, 2.16% less than in the previous year. Therefore, a continuous decrease in water consumption by households was recorded for 7 years in succession, 3.94% lower than in year 2000.

Overall, in 2011, 2,384 hm³ of water were registered and distributed to Spanish **households**, 1.17% less than in the previous year. Such water volume was 70.5% of the total, the rest corresponding to economic **sectors** (20.5%) and **municipal consumptions** (9%). Once again, in 2011, the **autonomous community** with lower water consumption per household was the Basque Country (115 m³/household), followed by La Rioja (120 m³/household) and the Balearic Islands (123 m³/household). These same regions did also registered the lowest **consumption values per inhabitant and day**.

As for the **losses** (unregistered water volume), in 2011 those accounted for 25% of the total volume of controlled and distributed water for public supply, 1% lower than in the previous year according to the INE data. Overall, 1,133 hm³ of water were lost, 777 hm³ of which were actual losses and 356 hm³ were apparent losses. While the percentage of apparent losses remained constant as compared to the previous year, actual losses decreased by 1%.

In terms of **average consumption by households per inhabitant and day**, in 2011 this figure dropped by 1.4% as compared to 2010, down to 142 litres/inhabitant and day, according to the data supplied by the Spanish National Institute of Statistics (INE). The above percentage sets the **water consumption per person and day** at 15.5% below the values recorded back in 2000.

In 2011, the **water cost per unit** increased by 2% as compared to the previous year, thus reaching 1.54 Euros per cubic metre. The **autonomous community** with the highest unit price was Murcia (2.29 Euros/cubic metre, whereas the region with the lowest unit price was Castile-Leon (0.90 Euros/m³).

NOTES

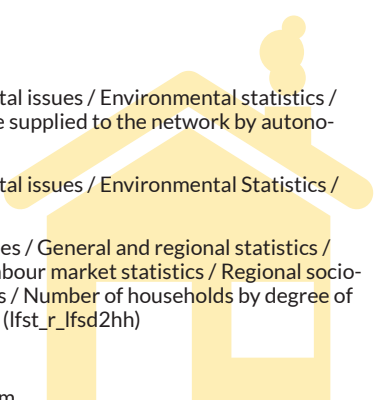
- Water consumption per household has been calculated by dividing the water registered and distributed to households by the number of households existing each year according to the Eurostat data. Adjustments in the number of households arising from the updating of this year series may lead to changes in the figures of water consumption per household from previous years.
- “Water lost in distribution networks” must be understood as the estimated difference between the water supplied to those networks and measured consumption. That figure includes the leaks resulting from breaks (actual losses) as well as negligence, measurement errors and unmeasured consumption (apparent losses).
- Water cost per unit results from dividing the sums paid for water supply plus sewerage charges, purification and water treatment levies by the volume of water registered and distributed to the users.

SOURCES

- INE: INEbase / Physical environment and environmental issues / Environmental statistics / Survey on water supply and sanitation / Water volume supplied to the network by autonomous communities and cities
- INE: INEbase / Physical environment and environmental issues / Environmental Statistics / Survey on water supply and sanitation / Press release
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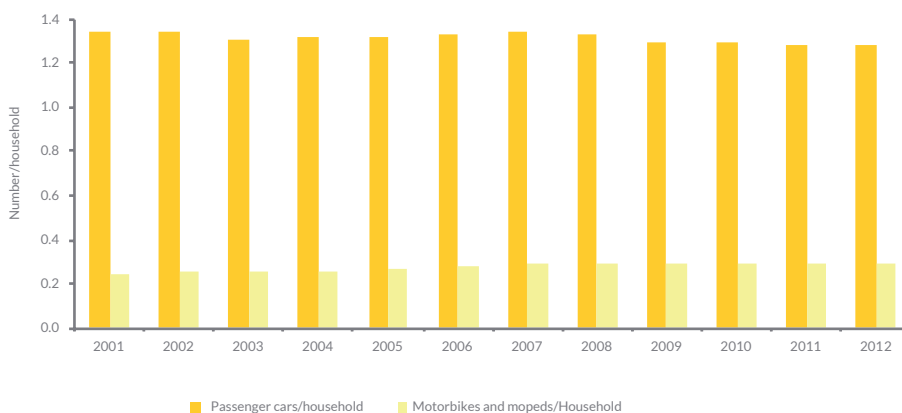




Number of passenger cars, motorcycles and mopeds per household

Back in 2012, the number of passenger cars, along with the sum of motorcycles and mopeds per household decreased by 0.6% in both cases

Number of passenger cars, motorcycles and mopeds per household



Source: Data compiled
from the Directorate-General of Traffic (DGT) and Eurostat

As of 31 December 2012, our **national vehicle fleet** (including mopeds) was made up by 32.96 million vehicles according to the General Statistics Yearbook 2012 of the Directorate-General of Traffic, 0.36% less than in the previous year. 67.49% (22.25 million) out of this figure were **passenger cars**, 8.65% (2.85 million) were **motorcycles** and, finally, 6.58% (2.17 million) were **mopeds**. As compared to the previous year, passenger cars decreased by 0.13%, mopeds did so by 2.68%, whereas the number of motorcycles increased by 1.94%.

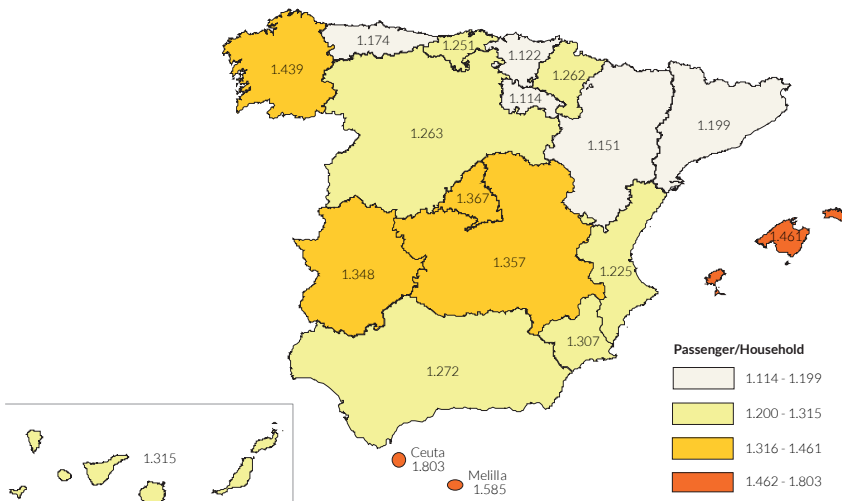
The number of motorcycles per household increased once again for the ninth year in a row, going from 0.161 to 0.164 between 2011 and 2012 (+1.4%). However, the ratio of mopeds per household decreased by 3.18%, following the trend from previous years. If two-wheeled vehicles are considered as a whole per household (both motorcycles and mopeds), during 2012, a 0.6% decrease was recorded in this sector. Passenger cars per household did also fall by 0.6%, going from 1.284 passenger cars per household in 2011 to 1.276 in 2012.

During the 2001-2012 period, the Spanish vehicle fleet increased by 27.81%,

which meant a rebound of over seven million units. Passenger cars grew by 22.6%, whereas motorcycles did so by 92.3% and mopeds did so by 20.1%. Overall, the entire fleet of motorcycles and mopeds increased by 52.6%. Over this period, the **number of households** did also increase (28.4%) and, as a consequence thereof, there was a 4.5% reduction in the number of passenger cars per household, along with an increase in the number of motorcycles and mopeds by household of 18.9%.

In 2012, ten **autonomous communities** accrued a number of passenger cars per household lower than the average in Spain. Households in La Rioja, Aragon and the Basque Country registered the lowest ratios of passenger cars per household (1.114; 1.151 and 1.122, respectively). As for two-wheeled vehicles (mopeds and motorcycles) per household, there were also ten autonomous communities that showed ratios below the Spanish average, among which Madrid, Asturias and the Basque Country ranked in the top positions with the lowest number of motorcycles and mopeds per household (0.165; 0.178 and 0.182, respectively).

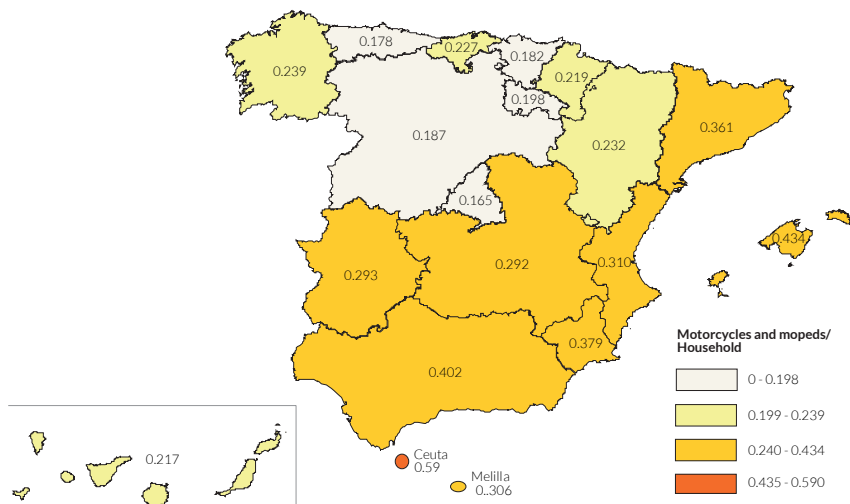
Number of passenger cars per household. Year 2012



Source: Data compiled from the Directorate-General of Traffic (DGT) and Eurostat



Number of motorcycles and mopeds per household. Year 2012



Source: Data compiled from the Directorate-General of Traffic (DGT) and Eurostat

NOTES

- Annex II of Royal Decree 2822/1998, of 23 December, which enacts the General Vehicle Regulation, foresees the following definitions:

Passenger car: A vehicle intended for the transport of passengers that has four wheels at least. Apart from the driver's seat, it must have a maximum of eight passenger seats.

Motorcycle: A two-wheeled vehicle without sidecar or a vehicle with three asymmetrical wheels with respect to their median longitudinal plane, which is equipped with an engine with a cylinder capacity exceeding 50 cm³, if it is an internal combustion engine, and/or with a maximum design speed over 45 km/h.

Moped (following the amendment made by virtue of Act 43/1999 of 25 November, on adaptation of traffic rules to cycling): Vehicles falling within those definitions:

- Any two-wheeled vehicles equipped with an engine with a cylinder capacity below 50 cm³, if it is an internal combustion engine, and/or with a maximum design speed under 45 km/h.
- Any three-wheeled vehicles equipped with an engine with a cylinder capacity below 50 cm³, if it is an internal combustion engine, and/or with a maximum design speed under 45 km/h.
- Any 4-wheeled vehicles whose unladen mass is below 350 kg, excluding the battery mass in case of electric vehicles, with a maximum design speed under 45 km/h and equipped with an engine with a cylinder capacity equal or below 50 cm³ for combustion engines, or with a maximum net power equal or below 4kW as for any other types of engines.

- General Vehicle Regulation (RD 2822/98) which came into force on 27 July 1999, implemented the obligation to register all mopeds with the provincial headquarters of the Directorate-General of Traffic, both new ones as well as those already in traffic. As for the registration of used mopeds, this very Regulation established a series of deadlines, the last of which ended on 27 January 2002, the figure corresponding to the mopeds fleet being published for the first time in the DGT's yearbook of 2001.

SOURCES

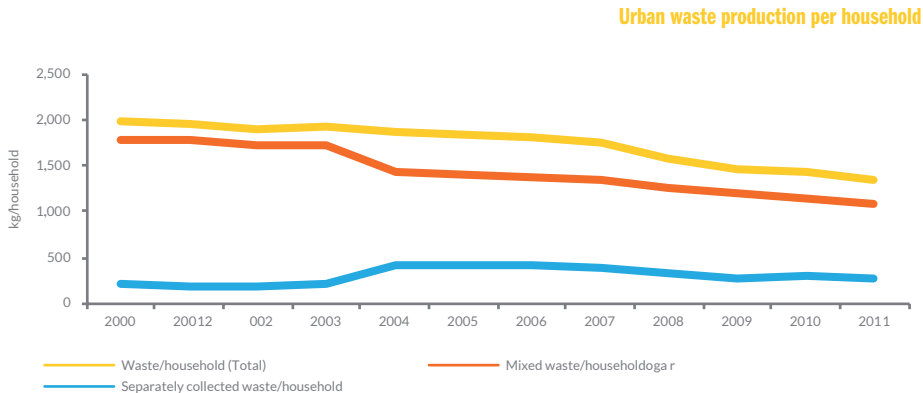
- DGT: Home / Road Safety / Statistics and indicators / Publications / General Statistics Yearbook
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FURTHER INFORMATION

- http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
- <https://sedeapl.dgt.gob.es/IEST2/>
- <http://www.dgt.es/es/seguridad-vial/estadisticas-e-indicadores/publicaciones/>

Urban waste production per household

In 2011, Spanish households generated 23.3 million tonnes of waste, with a ratio per household that was 5.46% below that of the year 2010 (1,342 kg of waste/household)



Source: Data compiled from the INE and Eurostat

In 2011, the 17.3 million of Spanish households generated a **total** of 23.3 million tonnes of waste, according to the INE, 18.8 million out of which (81%) corresponded to **mixed waste** and 4.5 million to **separately collected waste** (19%). This led to a 4.5% reduction as compared to the previous year in terms of the total quantity of waste produced in the whole of the Spanish territory, which resulted in a decrease of the selective collection rate (-1%), followed by an equivalent increase of the percentage of non-separated waste. According to the survey conducted by the INE on waste collection and treatment, most waste collected under a selective approach were paper and cardboard (28.1%), animal and vegetal waste (20.6%) and glass (16.3%).

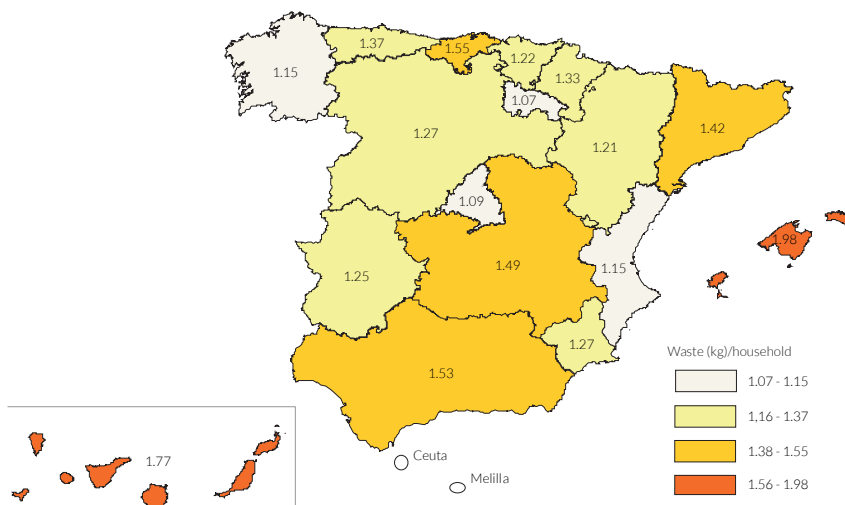
In 2011, each **household** produced an average amount of 1,342 kg of waste (5.46% less than in 2010), 1,082 kg of which were non-separated waste, and 260 kg were selectively collected. From 2000 to 2011, the amount of waste produced by each household decreased by 32.8% going from 1,996 kg/household in the year 2000, to 1,342 kg/household in 2011. This period did also witness an



increase in the rate of selectively collected waste, which rallied by 89% over the period between 2000 and 2011.

As for the distribution by **autonomous communities**, La Rioja was the region with the lowest **waste production** per household (1.07 kg/household), followed by the Community of Madrid (1.09 kg/household) and Galicia (1.15 kg/household). Households with the highest rate of **waste sorting** of waste were the Autonomous Community of Navarre, the Basque Country and Catalonia, with 39%, 34% and 33% respectively.

Urban waste production per household. Year 2011



Source: Data compiled from INE



NOTES

- Mixed waste are those household goods and waste produced in private homes, businesses, offices and services or resulting from street cleaning. This waste is not separated at the source.
- Selectively collected waste: It is the result of the differentiated collection of fermentable organic matter and recyclable materials, as well as of any other system of differentiated collection allowing to separate recoverable materials from such waste. This definition does not include any waste recovered at dirty materials recovery facilities (MRFs).
- As for Ceuta and Melilla, for reasons of statistical confidentiality, the INE does not publish any information on the amount of collected waste during the years 2008, 2009, 2010 and 2011, although those are included in the total figure of Spain.
- High levels of waste production per household in the Canary Islands and the Balearic Islands are explained, in part, by the high tourist activity in these autonomous communities.
- Adjustments in the number of households arising from the updating of this year series and after consolidation of waste production data may lead to changes in the figures of urban waste produced by households from previous years.

SOURCES

- INE: INEbase / Physical environment and environmental issues / Environmental Statistics / Survey on waste collection and treatment. Urban waste / Survey on waste collection and treatment. Urban waste
- INE: INEbase > Physical environment and environmental issues > Environmental Statistics > Survey on waste collection and treatment. Urban waste > Press release
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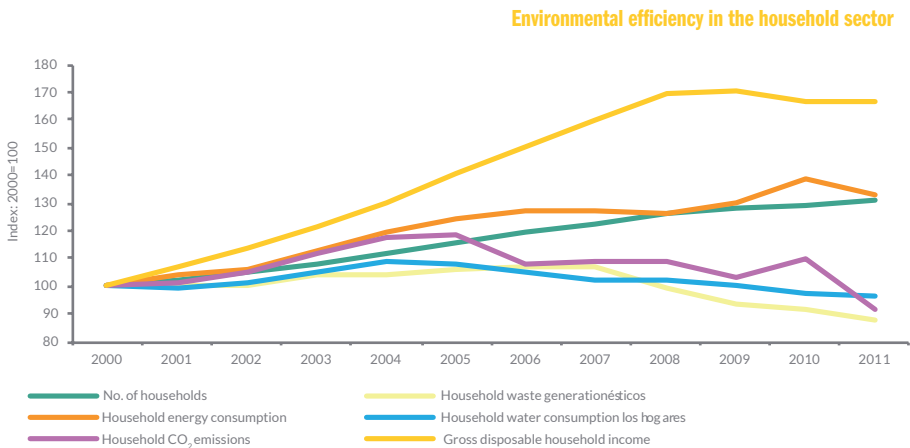
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- http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database



Environmental efficiency in the household sector

Back in 2011, three indicators reached levels below those of year 2000: water consumption, household waste production and CO₂ emissions, having the latter indicator recorded its lowest value within the year series considered



Source: MAGRAMA, IDAE,
MINETUR, INE and Eurostat

Population and Households' Censuses for the year 2011 conducted by the INE point out that, during the decade of 2001-2011 important changes took place in the number, composition and size of households. As from the previous census (2001), the **number of households in Spain** increased by 27.5%, reaching up to 18,083,692 households, while the **average size thereof** decreased by 10%, from 2.86 members/household in 2001 to 2.58 members/household in 2011. Households made up by two people were the most frequent and those recording the highest increase. As regards to the **population**, it increased by 14.6% over the 2001-2011 period.

In general, the **gross disposable income** by households influences the equipment level thereof to a great extent and, therefore, energy consumption by the household sector. In 2011, gross disposable income of households represented 166.28% of the levels of 2000 and, in parallel, **energy consumption** of the households experienced a net increase of 32.65% over the same period. However, between 2010 and 2011 and despite the fact that the gross disposable income has remained constant, a change in the trend of energy consumption by Spanish

households was recorded, which dropped by 4.84%. This decrease was accompanied by a reduction of 16.43% in **CO₂ emissions** coming from household combustion plants. Data of CO₂ emissions from the household sector in 2010 were the lowest recorded over the considered period, 8.23% below the values registered back in 2000.

With regard to **water consumption** and **household waste production**, improvement of households' environmental performance in those aspects continued during 2011. Both water consumption as well as waste production reached the lowest values of the whole time series considered, falling by 3.94% as compared to year 2000 in the case of water consumption and being 12.16% lower as for waste production.

NOTES

- The rate of annual change of each developed indicator has been used in the calculation of this indicator, establishing 2000 as reference year and measuring indicator values at 100.

SOURCES

- INE: INEbase / Economy / Economic Accounts / Spanish Regional Accounting. Prior Bases / Institutional Approach. Households' Income Accounts. Base 2000 / Main results for 2000-2008 (Base years: 2000-2007)
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- Energy intensity of households: Data provided by the Department of Planning and Studies of the IDAE/MINETUR
- INE: INEbase / Physical environment and environmental issues / Environmental statistics / Survey on water supply and sanitation / Water volume supplied to the network by autonomous communities and cities
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- <http://www.minetur.gob.es/energia/es-ES/Paginas/index.aspx>
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2.16

2012 Environmental Profile of Spain

In line with the Communication from the Commission "Together towards competitive and resource-efficient urban mobility", COM(2013) 913 final, of 17 December 2013, Europe's cities are home to 70% of the EU population. In spite of being connected by some of the best world's transport systems, mobility within cities is increasingly difficult and inefficient, since urban mobility has become heavily reliant on the use of conventionally-fuelled private cars.

The aforesaid Communication foresees that the Commission should set up a **European Platform on Sustainable Urban Mobility Plans** by 2014, thereby supporting national, regional and local authorities to develop and implement sustainable urban mobility plans, including through funding instruments. Those plans should be integrated into a wider urban or territorial development strategy.

Spain features the same scenario and current problems, with slightly higher urban population figures. Following the review of the municipal register of inhabitants, back in 2013, almost 79.3% of the Spanish population lived in municipalities with over 10,000 inhabitants (9.3% of total municipalities). In 2000, those municipalities represented 7.9% and 76% of the Spanish population lived there.



The EU Strategy on Adaptation to Climate Change, COM(2013) 216 Final, of 16 April 2013 establishes that the Commission shall promote adaptation in a series of vulnerable areas. One of those areas is mainstreaming adaptation into urban land use planning, building layouts and natural resources management. For this purpose and based on the model devised in the “**Covenant of Mayors**”, the Commission will support adaptation in cities, notably by launching a voluntary commitment to adopt local adaptation strategies and awareness-raising activities.

The “Covenant of Mayors” is regarded as the first European movement which involves local and regional authorities as the public administrations having undertaken the voluntary commitment to improve energy efficiency, use renewable energy sources and reduce emissions across their territories.

Within the framework of the information campaign to raise awareness on climate change jointly launched by the Spanish Office for Climate Change and the Spanish Network of Cities for the Climate, and specifically pointed at Spanish local governments, in June 2013 took place the **7th Assembly of the Spanish Network of Cities for the Climate**. There the Ministry of Agriculture, Food and Environment and the Spanish Federation of Municipalities and Provinces (FEMP) entered into a partnership agreement with local governments to combat climate change.

The **National Plan for Air Quality and Atmosphere Protection 2013-2016** was approved in March 2013 and it sets up the framework to improve air quality in Spain, through specific actions undertaken in collaboration with other sectoral plans and with those separately adopted by autonomous communities and local entities.

On the other hand, the **Infrastructure, Transport and Housing Plan (PITVI)** of the Ministry of Public Works, was institutionally presented for public participation at the end of 2013. One of the strategic objectives of the plan is to promote a sustainable mobility by harmonising its economic and social effects with the respect for the environment.

The **Basic Information System on Acoustic Pollution (SICA)** sorts out the information on this type of pollution and, in particular, all data on the strategic noise maps and the appropriate action plans (<http://sicaweb.cedex.es/mapas-consulta-fase2.php>). This system gathers updated information for the purpose of ensuring compliance with the obligation foreseen under Directive 2002/49/EC on the assessment and management of environmental noise, which governs the submission of information on Strategic Noise Maps and Action Plans to the European Commission.



IN THE PAST TEN YEARS...

- Between 2003 and 2012 the number of people living in urban centres with over 10,000 inhabitants in Spain has increased by 11.5%. However, growth patterns across the autonomous communities has been uneven, ranging between 0.4% and 26.5%.
- Likewise, between 2003 and 2012, fixed and movable assets registered as Heritage of Cultural Interest have increased by 197.5% and 15.3%, respectively. Among the former, it is worth to outline the increase of archaeological sites, which rose by 148.7%.
- The number of passengers using the urban public transport system (bus and underground) has decreased by 2.86% between 2004 and 2013. The strongest decline has been in the users of surface transport, which have dropped by 4.72%, whereas the number of underground users has remained practically unchanged.
- Between 2008 and 2013 a total of 1,570 Spanish municipalities have joined the "Covenant of Mayors". This means a population of 26.5 million inhabitants (almost 56.3% of the population of 2013).

INDICATORS

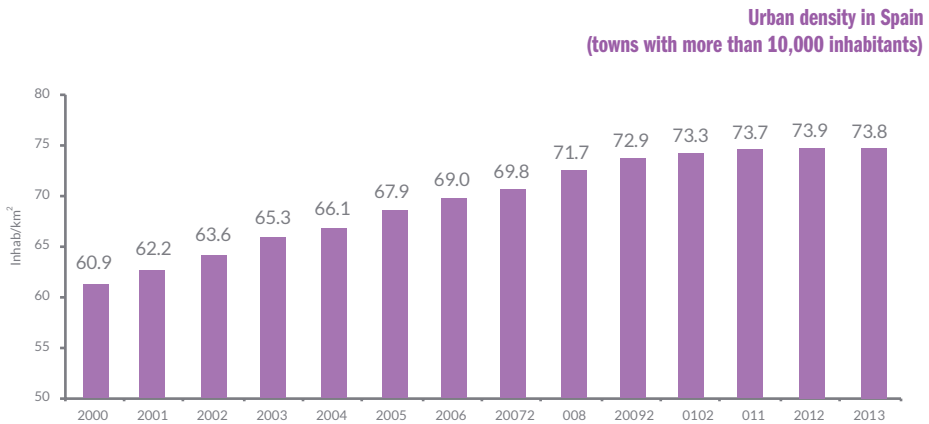
- Urban pressure on land
- Architectural heritage in spanish cities
- Urban public transport
- Urban Sustainability: The Covenant of Mayors





Urban pressure on land

2013 was the first year with a reduction in the "urban density" of Spain.



Source: Data compiled from INE

Urban population has experienced a constant growth for the past years, thus leading to a sustained growth in the “**population density of our urban areas**” or “**urban density**, which is measured as the ratio between the population living in **municipalities with over 10,000 inhabitants** and the total surface area of Spain and across all autonomous communities”. The above trend has continued up until 2013, when a slight decrease was recorded, specifically by 0.15 inhabitants/km² (0.2%), going from 73.90 to 73.75 inhabitants/km². Back in 2012, the growth of this ratio had already slowed down rather clearly as compared to the trend from previous years, although it was really in 2013 when this decrease became apparent in most parts of the country.

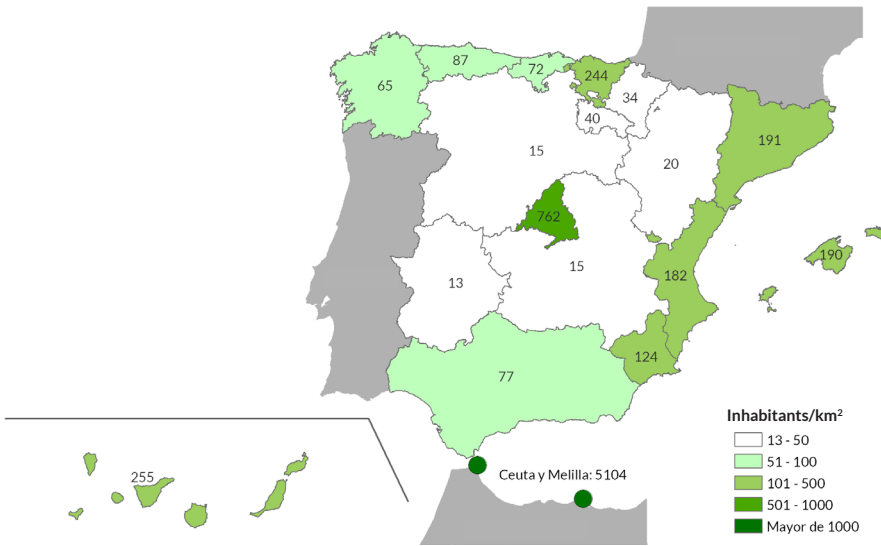
Spanish total census population reached 47,129,783 inhabitants as of 1 January 2013. 37,316,525 out of those lived in towns with over 10,000 inhabitants. This means that 79.2% concentrated in urban areas, namely those urban centres with a population of 10,001 inhabitants or greater. In 2000, this percentage was 76.0%.

By **autonomous communities**, maximum urban density is recorded in the autonomous cities of Ceuta and Melilla (jointly), i.e. 5,103.6 inhabitants/km². As for the

rest of communities, Madrid stands out from the rest (762.4 inhabitants/km²), along with the Canary Islands (255.2 inhabitants/km²) and the Basque Country (243.6 inhabitants/km²), which are the three autonomous communities with higher "Urban densities". At the other end of the spectrum we find Extremadura and Castile-La Mancha, both of them with less than 15 inhabitants/km².

Together with Ceuta and Melilla, the Canary Islands, Aragon, the Balearic Islands and Andalusia are the only autonomous communities having experienced an increase in density within the urban environment between 2012 and 2013.

Urban density by Autonomous Communities. Year 2013 (Spain 73.8 inhabitants/km²)





NOTES

- “Urban density” is the term that defines the ratio between the population living in municipalities with over 10,000 inhabitants and the surface area of a particular territorial scope. In the case of Spain, this ratio is calculated for the entire country and by autonomous communities. This value expresses the density (inhabitants/km²) thus allowing to evaluate the pressure generated within a urban environment due to the concentration of inhabitants. For the calculation of this indicator, the figures supplied by the Municipal Register of Inhabitants as of 1 January of the years 2000 to 2013 have been taken.
- For the calculation of this indicator, the urban environment includes “all areas with a population of 10,001 inhabitants or greater”. Although it is quite common to use this population size threshold to separate “urban” from “non-urban” environments, it seems that this classification usually masks certain situations that are not entirely urban (according to the methodology applied for the definition of Spanish Urban Areas of the Statistical Atlas of Urban Areas of the Ministry of Public Works).
- The main purpose of the Statistical Atlas of Urban Areas in Spain (available at the Portal of Land and Urban Policies of the Ministry of Public Works), is to raise awareness across different territories on the situation of Spanish urban areas in connection with a series of parameters such as population, housing, services, infrastructure or urban planning. A list is provided on “Major Urban Areas and their municipalities (sorted by population) 2012”.

SOURCES

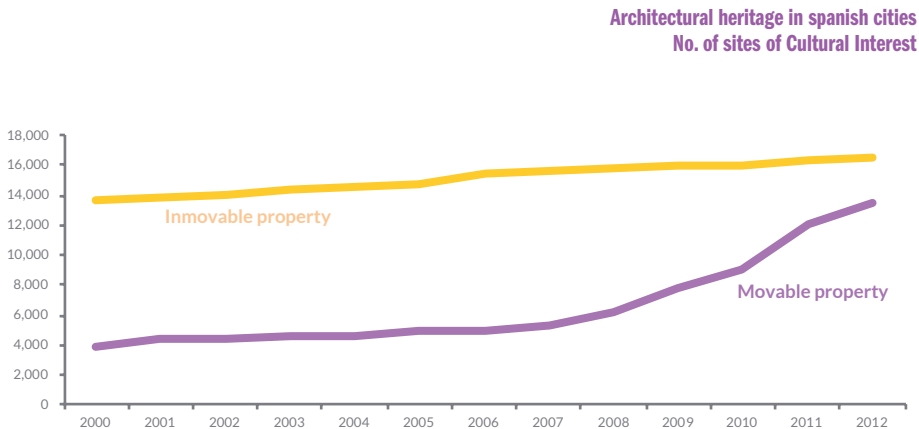
- Population data: INE. Municipal register of inhabitants (several years). Available at INEbase / Demography and population / Register of inhabitants. Population by municipalities / Official Population Figures of Spanish Municipalities: Review of the Municipal Register of Inhabitants
- Surface area data for Spain and by Autonomous Communities: INE. Available at INEbase/ Physical environment and environmental issues/Physical environment/Territory/Population, surface area and population density by ACs and provinces/Population, surface area and population density by ACs and provinces

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- http://www.ine.es/inebmenu/mnu_entornofis.htm

Architectural heritage in spanish cities

In the last years there has been a major increase in Heritage of Cultural Interest which is part of the Spanish Historical Heritage.



Source: MECD

In 2012, **Heritage of Cultural Interest** (BIC, spanish acronym) was made up by **16,559 fixed assets** and **13,472 movable assets**. Its evolution shows an upward trend, with an almost sustained increase which, in the case of fixed assets reaches 21.7%, whereas in movable assets it is 248.1%, both records posted between the years 2000 and 2012. In the last year, fixed assets have only increased by 1%, whereas movable assets have done so by 11%. Besides, those assets have also experienced a strong increase since 2007.

These figures make reference both to the sum of **assets declared** and **confiscated**, although most of them are declared assets. In 2012, **declared fixed assets** reached 88.3% while **confiscated fixed assets** represented 11.7%. On the other hand, **in the case of movable assets**, these percentages reached 83.3% and 16.7%, respectively.



Distribution of fixed assets registered as Heritage of Cultural Interest (%)

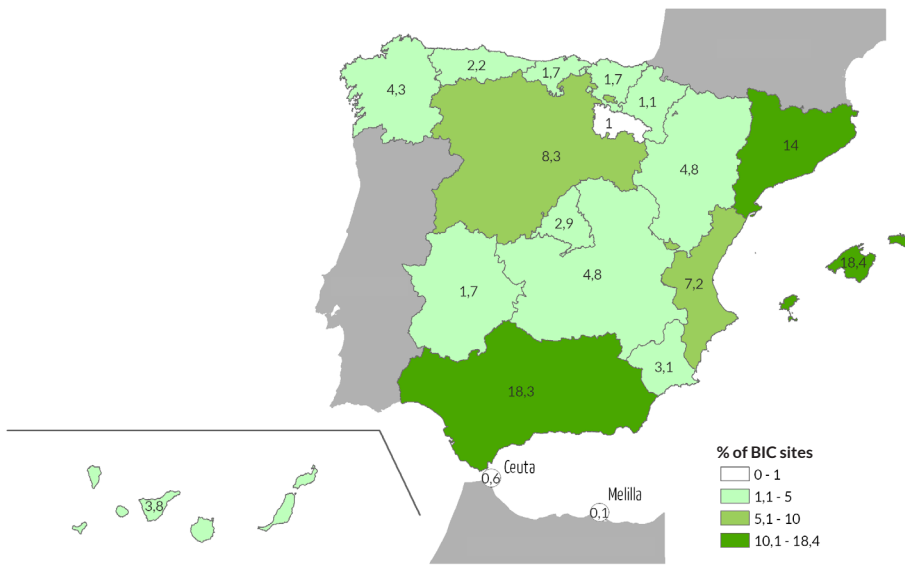
	2000	2005	2010	2011	2012
Monument	88.2	86.3	85.3	79.1	79.1
Historic garden	0.6	0.6	0.6	0.5	0.5
Historic complex	5.3	5.6	5.4	5.8	5.8
Historic site	1.0	1.4	1.8	2.0	2.0
Archaeological site	4.9	6.1	6.9	12.5	12.6

Source: MECD

The number of registered "archaeological sites" has experienced the highest increase in the past years, whereas the "monuments" category is the one with the lowest figure.

The Balearic Islands and Andalusia, both above 18%, together with Catalonia, with almost 15%, account for over 50% of all fixed assets registered. If Castile-Leon and the Valencian Community are considered too, the five of them would account for almost 70% of the declared Heritage of Cultural Interest in 2012.

Distribution of sites of Cultural Interest. Year 2012 Total (declared and initiated assets): 16,559



Source: MECD



NOTES

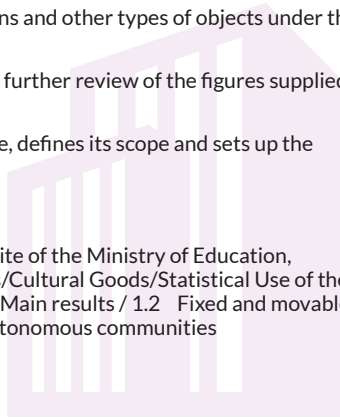
- According to their legal and conservation statuses, the elements integrating the Spanish Historical Heritage are of two types: Heritage of Cultural Interest (HCI), which may be fixed and movable assets and others that, due to their special relevance, must be catalogued despite not being officially regarded as HCI.
- Categories of fixed assets are as follows: monuments, historic complexes, historic sites, historic gardens and archaeological sites. The "Monuments" category includes fixed assets such as Monuments as such, Museums, State-owned Archives and Libraries and those fixed assets regarded as of Cultural Interest by virtue of Act 16/1985, such as Castles, Raised Granaries and Boundary Crosses. Likewise, it foresees other categories under legal protection in accordance with the special laws of each autonomous community.
- "Movable assets" are those paintings, photographs, icons and other types of objects under this category integrating the Spanish Historical Heritage.
- In 2011, databases have been cleaned thus leading to a further review of the figures supplied in previous years.
- Act 16/1985, of 25 June, on Spanish Historical Heritage, defines its scope and sets up the obligation to catalogue all the components thereof.

SOURCES

- Ministry of Education, Culture and Sports, 2014. Website of the Ministry of Education, Culture and Sports. At CULTUREBase/Cultural Sectors/Cultural Goods/Statistical Use of the Database on Heritage. Last data published: Year 2012. Main results / 1.2 Fixed and movable assets registered as Heritage of Cultural Interest by autonomous communities

FURTHER INFORMATION

- <http://www.mcu.es/culturabase/cgi/um?L=0>
- Ministry of Education, Culture and Sports, 2014. Cultural Statistics Yearbook, 2013

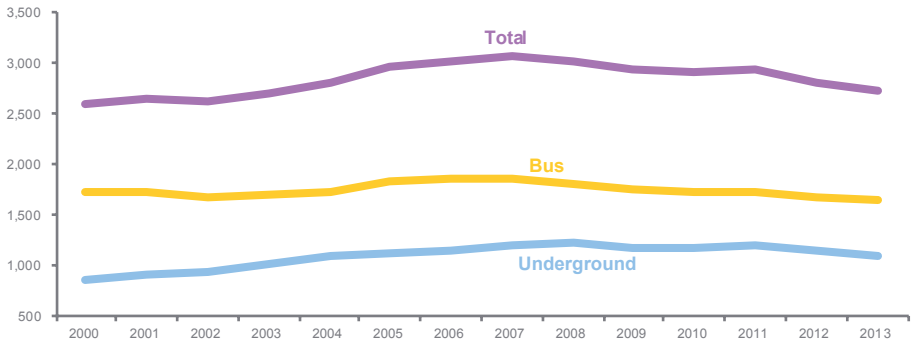




Urban public transport

Urban public transport of passengers has recorded another decrease in 2013, although to a lesser extent than in the previous year

Urban public transport of passengers (millions of passengers)



Provisional data for 2013.
Source: INE

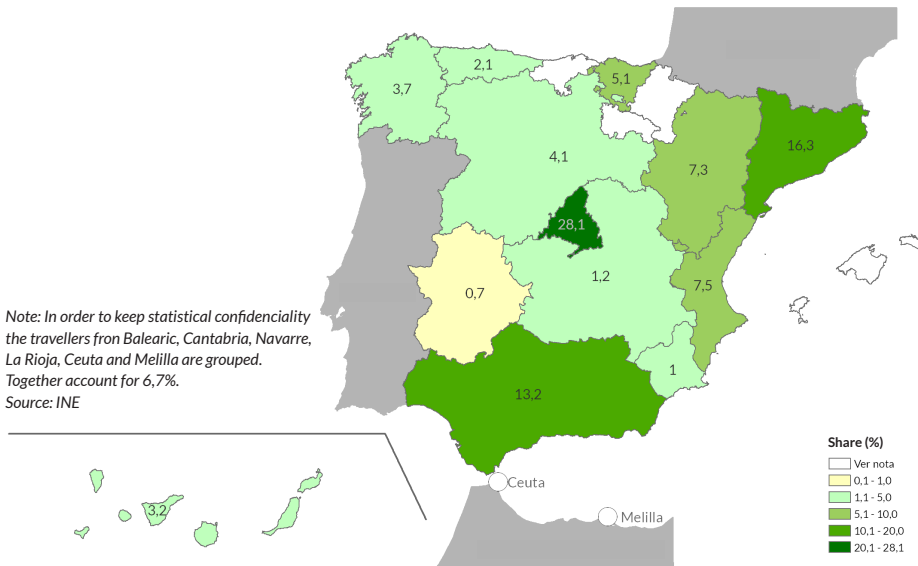
Urban systems are complex structures that are developed and shaped on the basis of the population inflow. Likewise, increase in population means higher demand for services and resources and greater pressures over the environment, which sometimes go beyond urban areas. **Urban traffic** is responsible for a series of environmental problems that pose serious risks to the health of the population living in towns. **Public transport**, the alternative to private transport, is a core element for urban development. An increase in the use of public transport improves life quality standards in towns and has a positive effect in the global environment.

Public transport of passengers, understood as the one provided through the use of urban buses and metropolitan railway network (which is widely known as "Metro" or underground), did also increase to a great extent over the past years. In fact, between 2000 and 2013 it rose by 4.6%. Above all, it is important to highlight the use of the **underground**, which has experienced a 25.1% increase over the same period as compared to the one undergone by the public **surface** transport, which recorded a decrease in the number of users of 5.7%.

Year 2007 recorded the highest number of users of these services, with 3,060 million passengers, followed by a reduction in demand during subsequent years, due to the general context of economic crisis. A slight rebound was recorded in 2010 (+0.6%), which again decreased in 2012 (-4.2%) and 2013 (-2.9%). The increased demand for urban transport has been paired with a heavy use of **private vehicles** in urban trips, mainly to the workplace.

Madrid was the **autonomous community** with the strongest **demand for urban public transport** in 2013, with a share of 28.1%. With over 10% of the total use, it is also important to highlight the demand coming from the autonomous communities of Catalonia and Andalusia. Between 2012 and 2013, stronger declines were recorded in Castile-La Mancha, with a 13.1% reduction in demand for urban public transport, Murcia (where it decreased by 8.8%) and Castile-Leon (where it dropped by 6.3%).

Distribution of urban transport by Autonomous Communities (ACs). Year 2013





According to the last report of the **Metropolitan Mobility Observatory of Spain** (June 2013), the average distribution of urban trips taken by different modes of transport was as per below:

Distribution of urban trips taken by different modes of transport

Reasons / Type of trip	Car	Non-motor vehicles (on foot and cycling)	Public transport
Work	62.1	23.2	13.3
Others	35.5	53.3	10.2

Source: Report of the Urban Mobility Observatory (UMO)

NOTES

- Available data only make reference to the urban transport of passengers, which is understood as the one running on urban or building land, or being aimed at connecting different urban centres located within the same municipality. Interurban, special and occasional transport is not included therein.
- Metropolitan area is the "urban geographic area with a high degree of interaction among its multiple urban centres in terms of trips, daily relationships, economic activities, etc.". There is not a single definition to identify the metropolitan areas of Spain. According to the Metropolitan Mobility Observatory of Spain (OMM) metropolitan areas match the geographic scope of action of each Public Transport Authority (ATP).

SOURCES

- National Institute of Statistics, 2014. INEbase / Services / Transport and related activities, communications. Statistics for Passenger Transportation. 1.2 Urban Transport
- National Institute of Statistics, 2014. Statistics for Passenger Transportation (PT). December 2013. Provisional data. Press release, 10 February 2014

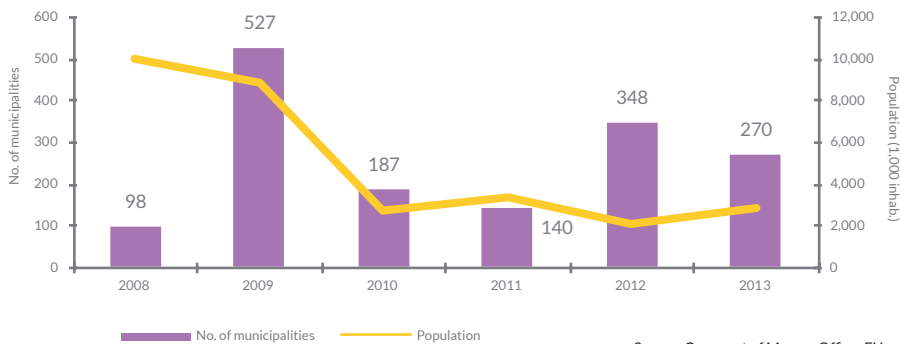
FURTHER INFORMATION

- http://www.ine.es/inebmenu/mnu_transporte.htm
- <http://www.observatoriomovilidad.es/>
- <http://www.transyt.upm.es/>

Urban Sustainability: The Covenant of Mayors

The Covenant of Mayors is a European movement involving the municipalities for the purpose of improving environmental sustainability. In 2013, 1,570 Spanish municipalities had joined the Covenant, representing 56.3% of the total population

Number of municipalities and population adhered to the Covenant of Mayors



Source: Covenant of Mayors Office. EU

The "Covenant of Mayors" is a European movement which involves local and regional agents, where local authorities undertake voluntary commitments to improve energy efficiency along with the use of renewable energy sources. Accession thereto implies the commitment of overachieving the EU target of reducing CO₂ emissions by 20% before 2020. This Covenant arose due to the potential of local governments to reduce the effects of climate change.

In 2013, a total of 1,570 municipalities had adhered to the Covenant of Mayors. This figure represented a total population of over 26.5 million inhabitants, almost 56.3% of the Spanish population in 2013.

By joining this Covenant, the signatories commit themselves to prepare a Base-line Emission Inventory on CO₂ emissions arising from energy consumption, by identifying the main sources of emission and potential for reduction thereof. Likewise, signatories are obliged to submit a Sustainable Energy Action Plan (SEAP), a key document that describes the protocol to be followed in order to



meet the CO₂ reduction target before the year 2020. Finally, it describes the activities and measures established in order to meet its targets and deadlines.

Number of sustainable energy action plans submitted by Spain

2009	2010	2011	2012	2013	Total
14	34	507	278	80	913

Source: Covenant of Mayors Office. EU

Besides from the energy savings, which may be achieved at local level, and from the improvements on the environment, there are other major benefits ranging from the creation of skilled and stable local jobs, to the increase of economic competitiveness and energy independence.

In Spain, the **Network of Sustainable Local Development Networks** is a tool for the involvement of citizens. It was set up back in November 2005 and it has become a discussion forum for the exchange of experience between the different networks working towards Local Agenda 21. This Network is integrated by 18 provincial and regional networks. Apart from the Ministry of Agriculture, Food and Environment, this network is made up by the Spanish Federation of Municipalities and Provinces (FEMP, spanish acronym), the CIVITAS Network Spain/Portugal, the Ministry of Public Works and multiple experts and technicians. The Network includes a total of 2,800 municipalities with a population over 28 million inhabitants. In June 2006, the Network approved the Urban Environment Strategy (EMAU) and, in 2007, the Spanish Sustainable Development Strategy (EEDS, spanish acronym) was enacted. Likewise, 2011 saw the approval of the Spanish Strategy for Local Urban Sustainability (EESUL, spanish acronym). Later on, in 2012, the "Green Book on Urban and Local Sustainability in the Information Age" was released.

**NOTES**

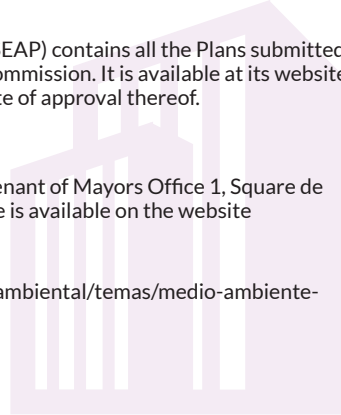
- The Covenant of Mayors is the first European movement which involves local and regional authorities having undertaken the voluntary commitment to improve energy efficiency and use renewable energy sources across their territories. In keeping with this commitment, Covenant signatories aim to overachieve the EU target of reducing CO₂ emissions by 20% before 2020. It is a single initiative mobilising all regional and local agents around compliance with the EU targets. On the other hand, European institutions define the Covenant of Mayors as an exceptional model of multi-level governance.
- The catalogue of the Sustainable Energy Action Plan (SEAP) contains all the Plans submitted by the signatories and/or accepted by the European Commission. It is available at its website and the Plans are classified according to the official date of approval thereof.

SOURCES

- Data provided by the Covenant of Mayors Office. Covenant of Mayors Office 1, Square de Meeus - 1000 Brussels | Tel: +32 2 504 7862. Database is available on the website

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/medio-ambiente-urbano/>
- <http://www.ecourbano.es/index.asp>
- http://www.pactodelosalcaldes.eu/index_es.html



NATURAL AND TECHNOLOGICAL DISASTERS



2.17

2013 Environmental Profile of Spain

Natural disasters occur as a consequence of the interaction of a natural phenomenon together with the vulnerability of the place where it takes places. When disasters occur in underdeveloped or developing countries, they may destabilize the social and economic balance within the region and their impact may actually undermine such development.

No. of disasters and fatalities due to natural disasters worldwide

	2013	2012	Annual average of the last decade (2003-2012)	Annual average of the last 30 years (1983-2012)
Events	880	920	790	630
Fatalities	20,000	10,000	106,000	56,000

Source: Munich Reinsurance Company (several years); "Topics Geo Annual review: Natural Catastrophes 2005"; "Topics Geo. Natural Catastrophes 2006 - 2012". On the website: www.munichre.com.

According to data provided by the Munich Re Foundation, in 2012 there were 880 **natural disasters** in the world, which is a much higher figure than the average of the preceding decade (2003-2012) which amounted to 790 natural disasters, or the annual average of the last 30 years (1983-2012), coming up to 630. However,



and according to the same source, in 2013, the **number of fatalities** amounted to 20,000, a much smaller number than that of the annual average of the last decade (106,000 fatalities) or that of the last thirty years, period during which an annual average of 56,000 was recorded.

Out of the disasters recorded in 2013, the following ones were particularly significant due to the number of fatalities: the typhoon "Haiyan" (the most destructive in the history of the Philippines) which caused, just in that country 6,095 fatalities, and the floods registered in the second half of July in India, which caused 5,500 casualties. Other disasters that caused a high mortality rate were the heat waves suffered in the United Kingdom and India which caused 760 and 557 fatalities, respectively, as well as the earthquake that took place in September in Pakistan, causing 386

In Spain there were several natural phenomena and industrial accidents that had major social and environmental consequences, although they cannot be compared to the disasters that occurred in other areas of the planet.

There are also **other disasters caused by accidents related to industrial activities**. The economic development has contributed to the increase in industrial activities and to the increase in the transport of dangerous goods, particularly in those countries with a high energy dependence, which is the case with Spain.

In this regard, during 2013, there were no maritime accidents which caused oil spills from oil tankers (that is why the environmental indicator referring to maritime accidents has not been updated), although there has been operational discharges from tankers and facilities, most of which took place in port waters. Likewise, there has been small episodes of pollution from sunken ships. The National Contingency Plan was enabled just once, during May of that year, due to the accidental oil spill from a container vessel during the fuel transfer operations, at approximately 34 nautical miles from Sagunto. A monitoring programme was established for two weeks since pollution reached the coasts of Valencia and Castellón.



IN THE PAST YEARS...

- In the past ten years (2004-2013) the number of fatalities in Spain due to natural disasters amounted to 441.
- Between years 1941-1993, the average annual precipitation was higher than the average precipitation for the period in 45.2% of years.
- In the last decade (2004-2013) there has been an average of 15,772 forest fires per year, which affected an average of 117,679 ha.
- In the past ten years (2003-2012) there were 511 road accidents and 15 rail accidents with possible environmental damage.
- Since the approval of the SEVESO Directive, 45 accidents in industrial installations falling within the scope of this regulation in Spain took place.
- In the last decade (2004-2013), 19 accidents of oil tankers in Spanish coasts have been registered.
- The extraordinary risks that gave rise to the highest number of indemnities are floods and storms, which exceed 80% of the total.

INDICATORS

- Fatalities due to natural disasters
- Drought periods
- Forest fires
- Road and rail accidents causing environmental damage
- Industrial accidents involving hazardous substances
- Extraordinary risks: Indemnities resulting from floods and storms





Fatalities due to natural disasters

In 2013 there were 32 fatalities due to natural disasters, seven less than in the previous year

Number of fatalities in Spain due to natural disasters. 1995-2013

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Floods	22	110	40	0	5	14	9	13	9	7	8	9	11	6	5	12	9	15	5	309
Storms	19	13	14	2	20	28	17	12	8	6	8	9	4	3	11	6	2	1	7	190
Forest fires	8	1	4	4	8	6	1	6	11	4	19	8	1	1	11	9	12	10	1	125
Landslides	7	8	2	0	0	0	1	1	2	0	0	5	2	1	2	2	3	0	2	38
Heat waves	0	0	0	0	1	0	0	0	60	25	9	23	9	3	6	16	6	6	4	168
Snow avalanches	7	1	0	0	0	4	2	4	4	5	1	0	0	4	3	11	2	0	4	52
Episodes of snow and cold	0	2	5	1	0	2	4	0	0	3	3	0	0	0	1	1	1	0	0	23
Deaths on land due to sea storms	19	13	13	36	17	37	27	15	5	20	N/D	N/D	N/D	4	2	5	2	7	9	231
Earthquakes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9
TOTAL YEAR	82	148	78	43	51	91	61	51	99	70	48	54	27	22	41	62	46	39	32	1,145

Source: Directorate-General for Civil Protection and Emergencies. Ministry of the Interior

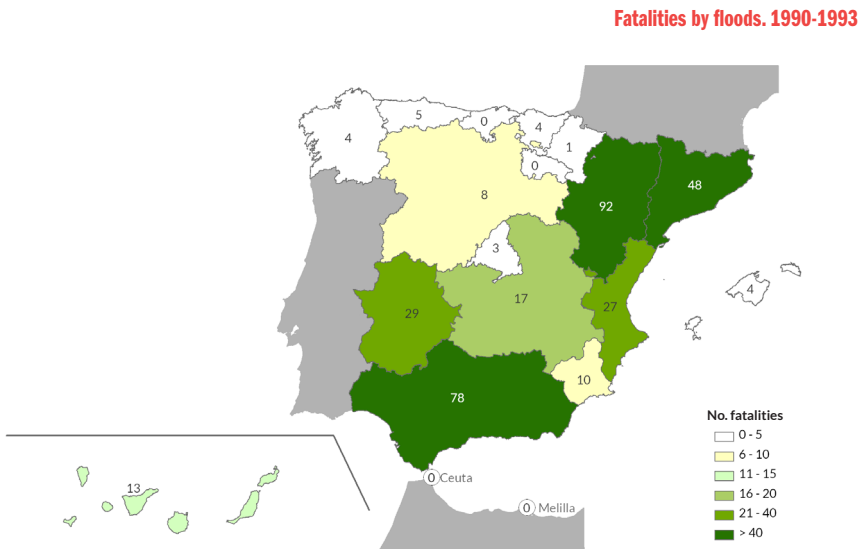
During the period between 1995 and 2013, the total number of fatalities amounted to 1,145. By **type of natural disaster**, the three main disaster categories which caused the highest numbers of fatalities were, in the following order: **floods**, with 309 deaths (27.0% of the total), **sea storms**, which caused 231 fatalities on land (20.2% of the total) and **storms** including lightning and strong gusts of wind which caused, during that period, 190 fatalities (16.6% of the total).

There follows **fatalities due to heat waves**, with 169 victims (14.7% of the total), **forest fires** with 125 deaths registered (10.9%), **snow avalanches** with 52 fatalities (4.5% of the total), **landslides** with 38 deaths (3.3%), deaths caused by **episodes related to snow and cold** amounting to 23 (2.0%), and finally, the **earthquake** which, in 2011, caused 9 fatalities in the municipality of Lorca, Murcia.

These natural disasters cause many personal, material and environmental damages. In 2013, there were 32 fatalities due to natural disasters, seven less than in the previous year. Sea storms was the natural disaster that caused the highest number of fatalities on land, amounting to nine, followed by the seven persons who died as a consequence of storms, five persons due to floods and deaths

caused by avalanches and heat waves which, in both cases, amounted to four fatalities. This year, however, only one victim was registered as a consequence of forest fires, far from the figure recorded in 2012, year in which 10 fatalities were registered. Likewise, the number of fatalities caused by floods decreased significantly in the last year. On the other hand, in 2013, there were no victims related to earthquakes or episodes of cold and/or snow.

As shown in the table, floods are the most frequent natural phenomenon in Spain. If we analyse those floods registered during the period 1990-2013, the number of deaths amounts to 343.



Source: Directorate-General for Civil Protection and Emergencies. Ministry of the Interior



By **autonomous community**, Aragón, with a share amounting to 26.8%, is the autonomous community with the highest number of fatalities (mainly due to the disaster of Biescas), followed by Andalusia (22.7%), Catalonia (14.0%) and Extremadura (8.5%). Cantabria and La Rioja, together with the autonomous cities of Ceuta and Melilla, were the only communities which did not register any fatalities during the relevant period.

In 2013, out of the five fatalities resulting as a consequence of floods and freshets, two corresponded to the Autonomous Community of Andalusia, two to Castile-La Mancha and one to Aragón.



NOTES

- Fatal landslides in Spain are closely associated with heavy rains that cause flooding or freshets. The vast majority of landslides occurred during rain or just days after, as a consequence of it.
- Fatalities due to sea storms refer solely to victims on land due to falls, sea surges, etc. These figures do not include fatalities at sea (drowning, falls, etc.) due to these phenomena.
- The indicator does not include volcanic eruptions, droughts and earthquakes since, although these phenomena may occur in our country, (droughts are recurring and low-magnitude earthquakes are common in certain areas) they have not caused any fatalities in the period under consideration. The Canary Islands are the only area in Spain with active volcanoes and, therefore, the only area in which risk associated with this phenomenon exists. The last eruptions were those of the Chinyero (lateral volcano of the Teide), in 1909 and those of the Nambroque in 1949 and Teneguía in 1971, both in the isle of La Palma.
- In 2013, an adjustment of those figures related to the number of victims caused by heat waves which had been registered since 2004 has been carried out, since data provided by the Directorate-General for Civil Protection of the Ministry of the Interior have been compared to figures registered by the Ministry of Health, Social Services and Equality.
- The Maritime Safety Agency, which belongs to the Ministry of Public Works, offers an immediate response to all emergencies occurred in marine environments (rescue and search operations, medical evacuations, towing operations, fight against pollution, diffusion of navigational warnings and improvement of sea traffic safety) as well as the reception and answering of emergency calls from the sea.
- The distribution data on fatalities caused by floods and freshets of 2012 by autonomous communities included in the 2012 Environmental Profile of Spain have been corrected. During that year, 15 fatalities were registered: 7 in Andalusia, 1 in Asturias, 1 in Catalonia and 6 in Murcia.

SOURCES

- Sub-Directorate General for Planning, Operations and Emergencies. Directorate-General for Civil Protection and Emergencies. Ministry of the Interior

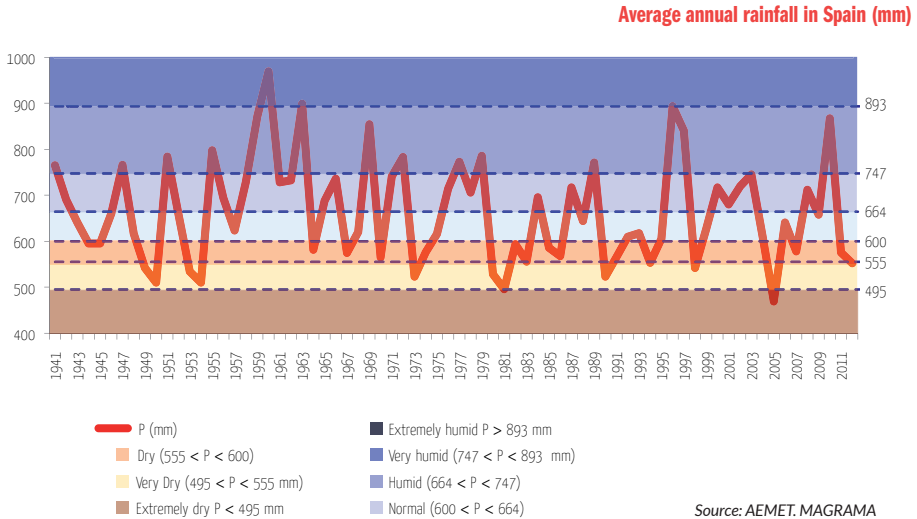
FURTHER INFORMATION

- <http://www.eea.europa.eu/highlights/natural-hazards-and-technological-accidents>
- <http://www.proteccioncivil.es/web/dgpcye/riesgos>
- http://ec.europa.eu/research/environment/index_en.cfm?pg=hazards



Drought periods

2013 was noticeably wetter than usual in most of Spain



2013 was noticeably wetter than usual in most of Spain. The **estimated average rainfall** was 714.9 mm, 7.6% above the normal average value (reference period: 1941-2012). In 2013, rainfall rates exceeded normal values in the Northern third of the peninsula, with the exception of the Autonomous Community of Catalonia, as well as in the interior of the Southern third of the peninsula and in some areas of the Canary and the Balearic Islands. On the other hand, it was a dryer year than usual in the Valencian Community, Murcia, Southern area of Aragón and Northern area of Catalonia, as well as in Eivissa and in the more Eastern islands of the Canary Islands.

During the reference period 1941-2013, the analysis shows that 4.1% of years were extremely wet and 2.7% were extremely dry; 31.5% of years were dry or very dry; 20.5% were normal and the remaining 41.1% were wet or very wet.



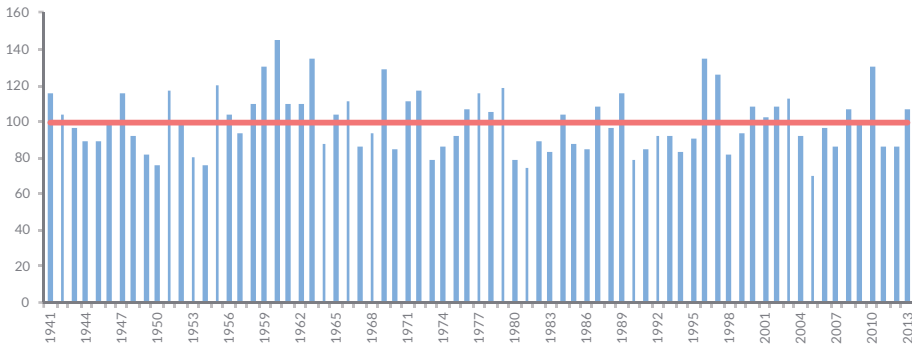
Percentage of years classified according to their average rainfall (1941-2013)

Extremely dry R<495 (mm)	Very dry (495<R<555) (mm)	Dry (555<R<600) (mm)	Normal (600<R<664) (mm)	Wet (664<R<747) (mm)	Very wet (747<R<893) (mm)	Extremely wet R<893
2.7	12.3	19.2	20.5	24.7	16.4	4.1

Source: Data compiled from AEMET

As regards the period 1941-2013, the analysis of the Percentage of Normal Rainfall shows that in 45.2% of years, the annual rainfall was above average whereas in 54.8% of years annual rainfall fell below the average values for the period.

Percentage of normal rainfall (PNR)



Source: AEMET, MAGRAMA

In 2013, the highest rainfall values were registered in the months of March, May and the first half of June, mainly affecting the Northern areas of the peninsula. It is also important to highlight the heavy rainfall registered in Galicia and in the Balearic Islands during the third week of October, as well as in some areas of the North and North-east of Spain as well as in the Balearic Island during mid-November, and in the Canary Islands during the first half of December. During this episode of heavy rainfall, which affected the Canary Islands between the 10th and 12th December of that same year, the maximum value of daily accumulated rainfall, amounting to 108.9 mm (Observatory of the Tenerife-Sur Airport, 12th December) was registered.



NOTES

- According to the Spanish Water Information System (Hispagua), the Percentage of Normal Rainfall (PNR) is one of the indicators used to study drought. It is calculated as the ratio between accumulated rainfall in a year and the average annual rainfall for a particular region and period, expressed as a percentage. Average annual rainfall is also referred to as normal rainfall and it is obtained by averaging annual rainfall over a period of no less than 30 years. A year or several years are classified as drought years when the average annual rainfall is significantly below the average for the period.
- For AEMET, the 1971-2000 reference period (30 years) is representative of rainfall in Spain and it is used to establish the following ranges and to create a generic classification within which to place each year in accordance with its average annual rainfall:
 - Extremely dry: rainfall is below the minimum amount of the series (495 mm).
 - Very dry: rainfall is less than or equal to the reference period's 20 percentile and is greater than the minimum amount recorded in the reference period ($495 \text{ mm} < R \leq 555 \text{ mm}$).
 - Dry: rainfall is greater than the 20 percentile and less than or equal to the 40 percentile ($555 \text{ mm} < R \leq 600 \text{ mm}$).
 - Normal: rainfall is greater than the 40 percentile and less than or equal to the 60 percentile ($600 \text{ mm} < R \leq 664 \text{ mm}$), that is to say, the value falls around average values.
 - Wet: rainfall is greater than the 60 percentile and less than or equal to the 80 percentile ($664 \text{ mm} < R \leq 747 \text{ mm}$).
 - Very wet: rainfall is greater than the 80 percentile and less than the maximum amount recorded in the reference period ($747 \text{ mm} < R \leq 893 \text{ mm}$).
 - Extremely wet: rainfall is equal to or greater than the maximum amount recorded in the reference period (893 mm).
- Scarcity of precipitation (meteorological drought) may cause a shortage of water resources (hydrological drought) needed to supply the existing demand. Consequently, there is no universally accepted definition of drought, as it varies from place to place and every water user has its own definition.
- The EU differentiates clearly between 'drought' as a temporary drop in water availability due to lack of precipitation and 'water scarcity', which arises when demand for water exceeds the water resources exploitable under sustainable conditions.

SOURCES

- Data provided by the Department of Climatology and Operational Applications of the Meteorological State Agency (AEMET, spanish acronym). MAGRAMA

FURTHER INFORMATION

- www.aemet.es



Forest fires

The forest area affected in 2013 by forest fires decreased by 73.9% compared to the previous year.

Forest area affected by fire and number of fires, 1992-2013



According to provisional data provided by the National Information Coordination Centre of Forest Fires, during 2012 7,744 **incipient fires** and 2,882 **fires (>1 ha)** were recorded; both figures amount to a total of 10,626 **fire events**. These data are significantly lower than those values recorded in 2012, year in which 17,503 fire events were recorded, 6,051 out of which corresponded to fires (>1 ha).

As regards the **number of fires** and **affected area** during the period 1992-2013, the chart clearly shows that the number of fires registered in 2013 is noticeably lower than the average for the period (10,626 ha) and, likewise, it also shows that the affected area (58,985) is much smaller than the average of land destroyed by fire during that same period (145,733 ha).

Number of fire events (incipient fires and fires) and affected area

	2003-2012 Average	2013
No. of incipient fires (<1 ha)	10,772	7,744
No. of fires (>1 ha)	5,800	2,882
Total number of fire events	16,572	10,626
Wooded area (ha)	43,715	17,274
Forest area (ha)	126,600	58,985
Affected area (%) / National forest area (%)	0.46	0.21
No. of Major Fires	30	18

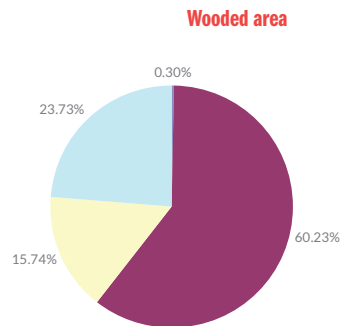
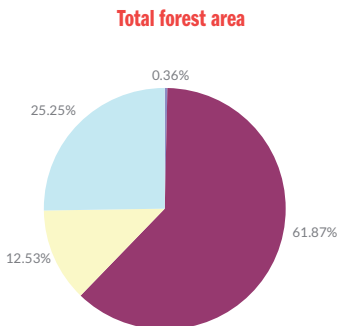
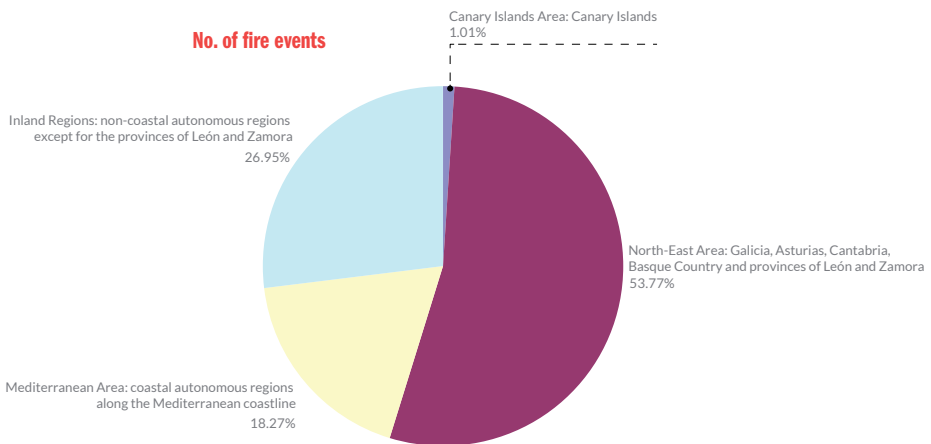
Source: data provided by MAGRAMA



However, the evolution of the last decade, shows that average values for this period as regards the number of fire events and affected area are higher. In fact, between 2003 and 2012, an average of 16,572 fire events were registered, 5,800 out of this number of events corresponded to fires (> ha), and the average forest area affected amounted to 126,000 ha. As regards wooded area, in 2013, 17,274 ha were affected; this territory was significantly smaller than the average 43,715 ha registered in the last decade.

Once again in 2013, the highest percentage as regards the **number of fire events** corresponds to the North-Western Area, where 53.77% of the total events occurred, followed by the inland **Communities** (non-coastal areas), with 26.76% of fire events and those corresponding to the Mediterranean Area and the Canary Islands, in relation to which 18.27% and 1.01% of fire events were respectively recorded.

Distribution of the number of fire events and of the affected area



Source: MAGRAMA



As regards the percentage of **wooded area affected**, in 2013, the region in relation to which the highest number of affected ha was registered was the North-Eastern area, followed by the Inland Communities, with 27.73% of the total, and the Mediterranean Area and the Canary Islands, with 15.74% and 0.30% respectively. The distribution of the total forest area affected followed a similar pattern; such area includes, apart from the wooded area, scrublands, meadows and pastures. Likewise, the North-Eastern Area, with a 61.87% of the total was the region in relation to which the highest values were registered, followed by Inland Communities (25.25%), the Mediterranean Area (12.53%) and the Canary Islands (0.36%).

In 2013, according to provisional statistics provided by the relevant departments of the autonomous communities to the Forest Fire Defence Department, **18 major forest fires** were registered; such fires are the ones with an affected area over 500 ha. The most affected region by major forest fires was the North-Eastern area, where 64% of major fires took place, which affected 61% of the total area burnt. Although the North-Eastern area was the one in relation to which the highest number of major fires were registered, the Mediterranean Area was the region in which the most devastating fire took place, affecting 2,335 ha, due to the fire that affected the municipality of Andraxt (Balearic Islands).

NOTES

- Data regarding 2013 are provisional.

SOURCES

- Data provided by the General Secretariat for Agriculture and Food. Directorate-General for Rural Development and Forest Policy. Ministry of Agriculture, Food and Environment.
- Ministry of Agriculture, Food and Environment, 2014. "Forest Fires in Spain, 1 January - 31 December 2013. Information Preview". Published at the website

FURTHER INFORMATION

- <http://www.magrama.gob.es/es/desarrollo-rural/temas/politica-forestal/incendios-forestales/lucha.aspx>
- http://www.magrama.gob.es/es/biodiversidad/estadisticas/incendios_default.aspx



Road and rail accidents causing environmental damage

In 2012, 94 accidents causing possible environmental damage were registered

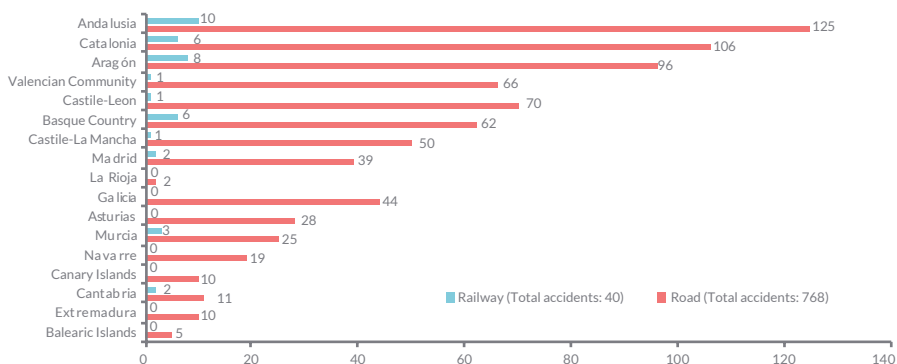
Number of accidents causing possible environmental damage during the transport of dangerous goods by road and rail

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Road	29	50	34	53	44	47	55	64	61
Rail	10	8	N/D	4	2	1	5	4	2
TOTAL	39	58	34	57	46	48	60	68	63

	2006	2007	2008	2009	2010	2011	2012	Total
Road	46	48	45	47	25	26	94	768
Rail	1	2	1	0	0	0	0	40
TOTAL	47	50	46	47	25	26	94	808

Source: Directorate-General for Civil Protection and Emergencies. Ministry of the Interior.

Number of accidents causing possible environmental damage during the transport of dangerous goods by road and rail, 1997-2012



Source: DGPE.MI



Road and/or rail accidents which cause environmental damage are those resulting in leaks or spills into the environment of any of the polluting substances they were transporting. As regards the transport of dangerous goods, during the reference period 1997-2012, 808 **accidents causing possible environmental damage** were recorded. The number of accidents suffered during the transport of dangerous goods presents, within this period, a high variability in the last years, due to the fact that the accident index depends, in many occasions, on random and causal factors, such as the maintenance of infrastructures.

The distribution of these accidents among the different **means of transport** is very irregular. Road transport, which handles the largest volume of goods, registered 768 accidents, whereas rail transport, which is on a smaller scale and less flexible, recorded a single accident during the last five years, and therefore, the total number of accidents for the reference period comes up to 40.

In spite of this temporal variability, the general trend since 1997 showed an ongoing decrease, particularly during the last few years; such trend was suddenly broken in the last year, when the number of accidents causing possible environmental damage increased in a disturbing manner: in 2012, 26 accidents were recorded, whereas in 2013 the total accidents recorded amounted to 94.

During the period between 1997 and 2012, and according to data provided by the **autonomous communities**, Andalusia, with 125 road accidents and 10 rail accidents, was the community which registered the highest number of accidents, followed by Catalonia, with 85 road accidents and 6 rail accidents and Aragón, with 86 road accidents and 8 rail accidents. The occurrence or non-occurrence of accidents in a certain autonomous community is conditioned, to a great extent, on the level of development of its infrastructures, their maintenance and location as communication node. In this regard, the communities which registered the lowest number of accidents were, in the following order, the Balearic Islands (5 road accidents), Extremadura and the Canary Islands (both with 10 road accidents) and Cantabria (11 road accidents and 2 rail accidents). The Autonomous Community of La Rioja has not been included since there is no complete set of data available.



**Number of impacts causing possible environmental damage
during the transport of dangerous goods, 1997-2012**

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Air pollution	5	3	2	4	3	0	8	8	17
Water pollution	7	11	6	9	5	5	4	14	9
Soil pollution	36	49	29	51	41	46	57	55	49
TOTAL	48	63	37	64	49	51	69	77	75

	2006	2007	2008	2009	2010	2011	2012	TOTAL
Air pollution	7	8	4	5	7	7	5	93
Water pollution	8	7	8	2	4	7	4	110
Soil pollution	41	43	39	44	18	21	18	637
TOTAL	47	50	46	47	29	26	21	799

Source: Directorate-General for Civil Protection and Emergencies, Ministry of the Interior

Prior to the analysis of the number of impacts causing possible damage to the environment, it is necessary to emphasise that the **total number of environmental impacts** is not the same as the **total number of accidents**, as a single accident may have negative impacts on several environmental media. In other words, and as an example, the same spill can have a negative impact on the soil and, at the same time, can also affect a water body. Bearing that information in mind, when analysing the **number of impacts causing possible damage to the environment**, during the period between 1997 and 2012, the total number of impacts to the different environmental media amounted to 799. 637 accidents out of the total number registered caused soil pollution, 110 accidents affected water bodies and 93 accidents generated air pollution. In 2012, 21 environmental impacts were recorded, 18 of which caused soil pollution, 5 generated air pollution and 4 affected water bodies.

**NOTES**

- When categorising road and rail accidents, dangerous goods are considered to be those substances that, in the case of an accident during transport, may represent a hazard to the population, property and the environment. Possible environmental damage is considered to occur when the existence of a leak or spillage (on land, in water or into the atmosphere) with a potentially pollutant effect is reported.

SOURCES

- Data provided by the Directorate-General for Civil Protection and Emergencies. Ministry of the Interior

FURTHER INFORMATION

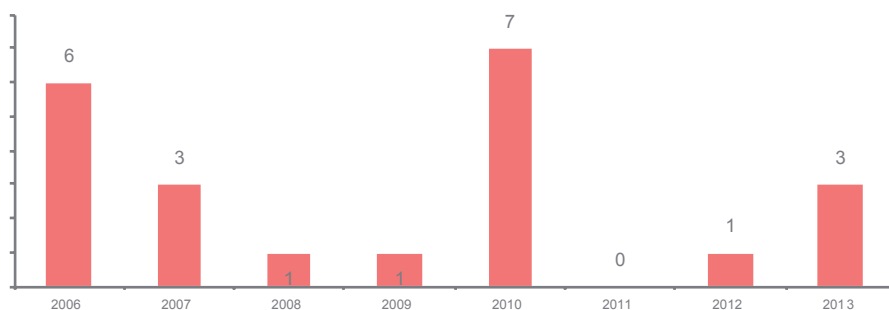
- <http://www.proteccioncivil.es/web/dgpcye/riesgos>
- <http://www.eea.europa.eu/highlights/natural-hazards-and-technological-accidents>
- http://ec.europa.eu/research/environment/index_en.cfm?pg=hazards



Industrial accidents involving hazardous substances

In 2013, 3 industrial accidents within the scope of the SEVESO Directive were registered

Evolution of the number of industrial accidents within the scope of the SEVESO Directive.



Source: Directorate-General for Civil Protection and Emergencies. Ministry of the Interior

The occurrence of a series of **industrial accidents and incidents** with fatal consequences (high number of casualties and damage to the environment), generated a great social pressure and caused major environmental and economic costs. This fact led the European Economic Community to prepare and pass the Directive 82/501/EEC, known as the SEVESO Directive. That was the first time that general guidelines for the prevention of major accidents related to certain industrial activities were established while limiting at the same time their consequences on people and on the environment.

Later on, in 1996, and after the appropriate review, the Official Journal of the European Union published the Directive 96/82/EC or SEVESO II Directive. This Directive was amended on the 24 July 2012 by means of the Directive 2012/18/EU or SEVESO III Directive on major accidents which will replace the former Directive as of the 1 June 2015.

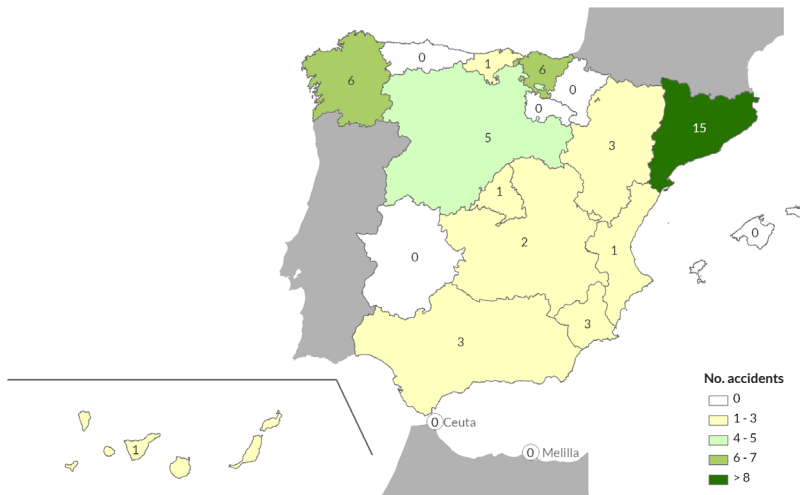
Among the main objectives of the SEVESO III Directive, we must point out the one regarding the improvement of public participation in the decision making



process and the one regarding access to information, thus adapting this regulation to the guidelines established during the Aarhus Convention. Another important aspect of the new SEVESO Directive is the introduction of stricter standards for the inspection of those facilities under the scope of the Directive so as to guarantee maximum levels of safety.

The evolution of the number of industrial accidents within the scope of the SEVESO regulations in the period between 2006 and 2013 shows an irregular trend. During that period, a total of 22 accidents were recorded in Spain, with a maximum ratio of 7 accidents/year registered in 2010. In the last year, 3 accidents that took place in industrial facilities falling within the scope of the SEVESO III Directive were registered; these accidents occurred in the following **autonomous communities**: the Basque Country, Murcia and Castile-Leon, which have a significant density of industrial facilities falling under the scope of this regulation.

**Number of industrial accidents within the scope of the SEVESO Directive.
1987-2013**



Source: Directorate-General for Civil Protection and Emergencies. Ministry of the Interior



In relation to the whole period (1987-2013), a total number of 47 industrial accidents falling within the scope of the Directive occurred. If we analyse the distribution of the incidents by autonomous community we can see that the highest percentage of events registered correspond to the autonomous communities of Catalonia (34.9%), Galicia and the Basque Country (12.8%) and Castile-Leon (10.6%) which are also de communities with the highest number of industrial facilities falling within the scope of this Directive. Most of the accidents considered took place in petrochemical and oil refinery **industries** and those industries related to the manufacture of chemical products. In the communities of Asturias, Baleares, Extremadura, La Rioja and Navarre, no accident occurred during this period.

NOTES

- The accidents referred to are those covered by the Seveso Directive, occurring during the carrying out of industrial activities (chemical, pharmaceutical, energy industry, etc.) and include those accidents occurring during storage operations, distribution and sale of dangerous substances and products.
- Directive 96/82/CE on the control of major-accident hazards involving dangerous substances (Seveso II) is intended to prevent this kind of accidents and reduce their consequences for human health and safety and the environment. It replaces Directive 82/501/EEC, (SEVESO I). Later on, on the 24 July 2012, Directive 2012/18/EU, SEVESO III, was published, on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Directive 96/82/EC.
- Serious accidents: any incident such as emissions in the form of leaks, spills, fires, or major explosions as a consequence of an uncontrolled process during the operation of any facility to which the SEVESO Directive applies, and that represents a major-accident hazard, of either immediate or delayed effect, to human health, property or the environment, whether inside or outside the facility, and in which one or more dangerous substances are involved. It should be pointed out that there are other types of accidents, the consequences of which are equally serious for the environment, that do not fall within the scope of the Seveso Directive. These include mining accidents, such as the one caused by the failure of the Aznalcollar dam (Seville), in April 1998.

SOURCES

- Data provided by the Sub-Directorate-General for Planning, Operations and Emergencies. Directorate-General for Civil Protection and Emergencies. Ministry of the Interior

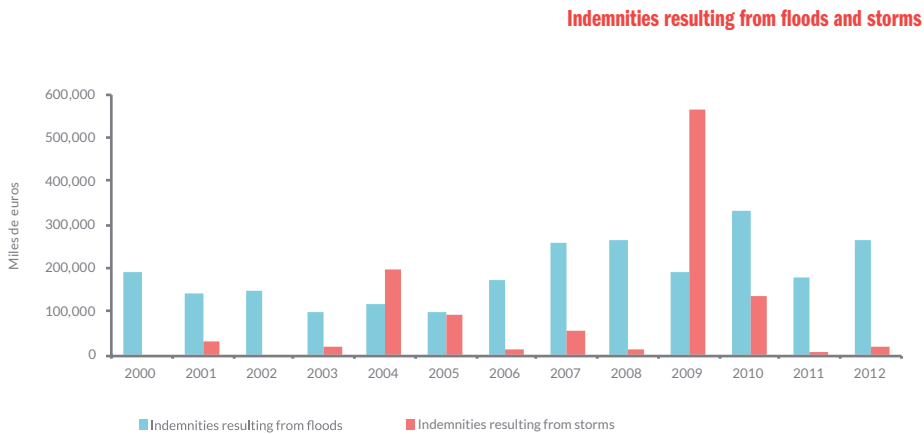
FURTHER INFORMATION

- <http://www.proteccioncivil.es/web/dgpcye/riesgos>



Extraordinary risks: Indemnities resulting from floods and storms

In 2012, the Insurance Compensation Consortium solved 33,589 flood cases and 7,072 storm cases, the costs of which amounted to 262.7 and 20.7 million Euros respectively



Source: Insurance Compensation Consortium

Spain is one of the countries least affected by natural disasters. However, our country is not free from the threat of **negative natural phenomena**, some of which can be extremely intense sometimes. In this sense, we must mention the earthquake that took place in the municipality of Lorca, on the 11 May 2011, with a magnitude of 5.1 (Mw) and an intensity of VII in the EMS-98 scale, which caused nine fatalities, more than three hundred serious injured and major material damage in houses, shops and historic buildings.

Among the **financial instruments** aimed at recovering and compensating damages caused by this kind of catastrophic events, the most significant one is the insurance coverage. In many countries there are insurance plans specifically designed for the coverage of natural disasters, among which the Spanish coverage system for extraordinary risks, managed by the Insurance Compensation Consortium, stands out.



The purposes of this Consortium are, among others, the provision of insurance coverage, under the compensation scheme, for those extraordinary events that take place in Spain and which may affect those risks located within its territory as well as for personal damaged caused by extraordinary events in foreign countries when the insured has his or her usual place of residence in Spain.

The previous chart, prepared based on data included in the Statistics on Extraordinary Risks by the Insurance Compensation Consortium, shows the evolution of those indemnities resulting from floods and storms during the period 2000-2012. In this regard, according to data referring to the last year, the number of cases and indemnities resulting from floods and storms amounted to 33,589 and 7,072 cases which gave rise to indemnities coming up to 262,715 and 20,656 million Euros respectively.

No. of cases and amount of indemnities per case. 1972-2012 Series

CAUSES	No. CASES	INDEMNITIES (EUROS)	AVERAGE COST (EUROS)	DISTRIBUTION OF INDEMNITIES (%)
Flood	478,218	5,341,518,583	11,170	60.4
Atypical cyclonic storm	539,048	1,747,763,299	3,242	19.8
Terrorism	30,081	536,220,368	17,826	6.1
Earthquake	40,085	509,197,998	12,703	5.8
Social turmoil	6,017	78,014,850	12,966	0.9
Actions by the Armed Forces	1,175	2,655,509	2,260	0.0
Riot	152	1,139,678	7,498	0.0
Meteorite fall	3	102,453	34,151	0.0
Other	18,946	632,232,131	33,370	7.1
TOTAL	1,113,725	8,848,844,869	7,945	100.0

Source: Insurance Compensation Consortium



The distribution by **cause of the indemnities** during the period 1971-2012 shows that the main causes resulting in indemnities are floods, with 60.4%, and cyclonic storms, with 19.8%. Both causes represent more than 80% of indemnities paid up by the Insurance Compensation Consortium. During this period, more than one million cases were solved; such cases gave rise to indemnities coming up to 8,848 million Euros.

NOTES

- The Insurance Compensation Consortium is established as a public business entity legally governed by the Royal Legislative Decree 7/2004, of 29 October, which approves the Recast Text on the Articles of Association of the Insurance Compensation Consortium.
- Those events included in the coverage of "extraordinary risks" are phenomena characterized by an absolute lack of regularity as regards their occurrence (both in relation to frequency and intensity) and, therefore, since their consequences are significantly variable, with a high probability of accumulation both as regards time and location.
- The European Macroseismic Scale of 1998, known as EMS-98, offers the basis for the evaluation of the intensity of earthquakes and it classifies them in XII classes. Level VII is considered "Damaging".

SOURCES

- Statistics on Extraordinary Risks. 1971-2012 series. Insurance Compensation Consortium. Ministry of Economy and Competitiveness

FURTHER INFORMATION

- <http://www.conorseguros.es/web/157>
- http://www.conorseguros.es/web/ad_re
- http://www.conorseguros.es/web/c/document_library/get_file?uuid=548d4f59-b6c5-40dd-b06b-98dbcefd790f&groupId=10124





Information by **Autonomous Community**: Basic data

INFORMATION BY AUTONOMOUS COMMUNITY: BASIC DATA




3

Information by Autonomous Community: basic data

In the 2007 edition, the *Environmental Profile of Spain* included, for the first time, a specific chapter with information related to each autonomous community individually. The purpose was to supplement the information offered by all the indicators for each one of the 19 territorial units into which the Spanish territory is administratively divided. From that year on, the information contained in this chapter is laid out as a data sheet, offering a purely environmental set of variables together with a selection of other complementary variables which describe the physical, administrative, social and economic characteristics of each community and which are essential to properly construe the evolution of many of the indicators included in the publication. Throughout the years, the contents of this chapter have evolved and extended their scope, in particular, by means of the amendment and introduction of the variables included, arising from the discussion and suggestions which have been made in relation thereto from the EIONET Network.

Within a framework based on the ongoing improvement of the contents of the report and with the purpose of simplifying its structure while respecting space limits and maintaining the levels of quality and topicality, in the present 2013 edition, some changes



have been introduced in this chapter devoted to the autonomous communities. The two basic references that have determined such changes are the adoption of the “*Environment Programme of the European Union*” and the preliminary works for the publication of the report on “*State and Outlook of the Environment in Europe*” (SOER report) of the European Environment Agency.

At the end of 2013, the new “**General Union Environment Action Programme**”, called “7th Environment Action Programme (7th EAP)” was published; from 2014 and until the end of 2020, it will be used as an environmental guide since it establishes the key objectives the European Union must meet in 2020. This programme considers that indicators and, particularly, the proper selection thereof, have a key role in the follow-up of those developments which are implemented for the compliance with the priority objectives established.

On the other hand, during 2013, the European Environment Agency, has been working in the drafting of the contents of the **SOER 2015 report**, which is currently being prepared. This publication is part of the five-year commitments as regards the diffusion of environmental information the Agency undertook to comply with. In this new edition, the EEA keeps the structure used in the previous report (SOER 2010) including, among other contents, the conduction of an analysis, broken down by country, of a series of specifically selected topics. In the SOER 2010 report, such selected topics were: air pollution, mitigation of the climate change, protection of nature and biodiversity, use of soil, continental waters and waste. As regards the SOER 2015 report, the EEA is working on the following topics: air, agriculture, biodiversity, continental water, mitigation of the climate change, waste, energy, transport and resource efficiency. The contents of this chapter of the Environmental Profile of Spain are specifically based on the aforementioned selection of topics.

In particular, for this edition, the information on the state of the environment in the different autonomous communities is analysed based on the graphic representation of the trend of seven selected indicators corresponding to six subject areas: air, waste, water, energy, transport and agriculture. The indicators selected for these subjects are:

- **Air quality:** Average annual concentration of NO₂ and Average annual concentration of PM10.
- **Waste:** Generation of urban waster per inhabitant.

- **Water:** Water distributed through urban water supply networks per inhabitant.
- **Energy:** Electric energy demand measured at the power station busbars per inhabitant and installed power under the special regime.
- **Transport:** Demand of road transport of goods per inhabitant.
- **Agriculture:** Percentage of surface area devoted to organic farming as compared to Utilised Agricultural Area (UAA).

Each one of the seven charts includes, apart from the information associated to each autonomous community, data regarding the average value in Spain so as to provide context for the analysis of each territorial situation. However, that was not the case with the two indicators regarding air quality, the reference values of which are determined by the limit value legally established for each one of the pollutants selected.

This information is supplemented by means of three additional sections. The first section includes a selection of some of the main social, economic and territorial data; the second section includes important information regarding the environment which is particularly relevant for the corresponding autonomous community; the third and last section includes links to the last report on the state of the environment published by each autonomous community. In some cases, these last two sections have been merged into a single section when deemed appropriate based on the information provided by each autonomous community.

The definition of each indicator, as well as its units of measurement and methodology notes necessary for the calculation and construction of indicators and information sources used for their calculation, are explained in detail in section "Information sources, methodology notes and clarifications", included at the end of this chapter.

The working method followed has been the usual for this publication, using information and data provided by the members of EIONET. Particularly relevant data have been provided by the representatives of each autonomous community who, apart from supplying part of the information, have reviewed the rest of the contents included.

As usual, teamwork and the invaluable support and collaboration from said network has been, during all these years, essential for the preparation of this publication.

ANALYSIS OF THE SITUATION

Based on the analysis of the information provided, a global assessment of the situation of all autonomous communities for each indicator can be carried out. The analysis takes into consideration whether the trend of the indicators in the last years is positive or negative. Additionally, we have also included a note on the situation of the autonomous communities in comparison to the average situation of Spain as regards the last year available. In the former case, the assessment is supplemented with a chart in line with the one used for the analysis of the summary of key messages which allows, in a glance, to get an overall picture of the evolution experienced by the indicator.

The criteria used for the assignment of the assessment picture (colour codes) and the explanation of the message are the following:



Very positive trend: an improvement as regards the behaviour of the variable or indicator is noticeable in more than 80% of the autonomous communities.



Positive trend: an improvement as regards the behaviour of the variable or indicator is noticeable between 60% and 80% of the autonomous communities.



Stable trend: an improvement as regards the behaviour of the variable or indicator is noticeable between 40% and 60% of the autonomous communities.



Negative trend: an improvement as regards the behaviour of the variable or indicator is noticeable between 20% and 40% of the autonomous communities.



Very negative trend: an improvement as regards the behaviour of the variable or indicator is noticeable in less than 20% of the autonomous communities.

For the calculation of the percentages, the cities of Ceuta and Melilla have not been taken into account as regards those indicators for which data were not available. When data were available for Ceuta and Melilla collectively, for the calculation of the percentage both cities have been taken as a single unit.

The following is the summary of the analysis of the trend and the situation in the autonomous communities as a whole:

SOCIAL AND ECONOMIC ASPECTS



- Unemployment rates have increased in all autonomous communities between 2005 and 2013. Such rate has only increased by less than 10% in of them.
- The GDP per capita between 2012 and 2013 has decreased in fourteen autonomous communities, whereas only in four of them the GDP has increased slightly; it has remained unvaried in one autonomous community.
- Between 2000 and 2013, population has decreased in one autonomous community.

AIR QUALITY: ANNUAL CONCENTRATIONS OF NO₂ AND PM₁₀



- In the last 10 years just one autonomous community has presented values regarding average concentrations of NO₂ over the limit value until the year 2006. However, since 2007, such concentration is already under the reference limit value.
- As regards the average concentration of particulates with a size below 10 microns, four autonomous communities have presented, in some years, average values over the limit value (until 2003, until 2005, until 2006 and until 2007). Therefore, since 2008, no autonomous community has exceeded the limit value of PM₁₀

Note: The cities of Ceuta and Melilla are not included.

URBAN WASTE PRODUCTION PER INHABITANT



- In the last 10 years, all autonomous communities except three have experienced decreases regarding the value of this ratio. Data regarding the cities of Ceuta and Melilla have not been included due to lack of information in the last years.
- In 2011, eleven autonomous communities presented a generation of urban waste per inhabitant below the average in Spain and only six exceeded such average.

Note: The cities of Ceuta and Melilla have not been considered due to lack of information.

WATER DISTRIBUTED THROUGH URBAN WATER SUPPLY NETWORKS



- During the period between 2002 and 2011, the consumption of water per inhabitant has been reduced in most autonomous communities. Consumption has only increased slightly in four of them.

- In seven autonomous communities, water consumption per inhabitant in 2011 was below average consumption in Spain, whereas in one of them such consumptions was exceeded.

Note: Data regarding the cities of Ceuta and Melilla have been included collectively.

DEMAND OF ELECTRIC ENERGY AND INSTALLED POWER UNDER THE SPECIAL REGIME



- Between 2004 and 2013, the demand of electric energy per inhabitant decreased in fifteen autonomous communities, whereas it only increased in four of them.
- Twelve autonomous communities presented in 2013 an electric energy demand per inhabitant below average values in Spain.

DEMAND OF ROAD TRANSPORT OF GOODS



- Between 2003 and 2012, fourteen autonomous communities have reduced the amount of goods transported per inhabitant from a particular autonomous community to other autonomous communities; there are also fourteen autonomous communities which have reduced the reception of goods (in both cases per inhabitant and measured by t-km).
- On the other hand, in 2012, twelve autonomous communities presented values related to the transport of goods per inhabitant to other autonomous communities above average values in Spain.

Note: Data regarding the cities of Ceuta and Melilla have been included collectively.

AREA DEVOTED TO ORGANIC FARMING AS COMPARED TO UTILISED AGRICULTURAL AREA

- Thirteen autonomous communities increased their proportion of area devoted to organic farming as compared to utilised agricultural area between 2003 and 2012. And only four of them have reduced such percentage.
- In 2012, six autonomous communities offered a proportion of area devoted to organic farming compared to utilised agricultural area above average in Spain, whereas in the remaining six autonomous communities such percentage was below average.



Note: The cities of Ceuta and Melilla have not been considered due to lack of information.

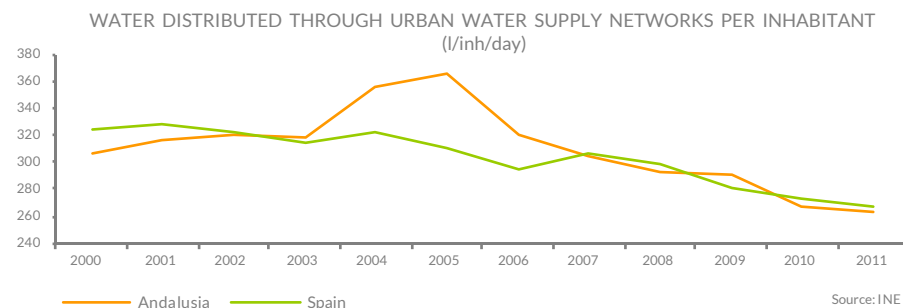
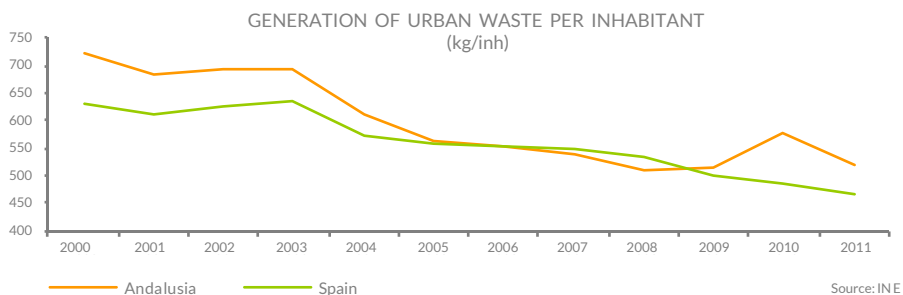
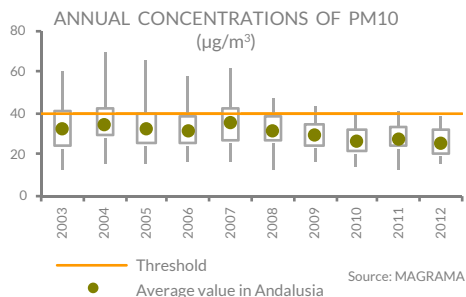
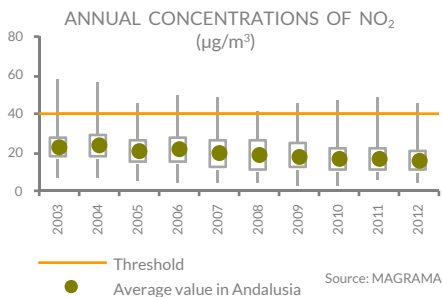


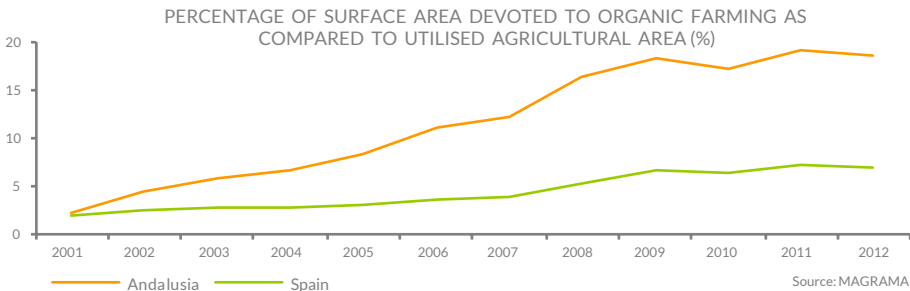
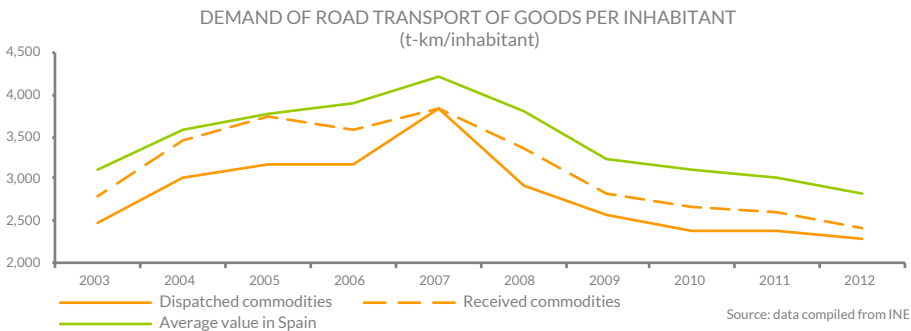
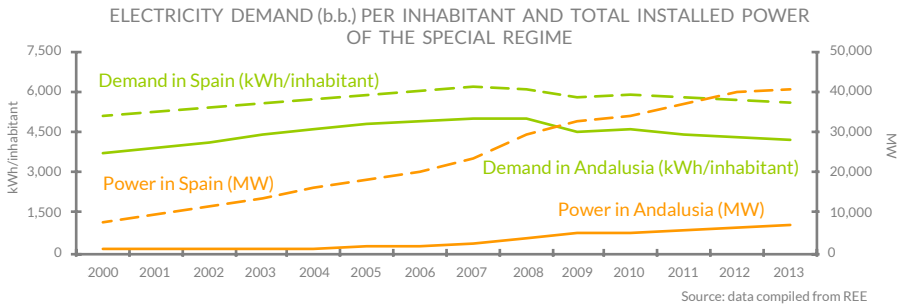
ANDALUSIA

Area: 87,597 km².
Population (2013) 8,393,159 inhab (95.8 inhab/km²).
Change in No. of inhabitants (2000-2013): 15.4%.
GDP per capita (2013): € 16,666. Spanish Average = 100: 74.8.
Unemployment rate (2013/2005): 36.3% / 13.9%.
GVA structure (% in 2012): Agriculture: 5.0 /
 Industry: 12.8 / Construction: 8.5 / Services: 73.3.
Land use distribution (% based on SIOSE categories 2011):
 Urban: 4.64 / Agriculture: 41.70 /
 Forest: 50.11 / Wetlands and water bodies: 3.55.
Land area Natura Network 2000 (2013): 2,657,697.44 ha (29.5% of the AC.)



INDICATORS





RELEVANT INFORMATION

- The Regional Government of Andalusia established in 2013 six Special Conservation Areas (ZEC, Spanish Acronym) of the Natura 2000 Network in Cádiz and Málaga for the maintenance and restoration of habitats and species of general interest.
- Within the framework of the ADAPTA CLIMA (II) Project, the team of the Environmental Information Network of Andalusia (REDIAM, Spanish Acronym) explained the method it will follow for the establishment of temperature and rainfall scenarios for the 21st Century.
- Air Quality Improvement Plans have been approved for thirteen areas in the autonomous region.
- The number of endangered species or under the Special Protection Regime in Andalusia for 2013, according to Decree 23/2012, is the following: 437 species of animals and 256 species of plants.
- In 2013, the Regional Government of Andalusia implemented the Action Plan for Employment which has reactivated the economy by means of the generation of 260,662 green jobs.
- 624 requests for Environmental Information have been answered and 1,567 OGC (Open Geospatial Consortium) services have been managed.

RECOMMENDED WEBSITES

- Environmental Report of Andalusia (IMA, Spanish Acronym) and IMA statistics: www.juntadeandalucia.es/medioambiente/rediam/IMA and www.juntadeandalucia.es/medioambiente/rediam/estadisticas_IMA
- Environmental Indicators of Andalusia: www.juntadeandalucia.es/medioambiente/rediam/indicadores_ambientales
- Basic Environmental Data of Andalusia: <http://www.juntadeandalucia.es/medioambiente/andaluciadatosbasicos>
- REDIAM's Web Channel: <http://www.juntadeandalucia.es/medioambiente/site/web/rediam>
- Open Geospatial Consortium (OGC) Services for the access to important mapping products and geographic information downloads prepared by the Andalusian Regional Ministry of the Environment: www.juntadeandalucia.es/medioambiente/rediam/ogc
- Area for Members of the Information Network of Andalusia, REDIAM: http://www.juntadeandalucia.es/medioambiente/site/web/ASR_Portada

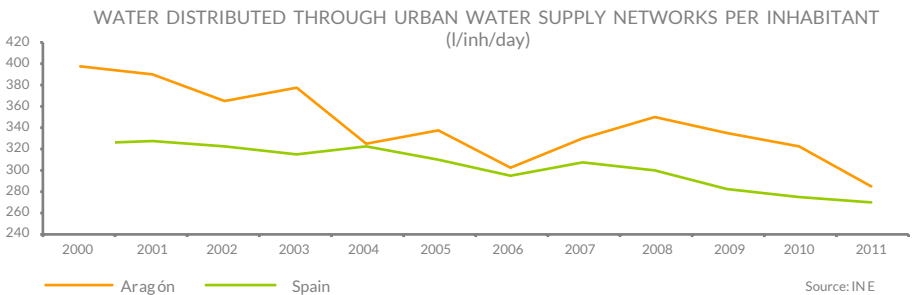
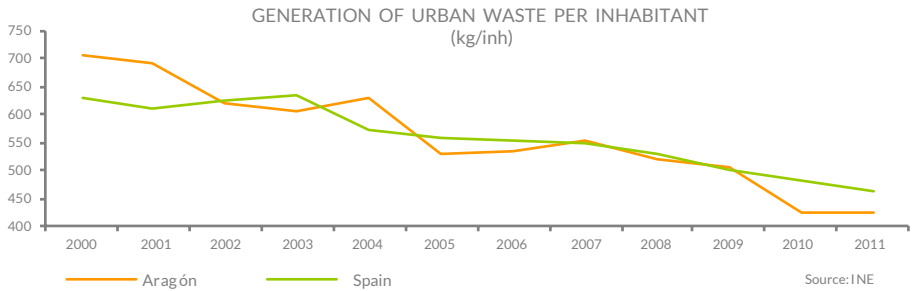
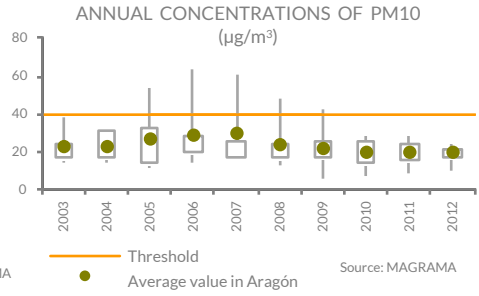
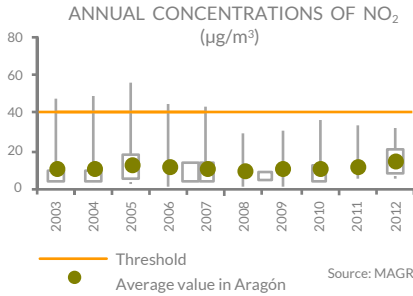


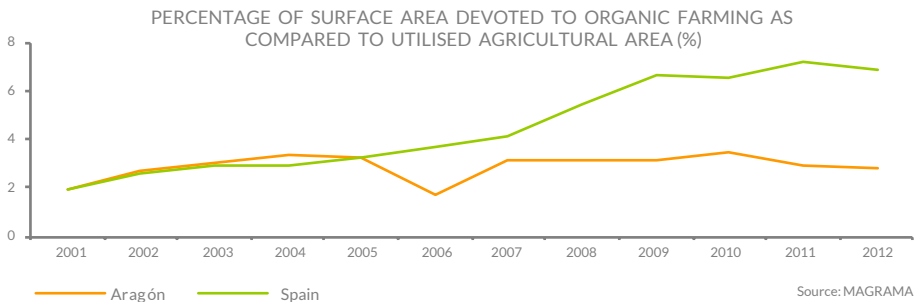
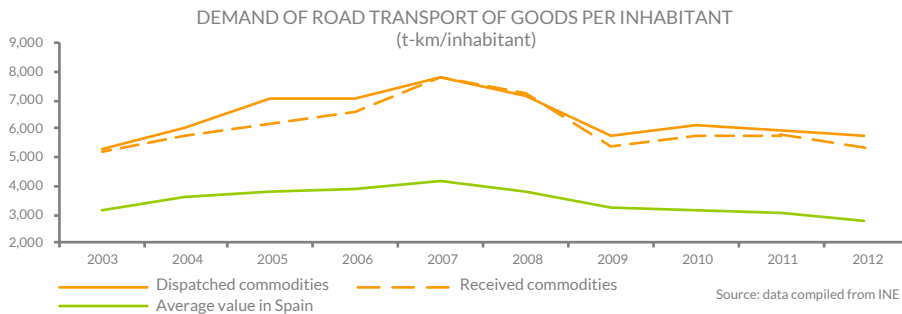
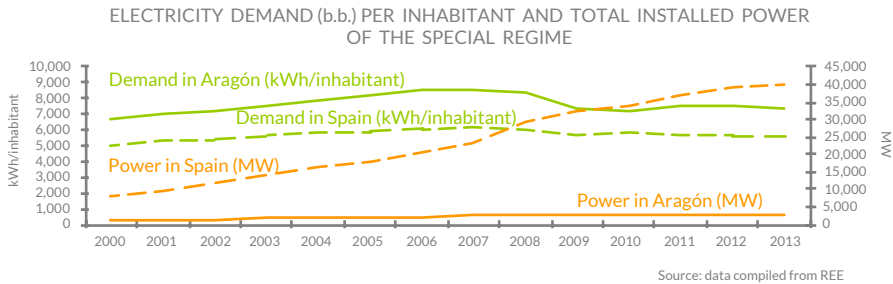
ARAGÓN

Area: 47,720 km².
Population (2013) 1,338,308 inhab (28.1 inhab/km²).
Change in No. of inhabitants (2000-2013): 12.5%.
GDP per capita (2013): € 24,732. Spanish Average = 100: 111.0.
Unemployment rate (2013/2005): 21.3% / 5.8%.
GVA structure (% in 2012): Agriculture: 4.3 /
 Industry: 22.1 / Construction: 8.9 / Services: 64.7.
Land use distribution (% CLC 2006): Urban: 0.8 / Agriculture: 48.8 / Forest:
 49.7 / Wetlands and Water Bodies: 0.7.
Land area Natura Network 2000 (2013): 1,361,203 ha (28.5% of the AC)



INDICATORS





RELEVANT INFORMATION

- Approval of the Decree 133/2013, of 23 July, of the Regional Government of Aragón, for the simplification and adaptation of the current laws on administrative procedures regarding the environment.
- The Posets-Madaleta Natural Park is awarded the "Q" qualification of Tourist Quality granted by the Ministry of Industry, Commerce and Tourism and the Institute for the Spanish Tourist Quality (ICTE, Spanish Acronym).
- The "Sierra y Cañones de Guara" Natural Park is granted the "European Destinations of Excellence (EDEN) 2012" award for Accessible Tourism of the European Union.
- More than 400 sites of geological interest in Aragón were listed; such sites will be protected by a Decree passed by the Regional Government of Aragón.
- UNESCO approved the extension of the "Ordesa Viñamala" Biosphere Reserve, in Central Pyrenees (Aragón).
- 40 species present in Aragón were included in the new National Catalogue of Invasive Alien Species.
- Decree 170/2013, of 22 October by the Regional Government of Aragón, established protected areas for the feeding of necrophagous species of Community interest in Aragón.

RECOMMENDED WEBSITES

- <http://www.aragon.es>
- Report on the Environmental Status of Aragón: http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/AgriculturaGanaderiaMedioAmbiente/AreasTematicas/MA_InformacionDatosAmbientales/02_InformesMA



ASTURIAS

Area: 10,604 km².

Population (2013) 1,067,802 inhab (100.7 inhab/km²).

Change in No. of inhabitants (2000-2013): - 0.8%.

GDP per capita (2013): € 20,591. Spanish Average =100: 92.4.

Unemployment rate (2013/2005): 24.1% / 10.2%.

GVA structure (% in 2012): Agriculture: 1.8 / Industry: 20.4 / Construction: 9.2 / Services: 68.6.

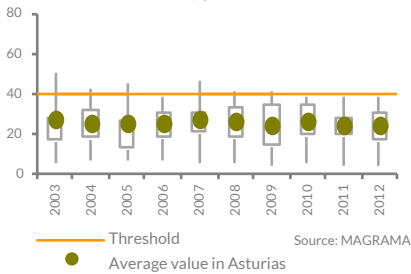
Land use distribution (% based on SIOSE categories 2011): Artificial surface (urban and productive infrastructure): 5.5 / Agriculture: 25.8 / Forest: 65.3 / rocky areas, scree and surfaces with sparse vegetation: 2.9 / Wetlands and Water Bodies: 0.45.

Land area Natura Network 2000 (2013): 2,657,697.44 ha (29.5% of the AC)

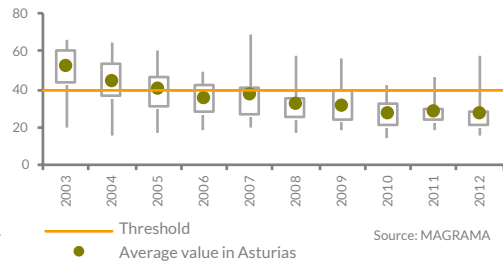


INDICATORS

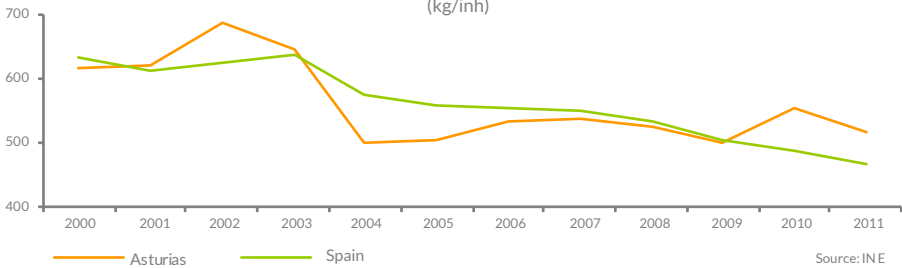
ANNUAL CONCENTRATIONS OF NO₂
(µg/m³)



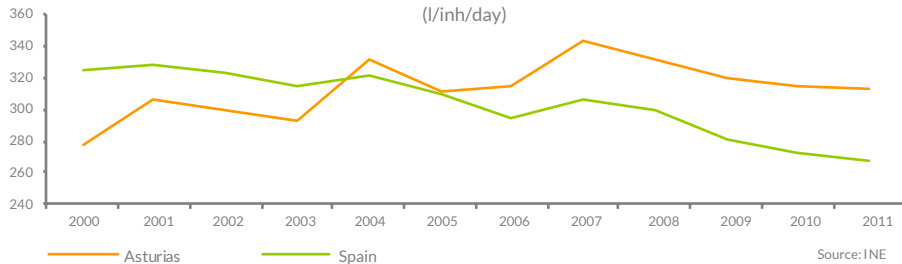
ANNUAL CONCENTRATIONS OF PM10
(µg/m³)

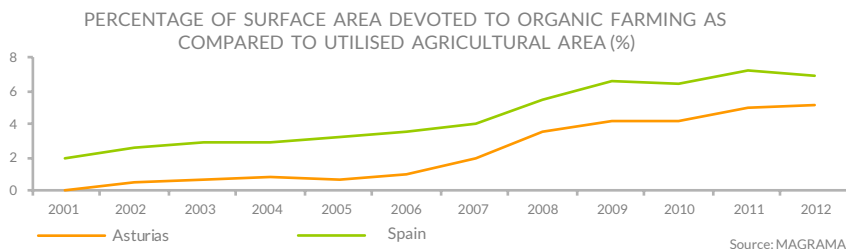
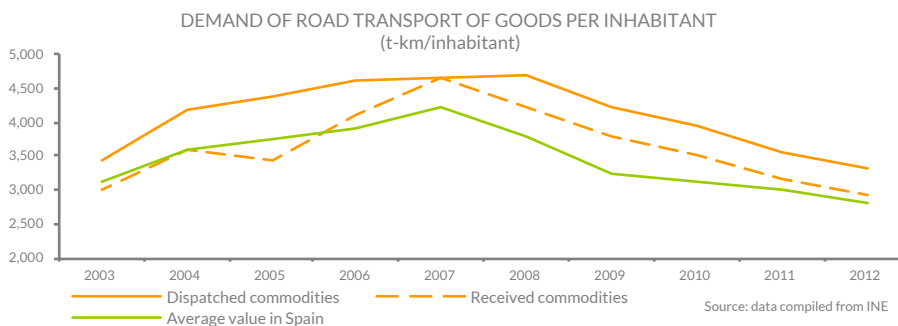
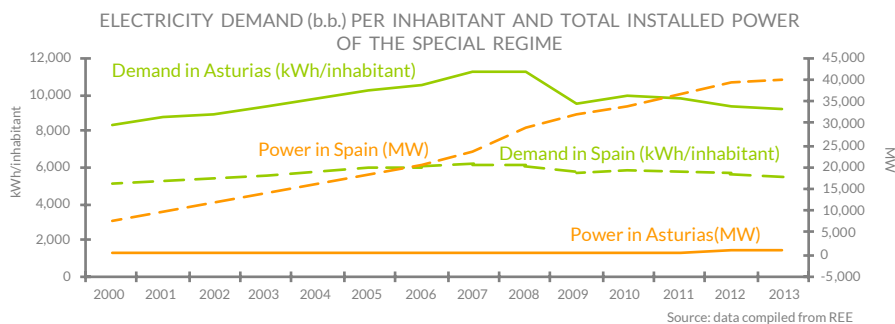


GENERATION OF URBAN WASTE PER INHABITANT
(kg/inh)



WATER DISTRIBUTED THROUGH URBAN WATER SUPPLY NETWORKS PER INHABITANT
(l/inh/day)





RELEVANT INFORMATION

- During 2013, the Government of the Principality of Asturias prepared two Air Quality Plans corresponding to the central region of Asturias (Avilés) and Gijón.
- The Consortium for the Management of Waste in Asturias (COGERSA) opened in 2013 a biomethanation plant for the treatment of 30,000 t/year of organic matter selectively collected.
- 50,000 students and 209 school centres took part in the School Network for Recycling during the academic year 2012-2013.
- Launching of the I+DARTS Project (Innovative and Demonstrative Arsenic Remediation Technologies for Soils) on the bioremediation of polluted soils, financed by the LIFE+ Programme of the EU and led by the University of Oviedo.
- A study on the sound levels of the major industrial facilities in the Autonomous Community was conducted.
- The Regional Ministry of Public Works, Land Use and Environment prepared the study "Companies in Asturias facing the challenge of a low-carbon economy".

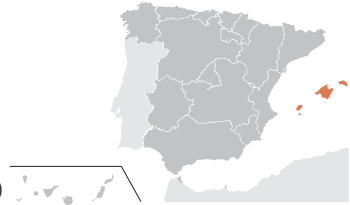
RECOMMENDED WEBSITES

- Environmental Network of Asturias: www.asturias.es/portal/site/medioambiente
- Environmental Profile of Asturias: <https://www.asturias.es/portal/site/medioambiente/menuitem.1340904a2df84e62fe47421ca6108a0c/?vgnextoid=fbf117d346143410VgnVCM10000098030a0aRCRD>
- COGERSA (Consortium for the Management of Waste in Asturias): www.cogersa.es
- CADASA (Water Consortium of Asturias): www.consorciaa.com
- Observatory of Sustainability in the Principality of Asturias: www.osasturias.es

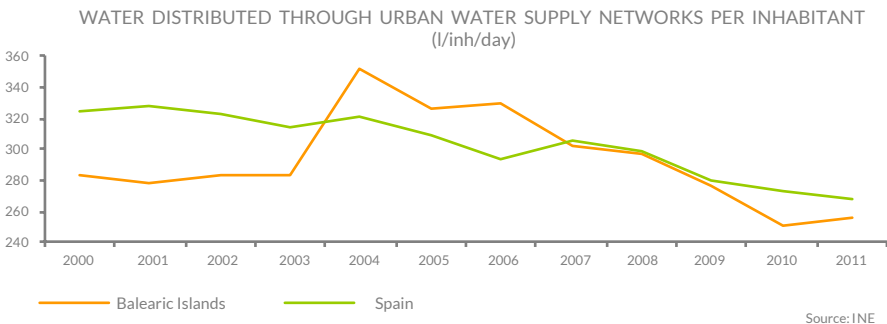
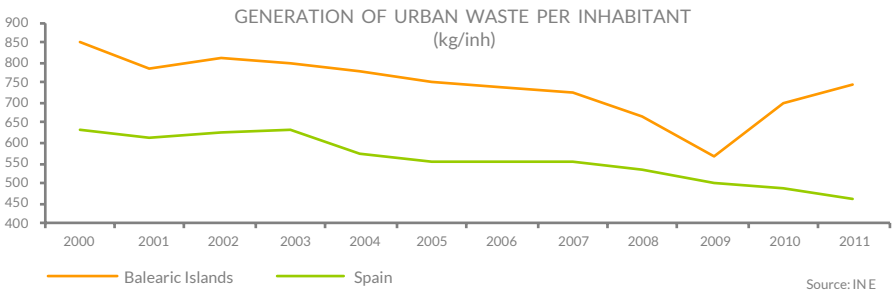
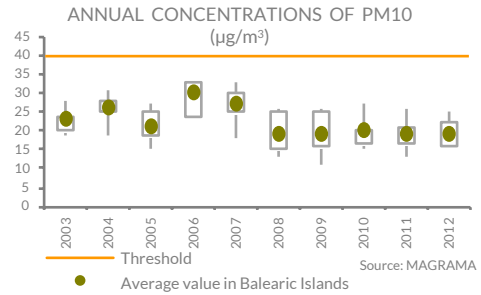
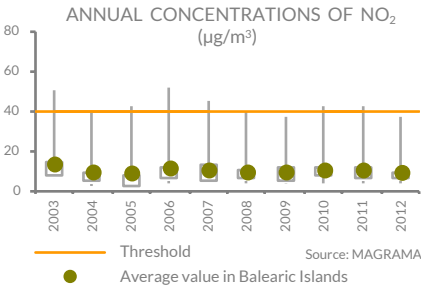


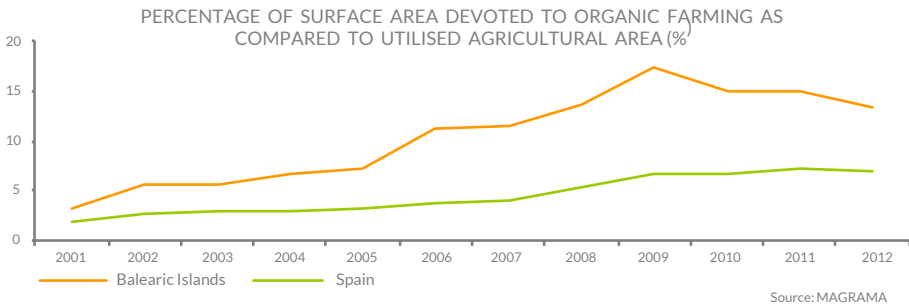
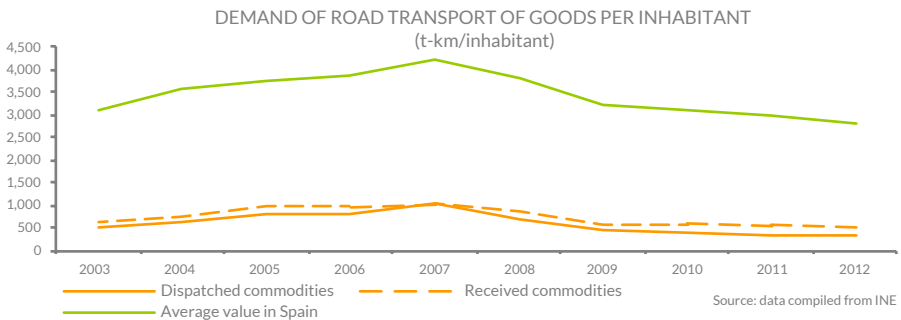
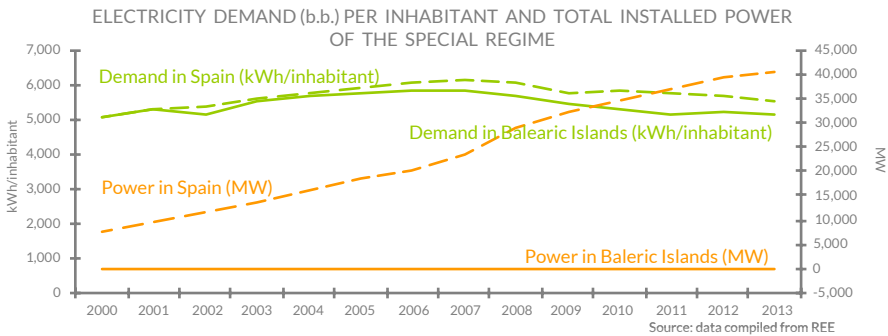
BALEARIC ISLANDS

Area: 4,992 km².
Population (2013) 1,110,115 inhab (222.4 inhab/km²).
Change in No. of inhabitants (2000-2013): 31.3%.
GDP per capita (2013): € 23,446. Spanish Average = 100: 105.2.
Unemployment rate (2013/2005): 22.3% / 7.2%.
GVA structure (% in 2012): Agriculture: 0.8 /
 Industry: 8.4 / Construction: 8.2 / Services: 82.6.
Land use distribution (% based on SIOSE categories 2008): Urban: 7.4 /
 Crops: 41.4 / Natural vegetation: 40.8 / Pastures: 6.3 / Surface without
 vegetation: 3.6 / Wetlands and Water Bodies: 0.8
Land area Natura Network 2000 (2013): 115,358 ha (23.14% of the AC)



INDICATORS





RELEVANT INFORMATION

- Fire in Serra Tramuntana (26 July 2013): 2,400 ha burnt. Commencement of the Environmental Restoration Plan - Presentation of the Forestry Action Plan of the Balearic Islands - Correction of 67 points of the power line so as to reduce impacts on the protected bird fauna (AVILINEA Project, with Gesa Endesa).
- Commencement of the project for the declaration of 87 Special Conservation Areas - 382 environmental buoys during the summer so as to regulate mooring and reduce the impact on the Posidonia Oceanica.
- Publication of the situation report on the status of the environment in the Balearic Islands 2010-2011 (the publication of the complete report 2008-2011 and the situation report 2012-2013 are to be published at the end of 2014).
- The Environment Committee (CMAIB) votes against the seismic research project in the Gulf of Lion area.
- New website www.balearsnatura.com for the dissemination and promotion of protected natural areas in the Balearic Islands.
- The Interdepartmental Commission on Climate Change approves the Balearic Strategy on Climate Change 2013-2020 and approves a new action plan for such period.
- The new Water Plan of the Balearic Islands Water Basin is approved (Royal Decree 684/2013).
- Act 6/2003, of 7 November, on sea fishing, shellfish-gathering and aquaculture in the Balearic Islands.

RECOMMENDED WEBSITES

- <http://www.caib.es> (Regional Government of the Balearic Islands)
- <http://mediambient.caib.es/dgcc/estatmediambient> (reports on the State of the Environment)
- <http://www.ideib.es> (spatial data of the Balearic Islands)
- <http://www.conselldemallorca.net> (Majorca City Council)
- <http://www.conselldeivissa.es> (Eivissa City Council)
- <http://www.cime.es> (Menorca City Council)
- <http://www.consellinsulardeformentera.cat> (Formentera City Council)



CANARY ISLANDS

Area: 7,447 km².

Population (2013) 2,105,232 inhab (282.7 inhab/km²).

Change in No. of inhabitants (2000-2013): 22.7%.

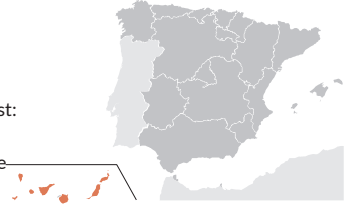
GDP per capita (2013): € 18,873. Spanish Average = 100: 84.7.

Unemployment rate (2013/2005): 34.1% / 11.7%.

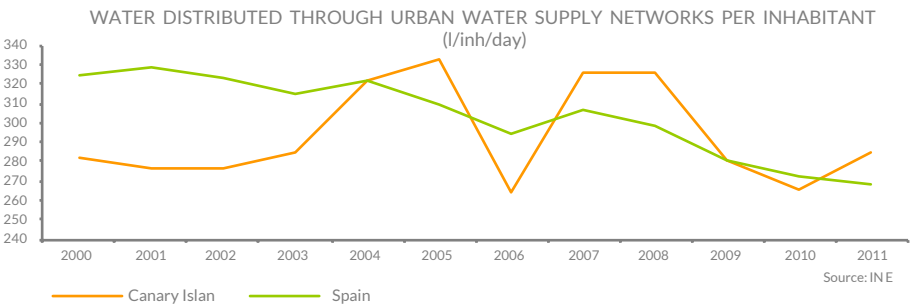
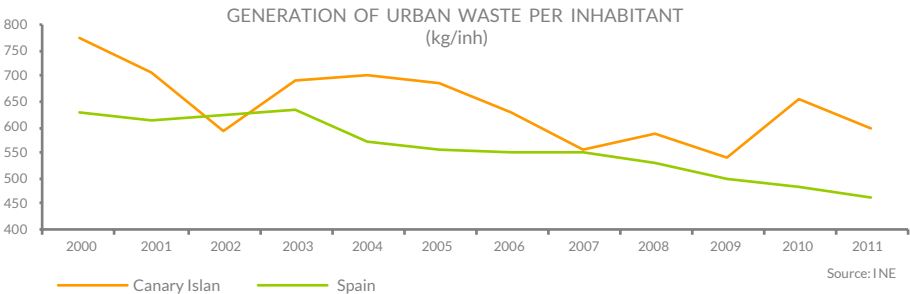
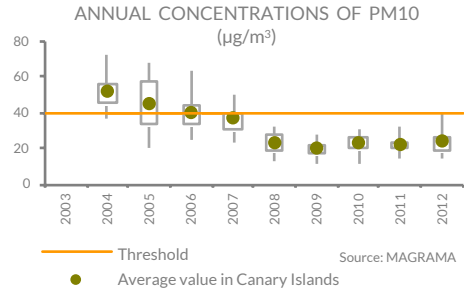
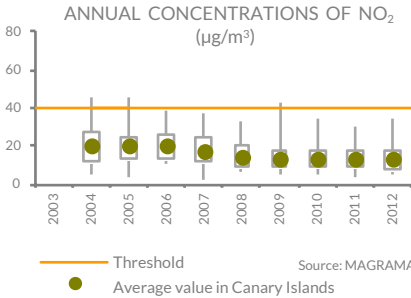
GVA structure (% in 2012): Agriculture: 0.8 / Industry: 8.4 /
Construction: 8.2 / Services: 82.6.

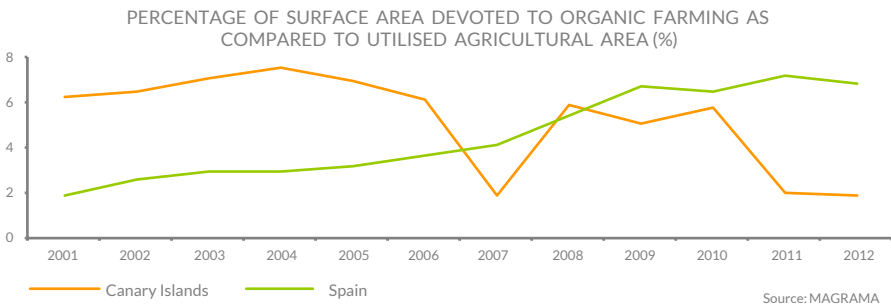
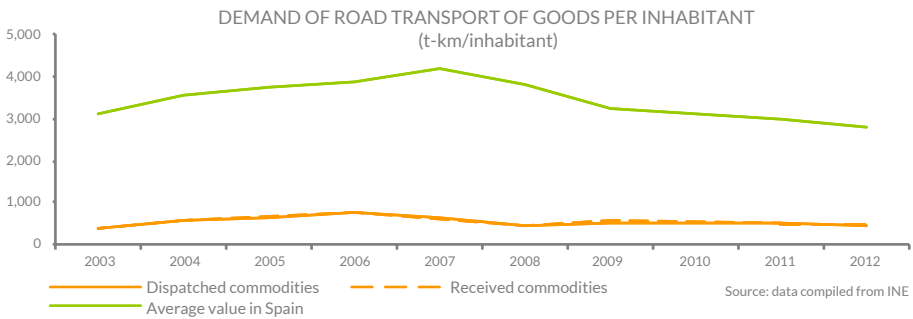
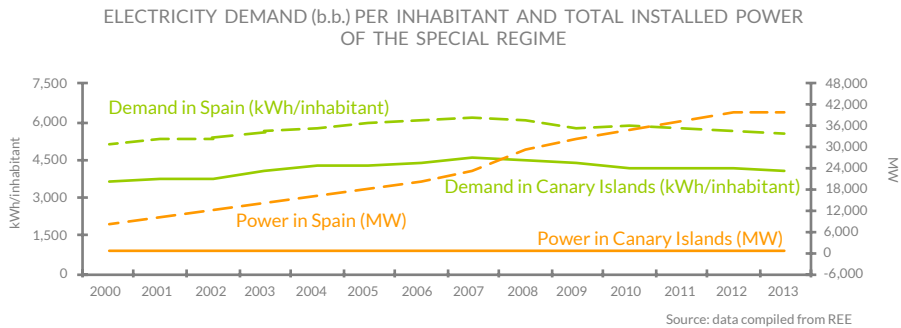
Land use distribution (% CLC 2006): Urban: 6.5 / Agriculture: 22.3 / Forest:
71.3 / Wetlands and Water Bodies: 0.0.

Land area Natura Network 2000 (2013): 348,039.4 land ha (46.8% of the
AC) and 13,287.2 marine ha (0.4%).



INDICATORS





RELEVANT INFORMATION

- Implementation of the **RedPromar**, network of observers of the marine environment in the Canary Islands created by the Government of the Canary Islands for the recording of all information related to the marine environment which is comprised of two basic programmes: Monitoring and Warning Programme against the Presence of Jellyfish and other Jelly Plankton and Programme for the Prevention and Monitoring of Poisonings caused by Harmful Algal Blooms (HABs).
- During the development of the **LifeLampropeltis** Programme, the purpose of which is the control of the *Lampropeltis getula californiae* in Gran Canaria, a total of 578 specimens were captured in 2013.

RECOMMENDED WEBSITES

Environmental Information Website of the Canary Islands: (<http://www.gobiernodecanarias.org/medioambiente/piac>) and, within such website:

- Environmental State Report: http://www.gobiernodecanarias.org/medioambiente/piac/temas/participacion/simac/informes_coyuntura_ambiental/
- RedPromar: <http://www.redpromar.com/inicio>
- Programme "LifeLampropeltis": <http://www.lifelampropeltis.es/>



CANTABRIA

Area: 5,327 km².

Population (2013) 590,037 inhab (110.9 inhab/km²).

Change in No. of inhabitants (2000-2013): 11.1%.

GDP per capita (2013): € 21,550. Spanish Average =100: 96.7.

Unemployment rate (2013/2005): 20.6% / 8.5%.

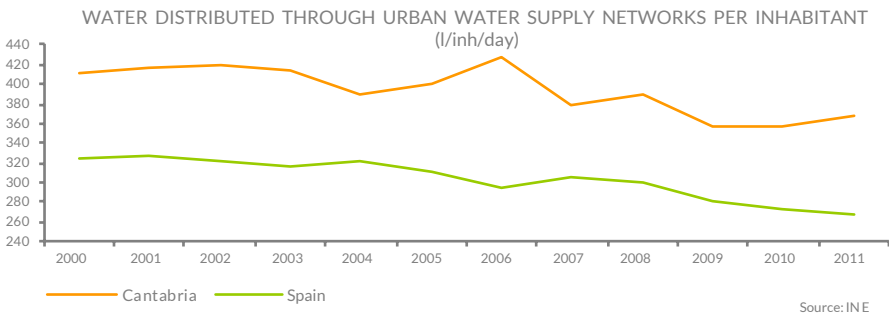
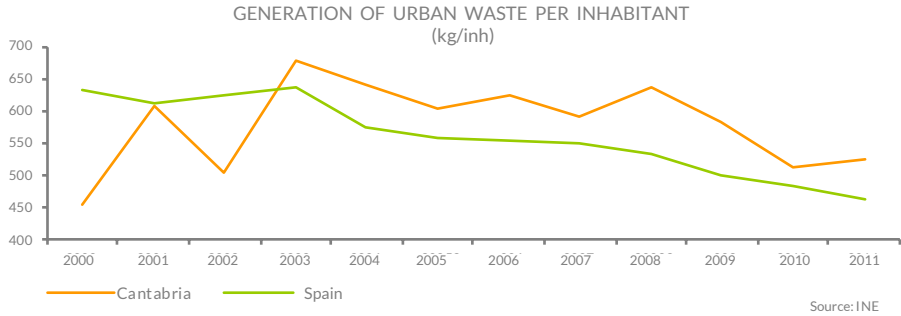
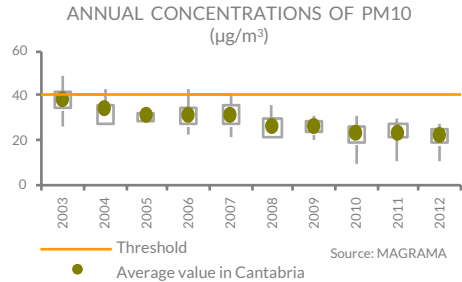
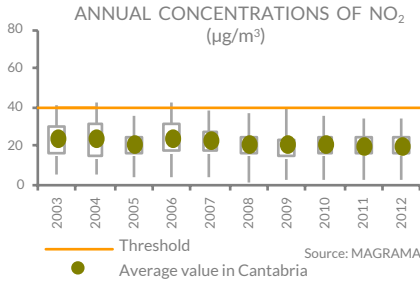
GVA structure (% in 2012): Agriculture: 2.0 / Industry: 21.9 /
Construction: 9.1 / Services: 67.0.

Land use distribution (% CLC 2012): Urban: 2.9 / Agriculture: 29.0 / Forest:
66.5 / Wetlands and Water Bodies: 1.6.

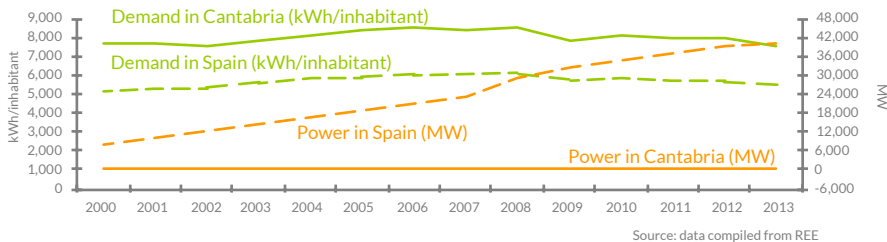
Land area Natura Network 2000 (2013): 147,736.50 ha (27.93% of the AC)



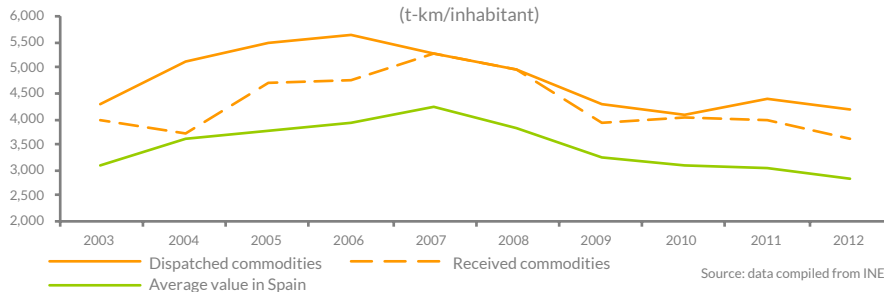
INDICATORS



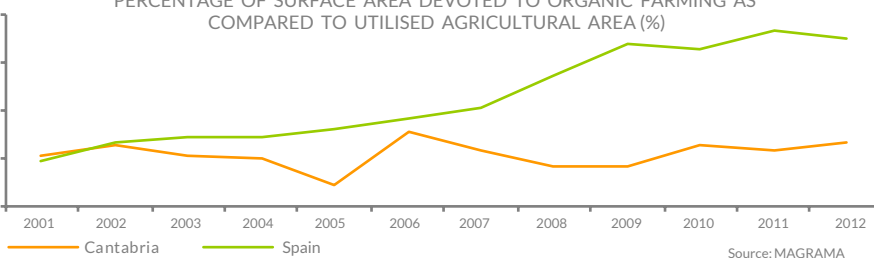
ELECTRICITY DEMAND (b.b.) PER INHABITANT AND TOTAL INSTALLED POWER OF THE SPECIAL REGIME



DEMAND OF ROAD TRANSPORT OF GOODS PER INHABITANT (t-km/inhabitant)



PERCENTAGE OF SURFACE AREA DEVOTED TO ORGANIC FARMING AS COMPARED TO UTILISED AGRICULTURAL AREA (%)



RELEVANT INFORMATION

The Catalogue of the Documentation Centre and Resources for Environmental Education of Cantabria (CEDREAC, Spanish Acronym) contains many publications and provides digital access to environmental laws at a regional, national and European level. It also offers a thematic virtual catalogue with resources contained in different websites. Available at <http://cedreac.medioambientecantabria.es:9090/ABSYS/abwebp.exe>

In 2013 the following legislative instruments were approved:

- Order INN/16/2013, of 27 May, regulating the recording of certifications as regards energy performance of buildings in the Autonomous Region of Cantabria.
- Act 1/2013, of 15 April, regulating, in the territory of the Autonomous Region of Cantabria, the banning of the hydraulic fracturing technique for the investigation and extraction of unconventional gas.
- Order MED 2/2013, of 25 January, approving technical instructions as regards the control of atmospheric emissions.
- Order MED/03/2013, of 23 January, approving the Cycling Mobility Plan of Cantabria.

RECOMMENDED WEBSITES

- <http://cedreac.medioambientecantabria.es:9090/ABSYS/abwebp.exe>
- <http://www.cantabria.es>
- <http://www.medioambientecantabria.es>
- http://www.medioambientecantabria.es/calidad_aire
- <http://www.territoriodecantabria.es>
- <http://www.urbanismodecantabria.es>
- <http://www.dgmontes.org>
- <http://www.icane.es>

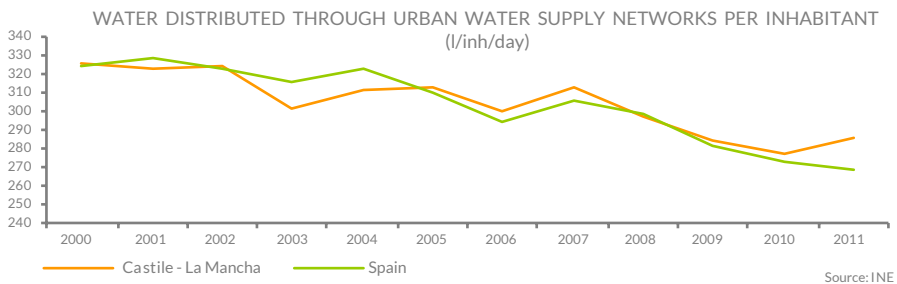
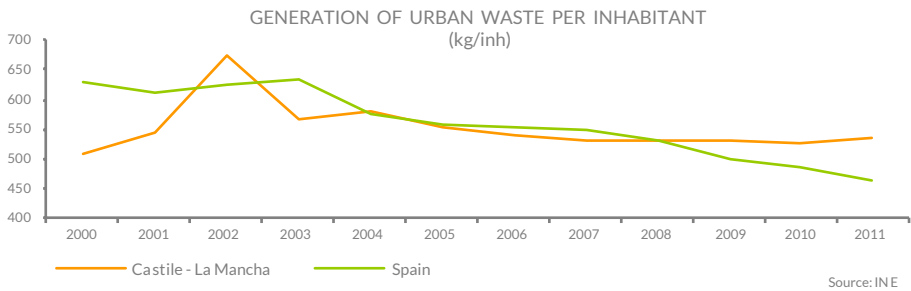
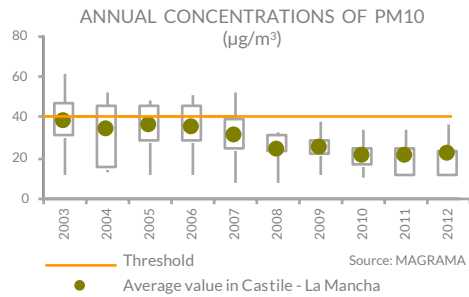
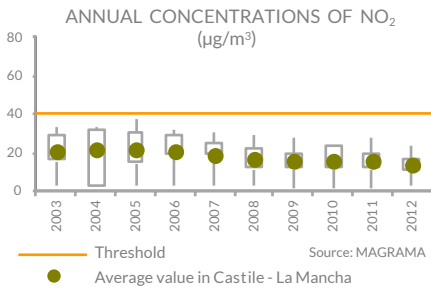


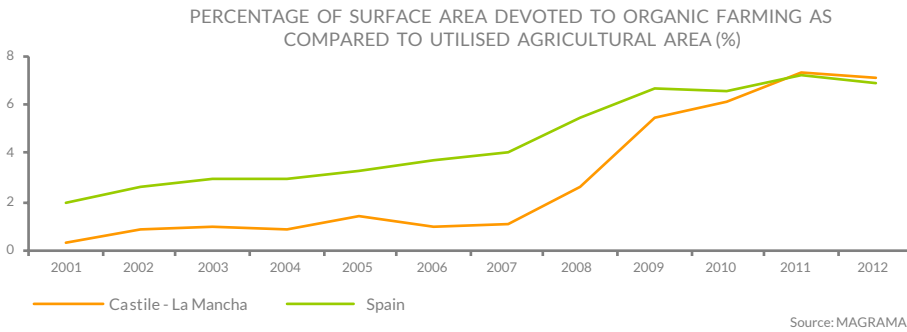
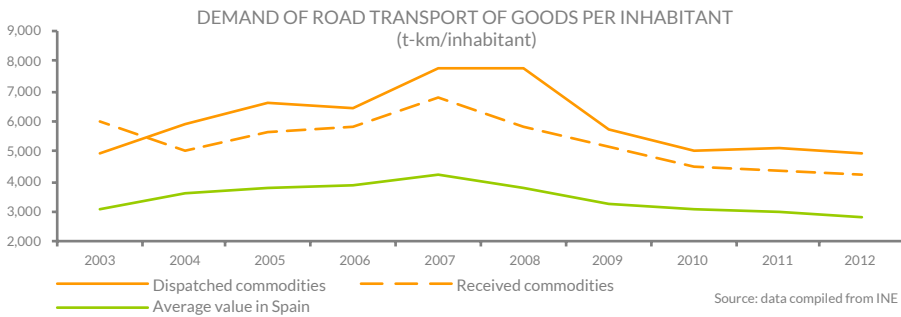
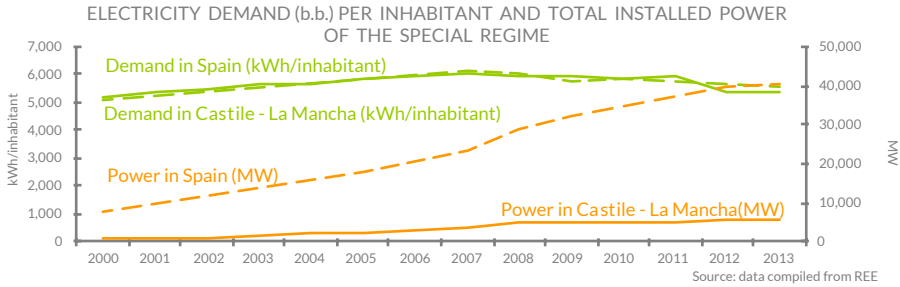
CASTILE-LA MANCHA

Area: 79,462 km².
Population (2013) 2,094,391 inhab (26.4 inhab/km²).
Change in No. of inhabitants (2000-2013): 20.8%.
GDP per capita (2013): € 17,780. Spanish Average = 100: 79.8.
Unemployment rate (2013/2005): 30.1% / 9.2%.
GVA structure (% in 2012): Agriculture: 7.4 / Industry: 23.0 / Construction: 10.0 / Services: 59.6.
Land use distribution (% based on SIOSE categories 2009):
 Urban: 2.86 / Agriculture: 47.44 / Forest: 49.23 /
 Wetlands and Water Bodies: 0.47
Land area Natura Network 2000 (2013): 1,839,339 ha (23.15% of the AC).



INDICATORS





RECOMMENDED WEBSITES

- Environmental Information: <http://www.castillalamancha.es/tema/medio-ambiente/informaci%C3%B3n-y-participaci%C3%B3n-ambiental>
- Environmental Quality: <http://www.castillalamancha.es/tema/medio-ambiente/calidad-ambiental>
- Environmental Monitoring Plan: <http://www.castillalamancha.es/gobierno/agricultura/estructura/dgacia/actuaciones/inspecci%C3%B3n-medioambiental>
- Natural Environment: <http://www.castillalamancha.es/tema/medio-ambiente/medio-natural>
- Publications on biodiversity and natural protected areas: <http://www.castillalamancha.es/gobierno/agricultura/estructura/dgamen/actuaciones/publicaciones-sobre-biodiversidad-y-espacios-naturales>
- Publications on forests: <http://www.castillalamancha.es/gobierno/agricultura/estructura/dgamen/actuaciones/publicaciones-forestales>



CASTILE-LEON

Area: 94,227 km².

Population (2013) 2,518,528 inhab (26.7 inhab/km²).

Change in No. of inhabitants (2000-2013): 1.6%.

GDP per capita (2013): € 21,879. Spanish Average = 100: 98.2.

Unemployment rate (2013/2005): 21.7% / 8.7%.

GVA structure (% in 2012): Agriculture: 6.4 / Industry: 21.0 / Construction: 8.3 / Services: 64.2.

Land use distribution (% based on SIOSE categories 2009): Urban: 1.8 /

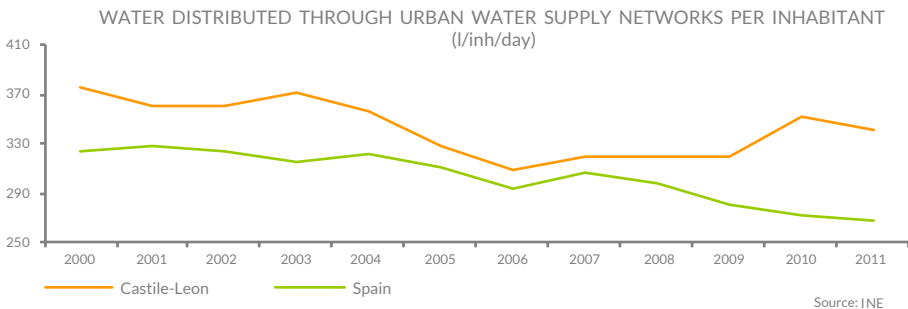
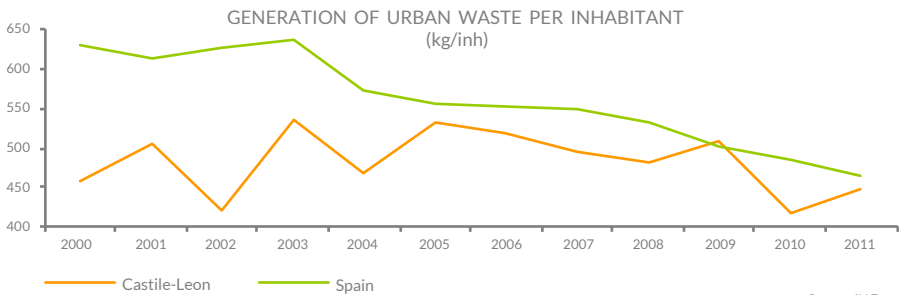
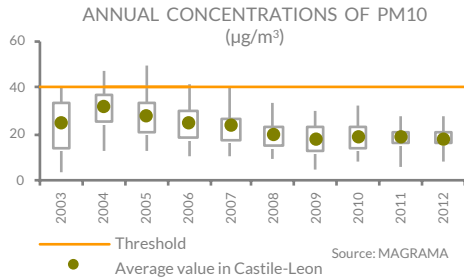
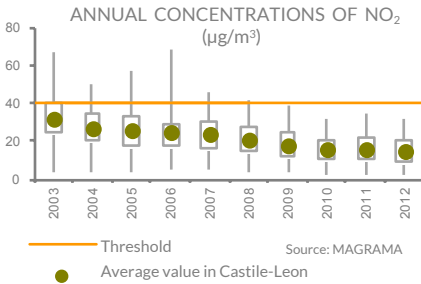
Agriculture: 43.0 / Forest: 54.7 /

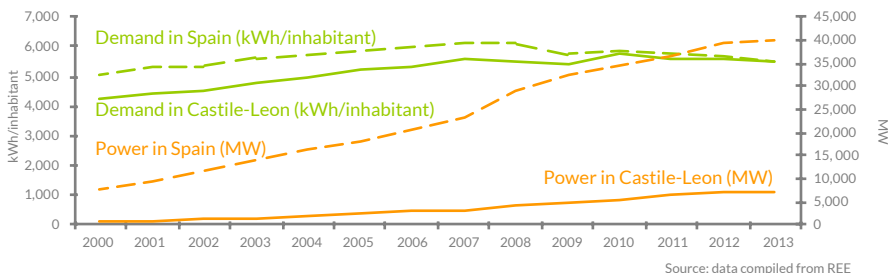
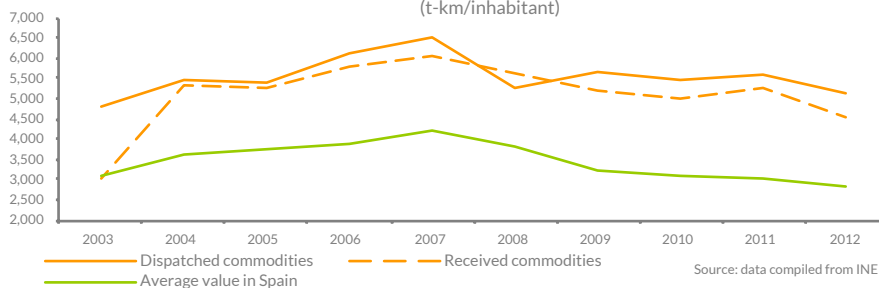
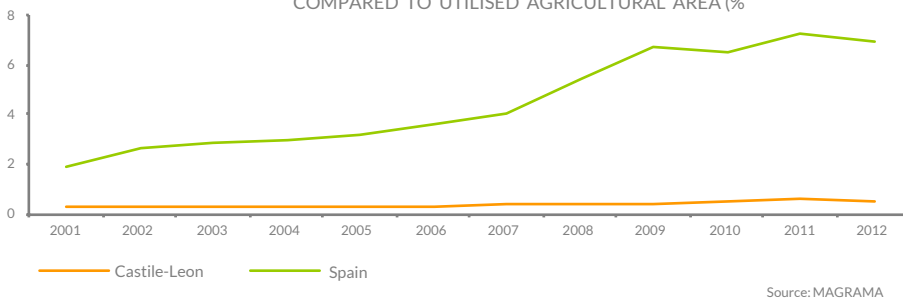
Wetlands and Water Bodies: 0.53.

Land area Natura Network 2000 (2013): 2,461,686.9 ha (26.13% of the AC)



INDICATORS



ELECTRICITY DEMAND (b.b.) PER INHABITANT AND TOTAL INSTALLED POWER
OF THE SPECIAL REGIMEDEMAND OF ROAD TRANSPORT OF GOODS PER INHABITANT
(t-km/inhabitant)PERCENTAGE OF SURFACE AREA DEVOTED TO ORGANIC FARMING AS
COMPARED TO UTILISED AGRICULTURAL AREA (%)

RELEVANT INFORMATION

- Declaration of the National Park "Sierra de Guadarrama" (Act 7/2013, of 25 June).
- Approval of the Management Plan for Natural Resources (PORN) of the National Park "Lago de Sanabria y alrededores" (Zamora) (Decree 62/2013, of 26 September; Official Gazette of Castile-Leon of 2 October 2013).
- Resolution of 20 November 2013 on National Parks (Spanish Official State Gazette [BOE] of 30 December 2013) by virtue of which the approval by the UNESCO of the Biosphere Reserve "Real Sitio de San Ildefonso-EI Espinar" was published.
- Preparation of the action plans on acoustic pollution within the territorial scopes corresponding to the noise maps of those populations with more than 20,000 inhabitants.
- Act 9/2013, of 3 December, on Fisheries in Castile-Leon.
- Act 1/2013, of 28 February, amending Act 10/1998, of December, on the Land Planning of the Autonomous Community of Castile-Leon.

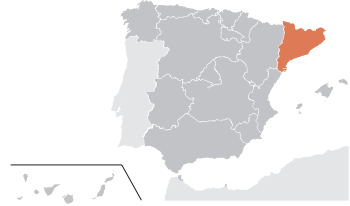
RECOMMENDED WEBSITES

- <http://www.jcy.es/medioambiente/>
- <http://www.sigren.es/>
- <http://www.patrimonionatural.org>
- Hunting and Fishing Licenses
- Dossiers and Reports
- Annual Statistical Report of Castile-Leon 2013
- Report "Sustainable Development in Castile-Leon"
- Information System of the Protected Natural Areas Network of Castile-Leon (SIGREN): www.sigren.es/

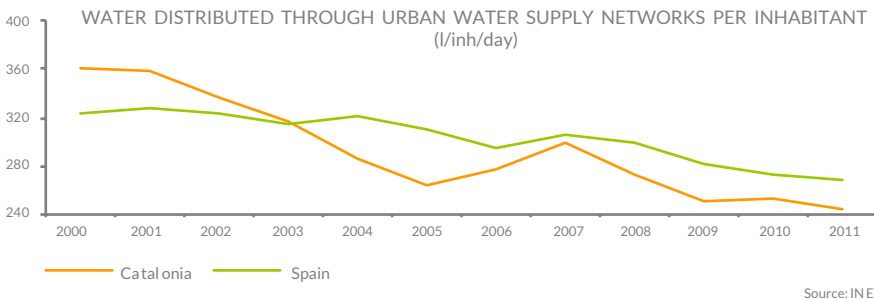
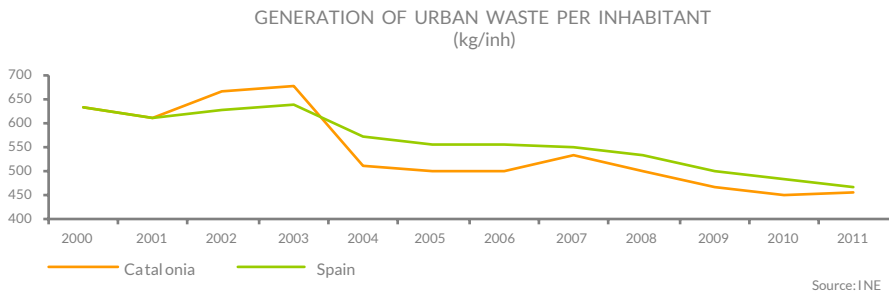
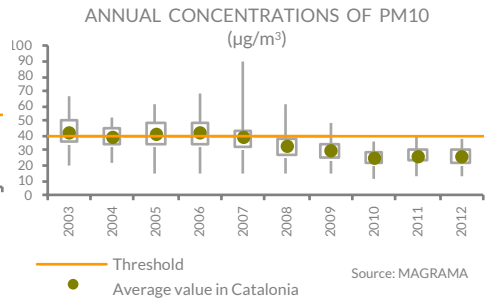
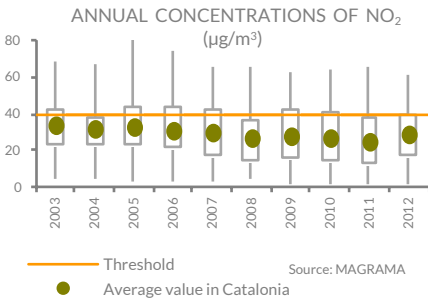


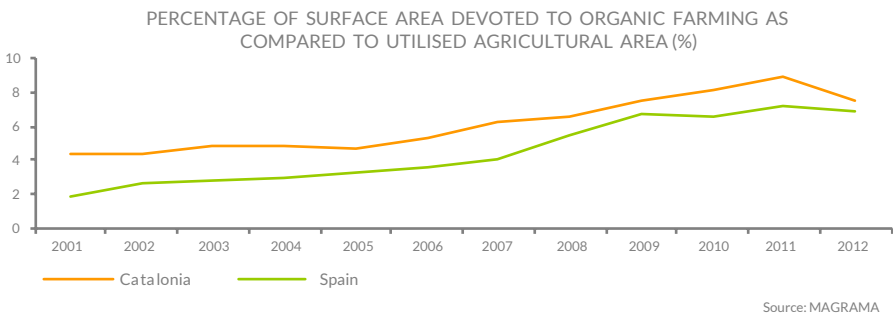
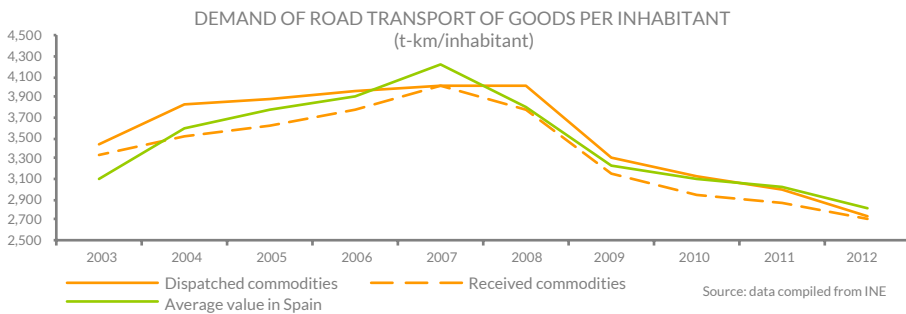
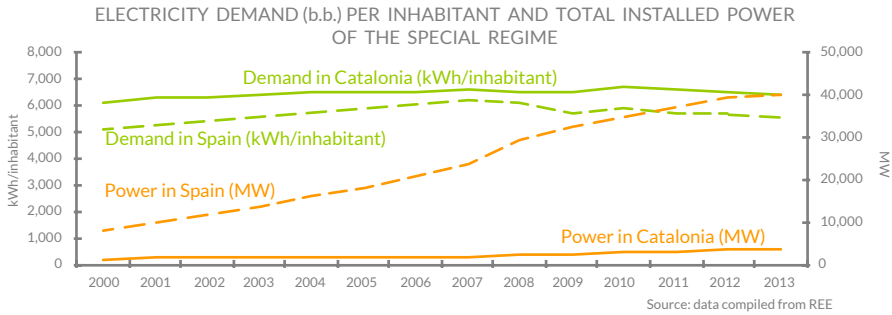
CATALONIA

Area: 32,091 km².
Population (2013) 7,480,921 inhab (233.0 inhab/km²).
Change in No. of inhabitants (2000-2013): 19.5%.
GDP per capita (2013): € 26,666. Spanish Average = 100: 119.7.
Unemployment rate (2013/2005): 23.4% / 7.0%.
GVA structure (% in 2012): Agriculture: 1.3 / Industry: 21.0 / Construction: 6.6 / Services: 71.1.
Land use distribution (% based on SIOSE categories 2009):
 Urban: 6.2 / Agriculture: 29.1 /
 Forests: 64.1 / Wetlands and Water Bodies: 0.57.
Land area Natura Network 2000 (2013): 977,230 ha (30.44% of the AC)



INDICATORS





RELEVANT INFORMATION

- In 2013, the complete report on the status of the environment in Catalonia was prepared in compliance with Article 8 of Act 27/2006 of 18 July, regulating access rights to information, public participation rights and rights regarding access to justice in relation to environmental issues. This report describes the status, issues and actions in relation to those main environmental elements. It also shows a choice of indicators.

RECOMMENDED WEBSITES

- Website of the Secretariat for the Environment and Sustainability: http://www20.gencat.cat/portal/site/mediambient?newLang=es_ES%20-
- Annual reports on the status of the environment in Catalonia: <http://bit.ly/1giPejM>



CEUTA

Area: 19 km².

Population (2013) 84,534 inhab (4,449.2 inhab/km²).

Change in No. of inhabitants (2000-2013): 12.4%.

GDP per capita (2013): € 18,771. Spanish Average = 100: 84.3.

Unemployment rate (2013/2005): 35.6% / 19.7%.

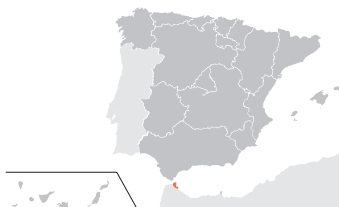
GVA structure (% in 2012): Agriculture: 0,2 /

Industry: 5.2 / Construction: 6.8 / Services: 87.8.

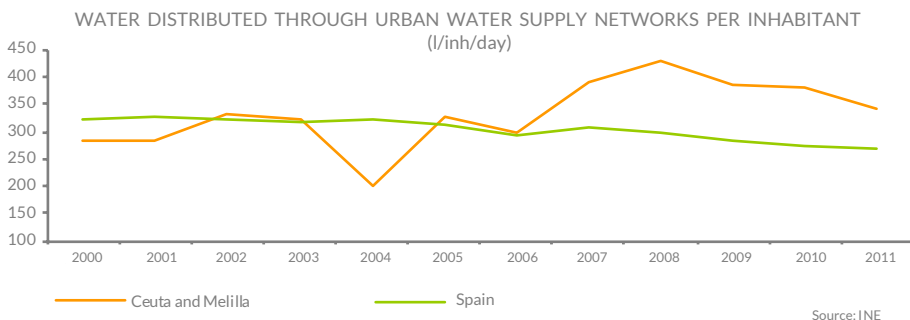
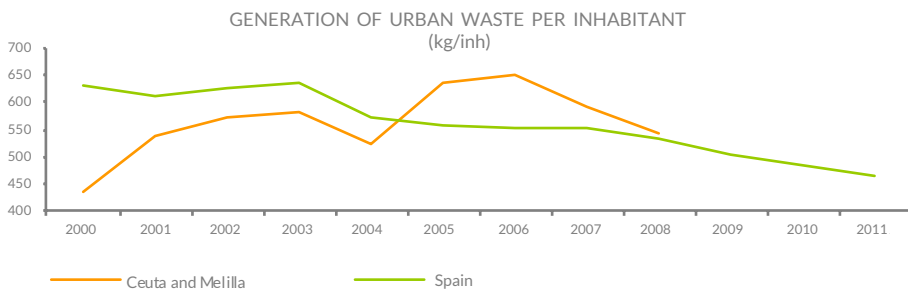
Land use distribution (% CLC 2006): Urban: 37.2 /

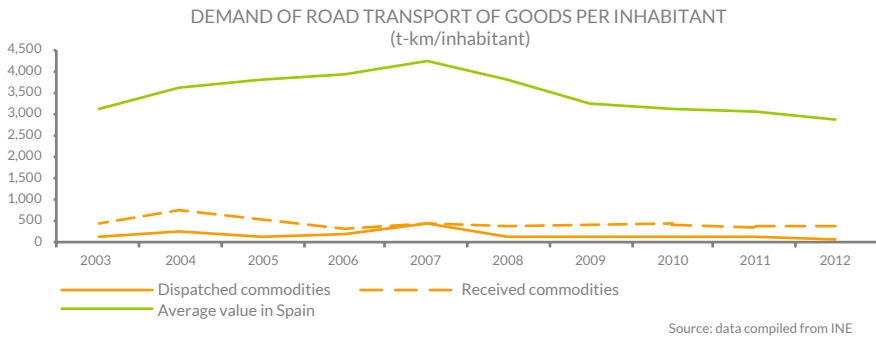
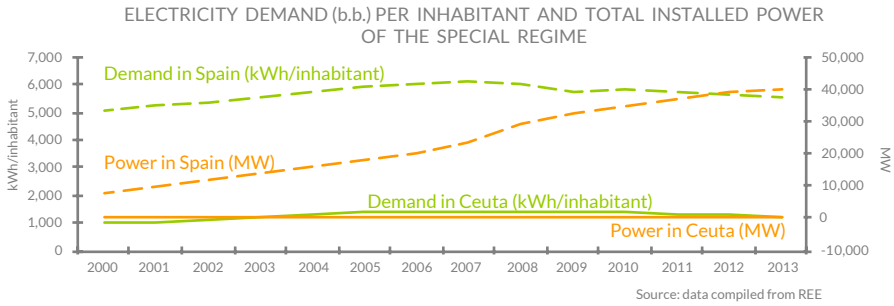
Forest: 62.8 / Wetlands and Water Bodies: 0.0.

Land area Natura Network 2000 (2013): 630.53 ha of land SCI
(31.83% of the Autonomous City) and 836.20 ha
of marine SCI.



INDICATORS





RECOMMENDED WEBSITES

- <http://www.ceuta.es/ceuta/>
- <http://www.ceuta.es/ceuta/por-consejerias/educacion-cultura-y-mujer/124-educacion/actividades-guia/ceuta-y-el-medio-ambiente>
- <http://www.obimasa.es/>



VALENCIAN COMMUNITY

Area: 23,255 km².

Population (2013): 4,987,017 inhab (214.5 inhab/km²).

Change in No. of inhabitants (2000-2013): 21.0%.

GDP per capita (2013): € 19,502. Spanish Average = 100: 87.5.

Unemployment rate (2013/2005): 28.6% / 8.8%.

GVA structure (% in 2012): Agriculture: 2.0 / Industry: 18.9 / Construction: 8.8 / Services: 70.3.

Land use distribution (% based on SIOSE categories 2011):

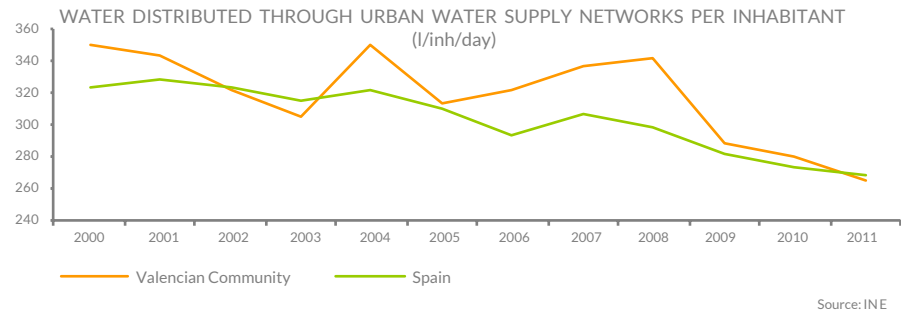
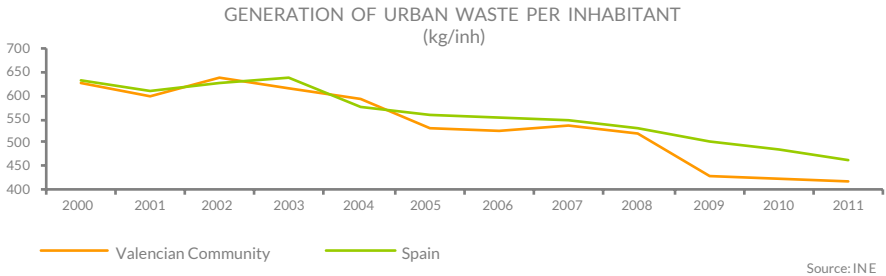
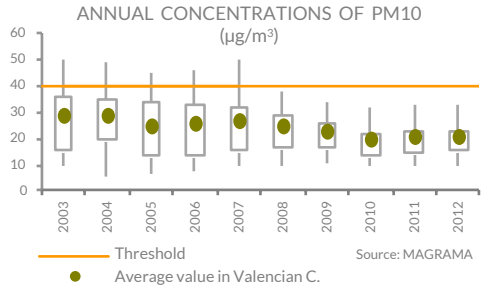
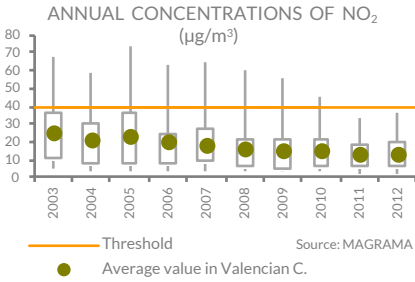
Urban: 7.5 / Agriculture: 57.6 /

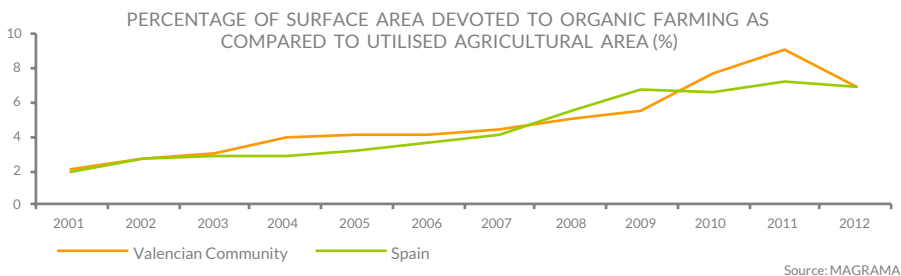
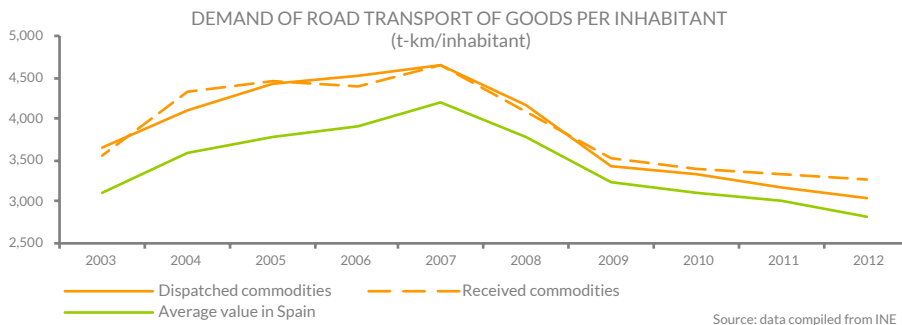
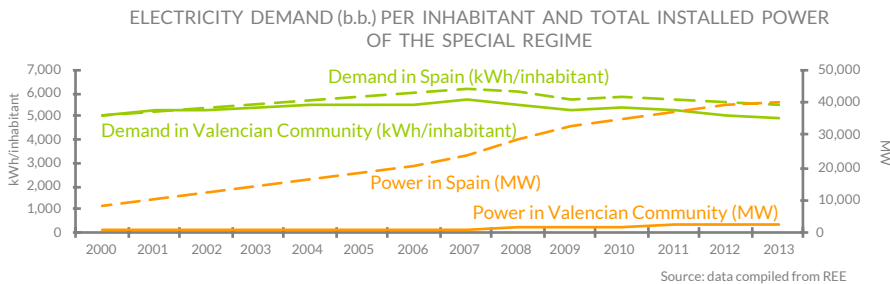
Forests: 34.1 / Wetlands and Water Bodies: 0.8.

Land area Natura Network 2000 (2013): 872,291 ha (37.5% of the AC) and 936,396 ha (40.24 % of the AC) including land and marine areas.



INDICATORS





RELEVANT INFORMATION

- Approval of the Bill on Land Use, Urbanism and Landscape of the Valencian Community.
- Approval of the New Comprehensive Waste Management Plan of the Valencian Community (PIRCV, Spanish Acronym).
- Approval of the Strategy against Climate Change 2013-2020 of the Valencian Community.
- Approval of the Bill on Prevention, Quality and Environmental Monitoring of Activities of the Valencian Community.
- Approval of the Forest Action Plan of the Valencian Community.
- Approval of the Bill on Livestock Trails of the Valencian Community.
- Processing of the Review of the Territorial Action Plan on the Prevention of Flood Risks in the Valencian Community (PATRICOVA, Spanish Acronym).

RECOMMENDED WEBSITES

- <http://www.citma.gva.es>
- <http://bdb.cma.gva.es>
- <http://www.cma.gva.es/web/indice.aspx?nodo=73626&idioma=C>
- <http://www.citma.gva.es/web/cidam>
- <http://www.citma.gva.es/web/parques-naturales>
- <http://cma.gva.es/web/indice.aspx?nodo=77495&idioma=C>

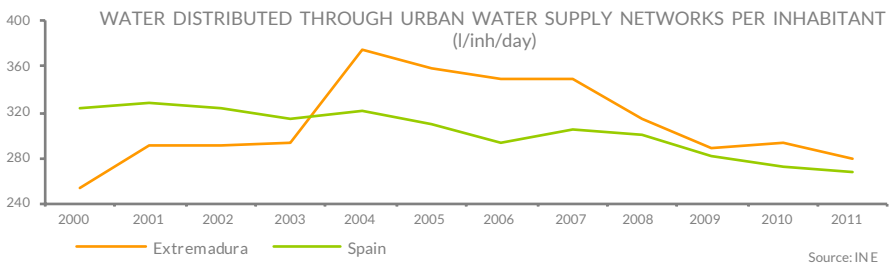
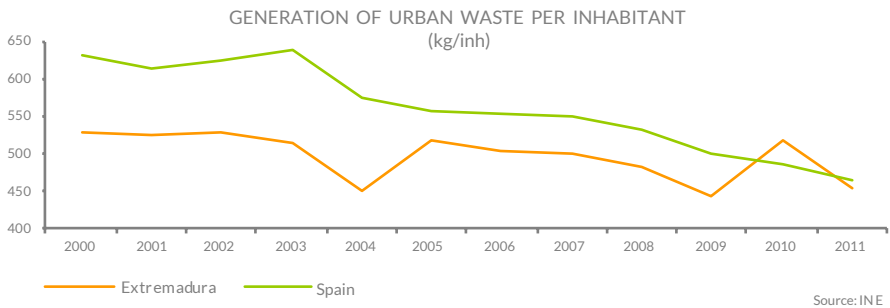
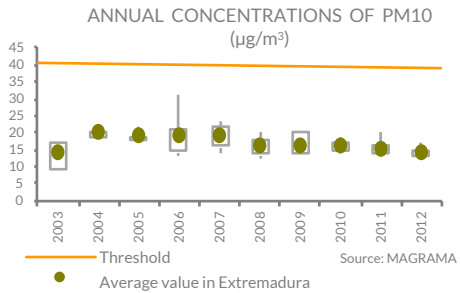
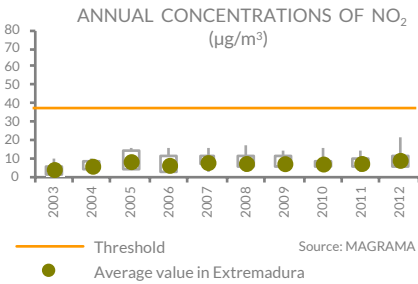


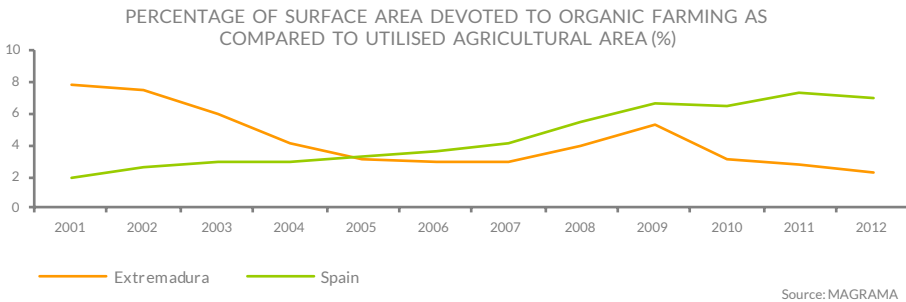
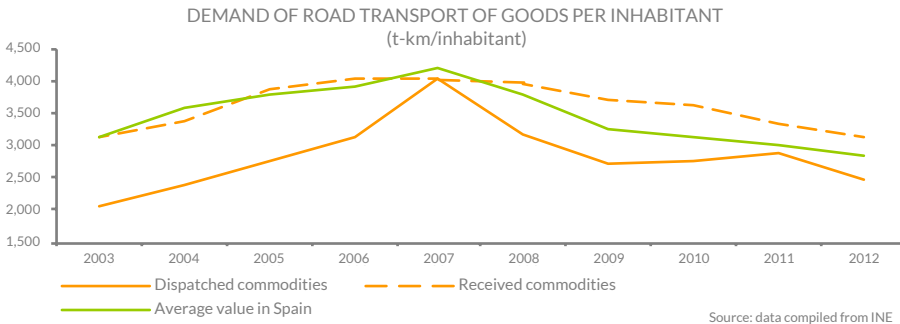
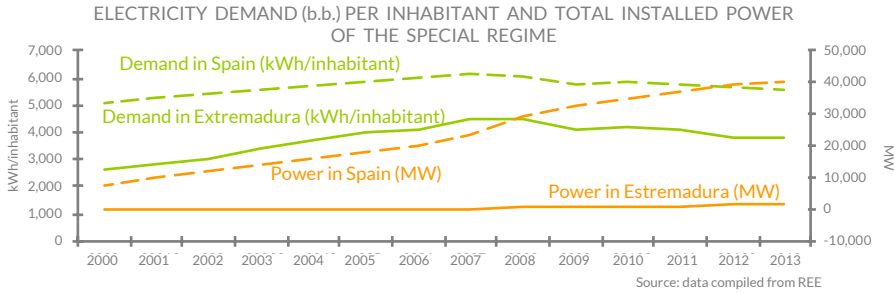
EXTREMADURA

Area: 41,635 km².
Population (2013) 1,100,968 inhab (26.5 inhab/km²).
Change in No. of inhabitants (2000-2013): 3.0%.
GDP per capita (2013): € 15,026. Spanish Average = 100: 67.4.
Unemployment rate (2013/2005): 33.7% / 15.8%.
GVA structure (% in 2012): Agriculture: 5.9 /
 Industry: 13.6 / Construction: 11.1 / Services: 69.4.
Land use distribution (% CLC 2006): Urban: 0.72 /
 Agriculture: 55.49 / Forest: 42.49 /
 Wetlands and Water Bodies: 1.51.
Land area Natura Network 2000 (2013): 1,305,408 ha (31.32% of the AC)



INDICATORS





RELEVANT INFORMATION

- Preparation and approval of the Strategy on Climate Change of Extremadura 2013 - 2020.
- Publication of Adaptation Plans to the Climate Change in the Energy, Water Resource, Health and Tourism Industries.
- Pilot Project on Renewable Energies by means of the use of biomass heating systems and thermal solar energy with an investment of €189,000, in the Centre of Agricultural Training of Navalmoral de la Mata.
- Renewal of the fleet of vehicles for the collection or USW in accordance with the Euro VI Regulation, with an investment of € 2,950,000.
- Creation and installation of 46 Recycling Sites for USW in Local Entities with a subsidy amounting to € 2,630,000.
- Action plan against Invasive Alien Species
- Introduction of extinct species, such as the lynx and the bearded vulture.

RECOMMENDED WEBSITES

- http://extremambiente.gobex.es/files/biblioteca_digital/INFORME_AMBIENTAL_EXTREMADURA_2012_2.pdf



GALICIA

Surface: 29,575 km².

Population (2013) 2,761,970 inhab (93.4 inhab/km²).

Change in No. of inhabitants (2000-2013): 1.1%.

GDP per capita (2013): € 20,399. Spanish Average = 100: 91.6.

Unemployment Rate (2013/2005): 22.1% / 9.9%.

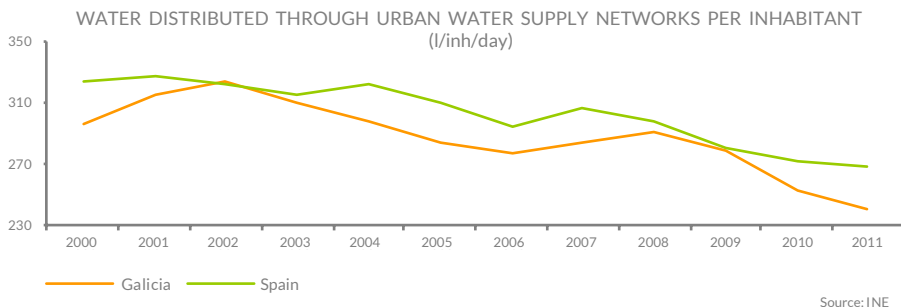
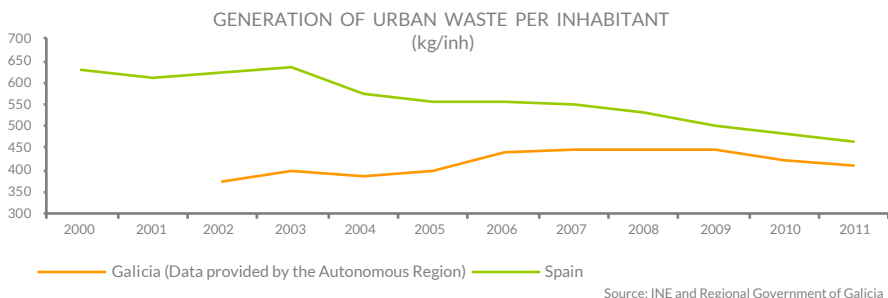
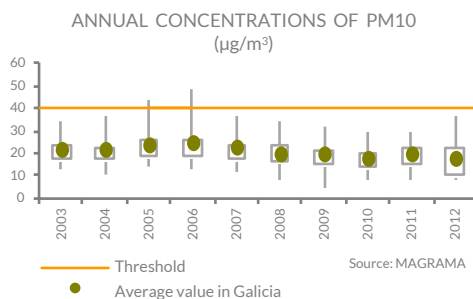
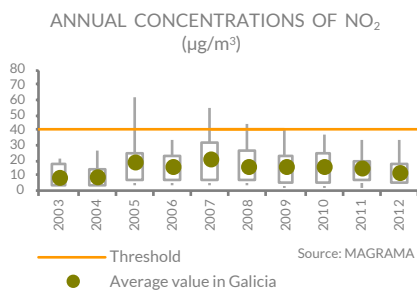
GVA Structure (% in 2012): Agriculture: 4.4 / Industry: 21.1 / Construction: 9.5 / Services: 65.1.

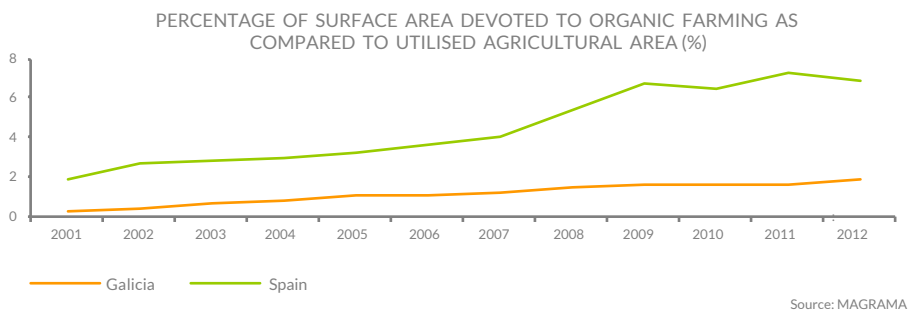
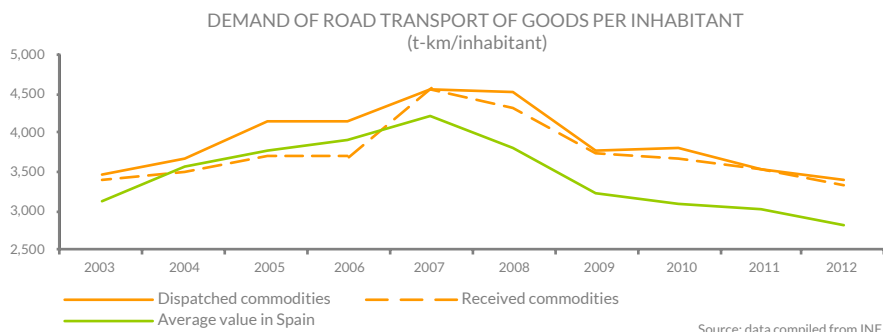
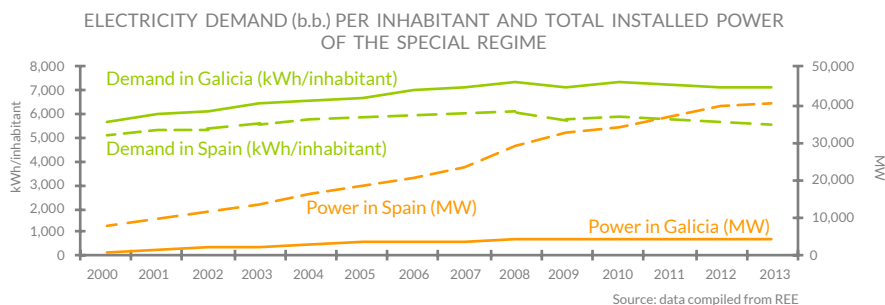
Land use distribution (% based on by SIOSE categories 2011): Urban: 6.5 / Agriculture: 23.3 / Forest: 66.8 / Wetlands and Water Bodies: 0.9 / Areas with sparse or no vegetation: 2.6.

Land area Natura Network 2000 (2013): 352,588 ha (11.92% of the AC).



INDICATORS





RELEVANT INFORMATION

- Urban Waste Management Plan of Galicia 2010-2020.
- Programme for the Management of Construction and Demolition Waste of Galicia 2013-2016 and Programme for the Prevention of Industrial Waste of Galicia 2013-2016. They can be accessed at the following website <http://sirga.cmati.xunta.es/plans-e-programas-sirga>
- Air Quality Report of Galicia 2012 (<http://www.meteogalicia.es/Caire/InformesCaire.action>).

RECOMMENDED WEBSITES

- <http://www.xunta.es>
- <http://www.xunta.es/cmati>
- <http://www.cmati.xunta.es>
- <http://www.meteogalicia.es>
- <http://www.meteogalicia.es/Caire/index.action>
- <http://sirga.cmati.xunta.es>
- <http://sirga.cmati.xunta.es/plans-e-programas-sirga>
- <http://sitga.xunta.es/sitganet>
- <http://www.climantica.org>



LA RIOJA

Surface: 5,045 km².

Population (2013) 318,639 inhab (63.2 inhab/km²).

Change in No. of inhabitants (2000-2013): 20.6%.

GDP per capita (2013): € 25,277. Spanish Average = 100: 113.5.

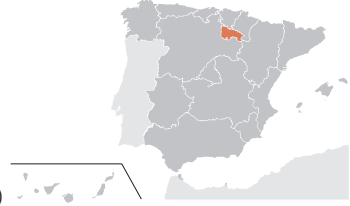
Unemployment Rate (2013/2005): 19.9% / 6.2%.

GVA Structure (% in 2012): Agriculture: 5.2 / Industry: 29.2 / Construction: 7.7 / Services: 57.9.

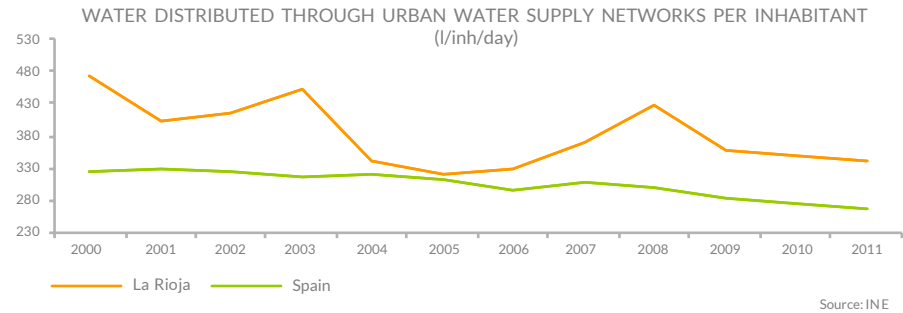
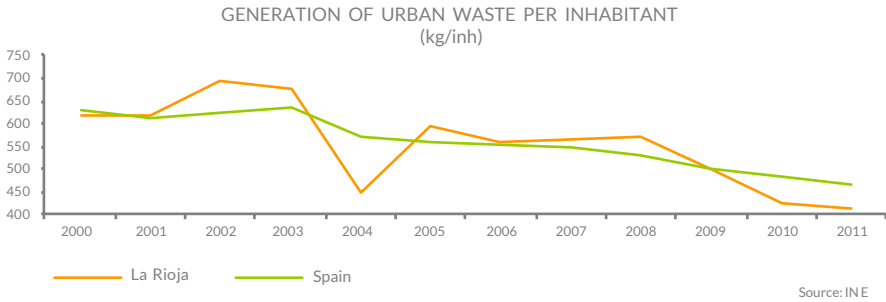
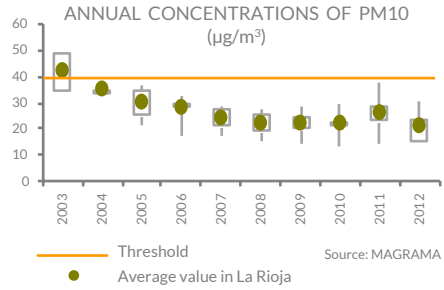
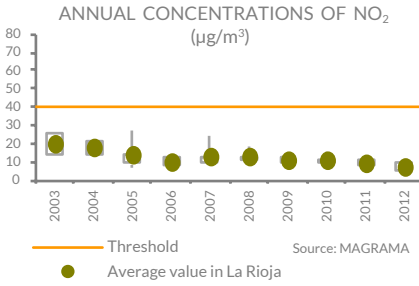
Land use distribution (% CLC 2006): Urban: 1.2 /

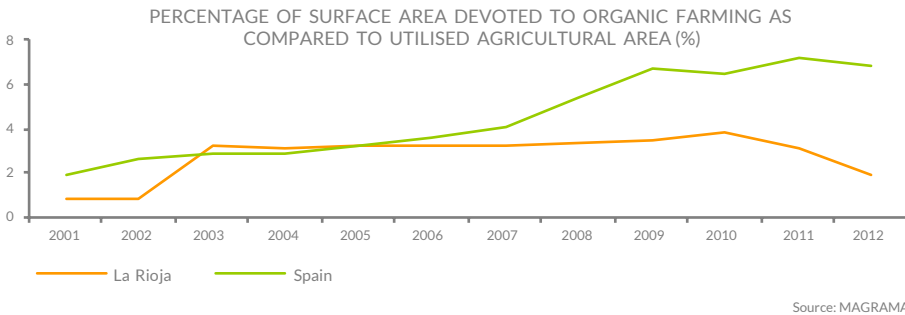
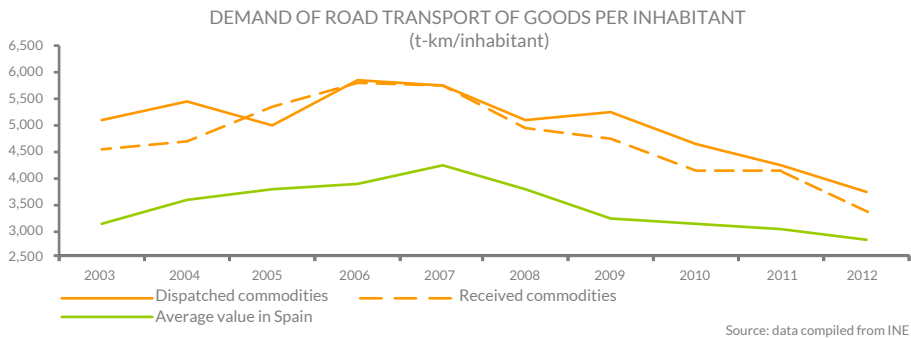
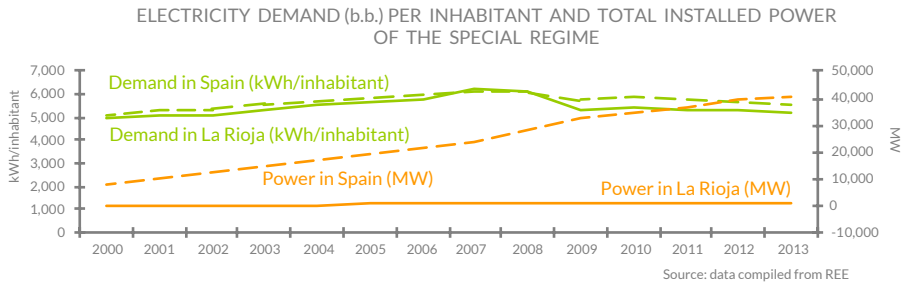
Agriculture: 41.8 / Forest: 56.7 / Wetlands and Water Bodies: 0.4.

Land area Natura Network 2000 (2013): 167,541 ha (33.21% of the AC)



INDICATORS





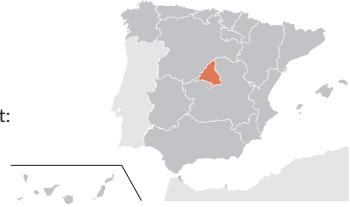
RECOMMENDED WEBSITES

- <http://www.larioja.org/medioambiente>
- <http://www.larioja.org/residuos>
- <http://www.larioja.org/atmosfera>
- Water and Waste Consortium: <http://www.larioja.org/care>
- <http://www.larioja.org/estadistica>
- Direct link to environmental statistics: <http://www.larioja.org/npRioja/default/defaultpage.jsp?idtab=447138>
- Direct link to agricultural statistics: <http://www.larioja.org/npRioja/default/defaultpage.jsp?idtab=438493>
- Other environmental statistics: <http://www.larioja.org/npRioja/default/defaultpage.jsp?idtab=827764>
- Catalogue of publications regarding environmental statistics: <http://www.larioja.org/npRioja/default/defaultpage.jsp?idtab=447138>

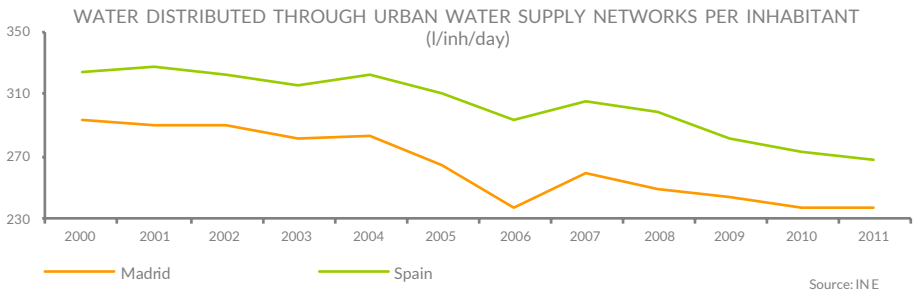
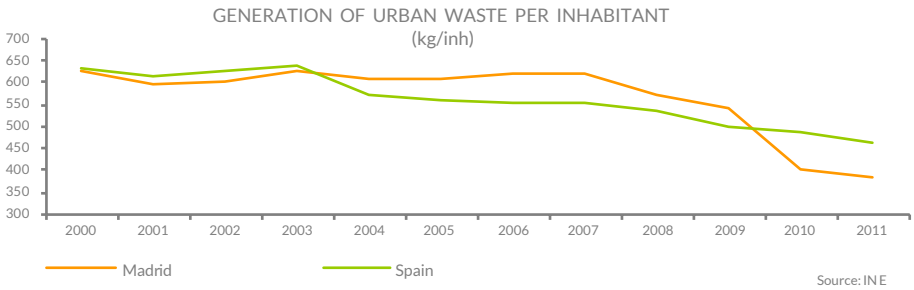
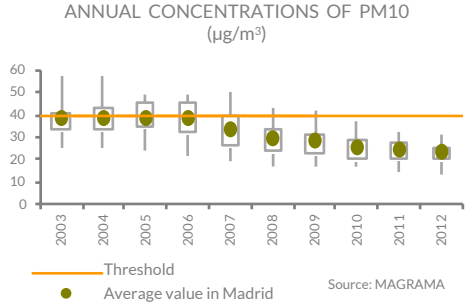
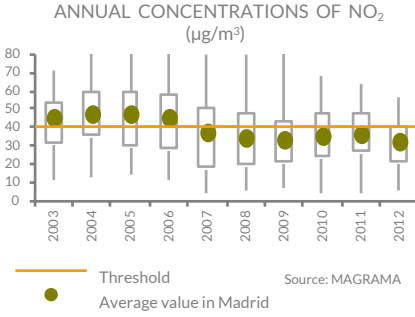


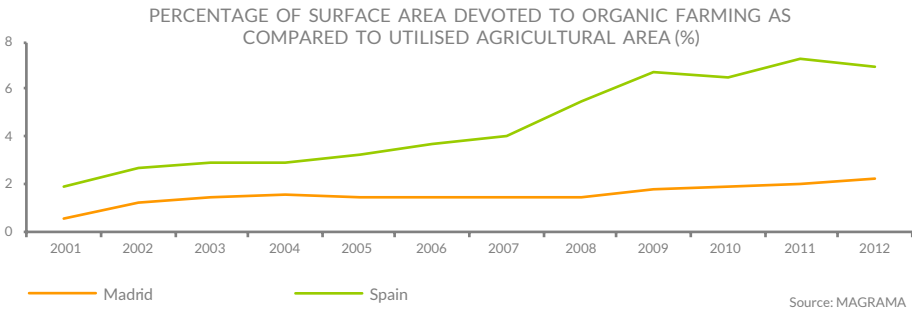
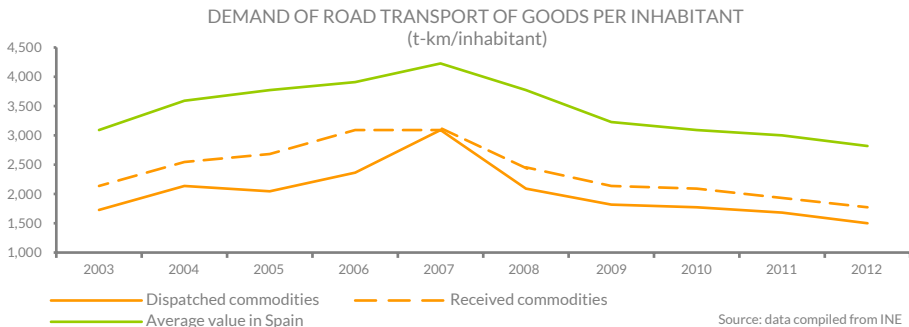
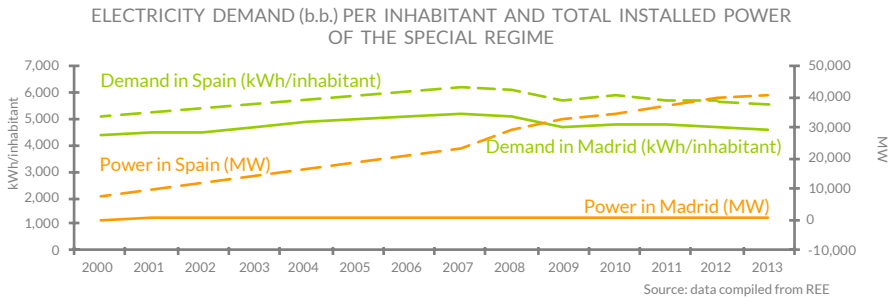
MADRID

Surface: 8,028 km².
Population (2013) 6,414,709 inhab (799.0 inhab/km²).
Change in No. of inhabitants (2000-2013): 23.2%.
GDP per capita (2013): € 28,915. Spanish Average = 100: 129.8.
Unemployment Rate (2013/2005): 20.2% / 6.8%.
GVA Structure (% in 2012): Agriculture: 0.1 / Industry: 10.7 / Construction: 6.6 / Services: 82.6.
Land use distribution (% based on SIOSE categories 2009):
 Urban: 12.2 / Non-urban artificial surface: 3.0 / Agriculture: 33.9 / Forest: 50.1 / Wetlands and Water Bodies: 0.8.
Land area Natura Network 2000 (2013): 319,872.73 ha (39.84% of the AC).



INDICATORS





RELEVANT INFORMATION

- Declaration of the National Park "Sierra de Guadarrama" (Act 7/2013, of 25 June).
- Awarding of the Prize FITUR 2013 for the Best Active Tourist Product in the category National Nature to the application: "Ornivías: Self-Guided Bird Routes throughout the Network of Livestock Roads of the Community of Madrid."
- Implementation of the Incentive Plan "Autotaxi Madrid" (Order 2151/2013 of 23 September of the Regional Ministry of the Environment and Land Use) aimed at the promotion of the progressive replacement of taxis in the Community of Madrid with low NO_x and CO_2 emission models.
- Preparation of the Strategy on Air Quality and Climate Change in the Community of Madrid (2013-2020). Plan Azul +.

RECOMMENDED WEBSITES

Situation Report "Environmental Diagnosis of the Community of Madrid 2013", available at the following link:

http://www.madrid.org/cs/Satellite?c=CM_InfPractica_FA&cid=1142428063288&language=es&pagename=ComunidadMadrid%2FEstructura&pv=1354295022177&sm=1142581282904 or at the following route: www.madrid.org > at "Services": Environmental Information. Access and research > At "Related Links": Reports on Environmental Status > Left side: Situation Report. Environmental Diagnosis of the Community of Madrid.

Other recommended websites:

- <http://www.madrid.org> (institutional website of the Community of Madrid)
- http://www.madrid.org/rlma_web (Directory of Legislation on the Environment - RLMA, Spanish Acronym)
- <http://www.madrid.org/calidaddelaire> (Air Quality Network of the Community of Madrid)
- <http://www.madrid.org/iestadis> (Statistical Institute of the Community of Madrid)
- http://www.madrid.org/cartografia_ambiental (Environmental Mapping Viewer of the Community of Madrid)



MELILLA

Surface: 13 km².

Population (2013) 83,619 inhab (6,432.2 inhab/km²).

Change in No. of inhabitants (2000-2013): 26.2%.

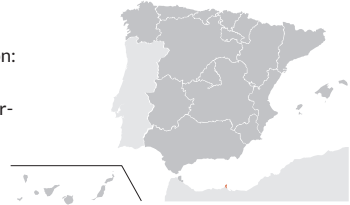
GDP per capita (2013): € 16,426. Spanish Average = 100: 73.7.

Unemployment Rate (2013/2005): 34.4% / 14.0%.

GVA Structure (% in 2012): Agriculture: 0.1 / Industry: 5.7 / Construction: 7.6 / Services: 86.6.

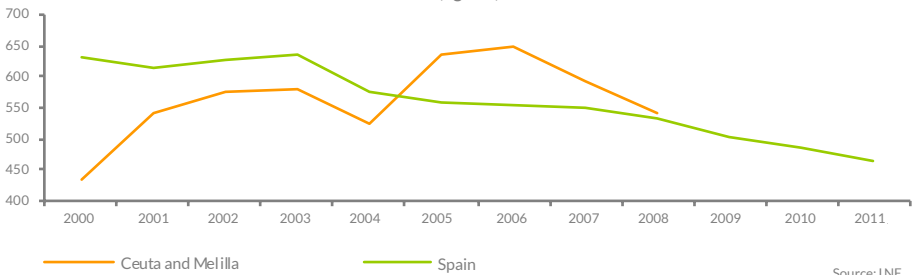
Land use distribution (% CLC 2006): Urban: 53.7 / Agriculture: 27.0 / Forest: 19.2 / Wetlands and Water Bodies: 0.0.

Land area Natura Network 2000 (2013): 46.12 ha of land SCI (3.31% of the Autonomous City) and 45.46 ha of marine SCI.

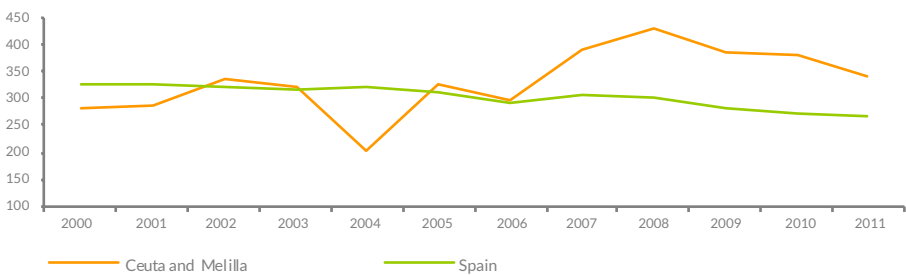


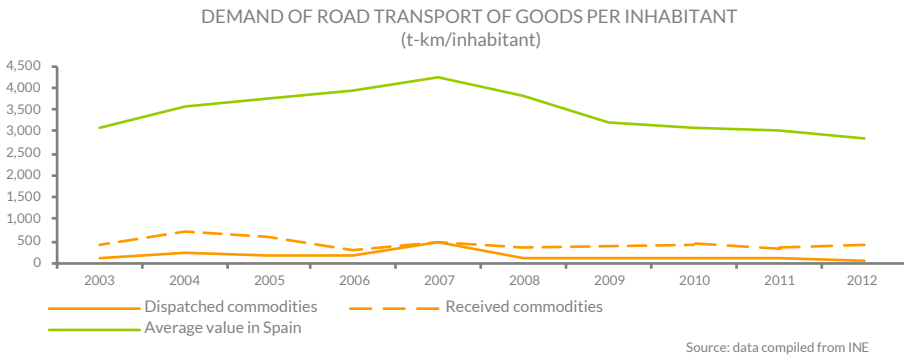
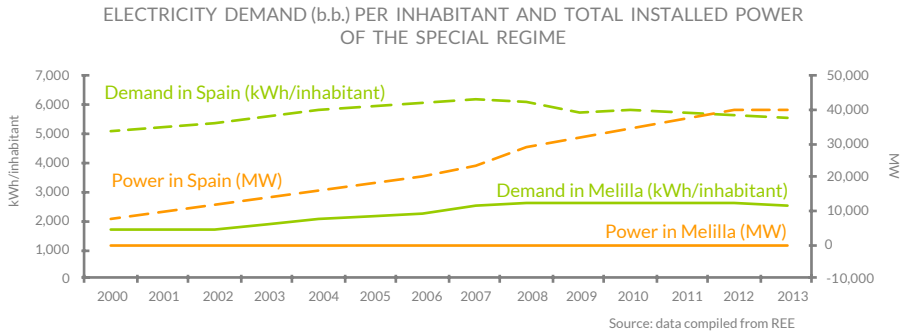
INDICATORS

GENERATION OF URBAN WASTE PER INHABITANT
(kg/inh)



WATER DISTRIBUTED THROUGH URBAN WATER SUPPLY NETWORKS PER INHABITANT
(l/inh/day)





RECOMMENDED WEBSITES

- <http://www.melillamedioambiente.com/>



MURCIA

Surface: 11,314 km².

Population (2013) 1,461,987 inhab (129.2 inhab/km²).

Change in No. of inhabitants (2000-2013): 27.2%.

GDP per capita (2013): € 17,901. Spanish Average = 100: 80.3.

Unemployment Rate (2013/2005): 29.4% / 8.0%.

GVA Structure (% in 2012): Agriculture: 5.4/

Industry: 17.0 / Construction: 8.3 / Services: 69.4.

Land use distribution (% based on SIOSE categories 2009): Urban: 5.4 /

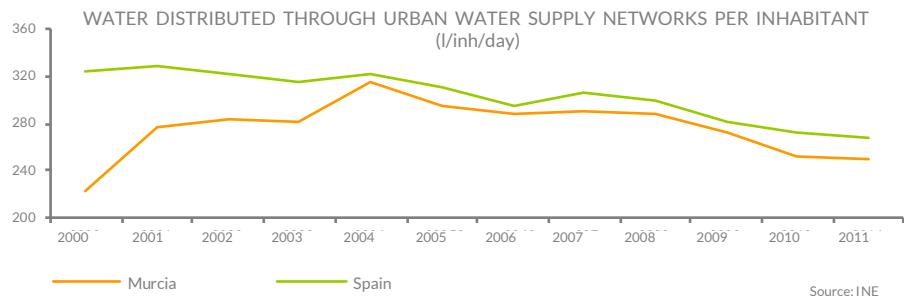
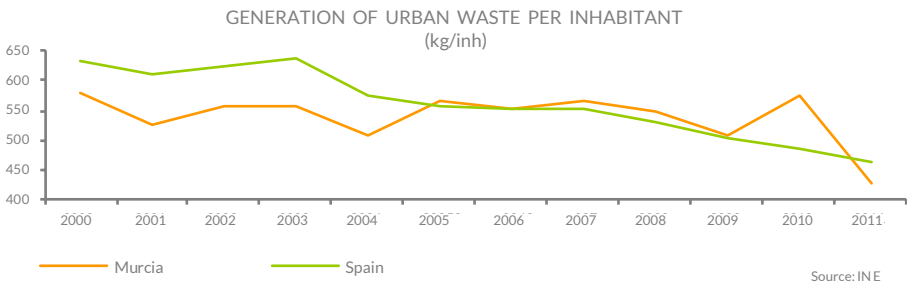
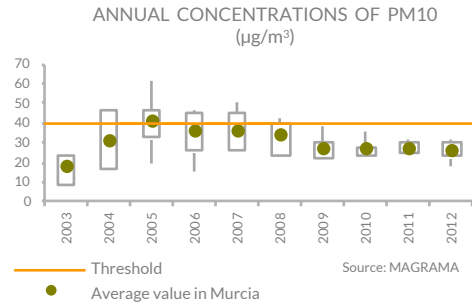
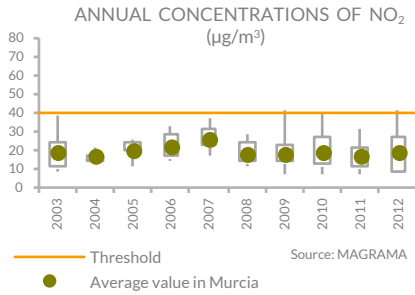
Agriculture: 47.4 / Forest: 46.8 /

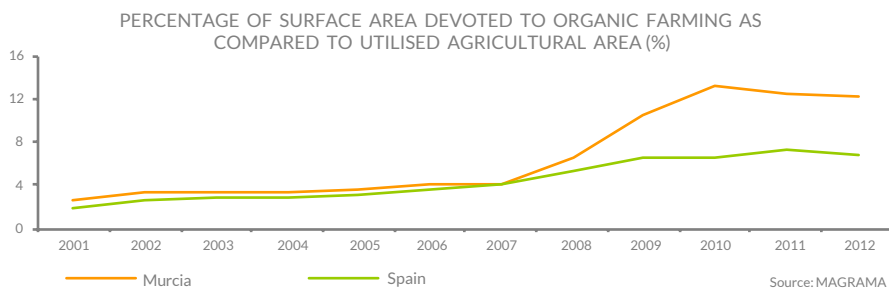
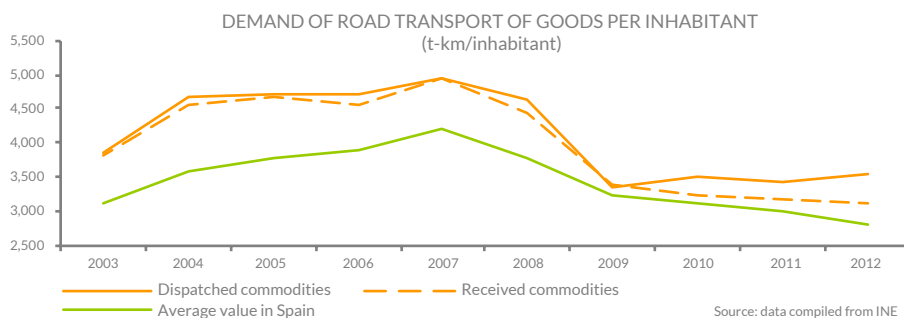
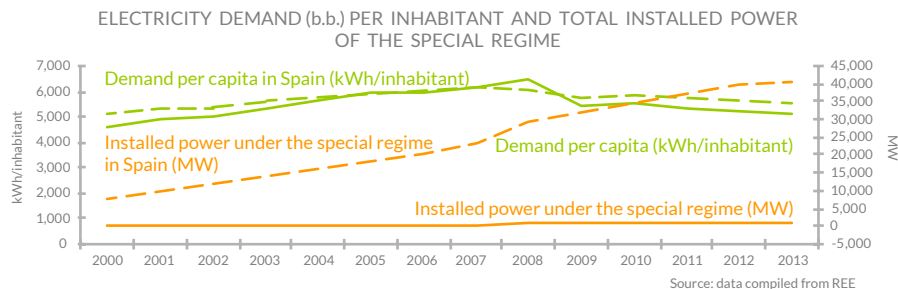
Wetlands and Water Bodies: 0.16.

Land area Natura Network 2000 (2013): 266,646 ha (23.6% of the AC)



INDICATORS





RELEVANT INFORMATION

- Environmental agents implemented more than 30,000 environmental protection and conservation actions.
- The website "murcianatural" received a total of 283,363 visits.
- The number of visitors of the information points and visitor centres of the Natural Protected Areas come up to 61,072 people.

RECOMMENDED WEBSITES

- <http://www.murcianatural.carm.es/web/guest>
- <http://www.murciaenclaveambiental.es/>
- <http://bit.ly/1nM7Etp>
- <http://www.ecorresponsabilidad.es/>
- <http://www.separaryreciclar.com/aceites/>



NAVARRE

Surface: 10,390 km².

Population (2013) 638,949 inhab (61.5 inhab/km²).

Change in No. of inhabitants (2000-2013): 17.5%.

GDP per capita (2013): € 28,358. Spanish Average = 100: 127.3.

Unemployment Rate (2013/2005): 18.1% / 5.7%.

GVA Structure (% in 2012): Agriculture: 2.7 / Industry: 31.3 /

Construction: 7.1 / Services: 58.9.

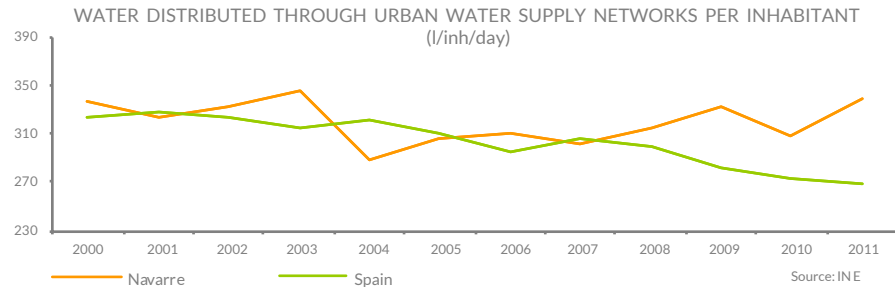
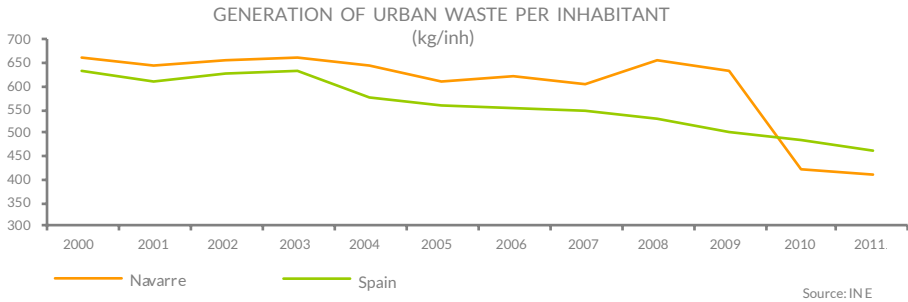
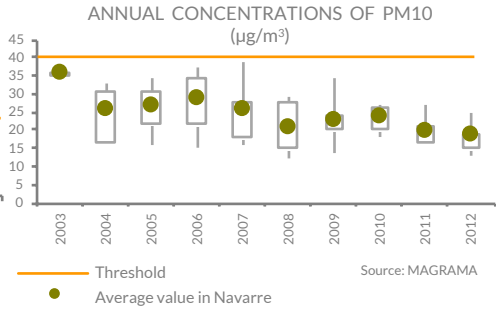
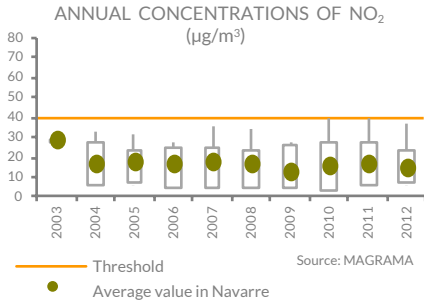
Land use distribution (% based on SIOSE categories 2009):

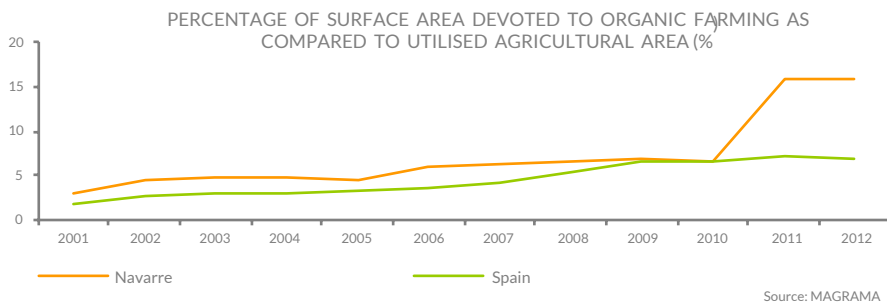
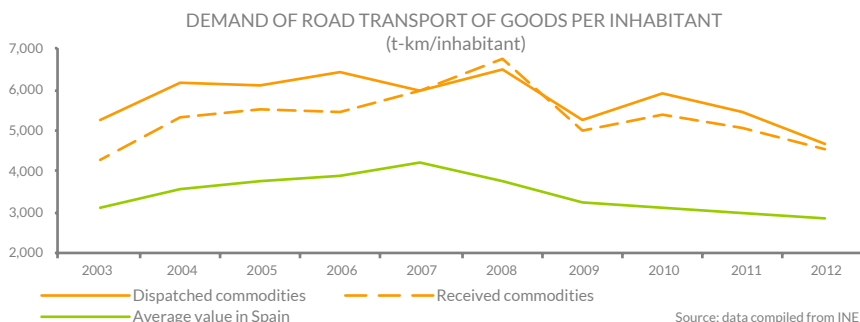
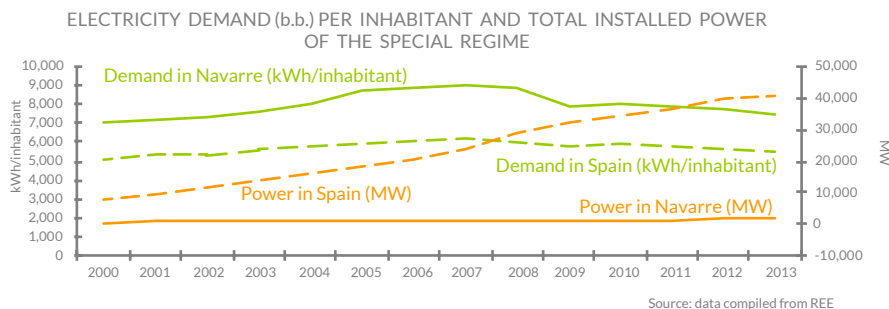
Urban: 3.14 / Agriculture: 38.77 / Forest: 55.61 / Wetlands and Water Bodies: 0.64.

Land area Natura Network 2000 (2013): 264,779 ha (23.4% of the AC)



INDICATORS





RELEVANT INFORMATION

- Renewable energies covered more than 80% of the energy consumption in Navarre in 2012.
- The target value for the protection of human health against pollution caused by tropospheric ozone has reached in three out of the four areas in which Navarre is divided into: the agglomeration of the Region of Pamplona, the Mountain Region and the Middle Region; such values were not reached in La Ribera Region. More information can be obtained at the website: www.calidaddelaware.navarra.es.
- The recovery rate of non-hazardous industrial waste exceeds 76% and the recovery rate of hazardous industrial waste exceeds 40%.
- The population exposed to noise in the Region of Pamplona amounts to 317,142 inhabitants. Affected surface comes up to 134.12 km².
- 75% of sampling points of underground waters have a very good water quality.
- As regards the water monitoring network, 82% of points sampled during spring and 86% during summer, meet the goals of the Water Framework Directive in 2013.
- The Emission of Greenhouse Effect Gases decreased by 5% in the last year.
- The percentage of tree damaged in 2012 was 14.3%.
- Certified forest area in 2012 was 53.8%.

RECOMMENDED WEBSITES

- Report on the Status of the Environment: http://www.navarra.es/home_es/Temas/Medio+Ambiente/Informe+de+estado/
- Natural Environment Gazette: http://www.navarra.es/home_es/Servicios/ficha/3621/Suscripcion-al-boletin-Entornos-de-Navarra-
- <http://www.navarra.es/>
- http://www.navarra.es/home_es/Temas/Medio+Ambiente/
- <http://www.agua.navarra.es/>
- <http://www.calidaddelaware.navarra.es/>
- <http://meteo.navarra.es/>
- <http://www.cazaypesca.navarra.es/>
- <http://idena.navarra.es/>



BASQUE COUNTRY

Surface: 7,230 km².

Population (2013) 2,177,006 inhab (300.9 inhab/km²).

Change in No. of inhabitants (2000-2013): 3.7%.

GDP per capita (2013): € 29,959. Spanish Average = 100: 134.5.

Unemployment Rate (2013/2005): 15.8% / 7.3%.

GVA Structure (% in 2012): Agriculture: 0.7 / Industry: 27.0 /

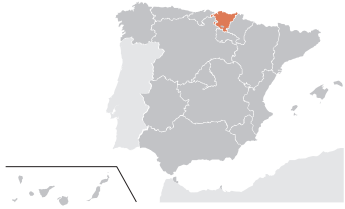
Construction: 7.7 / Services: 64.5.

Land use distribution (% based on SIOSE categories 2005):

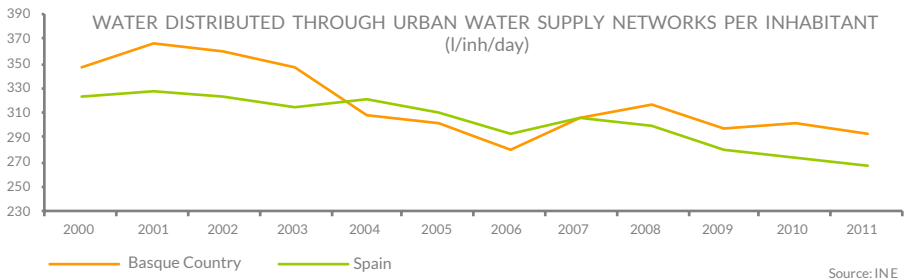
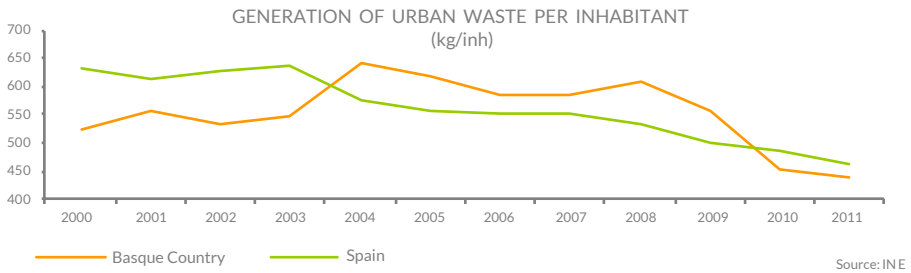
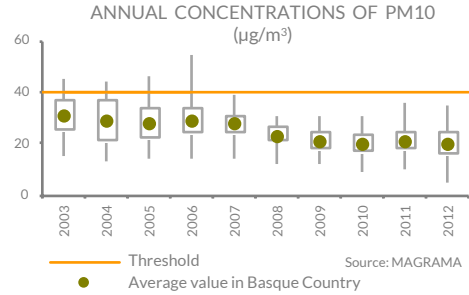
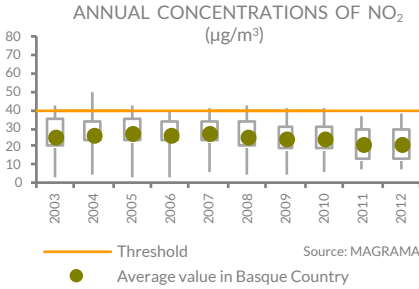
Urban: 5.8 / Agriculture: 25.0 / Forest: 68.4 /

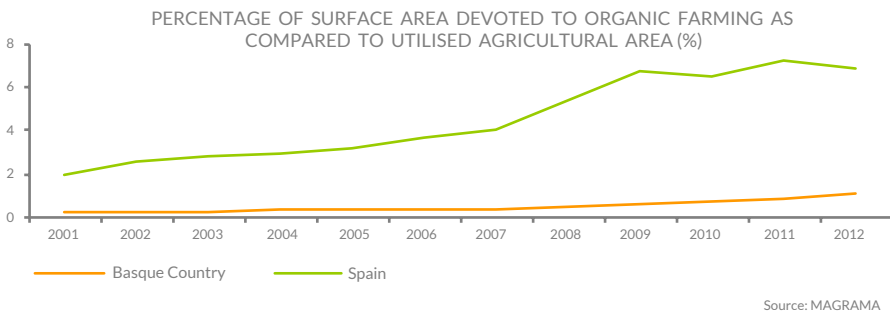
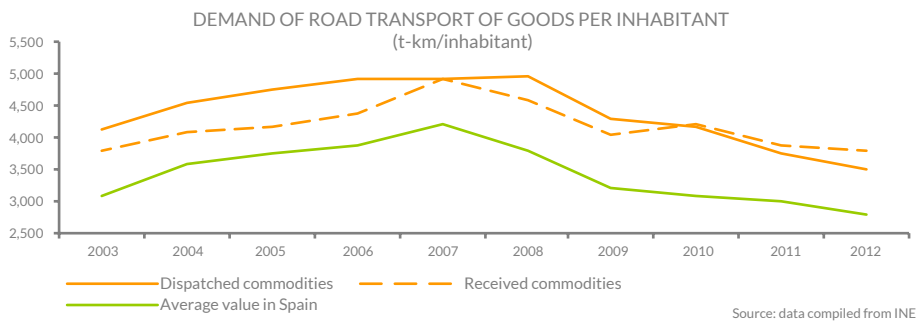
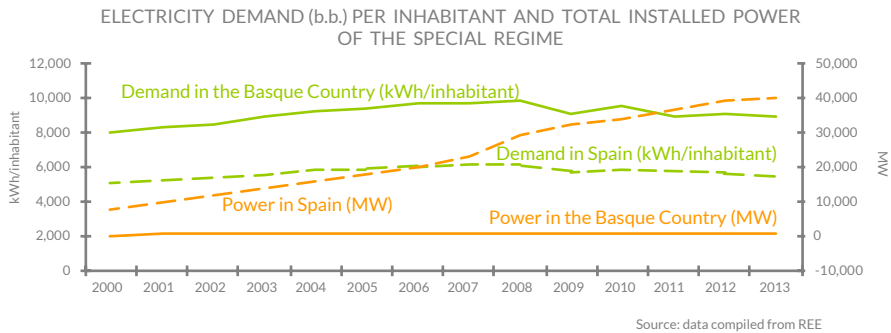
Wetlands and Water Bodies: 0.8.

Land surface Natura 2000 Network (2013): 134,416.76 ha of land SCI (18.6% of the AC) and 414.64 ha of marine SCI.



INDICATORS





RECOMMENDED WEBSITES:

- 2013 Environmental Profile: http://www.ingurumena.ejgv.euskadi.net/r49-3352/es/contenidos/libro/perfil_ambiental/es_doc/indice.html
- Analysis of Environmental Policies in the Basque Country 1980-2012
 - Document: http://issuu.com/ingurumena/docs/nondik_evolucion_ambiental_es
 - Video: <http://www.youtube.com/watch?v=ijxEcYUMpPQ&list=UUMpPGmTNWRpGauyGBCwpc9Q&feature=share&index=2>
- Environmental Scenarios for 2030: http://issuu.com/ingurumena/docs/escenarios_ambientales
- Productivity of resources in the Basque Country 2013: http://issuu.com/ingurumena/docs/productividad_recursos_euskadi_es
- Report on green economy in the Basque Country: http://www.irekia.euskadi.net/uploads/attachments/4741/Economia_verde_Euskadi.pdf?1402398083
- Official Statistics: <http://www.ingurumena.ejgv.euskadi.net/r49-estamapt/es/>
- Official Website: www.ingurumena.net

INFORMATION SOURCES, METHODOLOGY NOTES AND CLARIFICATIONS

GENERAL ASPECTS

Area: Ministry of Finance and Public Administrations. Information obtained from its website: Home / Areas / Regional Policy > Basic Information on Autonomous Communities / Financial Analysis of the Autonomous Communities > Indicators / Socio-Economic Indicators

Population: Spanish National Institute of Statistics (INE). Official population data obtained by means of the review of the Municipal Register of Inhabitants as of 1 January 2013 (Royal Decree 1016/2013, of 20 December) and as of 1 January 2000 (Royal Decree 950/2001, of 3 August).

Population density (2013): Data calculated by authors by means of the ratio between the population in 2013 and the area of the autonomous community.

Change in no. of inhabitants: Data calculated by authors by means of the subtraction of population data of 2013 and 2000.

GDP per capita and average "Spain = 100": Spanish National Institute of Statistics (INE). Information obtained from INEBase. Economic Accounts / Spanish Regional Accounting. Base 2008 / Functional Approach. GDP and its components / Accounting series / Last data published: Series 2008-2013 (31 March 2014).

Unemployment rates (2013/2005): Spanish National Institute of Statistics (INE). Information obtained from INEBase. Job Market / Spanish Labour Force Survey - outdated information in relation to the population base of 2011 / Results / Annual.

GVA structure (% in 2012): Spanish National Institute of Statistics (INE). Information obtained from INEBase. Spanish Regional Accounting. BASE 2008 (CRE-2008) / SPAIN and all ACs (Extraction of the information by single AC) / Gross Domestic Product at market prices and gross value added at basic prices by branches of activities / Table 1.

Global values extracted have been obtained by means of the following aggregation:

- Agriculture: it includes Agriculture, livestock farming, forestry and fishing.

- Industry: it includes extractive industries, manufacturing industry; supply of electric energy, gas, vapour and air conditioning; supply of water, sanitation activities, management of waste and decontamination services.
- Construction: it includes the construction industry.
- Services: including: wholesale and retail trade; repair of motor vehicles and motorcycles, transport and storage; hotel & restaurant services, information and communications, financial and insurance-related activities, professional, scientific and technical activities; administrative activities and auxiliary services, Public Administration and Defence; compulsory social security; education; health-related activities and social services and artistic, recreational or leisure-related activities; repair of household items and other services.

Land use distribution (%): Information obtained from SIOSE 2009 or, if data regarding that year were not available, obtained from the CLC 2006: Data provided by the Autonomous Focal Point of EIONET. Data from CLC 2006 were used in the publication of the 2012 Environmental Profile of Spain and they were provided by the IGN (National Geographic Institute).

Land Area of Natura 2000 Network (2013): Data provided by the Autonomous Focal Point of EIONET.

AIR

Air quality: average annual concentrations of NO₂ and PM10

Definition: the indicator represents the evolution of annual averages for the total number of participation stations as regards the assessment of NO₂ and PM10 values in each autonomous community throughout the period 2003-2012. The annual limit value (ALV) of NO₂ and PM10 for the protection of human health is also represented (compliance dates: 1 January 2010 for NO₂ and 1 January 2005 for PM10).

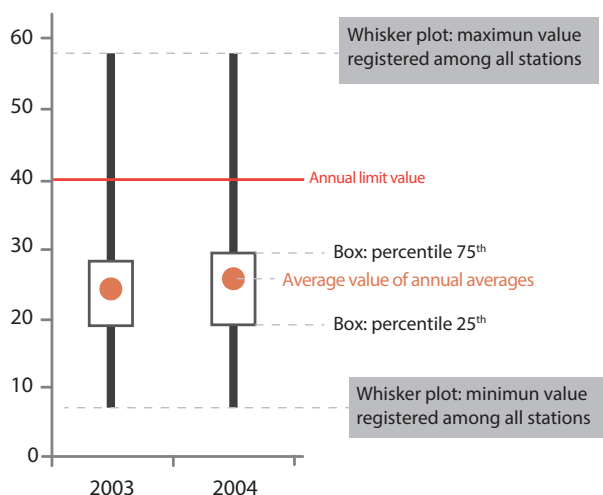
Source: NO₂ and PM10, data obtained from the Database of Air Quality. Directorate-General for Environmental Quality and Assessment and Natural Environment. MAGRAMA.

Unit of measurement: microgram per cubic metre of air.

Methodology notes: The annual limit value for NO₂ and PM10 (40 µg/m³, in both cases) is tentatively represented along the time series as the reference value and base for comparison purposes. However, compliance with this limit value has not been legally required during all years represented. Until 2005, there was

a margin of tolerance for limit values; later on, in 2012, some term extensions for the compliance with the annual limit value regarding NO₂ were set out, thus establishing a new margin of tolerance for those areas to which the term extension applied.

The chart used is called "box and whisker plot". Boxes define percentiles 75 and 25 and whiskers show maximum and minimum values registered during the relevant year while the dot shows the mean value of annual averages.



WASTE

Generation of urban waster per inhabitant

Definition: the indicator shows the generation of household waste generated per inhabitant in households, shops and services to which local bodies or provincial governments, when appropriate, must compulsory provide collection, transport and treatment services related to waste.

Source: INEbase / Physical environment and environmental issues / Environmental Statistics / Environmental indicators / Indicators on urban waste / Volume of collected waste per inhabitant classified by period, autonomous community and waste type.

Units of measurement: total kilograms of urban waste collected per inhabitant and year.

Methodology notes: according to the INE, the indicator per inhabitant has

been calculated, for the years 2000 and 2001 of the series included based on data obtained from the Municipal Register of Inhabitants as of the 1 January of each year; and for years 2002 to 2011, it has been calculated based on current population estimations published by the INE as of 1 January of each year. Data corresponding to the autonomous cities of Ceuta and Melilla are provided collectively; as regards 2009, 2010 and 2011 data are not published for reasons of statistical confidentiality, although those are included in the total figure of Spain.

WATER

Water distributed through urban water supply networks per inhabitant

Definition: the indicator represents the ratio per inhabitant of water coming into the distribution network from treatment plants or service deposits and it includes both registered water (volumes measured by user's meters) as well as unregistered water (losses).

Source: INEbase / Physical environment and environmental issues / Environmental Statistics / Environmental indicators / Indicators on urban waste / Water indicators / Water indicators classified by main indicators, autonomous community and year / Volume of water distributed through urban public supply networks.

Units of measurement: litres of water supplied per inhabitant and year.

Methodology notes: according to the INE, the indicator per inhabitant has been calculated, for years 2000-2003, based on data obtained from the Municipal Register of Inhabitants as of the 1 January of each year; and for years 2004-2011, it has been calculated based on Current Population Estimations published by the INE as of 1 January of each year. Data corresponding to the autonomous cities of Ceuta and Melilla are provided collectively. The volume of water supplied includes both registered and unregistered (losses) water.

ENERGY

Demand of electric energy (b.b.) and installed power under the special regime

Definition: the indicator represents the consumption of electric energy measured at the power station busbars (b.b.) per inhabitant in each autonomous community, as well as the installed power under the special regime.

Source: data provided by Red Eléctrica de España [Spanish Electric Network] (REE).

Units of measurement: demand in kWh/inhabitant and power in MW.

Methodology notes: demand per inhabitant has been calculated based on data provided by the Municipal Register of Inhabitants as of 1 January of each each of the INE. The publication "The Spanish Electrical System" by the REE, defines Special Regime as: Electric energy produced in those facilities with an installed power below 50 MW, from co-generation or by means of other ways for the generation of electricity associated to non-electrical activities, as long as they provide high-energy performance, or in groups where the primary energy source is any non-consumable renewable source, biomass or any type of biofuel or non-renewable waste or those arising from the agricultural, livestock or service industries with an installed power equal or below 25 MW in those cases in which they provide high-energy performance. The generation under the special regime is subject to a particular economic regime.

The "Glossary of Red Eléctrica Española" defines power station busbars (b.b.) as follows: Consumptions inherent to power plants are deducted from energy levels measured at these points.

TRANSPORT

Demand of road transport of goods per inhabitant

Definition: the indicator represents the total annual value of tonnes-kilometre per inhabitant transported by road by heavy vehicles from a certain autonomous community shipping the goods to other communities and vice versa.

Source: INEbase / Services / Transport and related activities, communications / Road Transport of Goods / Domestic transport of goods classified by origin AC, indicator, period and destination AC.

This information is provided by the INE based on data from the "Permanent Survey on Goods" prepared by the General Sub-Directorate of Statistics of the Ministry of Public Works, which can be accessed by means of the following link:

http://www.fomento.es/MFOM/LANG_CASTELLANO/ATENCION_CIUADADANO/INFORMACION_ESTADISTICA/Transporte/EPTMC/EPTMC_Publicacion/defaultEPTMC2012.htm

Units of measurement: tonnes-kilometre per inhabitant and year.

Methodology notes: data regarding year 2003 do not include intra-city transport of goods. From that year on, intra-city and inter-city transport of goods is included. Tonnes-kilometre are calculated for each transport operation by multiplying those tonnes transported by the number of kilometres covered. We have included both shipped goods (from the corresponding autonomous community to the other) and received goods (from the other autonomous communities to the corresponding autonomous community). Data corresponding to the autonomous cities of Ceuta and Melilla are provided collectively. The indicator per inhabitant has been calculated based on the official population data from the annual review of the municipal register of inhabitants.

AGRICULTURE

Percentage of surface area devoted to organic farming as compared to Utilised Agricultural Area (UAA)

Definition: the indicator represents the percentage of utilised agricultural area (farmlands, pastures and permanent pastures) corresponding to the registered surface devoted to organic farming.

Source:

- Organic farming: MAGRAMA / Food / Organic farming / Statistical data / Annual Statistics.
- Utilised Agricultural Area: MAGRAMA / Agricultural statistics / Agriculture / ESYRCE (Survey on Crop Areas and Yields)

Methodology notes: the legislative framework governing organic farming in Spain since 1989 comprises the Regulation on Generic Organic Labelling and, at European level, Regulation (EC) no. 834/2007 of 28 June 2007, on organic production and labelling of organic products, which repealed Regulation (ECC) 2092/91 (Official Journal of the EU 20/07/2007). The cities of Ceuta and Melilla do not have organic farmlands.

RELEVANT INFORMATION AND RECOMMENDED WEBSITES

Information provided by the Autonomous Focal Point of the Spanish EIONET Network.





Appendices

- I Index of acronyms, abbreviations, units and clarifications
- II Thematic index of indicators
- III Contributors to report production and review

APPENDIX I: INDEX OF ACRONYMS, ABBREVIATIONS AND UNITS

ACs	Autonomous Communities
AEMA / EEA	Agencia Europea de Medio Ambiente / European Environment Agency
AEMET	Spanish State Meteorological Agency (Agencia Estatal de Meteorología)
AENA	Spanish Airports Authority (Aeropuertos Españoles y Navegación Aérea)
AEPLA	Trade Association for Plant Protection (Asociación Empresarial para la Protección de las Plantas)
AGE	General State Administration (Administración General del Estado)
ANFFE	National Association of Fertiliser Manufacturers (Asociación Nacional de Fabricantes de Fertilizantes)
ASPAPEL	Association of Spanish Pulp, Paper and Cardboard Manufacturers (Asociación española de fabricantes de pasta, papel y cartón)
ATP	Public Transport Authority (Autoridad de Transporte Público)
BIC	Heritage of Cultural Interest
BOE	Spanish Official State Gazette (Boletín Oficial del Estado)
CAP	Common Agricultural Policy
CCHH	River Basin Authorities
CDTI	Centre for Industrial Technological Development
CE / EC	Comisión Europea / European Commission
CEDEX	Centre for Public Works Studies and Experimentation (Centro de Estudios y Experimentación de Obras Públicas)
CFP	Common Fisheries Policy
CFP	Common Fisheries Policy
CIEMAT	Centre for Energy, Environmental and Technological Research
CITES	Convenio Internacional sobre el Comercio de Especies Amenazadas de Fauna y Flora Silvestres / Convention on International Trade in Endangered Species of Wild Fauna and Flora.
CLC	Corine Land Cover
CNAE	National Classification of Economic Activities
CNE (a)	Spanish National Accounting
CNE (b)	National Energy Commission
CNMB	National Catalogue of Basic Materials
CNR	National Reference Centre of the EIONET Network
CTESIA	Centro Temático Europeo de Información y Análisis Espacial de la AEMA / European Topic Centre on Spatial Information and Analysis (EEA)
DG	Directorate-General
DGT	Directorate-General of Traffic
DPMT	Public Maritime-Terrestrial Domain
EBCC	Censo Europeo de Aves / European Bird Census Council
Ecoembes	Ecoembalajes España, S.A, non-profit organisation devoted to the recovery of packaging waste across Spain.
Ecovidrio	Non-profit association devoted to the management of glass packaging recycling from the waste deposited in recycling banks across Spain
EEC	European Economic Community
EEDS	Spanish Sustainable Development Strategy
EEMS	Spanish Sustainable Mobility Strategy
EESUL	Spanish Strategy for Urban and Local Sustainability
EIONET	Red Europea de Información y Observación del Medio Ambiente de la AEMA / Environmental Information and Observation Network of the AEMA
EMAS	Sistema Comunitario de Gestión y Auditoría Ambiental / Eco-Management and Audit Scheme

EMAU	Urban Environment Strategy
EMEP/VAG/ CAMP	Cooperation Programme for the evaluation and monitoring of Long-distance Transport of Air Pollutants in Europe / Global Atmospheric Watch / Comprehensive Atmospheric Monitoring Programme.
EMS-98	Escala Europea Macrosísmica / European Macroseismic Scale 1998
ENP	Protected area
EOH	Hotel Occupancy Survey
EPF	Survey on Family's Budgets
ESYRCE	Survey on Crop Areas and Yields
ETP	Equivalent Tourist Population
EU-15	Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, The Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom
EU-25	Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, The Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom, Hungary, Poland, Cyprus, Czech Republic, Estonia, Malta, Latvia, Lithuania, Slovenia, Slovakia.
EU-27	EU 25+ Bulgaria and Romania
EU-28	EU 27 + Croatia
Eurostat	Statistical Office of the European Union
FAMILITUR	Survey on Spaniards' Tourist Movement (IET)
FAO	Organización de las Naciones Unidas para la Agricultura y la Alimentación / Food and Agriculture Organization of the United Nations
FEMP (a)	Spanish Federation of Municipalities and Provinces
FEOGA	European Agricultural Guidance and Guarantee Fund
FFCC	Railways
FRONTUR	Tourist Movement on Borders
GBAORD	Estadísticas sobre créditos presupuestarios públicos de investigación y desarrollo / Government budget and appropriations or outlays for R&D
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GIS	Geographic Information System
GVA	Gross Value Added
HORECA	Hotel, Restaurant and Catering Sector
IDAE	Institute for Diversification and Energy Saving
IDF	Inventory of Forest Damage
IEEM	Spanish Inventory of Marine Species
IEHEM	Spanish Inventory of Marine Habitats and Species
IEP	Primary Energy Intensity
IEPNB	Spanish Inventory of Natural Heritage and Biodiversity
IET	Institute for Tourism Studies
IFN	National Forest Inventory
IGME	Geological and Mining Institute of Spain
IGN	National Geographic Institute
IMS	Integrated Management System
INE	National Statistical Office (Instituto Nacional de Estadística)
INES	National Soil Erosion Inventory
INIA	National Institute of Agriculture and Food Technology
IPCC	Panel Intergubernamental sobre el Cambio Climático / Intergovernmental Panel on Climate Change
IPI	Industrial Production Indices

IPPC	Prevención y Control Integrado de la Contaminación / Integrated Pollution Prevention and Control
JACUMAR	National Counselling Board for Marine Farming
LIC	Sites of Community interest
LULUCF	It refers to the information on the activities of "Land use, Land Use Change and Forestry".
MAGRAMA	Ministry of Agriculture, Food and Environment.
MECD	Ministry of Education, Culture and Sports
MER	Strategic Noise Map
MF	Ministry of Public Works
MINETUR	Ministry of Industry, Energy and Tourism
MSSSI	Ministry of Health, Social Services and Equality
NABS	Nomenclature for the analysis and comparison of science budgets and programmes
NÁYADE	National Bathing Water Information System
NEDIES	Sistema de Intercambio de Información sobre los desastres naturales y ambientales / Natural and Environmental Disasters Information Exchange System
NGO	Non-governmental Organisation
NNUU/ UN	Naciones Unidas / United Nations
NP	National Park
NPs	National Parks
NTM	Total Material Requirement
OCDE /	Organización para la Cooperación y el Desarrollo Económico / Organisation for
OECD	Economic Co-operation and Development.
OEPM/SPTO	Spanish Patents and Trademarks Office
OMM	Metropolitan Mobility Observatory of Spain
OMT/	Organización Mundial de Turismo / United Nations World Tourism Organization
UNWTO	
ONS	National Drought Observatory
OOAA	Autonomous Bodies
OSE	Observatory of Sustainability in Spain
OSPAR	Oslo and Paris Convention on the Protection of the Northeast Atlantic
PA	Protected Areas
PAND	National Action Programme to combat Desertification
PDRS	Rural Sustainable Development Plan
PECBM	Sistema de Seguimiento de Aves Comunes Pan Europeas / Pan-European Common Bird Monitoring Scheme
PEIT	Strategic Infrastructures and Transport Plan
PEPR	National Programme on Waste Prevention
PHE	Spanish Historical Heritage
PIT/PITVI	Infrastructure, Transport and Housing Plan
PM	Particulate matter in the air
PNCA	National Plan for Water Quality: Sanitation and Water Treatment (2007-2015)
PNIR	National Integrated Waste Management Plan (2008-2015)
PNOA	National Plan of Aerial Orthophotography
PNR	National Reform Plan

PNSD	National Plan on Sanitation and Water Treatment
PNUMA / UNEP	Programa de las Naciones Unidas para el Medio Ambiente / United Nations Environment Programme
PORN	Management Plan for Natural Resources
PRUG	Master Plan for Use and Management
REPACAR	Spanish Association for Paper and Cardboard Recovery (Asociación Española de Recuperación de Papel y Cartón)
RIS	Estrategia de Especialización Inteligente en Investigación e Innovación / Research and Innovation Smart Specialisation Strategy
RMIP	Marine Reserves of Fishing Interest
RRD	Disaster Risk Reduction
RU	Urban Waste
RUSLE	Revised Universal Soil Loss Equation
SAP-BIO	Strategic Action Programme for the Conservation of Biological Diversity in the Mediterranean
SAU	Utilised/Usable Agricultural Area
SCOPUS	Database including citations and bibliographic references by the publisher Elsevier
SEAP	Sustainable Energy Action Plans
SECEM	Spanish Society for the Study and Conservation of Mammals
SEO	Spanish Ornithological Society
SEPRONA	Nature Protection Service of the Spanish Guardia Civil
SICA	Basic Information System on Acoustic Pollution
SIGNUS	Integrated Management System of Used Tyres (SIGNUS ECOVALOR)
SIMPA	Precipitation-Contribution Simulation
SNAP	Nomenclatura de Actividades Contaminantes de la Atmósfera / Selected Nomenclature for Air Pollution
SNS	National Healthcare System
SOER 2005	EEA Report “El medio ambiente europeo: estado y perspectivas 2005” / State and Outlook on the Environment Report 2005”
SOER 2010	EEA Report “El medio ambiente en Europa: Estado y perspectivas 2010” / “The European environment – state and outlook 2010”
SOER 2015	EEA Report “El medio ambiente en Europa: Estado y perspectivas 2015” / “The European Environment: State and Outlook 2015 (SOER 2015)”
SPCAN	Protection Service against Polluting Agents
UICN / IUCN	Unión Internacional para la Conservación de la Naturaleza / International Union for Conservation of Nature
UV-B	Ultraviolet Radiation
VAG/GAW	Vigilancia Global de la Atmósfera / Global Atmosphere Watch
WISE	Sistema Europeo de Información de Agua / Water Information System for Europe
WWF	Fondo Mundial para la Naturaleza (WWF-España, en nuestro país) / World Wildlife Fund for Nature
ZEC/SAC	Special Areas of Conservation
ZEPA	Special Protection Areas for Wild Birds
ZEPIM	Special Protection Areas of Importance for the Mediterranean Sea

SYMBOLS, UNITS AND CHEMICAL COMPOUNDS

€	Euro
AOT 40	Índice de superación del umbral de ozono/ Amount Over Threshold
CCl₄	Carbon Tetrachloride
CFC	Chlorofluorocarbon
CH₄	Methane
CO	Carbon Monoxide
CO₂	Carbon Dioxide
POP	Persistent Organic Pollutants
VOC	Volatile Organic Compounds
COVNM	Non-methane Volatile Organic Compounds
dB	Decibel. Measure of sound pressure level
dB(A)	Weighted decibels (A-scale)
DBO₅	Five-day Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
GT	Gross Tonnage: Measure of tonnage of fishing vessels. In use since 1998 when it replaced Gross Registered Tonnage (GRT)
GWh	Gigawatt-hour
h	Hour
ha	Hectare
inhab	Inhabitant
HBFC	Hydrobromofluorocarbon
HCFC	Hydrochlorofluorocarbon
hm³	Cubic hectometre
kg	Kilogram
km	Kilometre
km²	Square kilometre
ktoe	Kilotonnes of oil equivalent
kW	Kilowatt
kWh	Kilowatt-hour
l	Litre
L_{Aeq}	Equivalent continuous A-weighted sound pressure level. Expressed in A-weighted decibels (A)
Leq	Equivalent continuous noise level. Expressed in dB
L_{den}	Day-evening night noise indicator Measured in dB

L_n	Night-time noise indicator. Measured in dB
mg	Milligram
MW	Megawatt
MWp	Megawatt peak
MWt	Megawatt thermal
m^2	Square metre
m^3	Cubic metre
N	Nitrogen
NH_3	Ammonia
N_2O	Nitrous Oxide
NO_x	Nitrogen Oxide
O_3	Ozone
P	Phosphorus
PCB	Polychlorinated biphenyl
PCT	Polychlorinated terphenyl
PFC	Perfluorocarbon
P_2O_5	Orthophosphates
$PM10$	Particulate matter with a diameter of 10 microns or less
$PM2.5$	Particulate matter with a diameter of 2.5 microns or less
ppm	Parts per million
SF_6	Sulphur hexafluoride
SO_2	Sulphur dioxide
t	Tonne
$t-km$	Tonne-kilometre. Unit of measurement of freight transport. It is calculated by multiplying the number of tonnes transported by the number of kilometres travelled
TJ	Terajoule
GRT	Gross Registered Tonnes
$p-km$	Passenger-kilometre. Unit of measurement used for passenger traffic. It is calculated by multiplying the annual number of passengers by the number of kilometres travelled
μg	Micrograms
$>$	More than
$<$	Less than
$1,000 t$	Thousand tonnes

CLARIFICATIONS

Clarification 1.

The Spanish Official State Gazette (BOE) of Friday, 29 July 2005 publishes the Resolution dated 28 July 2005 of the Undersecretariat, which gives publicity to the Agreement of the Council of Ministers from 22 July 2005, approving the guidelines of technical regulations. Said resolution defines the official names of the Spanish Autonomous Communities and Cities under a Statute of Autonomy. The above mentioned official names are as per below, appearing in order of approval of the appropriate Statutes of Autonomy thereof:

Autonomous Community of the Basque Country or Euskadi

Autonomous Community of Catalonia

Autonomous Community of Galicia

Autonomous Community of Andalusia

Autonomous Community of the Principality of Asturias

Autonomous Community of Cantabria

Autonomous Community of La Rioja

Autonomous Community of the Region of Murcia

Autonomous Community of Valencia

Autonomous Community of Aragon

Autonomous Community of Castile-La Mancha

Autonomous Community of the Canary Islands

Autonomous Community of Navarre

Autonomous Community of Extremadura

Autonomous Community of the Balearic Islands

Autonomous Community of Madrid

Autonomous Community of Castile-Leon

Autonomous City of Ceuta

Autonomous City of Melilla

Notwithstanding this regulation, throughout the development of the Environmental Profile of Spain, abbreviated references of the autonomous communities are likely to appear in the charts or tables, otherwise it would be much difficult to fit longer names in the text.

Clarification 2.

The location of the various autonomous communities across Spain is shown in the administrative map below.



Clarification 3.

Some of the data used in the indicators are included in previous editions of this report were regarded as provisional. Therefore, and due to the changes in the methodology of calculation or following the review of data series, some differences may arise in those values after updating the series in this new edition, which is released one year after the first edition. The data used in this edition are the latest data available and the most recent ones as supplied by the data sources.

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APPENDIX III: CONTRIBUTORS AND COLLABORATORS TO THE PREPARATION AND REVISION OF THIS REPORT

National Reference Centres of the Spanish EIONET Network:

Alberto Orio Hernández (Air Quality), Martín Fernández Diez-Picazo and Marta Muñoz (Mitigation of Air Pollution and Climate Change), Carmen Canales Canales (Industrial Pollution), Jose Ramón Picatoste Ruggeroni (Climate Change: Impacts, Vulnerability and Adaptation), José Manuel Sanz Sa (Noise), Víctor Manuel Arqued Esquia (Water), Ainhoa Pérez Puyol (Marine & Coastal Environment), Carmen Asencio Castillejo (Fishing), Miguel Aymerich Huyghues-Despointes and Blanca Ruiz Franco (Nature and Biodiversity), Antonio Arozarena Villar (Land Cover; Land Occupation and Spatial Planning), Antonio Callaba de Roa (Land), María José Delgado Alfaro and Carmen Tapia Carrasco (Waste), Teresa Barrés Benlloch (Sustainable Production and Consumption), Miguel Llorente Isidro (National & Technological Risks), María Teresa Velasco Rincón (Energy), Mercedes Gómez Álvarez (Transport), José Luis Nicolás Rodrigo (Urban Environment), Antonio García de la Paz (Environmental Information Systems), Fernando Díe Ortega (Economic Instruments), Micaela García Tejedor (Environmental Health), Joaquín Rodríguez Chaparro (Agriculture), Rocío Díaz Casado (Forests), Elisa Rivera Mendoza (GIS and Copernicus Systems), M^a Nieves Mestre Morales (Communication), Pilar Lobo Montero (Tourism), Ana Rodríguez Roldán (Chemistry), Elena Cebrián Calvo (Prospective Studies).

Regional Focal Points of the Spanish EIONET Network:

José Manuel Moreira Madueño (Andalusia), Ana Martínez Prados and Miguel Gintó Lacarcel (Aragon), Paz Orviz Ibáñez and Manuel Gutiérrez García (Asturias), Magdalena Carbonell Plol and Gabriel Bardí (Balearic Islands), Tomás Azcárate Bang and Marifé Rivero Suárez (Canary Islands), Alfonso Peña Rotella (Cantabria), Sagrario Ruiz Díaz (Castile-La Mancha), Blanca Blanco García (Castile-Leon), Francesc Xavier Camps Fernández (Catalonia), Francisco Javier Martínez Medina (Ceuta), Vicente Domenech Gregori (Valencian Community), Martín Bastos Martín (Extremadura), María José Echevarría Moreno and M^a Isabel Seone (Galicia), Ángel Martínez Garrido (La Rioja), María José Gallego Muñoz (Madrid), Noelia Jodar García (Melilla), Inmaculada Ramírez Santigosa and M^a Jesús Martínez Pérez (Murcia), Fernando Alonso-Pastor del Coso (Navarre), Marta Iturribarria (Basque Country).

Other contributing experts in the preparation of contents for the chapters:

Air Quality and Emissions to the Atmosphere and Climate Change: María José Cornide Cristóbal, Marta Dopazo González, María Isabel Garrote González, Rebeca Javato Martín, Marta Muñoz Cuesta, María Pallarés Querol, Francisco Reina Velázquez.

Water: Laura Acacio Sánchez, Miguel Ángel Bordas Martínez, María del Carmen Coletto Fiaño, Alfredo Corrochano Codorníu, Fernando Esteban Moratilla, Concepción Marcuello Olona, Luis Martínez Cortina, Margarita Palau Miguel, Fernando Pastor Argüello, Antonio Pérez Baviera, Alejandra Puig Infante.

Land: M^a Elena Caballero García, Ángela Haro Maestro, Luís Martín Fernández, Araceli Martínez Rúa, Eduardo del Palacio Fernández-Montes.

Nature: Araceli Gonzalo Delgado, Jaime Hervás González, José Manuel Jaquotot Saenz de Miera, David León Carbonero, Luis Martín Fernández, Elena Robla González, María Luisa Sánchez López, Belén Torres Martínez, Roberto Vallejo bombín Iñigo Vázquez-Dodero Estevan Cristina Viejo Téllez,

Coasts and Marine Environment: Sagrario Arrieta Algarra, José Luis Buceta Miller, Antonio Fernández y García de Vinuesa, Jesús Hernández Bravo, Itziar Martín Partida, José Ramón Martínez Cordero, Nuria Ortega Villanueva, M^a Victoria Palacios Quereda, Javier Pantoja Trigueros, Concepción Rey Mejías. Carolina Sánchez Aparicio

Green Economy: Gema de Esteban Curiel, Ana Isabel de la Peña.

Environmental Research, Development and Innovation: Laura Valeria Bonora Eve.

Waste: Alicia Pollo Albéniz, Margarita Ruiz Sainz- Aja.

Agriculture: Yago Delgado Moya, Mónica Domench, Patricia López- Mancisidor.

Tourism: Natalia Beltrán Díaz.

Transport: Jesús Merchán Rubio.

Urban Environment: Marisol Perlado Hergueta, Iván Fernández Fernández.

Natural and Technological Disasters: Carlos Dueñas Molina, Gregorio Pascual Santamaría, Laura de la Torre Gutiérrez, Eugenia Sillero Maté, Gema Yáñez Sánchez

Autonomous Communities: Saray Aguinaga Alzate, Roger Bassols Morey, Marisa Bernal González, Francisco Cáceres Clavero, Sara García García, Pilar Flores González, Luis Miguel Ginto Lacarcel, Pablo López García, Sonia Luján Gómez, Susana Llanos Serrano, María del Mar Martínez Beltrán, María Jesús Martínez Pérez, Carmen Raíndo Dávila, Pila Sánchez Lechuga, M^a Isabel Seoane Rallo, Margarita Vaquer Caballería, Covadonga Viedma Gil de Vergara.

Other contributing institutions

Trade Association for Plant Protection (AEPLA).

Spanish Foundation for Science and Technology (FECYT). Ministry of Economy and Competitiveness.

Institute for Diversification and Energy Saving (IDAE). Ministry of Industry, Energy and Tourism.

European Union's Covenant of Mayors Office.

Nature Protection Service (SEPRONA) and Citizens Advice Bureau of the Spanish Guardia Civil.

Directorate-General for the Police and Spanish Guardia Civil. Ministry of Home Affairs.

Red Eléctrica de España [Spanish Electric Network] (REE).

Drafting and Desktop Publishing

Miguel-Álvaro Aguirre Royuela, María Calvar Cerecero, Óscar Herranz Baquero, Manuel Martos Roldán, Germán Méndez Magaña, Alfredo Quiroga Rodríguez, Raul Sabina Maldonado, Alvaro Trotta Moreu, María Tourné Whyte, Eva Vallejo González.



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