

ENVIRONMENTAL PROFILE OF **SPAIN** **2016**



GOBIERNO
DE ESPAÑA

MINISTERIO
DE AGRICULTURA Y PESCA,
ALIMENTACIÓN Y MEDIO AMBIENTE

Environmental Profile of Spain 2016



GOBIERNO
DE ESPAÑA

MINISTERIO
DE AGRICULTURA Y PESCA,
ALIMENTACIÓN Y MEDIO AMBIENTE

Madrid, 2017



Disclaimer: the contents of this publication may be reused, providing the source is quoted, and where relevant the date of the latest update (August 2017).
All data used to calculate the indicators in this document are available in file PAE2016_Datos_empleados.xlsx.

The 2016 Environmental Profile of Spain is a report prepared by the Directorate General of Environmental and Natural Environment Quality and Assessment (National Focal Point of the European Environment Agency in Spain) pertaining to the Ministry of Agriculture and Fisheries, Food and Environment. This annual series, which began with the 2004 Environmental Profile of Spain, was designed with the aim of informing the widest possible spectrum of public about the environmental situation in Spain, affording information by autonomous community and references to the European Union. This issue features the same structure as the previous issue, with an initial section comprising an integrated analysis of two environmental subjects of interest, a second section itemizes 82 indicators distributed in 18 chapters, and the third section provides information broken down by autonomous community, drafted in direct cooperation with the EIONET Regional Focal Points belonging to the European Environment Agency. Since the 2012 issue, this publication is offered with downloadable versions and others compatible with mobile devices, which have been maintained ever since.

Director:

Javier Cachón de Mesa

Coordinators:

Elisa Rivera Mendoza
Rafael Andrés David Fernández

Photography:

TRAGSAMEDIA photograph archive and CNEAM (MAPAMA) Photograph Library. See authors in Appendix III.

English version:

Interlinco Servicios Lingüísticos y de Comunicación S.L.

Layout and cover design:

Vélera Diseño.



MINISTRY OF AGRICULTURE AND FISHERIES, FOOD AND ENVIRONMENT

Published by:

© Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente
General Technical Secretariat
Publication Centre

Distribution and sale:

Paseo de la Infanta Isabel, 1
28071 Madrid
Telephone: 91 347 55 51
Fax: 91 347 57 22

NIPO: 013-17-180-1

Publications Catalog of the General State Administration:
<http://publicacionesoficiales.boe.es/>

Online store: www.mapama.es

centropublicaciones@mapama.es

Available on:

Android OS (Google Play):

Smartphone: <https://play.google.com/store/apps/details?id=air.com.tragsatec.mobile.PAE>

Tablet: <https://play.google.com/store/apps/details?id=air.com.tragsatec.mobile.paeHD>

iOS (App Store):

Iphone: <https://itunes.apple.com/es/app/perfil-ambiental-de-espana/id720148791?mt=8>

Ipad: <https://itunes.apple.com/es/app/perfil-ambiental-de-espana-HD/id725540935?mt=8>

2016 Environmental Profile of Spain

Report based on indicators

INDEX

PRESENTATION	8
FOREWORD	10
Part 1. THEMATIC ANALYSIS: EVALUATION OF ENVIRONMENTAL ASPECTS	13
• Protection of soil and degradation processes in Spain	
• Sustainable tourism in nature	
Part 2. INDICATORS: AREAS AND SECTORS	31
🏠 2.1 Economy and society	32
• Population	
• Economic evolution	
• Risk of poverty or social exclusion	
🌫️ 2.2 Air quality	42
• Average annual concentration of NO ₂	
• Average annual concentration of PM10	
• Average annual concentration of PM2.5	
• Average annual concentration of O ₃	
• Regional background air quality: Average concentrations of SO ₂ , NO ₂ , PM10, PM2,5, and O ₃	
🌍 2.3 Atmospheric emissions and climate change	56
• Greenhouse gas emissions	
• Emissions of acidifying, eutrophic and precursors of tropospheric ozone gases	
• Emissions of particles	
• Background Climate Carbon Projects	
• Carbon footprint register, compensation and carbon dioxide absorption projects	
💧 2.4 Water	70
• Water consumption	
• Dammed water reserves	
• State of water bodies	
• Quality of continental bathing water	
• Waste water treatment	

 2.5 Soil	84
<ul style="list-style-type: none"> • Land cover: CLC comparison 2006 vs 2012 • Urban surface plots • Loss of soil through erosion 	
 2.6 Nature	94
<ul style="list-style-type: none"> • Protected areas • Forest cover and other open areas • Forest defoliation • Forest Rreproduction material • Common bird population trends • Diversity of land-dwelling wildlife • Environmental surveillance 	
 2.7 Coastal and marine environments	112
<ul style="list-style-type: none"> • Waste on beaches, an indicator in the marine strategy framework • Spanish Protected Marine Area Network (RAMPE) • Delimited coast • Quality of marine bathing water 	
 2.8 Green, circular economy	126
<ul style="list-style-type: none"> • Energy intensity of the economy • National consumption of materials • Organizations with Eco-Management and Audit Scheme (EMAS) • Environment taxes • Approach to green employment 	
 2.9 Environmental research, development and innovation	140
<ul style="list-style-type: none"> • Main bibliometric indicators in the field of environmental science • R&D&I subsidies for environmental issues by the General State Administration • General State Administration Budget for R&D&I for environmental programs • Public financing for environmental R&D • Environmental thematics in calls for public R&D grants 	

 2.10 Waste	152
• Production of urban waste	
• Processing of urban waste	
• Recycling and reuse of packaging waste	
 2.11 Agriculture	164
• Consumption of fertilizers	
• Consumption of phytosanitary products	
• Organic farming	
• Organic livestock farming	
• Integrated agriculture	
• Irrigated surface area	
• Environmental efficiency in agriculture	
 2.12 Energy	182
• Evolution of end energy demand	
• Consumption of renewable energy	
• Environmental energy efficiency	
• Guarantees of origin and labeling of electricity	
 2.13 Industry	194
• End energy consumption by industrial sector	
• GGE emissions in industrial sector	
• Industry taxes and investment in environmental protection	
 2.14 Fishing	204
• Number of vessels and capacity of fishing fleet	
• Captures by fishing fleet	
• Fish farming production	
• Environmental efficiency in the fishing and fish farming sector	
 2.15 Tourism	216
• Number of foreign tourists per inhabitant	
• Number of foreign tourists per km of coastline	
• Equivalent Tourist Population in areas with the highest number of overnight stays in hotels	
• Number of visitors to National Parks	
• Rural tourism: accommodation, capacity, tourists and overnight stays	

2.16 Transport	232
• Inter-urban transport demand: passengers and goods	
• Transport pollutant emissions	
• Tourism vehicle fleet by fuel type	
• End consumption of energy by transport	
• Environmental efficiency of transport in terms of GAV, transport demand, atmospheric emissions and end energy consumption	
2.17 Urban and domestic environment	246
• Urban density by autonomous communities and cities	
• Public urban transport	
• End consumption of energy by household	
2.18 Natural and technological disasters	256
• Fatal victims due to natural disasters	
• Periods of drought	
• Forest fires	
• Road and rail accidents with possible environmental damage	
• Industrial accidents involving hazardous substances	
• Extraordinary risks: compensation as a result of flooding and storms	
Part 3. INFORMATION BY AUTONOMOUS COMMUNITY	
BASIC DATA	272
Introduction, Autonomous Community description sheets and information sources with notes on methodology	
Part 4. APPENDICES	320
I. Initials, acronyms, abbreviations, units and clarifications	
II. Thematic indicator index	
III. Participants and collaborators in the preparation and review of this report	

PRESENTATION

The 2017 World Environment Day focused on heightening awareness among citizens about our relationship with the natural environment surrounding us, with the slogan “I’m with nature”.

Society's awareness about the state of the environment and driving effective policies to aimed at protecting it as a priority common asset, must entail the right to receive truthful information about the state of our environment and the results achieved in recent years concerning protection of the environment.

In this sense, the **2016 Environmental Profile of Spain** is consolidated as one of the most important, dynamic instruments of environmental information. Based on the analysis of the evolution of different indicators, this report enables citizens to not only obtain the necessary knowledge on the situation of the environment in our country, but also to receive information about the effectiveness of environmental policies and their integration in other policies in other sectors.

Hence, this report is divided into 18 chapters featuring 82 indicators on different environmental areas. The report describes important sectors such as agriculture, fishing, industry, transport and the economy, stressing the transversal nature of the environment.

Proof of this are examples such as the national policies that have been developed over the last five years with the aim of fighting against climate change, where we have tried to involve all key economic sectors, or innovation instruments that we have implemented in an attempt to drive a new, more sustainable development model through different plans and programs such as Plan AIRE 2013-2016, the State Programme for Waste Prevention 2014-2020, the CRECE Plan to improve water quality or the PIMA-Adapta Plan to improve the environment, which continues to be one of the pillars of our activity during this legislature.

From this Ministry, and through all our action, including the publication of this report, we will continue to involve citizens, the scientific and educational community, non-governmental organizations and the private sector in all initiatives that have the aim of protecting and preserving the environment in Spain.

With this comprehensive outlook, this thirteenth issue of the Environmental Profile of Spain has been prepared with participation by different players, whom I thank for their efforts and commitment. Their contribution is irrefutable in helping to improve the environmental information made available to citizens.



Isabel García Tejerina
Ministry of Agriculture and Fisheries, Food and Environment

FOREWORD

The fight against climate change, nature preservation, water and water source management, air quality and atmosphere protection as guarantees of human health and ecosystem vitality are key items on the political agenda of this Ministry.

For this Secretariat of State, the integration of the environment in all production sectors is fundamental in order to progress in economic and social models in accordance with green growth. Consequently, we are driving a circular economy in line with the framework proposed by the European Union to improve the efficiency of resources, eco-innovation, sustainable use of raw materials, improving production and consumption guidelines and adequate prevention and management of waste.

Likewise, since 2017 has been named the year of sustainable tourism, this issue of the Profile includes a specific chapter addressing this subject of vital importance for the Spanish economy, with special emphasis on our natural environment.

Making our planet great, as proposed in international politics, requires in-depth knowledge about it. And that is precisely where this report becomes an essential tool, since it provides the necessary scientific/technical knowledge to understand exactly where we stand and where we

should be going in order to achieve our sustainability goals. The Environmental Profile of Spain is based on a number of environmental and socio-economic indicators, defined at national and international level. In this sense, it is significant to outline the fact that the report follows the lines in the reports published by the European Environment Agency, of which this Ministry is a National Focal Point.

The possibility of accessing all the information used to prepare this publication, through links and references, increases the added value of the report, since it permits widening knowledge aimed at the public through the most up-to-date information sources. All the information made available to citizens is also openly available in data formats and can be consulted via mobile devices.

As a final note, I would like to thank all the different experts, particularly the members of the Environmental Information and Observation Network (EIONET) and the European Environment Agency, established in Spain through the National Reference Centers and the Regional Focal Points, for their commitment and support in preparing this report. Participation by that Network guarantees that all subjects and sectors are satisfactorily covered in the report, and that the report itself becomes a benchmark on environmental information.

Thank you very much.



María García Rodríguez
Secretary of State for the Environment





Thematic analysis: **Assessment of environmental aspects**

- 1.1 Protection of soil and degradation processes in Spain
- 1.2 Sustainable nature tourism



PROTECTION OF SOIL AND DEGRADATION PROCESSES IN SPAIN

1.1

2015 was declared the International Year of Soils with the goal of increasing awareness and understanding of the importance of soil for food safety and essential ecosystem functions.



Protecting soil against certain types of degradation is included among the goals of sustainable development



Context

From a scientific viewpoint soil cannot be considered anything other than the result of the balance of interaction between climatic, geological and biological phenomena acting on the Earth's surface crust. In this sense it is important to understand that its geographical distribution and the textural and compositional characteristics that are apparent at any given time, vary over time in line with the variation of phenomena that condition soil formation.

In addition to the natural phenomena mentioned above, the fact that human action notably contributes to soil degradation cannot be ignored, sometimes leading to complete loss of this environmental space. Consequently, some international organizations have been insisting on the need to design a framework for the protection of soil against certain degradation processes. In response to this, the 68th General Assembly of the United Nations declared 2015 the International Year of Soils, with the goal of increasing awareness and understanding of the importance of soil for food safety and essential ecosystem functions. Also noteworthy is the importance that the UN Organization has given to the protection of soils against certain degradation phenomena, by including it among the sustainable development goals established for that year (Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and limit biodiversity loss).

The Spanish Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA) contributed by organizing a workshop titled "Protection and Management of Soils in

Spain”, which fit in perfectly with the goals established by the United Nations.

On request by the European Union, Spain has prepared the initial draft of the declaration that will be presented at the 40th WFO Conference (to be held in July 2017) on the Assessment of 2015 as International Year of Soils. This document highlights how this declaration and the many acts stemming from it have had a significant mobilizing effect, contributing to highlighting the importance of soil, the need to move towards its effective protection and conservation, and the measures that would be necessary to achieve this.

At a different organizational level, the European Union and its institutions have been working since 2002 on establishing a framework for the protection of soils. These works started that very year with the publication of Communication COM (2992) 0179 “Towards a Thematic Strategy for Soil Protection” - in which an initial review was performed of the main soil degradation processes affecting the continent, as well as an analysis of the community instruments available at that time to halt and reverse such processes. This Communication highlighted the existence of a number of degradation processes which, to a greater or lesser degree, are operating at continental scale. Among them were erosion, salinisation and contamination of soil.

Following on from this, and through to 2014, the Commission, supported by a number of specifically created working groups, continued the works and ultimately presented a proposal framework directive for the protection of soil. For several years, covering several rotating presidencies, a discussion was held by the Council about this proposal. Finally, in view of the failure to reach an agreement at this level, the Commission withdrew the proposal.

In the meantime, more evidence about the magnitude and extent of the degradation phenomena was compiled. In this regard, it must be emphasized that in a report prepared by the European Commission's Joint Research Centre published in 2012, it was estimated that between 10% and 25% of land were affected by active processes of soil degradation, although with regional differences in terms of intensity and nature.

In this context, at the end of 2015 coinciding with the International Year of Soils, the European Commission's services went back to the issue and created a group of national experts on soil protection. The function of this group is to provide assistance to the Commission in the talks on legislative and non-legislative alternatives for soil protection. This new initiative, being developed at the time this document was being prepared, has considerable legal support, since it gives response to the 7th Environmental Action Programme approved in 2014, showcasing the common position by the Parliament and the Council, and pointing out in this regard that the Union and its Member States must define, as soon as possible, the methods to tackle degradation processes within a binding legal framework from a perspective of proportionality and on the basis of risk assessment and management. The aforementioned Program establishes an objective to implement adequate soil protection in the European Union by 2020, ensuring, among others, that environmental recovery of contaminated land must be underway. Work commissioned to the group of experts has already started under

In order to protect, conserve and improve the natural capital of the Union, the **VII PMA** must guarantee that by 2020 land is managed sustainably in the Union, soil is properly protected and contaminated areas continue to be cleaned.

(Priority objective 1: to protect, conserve and enhance the Union's natural capital)

It is therefore necessary, among other tasks, to double efforts in order to reduce **erosion** and increase **organic matter** in soil, **clean contaminated sites** and strengthen integration of considerations on the use of land as a resource and on the objectives of **territorial planning**



A modification of cultural values and principles is required in order to incorporate certain concepts such as efficiency, sustainability and equality.



The basic regulatory framework for soil protection has 22/2011 Act, of 28th July, on residues and contaminated soils, as one of its fundamental pillars

this mandate. The first task involved drawing up a catalog of available instruments for soil protection at national scale. The catalog was completed in 2016 and was prepared through “wiki” type contributions, which permitted users to include and modify contents in a quick, simple manner. The next stage will focus on an impact assessment, including economic estimates of opportunity costs.

Regardless of the Member State, the recurring problems identified are common to all of them in terms of contamination, erosion, salinisation and organic matter decline in soils.

A summarized outlook on the situation of soils in Spain concerning these phenomena is provided as follows.

Soil contamination

Soil contamination occurs when excessive amounts of chemical substances from human sources are found in soil. Perhaps more relevant than a simple definition of the phenomenon is to highlight that in these cases soil not only acts as recipient of contamination, but furthermore, through different natural mechanisms of movement of pollutants, a part of the contamination can be transferred to recipients that are indirectly exposed to it. Of course, this transfer also entails contamination of other means related to soil.

In terms of the extension of land affected by contamination, there has been a traditional differentiation between local contamination and diffused contamination. Local contamination corresponds to a distribution pattern of pollutants covering a moderately small area (of magnitude order 10^3 - 10^4 m² or less) and with well delimited focal points of pollutants. This type of contamination is usually associated with industrial activity, accidental spillages, leaks from tanks or injection of leachate from landfill sites. Diffused contamination, on the other hand, covers much larger areas (magnitude order: 10^4 - 10^5 m² or greater) and is usually related to atmospheric inmissions or deposits of particles, and also soil contamination from certain materials associated with agricultural practices. This classification is somewhat artificial, since the indicated limits are rather unclear. Nevertheless, from an operational point of view it makes sense because of the extent to which the classification conditions the strategies that are implemented to reduce the magnitude of this phenomenon and, if need be, to mitigate the potential effects on the recipients exposed to contamination.

As stated in the European Commission's aforementioned “wiki”, the instruments Spain has available to tackle this process of soil degradation stem from specific legislation on contaminated soils¹ and from other legislation of a more preventative-type² or for repairing environmental damage³.

In accordance with the above, Spain has a sufficiently appropriate legal framework to respond to soil contamination, and the prevention of the same. An analysis of the National Contaminated Soils Inventory permits some interesting conclusions to be drawn up about contaminated soil management in the last ten years and the need to improve some aspects in the coming years. Amongst these, we highlight the following:

- Decontamination to date has been closely linked to the real estate industry and thus, although somewhat offset in time, it has slowed down as the specific weight of the construction industry has decreased in the Spanish economy.
- On many occasions decontamination solutions were reduced to excavate contaminated areas and take the contaminated soil to landfill sites.

With regard to the first issue, it must be stated that systematic application of the provisions set forth in the IPPC Act (Integrated Pollution Prevention and Control) in relation to contaminated soil is expected to help recover a large part of contaminated land, in such a way that industrial sectors are likely to take over from the construction industry in research and decontamination of soils.

The reasons why excavating and dumping contaminated soil has been excessively recurring are many, and must be addressed case by case. Nevertheless, it is easy to see that the costs of dumping in Spain make this a desirable option for the parties responsible for contamination. It must be said that adapting these costs through a dumping tax to cover all externalities would stimulate more sustainable methods of decontamination.

It is interesting to note that Spanish legislation on contaminated soils is clearly governed by the principle of “whoever pollutes, pays” and consequently it deals reasonably well with cases of contamination occurred more or less recently. It is no less true however that there is a liability of historically contaminated land, where it is difficult to determine the cause and dispose of sufficient financial resources to tackle the decontamination works. Once again, the introduction at national level of a dumping tax to the final subjects could be a source of income to secure the resources necessary to deal with this type of situation. In this regard, there have been some very successful cases in some of the Autonomous Communities where this type of tax measures have already been established (e.g. Catalonia).

Although the aforementioned legislation does not in principle differentiate between local and diffused contamination, the truth of the matter is that the framework has mainly dealt with the former. The strategy to follow in order to minimize diffused soil contamination risks is to establish reliable baseline concentration levels, and also to monitor their evolution over time in the mid and long terms. An example of these work is the national study conducted by the Ministry of Agriculture and Fisheries, Food and Environment in collaboration with INIA (National Institute for Agricultural and Food Research and Technology) between years 2005 and 2008. This study analyzed 4000 soil samples from forestry, pasture and agricultural 50 x 50 m sites, determining the textures, metal concentrations and organic matter content. This provides information about the situation and geographical distribution trends at a specific moment in time, so that if new samples are taken at a later date, any alterations in the distribution



¹ Royal Decree 9/2005, of 14th January, establishing the list of potentially soil contaminating activities and criteria and standards for declaration of contaminated land.

² The 5/2013 Act, of 11th June, amending the 16/2002 Act, of 1st July, on integrated prevention and control of contamination and the 22/2011 Act, of 28th July, on residues and contaminated soils.

³ The 26/2007 Act, of 23rd October, on Environmental Liability.

The National Forestry Inventory and the Forestry Map of Spain, as well as the National Soil Erosion Inventory will be ongoing works, to be updated at least every ten years.



patterns will be identified, quantifying the variation rates in order to conduct a cause / effect analysis based on sound data. MAPAMA is currently studying the possibility of preparing a second round for this work in order to identify any significant variations one decade later.

Erosion

Erosion / desertification is one of the most serious environmental problems affecting the natural areas of Spain. Among other effects it causes a reduction in the fertility of agricultural and forestry land, it accelerates degradation of the land cover patterns and reduces the natural regulation of water flows.

The loss of soil through erosion is claimed to be one of the main pressures affecting soil in Europe, as per the European Commission's "Soil Thematic Strategy".

The National Soil Erosion Inventory (INES) has the purpose of continuously identifying, quantifying and analyzing the evolution of the principal phenomena causing soil erosion on national territory. Cartographic and alpha-numerical information is provided on 5 types of erosion (laminar erosion, erosion of gullies and ravines, land mass movements, riverbed erosion and wind erosion). The digital and alphanumeric cartographic information is provided at a scale of 1: 50,000 and the minimum territorial working unit is the province.

The INES is carried out in accordance with the indications set forth in the Spanish Forestry Plan, in the 43/2003 Act of 21st November pursuant to Countryside (amended by Acts 10/2006 and 21/2015), in the 42/2007 Act of 13th December pursuant to Natural Heritage and Biodiversity, and in Royal Decree 556/2011 of 20th April on the development of the Spanish Natural Heritage and Biodiversity Inventory. It is also contemplated in the National Action Program to Combat Desertification prepared by Spain in the United Nations Convention to Combat Desertification.

This inventory supplies uniform, comparable statistical information about soil erosion processes on national territory; it provides information to delimit priority areas in the fight against erosion / desertification, and also serves as an instrument to coordinate policies on soil conservation.

Without taking Aragon, Castilla-La Mancha and the Basque Country into account, as there is no data yet for those regions, 30% of the surface area of Spain suffers from medium or high erosion processes (Soil loss over 10 t/ha per year).

Salinisation of irrigation land

Salinisation is a process that consists of a build-up of soluble salts in the soil profile, mainly in the root zone of crops

Salts come from several sources, but in all cases they at least come from irrigation water.

The end result is lower crop yield. These salts can also affect the quality of produce.

In Spain, the importance of this process is not quantified. According to an estimate by the Joint Research Center, nearly half the irrigation land could be affected by

a moderate level of salinity of 4 dS/m. At this level, most crops underperform leading to significant crop yield reductions.

The correct way to deal with this phenomena is to carry out a specific soil study to determine the necessary parameters for irrigation of each soil type.

There is no national or regional legislation in Spain today enforcing these studies, accounting for a legal vacuum of utmost importance. The only applicable legislation stems from the Environmental Assessment Act, which requires an Environmental Impact Assessment Report to be drawn up for irrigation and drainage transformation projects, and for consolidation and improvement of irrigation land, over and above a given surface area depending on the soil. The wording of this obligation is very general, which in practice means that this assessment is hardly effective at all.

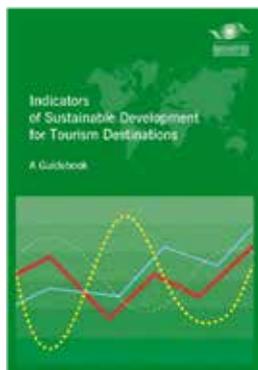


Analysis conducted by: Antonio Callaba de Roa, Francisco Javier Cano Monasterio and Luis Martín Fernández. Ministry of Agriculture and Fisheries, Food and Environment.



SUSTAINABLE 1.2 TOURISM IN NATURE

The WTO's International Network of Sustainable Tourism Observatories is a network of tourism observatories that analyze the economic, environmental and social impact of tourism by destinations.



Indicators of Sustainable Development for Tourism Destinations- A Guidebook (English version)



The United Nations declared 2017 the International Year of Sustainable Tourism for Development (A/RES/70/193). In the words of the former Secretary-General of the UN, Ban Ki-moon: *“As this is one of the main job-creation sectors in the world, tourism offers significant opportunities for subsistence, which contributes to reducing poverty and driving inclusive development”*.

Nevertheless, all tourism activity can be a source of pressure on natural areas, particularly any activity carried out directly in these areas, and, depending on the type and intensity, as well as on the fragility of the areas themselves, it can have significant consequences for conservation and evolution of the natural systems comprising these areas.

Sustainable tourism: basic concepts

According to the World Tourism Organization (UNWTO), sustainable tourism is *“Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and the host communities”* (<http://sdt.unwto.org/es/content/definicion>)

Thus, sustainable tourism should:

1. Make optimal use of environmental resources, maintaining essential ecological processes and helping to conserve natural heritage and biodiversity
2. Respect the socio-cultural authenticity of host communities.
3. Ensure viable, economic operations, providing socio-economic benefits.



Regulation (EU) 692/2011 of the European Parliament and of the Council, of 6th June 2011, concerning European statistics on tourism, defines **tourism** as “the activity of visitors taking a trip to a main destination outside their usual environment, for less than a year, for any main purpose, including business, leisure or other personal purpose, other than to be employed by a resident entity in the place visited”. And defines **same-day visits** as “visits without overnight stay made by residents outside their usual environment and which originated from the place of usual residence”.

With Nature Tourism both activities are carried out simultaneously, where the same individual can be a tourist and a same-day visitor, by traveling to a place including overnight stays and then taking same-day trips to other sites of interest.

Nature tourism requires a structured offer that permits meeting the needs of traveling to the natural environment. Camping in natural areas is very limited, owing to which rural accommodation has become an interesting alternative that to a great extent boosts the economic development of rural areas.

Rural accommodation, along with apartments, camp sites and hostels comprise part of the non-hotel group of establishments. Overnight stays in this kind of rural accommodation grew by 11.5% in 2016 reaching 9.8 million. That year there was an average accommodation offer to cater for 147,892 people, 2.7 % more than in 2015. Growth in the use of this type of rural accommodation is a sign of the increasing development of this activity in recent years..

Other indicators that can be used to analyze society's interest in different forms of nature is the number of visitors to national parks. This figure has reported constant growth in recent years, and is a sign of society's interest in these areas. In 2016 the number of visitors to national parks was 15,033,387, 4.2% higher than the previous year. A 38.2% increase has been reported over the last decade, and 69.4% over the last 20 years.

Nature tourism regulatory framework

The “*Strategic Natural Heritage and Biodiversity Plan 2011-2017*” approved through Royal decree 1274/2011 of 16th September, addresses and consolidates the concept of sectoral integration as a path to move forward in conservation and the sustainable use of natural heritage. This plan includes a number of goals, one of them being to promote the integration of biodiversity in sectoral policies with the aim of “promoting sustainable nature tourism”. Among the actions defined to achieve this goal, development of the sectoral tourism and biodiversity plan is emphasized.

Birdwatching and cycling routes are both activities in great demand in our natural environment.



The “*Sectoral Nature Tourism and Biodiversity Plan*” integrates the conservation objectives of biodiversity in tourism-related policies, and enables investment in biodiversity, creating employment, economic growth and stabilizing the rural population.



Nature tourism is based on discovering, knowledge, active enjoyment, learning, contemplation and resting in the natural environment.

The informative panels and posters are indispensable communication instruments in tourist areas.



The “*Sectoral Nature Tourism and Biodiversity Plan 2014-2020*” was approved in 2014 (Royal Decree 416/2014 of 6th June). The aim is to emphasize the importance of biodiversity and promote nature tourism in Spain as an activity to create income and employment, whilst always ensuring correct conservation of the territory's natural value and also contributing to sustainable use thereof. It is a key planning tool for the development of this activity, which includes objectives from other public policies being implemented in the same geographical area with common social and economic interests, such as those established in the 45/2007 Act on the sustainable development of rural environments.

The Sustainable Rural Development Program, a fundamental planning instrument for the rural environment established in the aforementioned Act, considers the areas included in the Natura 2000 network as priority rural areas. Moreover, among the measures designed as incentives for economic diversification in the rural environment are promoting rural tourism preference being given to sustainable tourism in priority rural areas and tourism linked to agricultural activity.

Nevertheless, it must be taken into consideration that true regulation of the activities that society can carry out in natural areas is stipulated by the specific regulations that have been approved, applicable to natural areas. Some examples of these are: limiting access and transit by motor vehicles, prohibiting bathing in rivers and camping and camp-fires, regulating access of sailing vessels to the coast, etc., without forgetting the regulations established in the management rules of the protected areas themselves.

In this sense, 42/2007 Act of 13th December on Natural Heritage and Biodiversity, and its subsequent amendment (33/2015 Act of 21st September) are worthy of mention, as they establish a true regulatory framework for conservation, sustainable use, improvement and restoration of Spain's natural heritage and biodiversity. Just as an example, Title III focuses on conservation of wild biodiversity, preserving habitats and establishing specific regimes to protect any wild species that require it. Among the prohibitions included in these regulations are introducing non-native species when these are likely to compete with native species, to alter their genetic make-up or ecological balance, or to cause death, harm, disturb or willingly agitate wild animals. Possession, transport, traffic and trade of living or dead animals are also prohibited. It accounts for an array of limitations that should be taken as an example of behavior towards sustainable tourism in these areas.

Institutional cooperation is also necessary in such a transversal process as transversal as tourism in natural environments. The “*National Comprehensive Tourism Plan 2012-2015*”, by the Secretariat of State of Tourism under the Ministry of Energy, Tourism and Digital Agenda, had “*to emphasize the value of cultural, natural and wine and food heritage*” as one of its measures, permitting promotion of eco-tourism in national parks, making public use and tourism compatible with

conservation of these areas. A Cooperation Protocol between the Secretariat of State for Tourism and the National Parks Autonomous Agency was signed in 2015 to promote eco-tourism in the National Park Network and the Spanish Network of Biosphere Reserves, valid until the beginning of 2017.

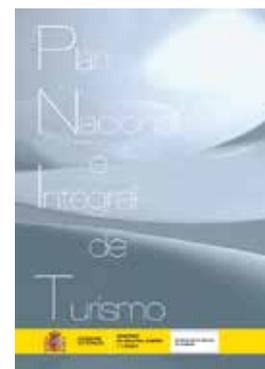
Within the framework of this protocol, the 1st National Eco-tourism Conference was held in November 2016 in Daimiel (Ciudad Real), bringing together 180 players involved in driving eco-tourism in Spain. The result was the Daimiel Eco-tourism Declaration, with the objective of serving as a reference for management of eco-tourism in natural areas. This conference drew up a definition of eco-tourism as “a travel to a natural area in order to see it, interpret it, enjoy it and travel around it whilst appreciating and practically contributing to its conservation, without producing an impact on the environment and having a positive effect on the local population”.

In order to continue that line of cooperation and to carry out further actions to promote eco-tourism and the sustainability of tourism within the scope of action by the National Parks Autonomous Agency (particularly in the National Parks Network and the Biosphere Reserves Network), a Cooperation Agreement was signed in 2017 between the Ministry of Energy, Tourism and Digital Agenda and the Ministry of Agriculture and Fisheries, Food and Environment to promote eco-tourism in the National Parks Network and the Spanish Network of Biosphere Reserves.

Some of the notable lines of work in this cooperation agreement are as follows:

1. To promote eco-tourism in the National Parks Network and the Biosphere Reserves Network in Spain
2. To monitor the repercussions of tourism on the National Parks Network and Biosphere Reserves in Spain.
3. Communication and awareness on eco-tourism and sustainable tourism. Sustainable Tourism Culture.
4. Support for conferences and workshops on tourism in national parks and the Biosphere Reserves Network in Spain, and training businesses on eco-tourism

The initial actions envisaged under this agreement are to hold a National Conference on Tourism and National Parks at Teide National Park, to develop the product “Eco-tourism in National Parks and National Parador Hotels located near National Parks and Biosphere Reserves” and to promote adhesion to and maintenance of the European Charter for Sustainable Tourism in Protected Areas.



National Comprehensive Tourism Plan 2012-2015



Daimiel Declaration of Eco-tourism

The National Park Network is made up of 15 National Parks covering 0.76% of national territory.

They are found in 169 municipal districts, 19 provinces and 12 autonomous communities.

1.5 million people live within the socio-economic area of influence of these national parks.

In 2016 the National Park Network was visited by over 15 million people.



“Ambienta” magazine
issue 118 of March
2017.

This magazine includes two articles titled “Eco-tourism in National Parks: Discover the best of Spain's nature” and “Nature Trails: a commitment to promoting the rural environment”.



The 30/2014 Act, of 3rd December on National Parks, recognizes the capacity by holders of rights to national parks to carry out economic or commercial activities, particularly those related to public use or rural tourism.

National Parks: a privileged tourism environment

The article “**Eco-tourism in National Parks: discover the best of Spain's nature**”, published in the March 2017 issue of “Ambienta”, jointly drafted by representatives from the National Parks Autonomous Agency of the Ministry of Agriculture and Fisheries, Food and Environment and by the Secretariat of State for Tourism and the Ministry of Energy, Tourism and Digital Agenda, analyses in depth the potential of National Parks as areas of high touristic potential.

It is worth highlighting that Spain is the country with most biodiversity and percentage of protected surface area in Europe, with 27% of its national territory being included in the Natura 2000 Network. The National Park Network stands out for the relevance and singularity of its natural and cultural heritage, along with the 48 biosphere reserves in Spain (world leader), the 11 Geoparks (second in the world) and over 1900 declared protected areas. In this sense, the National Park Network is the best preserved sample of the ecosystems representing Spanish natural heritage with 15 national parks located in 12 different autonomous communities. The quality of these areas is clear, and although they account for less than 1% of the national territory, all of them are part of the Natura 2000 Network, and 10 of them are *UNESCO Biosphere Reserves core zones*.

National parks have become items of interest in themselves, or because they are able to complement the leisure activities on offer at many tourist resorts. Most of the visitors to the Network are Spaniards, although the number of foreign tourists exceeds that of nationals in the National Parks in the Canary Islands.

The huge natural wealth of the national parks leaves no room for discussion, since this is a pre-requisite before a national park is declared. The management and protection measures that come through declaration as national parks also contributes to this wealth. According to the National Parks Autonomous Agency “... *nearly 70% of the vascular plant species and 80% of vertebrates in Spain, are found in the National Parks. If we refer to endemic Spanish species, i.e. those that only live naturally in Spain, 43% of them are in the National Park Network. This natural wealth, and good state of conservation make National Parks a very attractive destination for nature lovers*”.

The quality of the enormous natural wealth of national parks, both in terms of geodiversity and biodiversity make them vulnerable to pressure from extraordinary activities, such as tourism, which differ considerably from the traditional uses that have given shape to their ecosystems. In fact the National Parks Act (30/2014 Act, of 3rd December) involves the holders of rights of national parks ensuring conservation of each national park, conferring them the capacity to carry out economic or business activities, particularly those related to public use or rural tourism. Insofar as the planning instruments are concerned, such as the National Parks Network Director Plan and the rector plans for use and management, they establish the foundations for adapting pressure from visitors on their natural values. Zoning of their territory (*Reserve Zones, Restricted Use Zones or Moderate Use Zones for example*) permits establishing different access restrictions to visitors.

In order to guarantee orderly visits that respect conservation of the values of these parks, these areas provide access routes and information services. National Parks thus become ideal areas from where eco-tourism can be enjoyed.

Nature trails: sustainable nature tourism

The article “**Caminos Naturales: una apuesta por la dinamización del medio rural**”, by the Directorate General of Rural Development and Forestry Policy, presents a synopsis about the “*Nature Trail Program*” by MAPAMA. In 2016 there was a total of 9461 km of nature trails included in the Program. Of these, around 1290 were “Green Routes” (Vias Verdes), the name given to these routes executed on former railway tracks.

The existence of nature trails adapted and made available to users who wish to carry out some sports or tourist activity on them, contributes to the socio-economic development of the rural environment. These trails vary in origin, but are mainly from giving new uses to former transport infrastructures: cattle routes, railway lines, tow paths, abandoned traditional tracks and even newly opened trails. These trails let the population get closer to nature and the rural environment in general, thus meeting the growing demand for eco-leisure in nature and in the rural environment.

These trails recover the possibility of travel between rural villages and settlements. Moreover, in many cases the trails pass through areas of high environmental value, both landscape and cultural, thus favoring sustainable rural development. One of the advantages is that only environmentally friendly transport systems are allowed (pedestrians and bicycles), promoting sustainable mobility.

Exploiting these infrastructures and nature trails pursues four main objectives:

- To maintain public use of communication infrastructures.
- To provide a response to the social demand for alternative tourist services.
- To provide the population with access to a sports, cultural, educational experience while being in contact with nature.
- To favor sustainable development of these areas through promoting economic resources, employment and settlement of the population in the place of origin.

The study conducted in 2014 on “*Impacto económico y social del Programa de Caminos Naturales*” provides some very interesting figures about the success of the Program. The number of visitors to these nature trails was estimated at 30 million, and 3600 full-time jobs were created. Undoubtedly, the catering, rural accommodation and companies related to eco-tourism and bicycle rental were the industries that most benefit from these rural environments.

The routes of the nature trails include plenty of illustrative material, many of them already adapted to new technologies. In addition to descriptive guides, including maps on paper (Nature Trails of Spain and individual Nature Trail Guides), the Program provides:

The first nature trail in Spain was “Carrilet” in Girona, on an abandoned narrow-gage railway line that used to run between Girona and Olot.





Invading or altering breeding areas during reproduction seasons can lead to irreversible damage to the species.

European Charter for Sustainable Tourism in Protected Areas is a voluntary instrument that requires protected areas to draft and implement specific actions plans to improve the sustainability of the tourism model affecting the area.

- Applications for *Smartphone* with augmented reality.
- Virtual visits for each one of the routes.

A complementary guide about the birds and wildlife inhabiting the nature trail.

On the other hand, the trails are perfectly *signposted*. In fact, there is a guide called “Manual de Señalización y elementos auxiliares” (“Signaling and Auxiliary items Handbook”).

Towards more sustainable nature tourism: Associative and best practice initiatives

Activities that are carried out through tourism in natural environments can interfere with the resident ecosystems (biotopes and biocenosis inhabiting them). Some aspects such as the fragility and vulnerability of these, the number of visitors to the areas, the time of the year, and particularly the behavior by visitors are some of the variables that can alter the natural environment and make this tourism incompatible with nature conservation.

In addition to a regulation framework to guarantee that the different forms of nature tourism are carried out with minimum impact on the ecosystems (concerning the physical environment itself and the biodiversity), it is necessary to adapt the way these activities are carried out to a series of best practices. All players should be involved in these best practices, from the managers of the areas to the visitors themselves, including promoters of activities (catering and accommodation, tourist guides and environmental education, complementary transport services, etc.) and all surrounding societies and businesses. The Administration must also be involved, contributing through service infrastructures appropriate for the activities that are carried out, without any adverse effects (signposting of trails, building crossing points in sensitive areas, information signs, waste collection, etc.).

The European Charter for Sustainable Tourism in Protected Areas (ECST) is an initiative by the EUROPARC Federation with the global aim of promoting the development of sustainable tourism in protected natural areas in Europe. ECST is a method and a voluntary commitment to apply the principles of sustainable tourism, guiding managers of protected natural areas and companies to define their strategies in a participative manner.

Spain is the leading country in terms of protected areas accredited with this Eurovignette. An area marked with this ECST vignette is a sustainable tourist destination that implements an action plan in favor of sustainable, participative tourism in agreement with the involved players, particularly the tourist industry. This instrument is the responsibility of the environmental manager and facilitates an agreement with the private sector so that genuine nature tourism experiences can be offered in a sustainable way.

In March 2017 there were 44 Protected Natural Areas in Spain accredited under the ECST. These areas are grouped in the various autonomous communities with spaces under different levels of protection such as national parks, regional parks and natural parks, nature reserves and natural monuments.

The Spanish Eco-tourism Club provides sustainable eco-tourism experiences, guaranteeing travelers that they will contribute to local development and conservation of the biodiversity in the protected areas they visit, and also the tourist services that they may enjoy. This is encompassed with the “Sectoral Nature Tourism and Biodiversity Plan 2014-2020” to promote the creation of a nature tourism product. To date, 4 annual seminars have been held (2013, 2014, 2015 and 2016) some of their more notable objectives are as follows:

- To showcase the tourism business fabric, which is located in Protected Natural Areas (PNA), the situation of Eco-tourism in Spain and the annual progress by the Eco-tourism Club and its management entity.
- To train the parties responsible for tourist and local action associations to jointly promote eco-tourism.

At the seminar held in September 2016 an international definition of **eco-tourism** was agreed, it being defined as “*responsible travel to natural areas that conserve the environment and improve the welfare of the local population*”. And also **eco-tourist**, identifying this as “*tourists who are motivated by seeing, discovering and learning on their trip, visit or stay in a natural area they travel to as the principal motive, also having the intention of contributing to the sustainable development of the area they visit; whereas active tourists travel to the natural area to carry out a sporting activity as their principal motive*”.

The Spanish Eco-tourism Association (AEE) was created in 2010 to promote sustainable tourism in protected areas. It mainly consists of associations of tourism business located in natural areas, management entities of natural areas, public administration departments involved in tourism management of these areas, companies and tourism and technology innovation entities, and also tourism companies committed to conservation and local development.

In order to improve knowledge, information and training related to nature tourism, the “Best Practice Guides” are a fundamental component. On the one hand they promote knowledge about certain activities and become planning tools. On the other hand, they teach about the value of the natural capital that they describe and informing us about how to enjoy this type of capital in the right way.

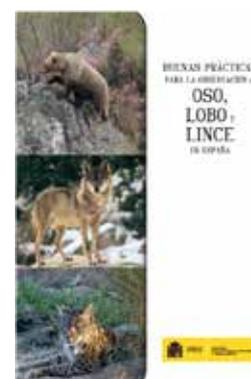
The “Best Practices” manuals and guidebooks on activities to be carried out in natural areas are an educational instrument that permits heightening awareness about the value and importance of biodiversity and to informing about the potential impact that bad observation and behavioral practices can cause on the environment and its populations.

Among the different activities that can be included in the guidebooks and manuals, MAPAMA prepared a guide on “*Best Practices for Spotting Bears, Wolves and Lynxes in Spain*”. It includes “... *simple guidelines, advice and recommendations for observing these species properly, reducing any undesirable effects, enhancing the experience and promoting awareness about conservation of biodiversity*”. The ten key points in the leaflet summarize the basic advice in the guidebook.

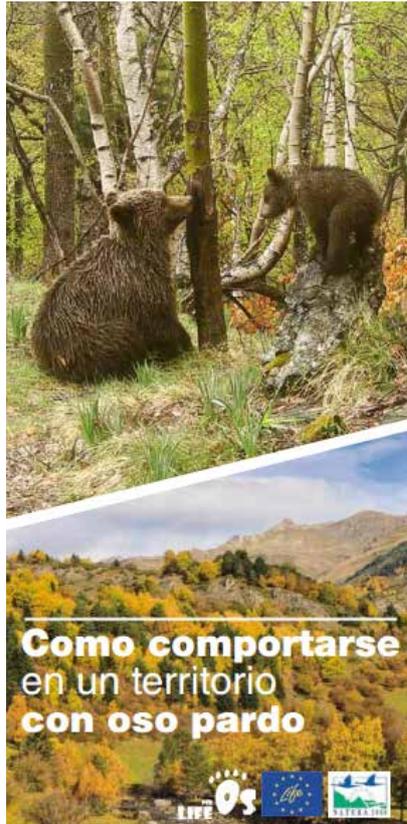
The GEOPORTAL application by companies adhered to ECST permits locating all the companies that are in the second phase of the European Charter on Sustainable Tourism. There is another application to consult and extract this type of information by protected area, where the type or name is found



The Spanish Ecotourism Association is a non-profit association created in 2010.



Best Practices for Spotting Bears, Wolves and Lynxes in Spain. Download the informative leaflet with the 10 tips here



How to behave
in a brown bear
territory

SEO/BirdLife
Manual on Best
Environmental
Practices in Fishing
Tourism



More recently, the 27th March 2017 Resolution by the General Secretariat of Fisheries, of MAPAMA, establishes the criteria for responsible SCUBA diving in marine reserves. It includes ten rules for responsible leisure diving and another set of rules of best general practices, and has become a benchmark for quality activity at international level.

There are many guides that have been published for enjoying nature, concerning both the areas themselves and the wildlife inhabiting them. Three examples of this that are found in Spain are as follows, although at international level there is also bibliography on the subjects:

- The Piroslife Catalunya Project includes a three-page leaflet that explains how to behave in brown bear territory. The project is encompassed in the LIFENatura programs.
- In 2014 the Spanish Ornithology Society (SEO/BirdLife) published the Manual SEO/BirdLife de Buenas Prácticas Ambientales en Turismo Ornitológico. Realizado por: Sociedad Española de Ornitología (SEO/BirdLife), a project jointly financed by the European Fisheries Fund (EFF; 2007-2013) and the Ministry of Agriculture and Fisheries, Food and Environment. Biodiversity Foundation.
- In 2011 SEO/BirdLife also published the “Manual SEO/BirdLife de Buenas Prácticas Ambientales en Turismo Ornitológico”, which places special emphasis on the risks and threats of this type of tourism to conservation of birdlife.

Finally, there is another type of initiative worthy of mention. These are tips from foundations and associations that can contribute to developing responsible tourism in our natural environments, and which permit complementing the informative and educational information about behavior that users of natural areas should observe when visiting. The Fundación Aquae, for example, has published its “10 tips to be a sustainable tourist” on its blog, applicable to all areas of tourism activity. The same foundation has also published 16 “Tips to avoid altering nature in National Parks”, which consists of basic information of interest to ensure sustainable behavior in National Parks.



Analysis carried out by: National Focal Point of the European Environment Agency Directorate General of Environmental and Natural Environment Quality and Assessment. Ministry of Agriculture and Fisheries, Food and Environment.



SEO/BirdLife
Manual on Best
Environmental
Practices in
Birdwatching
Tourism





Indicators:

AREAS AND SECTORS

2.1 Economy and society

2.2 Air quality

2.3 Atmospheric emissions and climate change

2.4 Water

2.5 Soil

2.6 Nature

2.7 Coasts and marine environment

2.8 Green, circular economy

2.9 Environmental research, development and innovation

2.10 Waste

2.11 Agriculture

2.12 Energy

2.13 Industry

2.14 Fishing

2.15 Tourism

2.16 Transport

2.17 Urban and residential environment

2.18 Natural and technological disasters

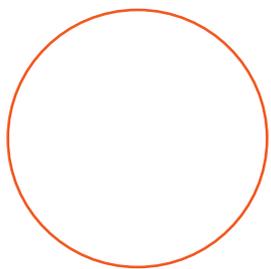


ECONOMY AND SOCIETY 2.1

The **Economic and Monetary Union** is the cooperation framework in the European Union (EU) created to promote employment and sustainable growth, and coordinate the responses to the different economic and financial challenges. It defines an area that shares the same market, the same currency and in which there is a single monetary policy. Among other aspects, it has led to a reduction in uncertainty concerning monetary, exchange rate and financial conditions for the different markets. This has permitted a coordinate response to the economic crisis situation over the most recent years, in which the **European Stability Mechanism** has been a fundamental pillar to maintain financial stability within the EU and to resolve tensions in the sovereign debt markets of the Eurozone. It has also served to promote a system of debt and public deficit control, avoiding countries spending over and above their income levels.

Within this framework, one of the EU's principal instruments to guarantee financial stability and budget discipline, was the **Stability and Growth Pact**.

Another initiative the Commission adopted in 2015, in conjunction with the European Investment Bank, was the **Investment Plan for Europe**. The objective is to counteract on the fall in investments and the high unemployment levels caused by the world economic and financial crisis, with different levels of intensity, in European countries and particularly in Spain. There is evidence that relate the slump in investment with the slow economic growth, due to the lower economic activity this entails, particularly in the short-term. The Investment Plan for Europe has three goals: to remove obstacles to investment, furthering the single market; to give visibility and provide technical support for investment projects, and to make clever use of existing and newly created financial resources. The core of this Plan is the European Fund for





Strategic Investments, established by the European Investment Bank. In April 2007 the total finance volume in Spain stood at nearly 4,000 million Euro.

In Spain, the report by the Economic and Social Council “La gobernanza económica de la Unión Europea” (Economic Governance of the European Union) concluded that private consumption of internal demand is maintained as the principal growth factor in the European Union. This private consumption in the EU has benefited from the growth of real income available to households (largely due to the job market bettering and the moderate growth of the CPI). Although there are still many households facing large debts, low interest rates and improved credit conditions explain part of this progress.

In 2016, the EU faced two circumstances that have conditioned its economic and social situation. On the one hand, the crisis caused by the mass arrival to Europe of refugees (mainly Syrians, Afghans and Iraqis) must be mentioned, jointly with the very questioned Common European Asylum System which has hindered social and labor integration of refugees. The EU took the decision to relocate 120,000 people in need of international protection in other Member States, along with the transfer of another 40,000 people from Greece and Italy, on a proposal by the European Commission in May.

On the other hand, in June 2016 the citizens of the United Kingdom voted by referendum in favor of leaving the European Union (with 51.9% votes in favor, and 49.1 against). This process, known as BREXIT, will have a significant effect on the EU, whose position in demographic, economical and political terms will be reduced. Moreover, the Member States with stronger relations with the United Kingdom will be those who most suffer from Brexit (Ireland, Spain and Germany, among others).



Population

- For the fourth year in a row the Spanish population decreased, standing in 2016 at 46,557,008 inhabitants.
- Spain is the fifth highest populated country in the EU-28, and contributes to around 9% of its total population.

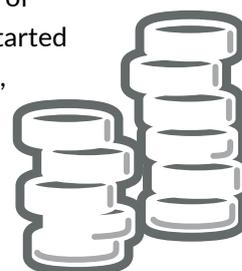


Risk of poverty or social exclusion

- In 2016, 27.9% of the resident population in Spain was in a situation of risk of poverty or social exclusion. This value was slightly lower than the 2015's figure of 28.6% and the 29.2% recorded in 2014.
- In 2015 Spain was the ninth country in EU-28 with the highest total poverty rate, with a percentage five percent higher than the EU-28 mean, which stood at 23.7%.

Economic evolution

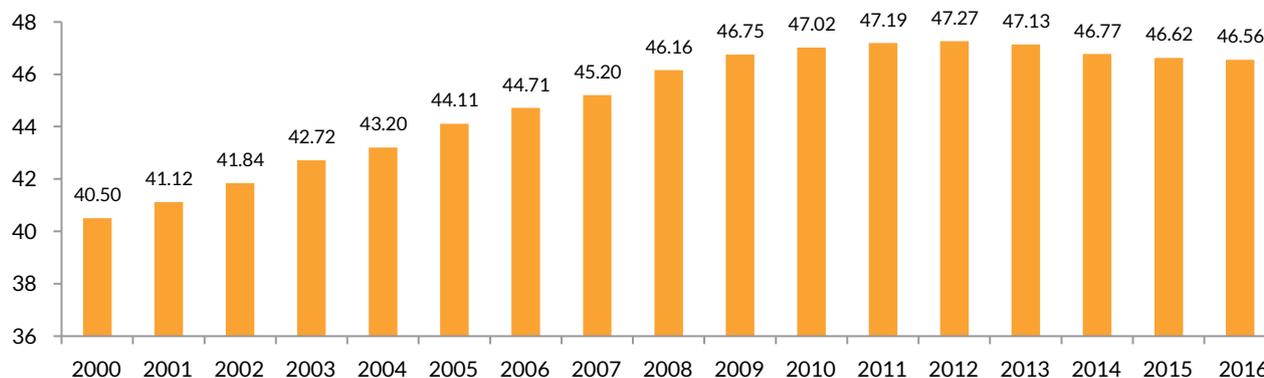
- In the years 2014, 2015 and 2016, the GDP at market prices reported growth after the drops in previous years. In 2016 this increase was 3.6%.
- In 2015, Spain held thirteenth place in the GDP per capita in the EU-28, and in 2016 contributed 7.5% to the total GDP (fifth country in terms of contribution).
- After the period of decrease that began in 2009, the number of employed persons started to rise again in 2014, reaching in 2016 the figures from 2004.





Population

Official Population Figures
Review of the municipal census as of 1st January each year (million inhabitants)



Source: INE

- *For the fourth year the Spanish population continued its downward trend, and in 2016 it stood at 46,557,008 inhabitants.*
- *Spain is the fifth highest populated country in the EU-28, and contributes to around 9% of the total population.*

2016 was the fourth consecutive year that Spain's population fell, estimated through a review of the municipal census every January 1st, standing at 46,557,008 inhabitants. After a period of strong population growth the trend broke in 2012, 2013 being the first year when a decrease in population was recorded.

Migration has a strong effect on the population balance. A decrease in the number of newly arriving immigrants has been recorded since 2008, which coincides with the outflow of emigrants, affected by the crisis situation. In the first case, this is explained by the decrease in job offers, particularly in the construction and service sectors, meaning less foreigners seeking work arrived in Spain, whereas the outflow consisted of foreigners who had come to work in Spain leaving and Spanish nationals who, because of precarious labor conditions and shortage of job offers, decided to move abroad in search of opportunities.

Since 2010 the migration balance has been negative (more people left than arrived), and 2013 saw the least number of immigrants arriving and the highest number of emigrants leaving, leading to a negative balance (-251,531 people). These trends have been reversed since then, with a practically balanced figure in 2015, the difference between those leaving and those arriving standing at just -1,761 people.

The contribution by the autonomous communities to the total population stayed in line with previous years, with Andalusia (18.0%), Catalonia (16.2%), Madrid (13.9%) and C. Valencia (10.7%) being the highest contributors to Spain's total population in 2016.



Spain's contribution to the EU-28 population has been around 9% in the most recent years: 9.3% for example in 2012 with the highest figure of population in Spain, whereas this figure was 9.1% in 2016. Spain is the country with the fifth highest population in the EU-28, behind Germany (16.1% in 2016), France (13.1%), United Kingdom (12.8%) and Italy (11.9%).



Indicator definition:

The indicator shows the official population figures in Spain taken from the municipal census reviews as of 1st January each year. These figures are approved by Royal Decree and published in the Official State Journal. The figures for 2016 were approved by Royal Decree 636/2016 of 2nd December, which declared the population figures from the municipal census review of 1st January 2016 to be the official figures.

Source:

National Statistics Institute. Official population figures taken from the municipal census reviews as of 1st January each year (several years). Check the web.

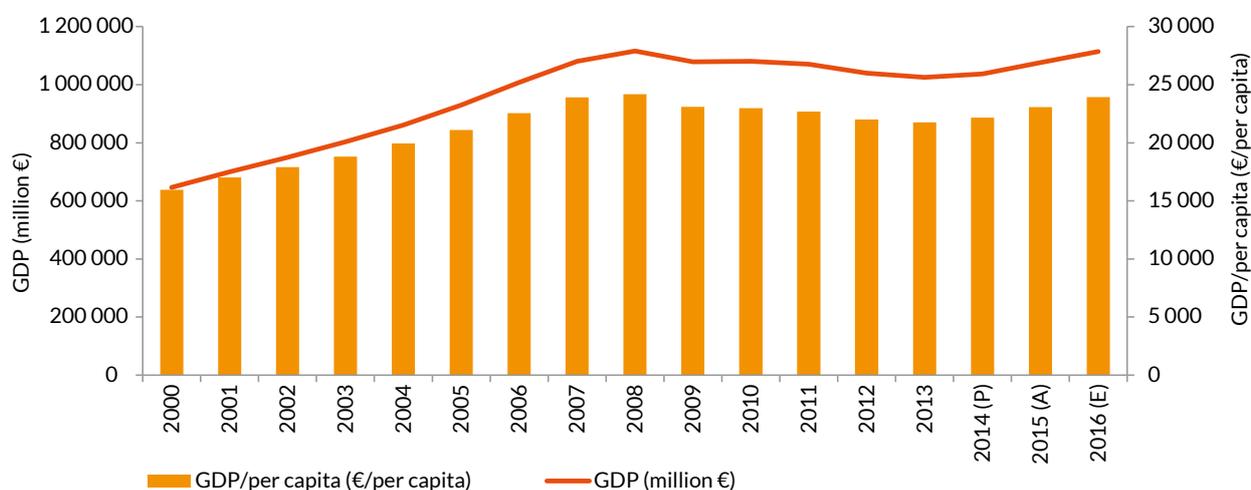
Websites of interest:

- <https://www.boe.es/boe/dias/2016/12/17/pdfs/BOE-A-2016-11994.pdf>



Economic evolution

Gross Domestic Product (GDP) at total market prices and per capita



Source: INE

- In the years 2014, 2015 and 2016 the GDP at market prices reported growth after the drops in previous years. In 2016 this increase was 3.6%.
- In 2015, Spain held thirteenth place in the GDP per capita in the EU-28, and in 2016 contributed 7.5% to the total GDP (fifth country in terms of contribution).
- After the period of decrease that began in 2009, the number of employed persons started to rise again in 2014, reaching 2004's figures in 2016.

2013 was a turning point in the performance of the Gross Domestic Product (GDP) at Spanish market prices. 2014 was the first year to report an upward trend after the global period of economic and financial crisis. The 1.1% increase reported in 2014 grew to 3.7% in 2015 and 3.6% in 2016 (1,113,851 million Euro). Although these are positive values, they are a far cry from the 2000 and 2007 growth figures standing at 7% and 8% respectively, the pre-crisis years and the years of development and expansion of the single currency that was introduced in 2002 with exchange rates set on 31st December 1998.

The intensity of the economy per capita showed a similar performance, with a growth rate of 3.7% in 2016. Compared to the EU-28, in 2015 Spain was thirteenth, with a GDP per capita lower than the mean of the 28 states. In this European scenario, Spain contributed 7.5% to the EU's GDP in 2016, standing in fifth position among the countries with highest contribution, behind Germany, United Kingdom, France and Italy.

The contribution by the services sector to the total Gross Added Value (GAV) in recent years has been around 74%. The huge weight on the total and the fact that it increased by 8% between 2013 and 2016, and 4% in the last year, make this sector the main driving force in the Spanish economy. In this period of growth, professional activities as a whole, scientific and technical, administrative activities and auxiliary services reported growth of



7.7% in the last year, followed by retail activities, vehicle repairs, transport and catering, which grew at 4.4%.

Industry contributes an average of 18% to the GAV, also significant in the economic improvement scenario. Between 2013 and 2016 the GAV in this sector grew by 9.5%.

In 2016, seven autonomous communities exceeded 23,900 Euro per capita and were positioned above the national mean. Madrid was the autonomous community with the highest GDP per capita, at 32,723 Euro. The Basque Country and Navarre were in second and third place respectively, at 31,805 and 29,807 Euros per capita, whereas the region of Extremadura was at the other end of the scale at 16,369 Euros per capita. Between 2015 and 2016 all the autonomous communities reported GDP growth oscillating between 1.8% in La Rioja, to 4.8% in the Balearic Islands. This growth was between 3% and 4% in 11 out of 19 autonomous communities.

Total employment is also showing signs of recovery, with an increase in employed people being reported in 2014, 2015 and 2016. The years preceding this period, coinciding with the crisis, firstly reported a slowdown in growth, leading to absolute reductions between 2009 and 2013. Nevertheless, employment in 2016 was at the same level as in 2004, with nearly 20 million employed, a far cry from the 21.3 million employed in 2008. In this sense, the services sector is the one that provides most jobs overall, and is the one that has least been affected by the crisis, mitigating the total fall in employment, which between 2007 and 2015 was 62.4% in the construction sector and 26.9% in industry.

Indicator definition:

The indicator shows the Gross Domestic Product (GDP) at market prices and at current prices, in absolute figures and per capita. It also provides information about the year-on-year evolution in terms of volume, and about the Gross Added Value by economic sectors.

Notes on methodology:

- The National Accounting of Spain (CNE) is prepared in accordance with the methodology of the European System of National and Regional Accounts (ESA 2010), which is of standard, mandatory application for all member states of the European Union (EU) in compliance with the provisions established in Regulation (EU) 549/2013 of the European Parliament and of the Council, of 21st May.
- GDP per capita estimates are made using the quotient between "GDP at market prices" and the "Official population figures from the municipal census reviews as of 1st January each year" prepared by the National Statistics Institute (INE). Royal Decree 636/2016 of 2nd December, declared the figures for the municipal census review as of 1st January 2016 as official population figures.
- The 2014 data are provisional; those for 2015 are given as an advance information and the 2016 figures are an initial estimate, and may be amended if they are revised.

Source:

- GDP Data:
National Statistics Institute. Gross Domestic Product at market prices. Current prices. Check the web: INE base>Economic Accounts>Regional Accounting of Spain. Base 2010. Uniform series 2000-2016 (PAX). Results by autonomous communities and cities. Uniform series 2000-2016. 2.1 GDP, at market prices and Gross Added Value at basic prices by branch of activity: current prices by autonomous communities and cities and by period.
- Population data:
National Statistics Institute. Official population figures taken from the municipal census reviews as of 1st January each year.

Websites of interest:

- http://www.ine.es/dyngs/INEbase/es/categoria.htm?c=Estadistica_P&cid=1254735576581
- <http://www.boe.es/boe/dias/2016/12/17/pdfs/BOE-A-2016-11994.pdf>
- <http://ec.europa.eu/eurostat/data/database>



Risk of poverty or social exclusion

Risk of poverty or social exclusion rate (%). AROPE Indicator									
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Spain	23.8	24.7	26.1	26.7	27.2	27.3	29.2	28.6	27.9
EU-28			23.7	24.3	24.7	24.6	24.4	23.7	

Source: data for Spain from INE and for EU from Eurostat.

- **In 2016, 27.9 % of the resident population in Spain was in a situation of risk of poverty or social exclusion. This value was slightly lower than the 2015's figure of 28.6% and the 29.2% recorded in 2014.**
- **In 2015, Spain was the ninth country in EU-28 with the highest total poverty rate, with a percentage five percent higher than the EU-28 mean, which stood at 23.7%.**

There have been situations of social vulnerability in Spain for some years, with this situation worsening since the economic and financial crisis, with an increase in the number of people at risk of poverty and/or social exclusion. This is a key problem that must be solved in order to attain economic recovery, and also entails dramatic social and family situations that must be addressed. Within the Europe 2020 framework, the concept of risk of poverty and/or social exclusion considers monetary terms (income level) and a multi-dimensional concept that includes three sub-indicators: the risk of poverty after social transfers; the severe material deprivation of goods and households with very low labor intensity. The group of people at risk of poverty and/or social exclusion, in accordance with the Europe 2020 Strategy, is known as AROPE (At Risk of Poverty and/or Exclusion).

With information from the Living Conditions Survey by INE, this aggregate AROPE indicator assesses the risk of poverty or social exclusion, and stood at 27.9% of the resident population in Spain in 2016, compared to 28.6% in 2015 and 29.2% in 2014. Although a far cry from the 2008 levels, the average value of this rate has reported a decrease in the last two years.

In 2015, Spain was the ninth country in EU-28 with the highest total poverty rate (28.6%), a percentage five percent higher than the EU-28 mean (23.7%), having returned to the same level as in 2010. Only Bulgaria, Romania, Greece, Latvia, Lithuania, Croatia, Cyprus and Italy have higher rates.

According to the INE (Note about salaries, income, social cohesion, updated on 14th March 2017), the percentage of people at risk of poverty and/or social exclusion increased from 25.1% in 2008 to 28.3% in 2015 in the case of women, and from 22.4% to 29.0% in the case of men (within the same period of years). Referred to 2015, the above mentioned 28.3% of women fell under at least one of the three situations for being at risk of poverty or social exclusion, compared to 29.0% of men. By age groups, in 2015 the group with the highest percentage of "at risk of poverty and/or social exclusion" in the case of women corresponded to the youngest groups (32.9% of women under 16 years old, and 37.2% of women between 16 and 29 years old). The lowest risk percentage



was for the age group of 65 or over (14.8%). In the case of men, also by age groups, the highest percentages in 2015 corresponded also to the youngest (39.1% of men aged 16 to 29, and 34.0% under 16 years old), whereas the lowest percentage of men at risk of poverty and/or social exclusion was for men aged 65 and over (12.2%).

Indicator definition:

The indicator shows the percentage of the resident Spanish population at risk of poverty and/or social exclusion compared to the total resident population. Information about the European Union is also provided.

Notes on methodology:

- According to the Europe 2020 Strategy, people are at risk of poverty and/or social exclusion when they fall under any of the three situations defined as follows: People who live on low income (60% below the national median equivalised disposable income), and/or people who suffer severe material deprivation (4 of the 9 defined points) and/or people who live in households with very low labor intensity (below 20% of the total work potential in the year prior to the survey). If they are included in two or three categories, the people are only counted once.
- Severe material deprivation is the proportion of the population who live in households facing at least four of the following nine deprivations: 1) They cannot afford a week holiday away from home in the year. 2) They cannot afford to eat meat, fish or a protein equivalent every second day. 3) They cannot afford to keep their homes adequately warm. 4) They are unable to face unexpected expenses (of 650 Euro). 5) They have defaulted on payments related to their main home (mortgage, rent, gas bill, community charges...) or hire-purchase installments in the last 12 months. 6) They cannot afford a car. 7) They cannot afford a telephone. 8) They cannot afford a television. 9) They cannot afford a washing machine.
- People who live in households with very low labor intensity, refers to people aged between 0 and 59 years old who live in households whose members at working age worked less than 20% of their potential in the year before the survey (earnings reference period). Computing the number of months the members of the household worked during the reference year and the number of months the same members could have theoretically worked.

Source:

National Statistics Institute. Living conditions survey. In: INEbase/Living conditions and level (CPI) /Living Conditions/ Living conditions survey/Results/National Results/ Risk of poverty or social exclusion (Europe 2020 Strategy) (earnings on the year prior to survey)/ 5.2 At risk of poverty or exclusion and members by age and sex.

Websites of interest:

- INE (National Statistics Institute) Living conditions and level (CPI)Eurostat. People at risk of poverty or social exclusion by age and sex [ilc_peps01]





2.2 AIR QUALITY

The report by the European Environmental Agency “Air Quality in Europe. 2016” highlights the dangers and negative effects of atmospheric pollution on the health of Europeans, particularly in urban areas. This report also emphasizes how, in a context of improving air quality, there are still negative effects on the health of people, leading to deterioration of life’s quality in cities. This improvement is seen, for example, in that the average of PM10 has been reduced by 75% in controlled areas between 2000 and 2014. Nevertheless, according to the same report, in 2014 around 85% of the EU urban population was exposed to fine particulate matter concentrations at levels considered to be harmful by the World Health Organization.

Our country is no exception to this environmental and social problem. The Ministry of Agriculture and Fisheries, Food and Environment prepares an annual report on air quality in our country based on data by the national, regional and local networks. In fact, in the 2015 report (“Evaluación de la calidad del aire en España 2015”), a number of conclusions came to light:

- An increase in the number of metropolitan areas exceeding the legislated levels of NO_2 .
- An increase in the concentration of particulate matter (PM10) in 2015, originating from natural Saharan sources and from human action. Eight Daily Limit Value and two Annual Limit Values were exceeded.
- After legally establishing a Limit Value of PM2.5 ($25 \mu\text{g}/\text{m}^3$ was the target value to date) in 2015, an excess was recorded in one zone.
- As in all southern Europe, the Tropospheric Ozone (O_3) in Spain has become a generalized problem due to the exceptional conditions of high insolation and that the emissions precursor levels (NO_x and volatile organic compounds) are maintained. The O_3 is still reporting high levels in suburban and rural areas: in 2015 there was a slight increase in the number of areas exceeding the target value for health protection compared to 2014.
- The results reported in the three previous years concerning SO_2 concentration remain the same, since none of the two limit values according to legislation were exceeded in 2015.



Nevertheless, the correct interpretation of these conclusions must be made within the framework of the aforementioned report, since it carries out a complete technical analysis of the current regulations.

The approach to air quality in the Environmental Profile of Spain is based on indicators that evaluate average values, necessary to monitor global trends and not occasional situations of compliance with legislation (the object of the annual evaluation report of air quality mentioned previously). In this sense, emphasis must be placed on the different occasional episodes with a high level of contamination that arose in 2016 in several Spanish cities, leading to traffic restriction measures on vehicles in accordance with the action protocols implemented by each city. These measures have been implemented for some time in different cities around the world such as London, Paris and Athens.

Concerning the normative framework, Royal Decree 39/2017 of 27th January incorporates Commission Directive (EU) 2015/1480 of 28 August 2015, “amending several annexes to Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council laying down the rules concerning reference methods, data validation and location of sampling points for the assessment of ambient air quality” to the national law.

This Royal Decree, amending Royal Decree 102/2011 of 28th January, on improving air quality, establishes that the Ministry of Agriculture and Fisheries, Food and Environment must prepare a National Index that permits clearly informing the public about ambient air quality in different time scales (hourly average, daily average, etc.). Furthermore, general recommendations will be provided depending on the different values reached and their possible effects on health. These recommendations will be defined by the Ministry of Health, Social Services and Equality in coordination with the regional health authorities.

MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment) is working on a new National Air Quality Plan (Plan AIRE II) for the period between 2017 and 2019, through consensus with all involved agents. The aim is to further the 2013-2016 Plan and reinforce the action established in the previous plan which will be used to complement the action plans approved by the autonomous communities or local entities for each zone or agglomeration suffering problems of compliance. We must not lose sight of the fact that Spain must submit its first National Air Pollution Control Programme to the European Commission by April 2019, in order to comply with its commitment to reduce emissions and effectively contribute to achieving the air quality objectives as established in Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants (New Emissions Ceiling Directive).



Annual mean NO₂ concentrations

- In 2015 there was an increase in the percentage of weather stations with higher concentrations of NO₂.



- Throughout the period spanning 2001 to 2015 the percentage of stations recording higher NO₂ mean concentrations than the Annual Limit Value fell from 20.1 % to 6.3%.

Annual mean PM10 concentration

- The percentage of stations with higher PM10 concentrations increased in 2015, while at the same time those with lower concentrations reduced.

- The percentage of stations with concentrations of PM10 higher than the AVL (40 µg/m³) has been, since 2010, lower than 1%.



Annual mean PM2,5 concentration

- In 2015 the percentage of stations with higher PM2.5 concentrations increased: three stations exceeded concentrations of 25 µg/m³ (Annual Limit Value), which had not occurred since 2008.
- The percentage of stations with lower PM2.5 concentrations decreased in 2015.



Annual mean O₃ concentration

- In 2015 the number of stations with O₃ concentrations lower than or equal to 120 µg/m³ of the long-term goal, increased by 30%.
- The number of stations with O₃ concentrations over the VO (120 µg/m³ 25 times in 3years) also increased, although to a lesser extent (20%).

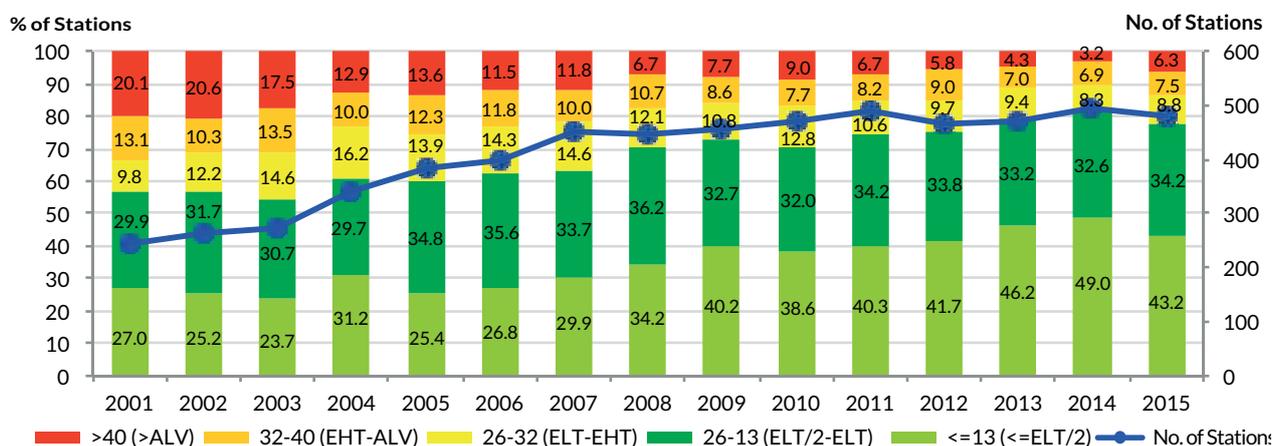
Regional background air quality: mean So₂, No₂, PM10, PM2.5 AND O₃ concentrations

- As in the previous years, in 2015 SO₂ continued its downward trend in terms of annual mean concentration.
- Despite the mean concentration increases recorded in 2015, NO₂, PM2.5 PM10 and O₃, the mean concentrations have reduced since 2003.



Annual mean NO₂ concentration

Annual mean NO₂ concentration: stations used for air quality evaluation classified according to the different ranges established in legislation (%)



Source: MAPAMA

- In 2015 there was an increase in the percentage of stations with higher concentrations of NO₂.
- Throughout the period spanning 2001 to 2015 the percentage of weather stations recording mean NO₂ concentrations higher than the Annual Limit Value fell from 20.1 % to 6.3 %.

In 2015 the percentage of stations that measured nitrogen oxide concentrations (measured as NO₂) with reference to the Annual Limit Value for protection of human health, showed a significant increase in the those with higher concentrations and reductions in those with lower concentrations. This is a return to the 2011 values.

More specifically, if only 16 stations in 2014 recorded concentrations of over 40 µg/m³, in 2015 this figure was doubled, with such recordings at 30 stations.

The total number of stations used to evaluate NO₂ was reduced by 15 in 2015, with 479 compared to 494 in 2014. This circumstance plays a significant role in the distribution of the final results, owing to the ranges into which average concentrations are classified in the evaluation.

According to the report “Evaluación de la calidad del aire en España 2015”, there were eight zones where the Annual Limit Value of NO₂ was surpassed in 2015. The limit value was also exceeded the previous year in five of them.

Between 2000 and 2014 the European Environmental Agency estimated that part of the urban population in the EU-28 States were exposed to concentrations of certain atmospheric pollutants above the levels permitted

by legislation. The number of people exposed was higher when considering the stricter values of the air quality guide published by the World Health Organization (WHO), established for protection of human health. In its report “Air quality in Europe – 2016 (EEA Report No. 28/2016)” the Agency concluded that “in 2014, 7 % of the urban population in the EU-28 States were exposed to concentrations of NO₂ above the limits set by the WHO and the EU, which are identical, 94% of all excesses being caused by traffic”.

Indicator definition:

For nitrogen oxides (measured as NO₂) the indicator shows the evolution of the Annual Limit Value through the percentage of stations included in each of the five ranges into which the annual average concentration is classified (measured in µg/m³) of NO₂, referring to the Evaluation’s Lowest Threshold (ELT), Evaluation’s Highest Threshold (EHT) and Annual Limit Value (ALV). These ranges are the following:

- NO₂ concentrations lower or equal to ELT/2 (13 µg/m³)
- NO₂ concentrations between ELT/2 and ELT (13-26 µg/m³)
- NO₂ concentrations between ELT and EHT (26-32 µg/m³)
- NO₂ concentrations between EHT and ALV (32-40 µg/m³)
- NO₂ concentrations higher than ALV (>40 µg/m³)

Notes on methodology:

- Mainly produced by combustion processes (transport, industrial facilities, electrical generation, etc.), the highest NO_x levels are usually recorded in the main urban areas and in the areas around highways with dense traffic, mostly due to combustion in diesel engines.
- The air quality targets established in current legislation for nitrogen oxides are:
 - NO₂ Hourly Limit Value (HLV) for protection of human health (compliance date: 1st January 2010). 200 µg/m³. This is the average value in 1 hour, which must not be exceeded on more than 18 occasions in the calendar year
 - NO₂ Annual Limit Value (ALV) for protection of human health (compliance date: 1st January 2010). 40 µg/m³ in the calendar year
 - NO₂ limit value (new critical level according to Directive 2008/50/CE and Royal Decree 102/2011) for protection of vegetation: 30 µg/m³ in the calendar year
- The indicator refers only to the Annual Limit Value of NO₂, because, although nitrogen oxides include both monoxide (NO) and nitrogen dioxide (NO₂), the latter is the main chemical form that has adverse effects on health, and is the parameter covered by legislation on health protection according to community regulations. **Royal Decree 102/2011**, of 28th January, concerning improvement to air quality, transposed the contents of Directive 2008/50/EC, of 21st May 2008 and Directive 2004/107/EC, of 15th December 2004 to Spanish legislation. On the other hand, **Royal Decree 39/2017** transposes **Directive 2015/1480** to our legislation, amending the two previous ones and establishing regulations concerning reference methods, data validation and location of measuring points for atmospheric air quality evaluation, and includes the new requirements for information exchange as established in **Decision 2011/850/EU**. Moreover, the aforementioned Royal Decree envisages approval of a National Air Quality Index that will permit informing citizens all over the country about the quality of the air they are breathing at all times, in a clear, uniform way.
- The references on legislated values can be consulted in the “Evaluación de la calidad del aire en España 2015” report, by the Directorate General of Environmental Quality and Assessment and of the Natural Environment of the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA).

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Air Quality Database Directorate General of Environmental Quality and Assessment and of the Natural Environment. Data supplied on specific request

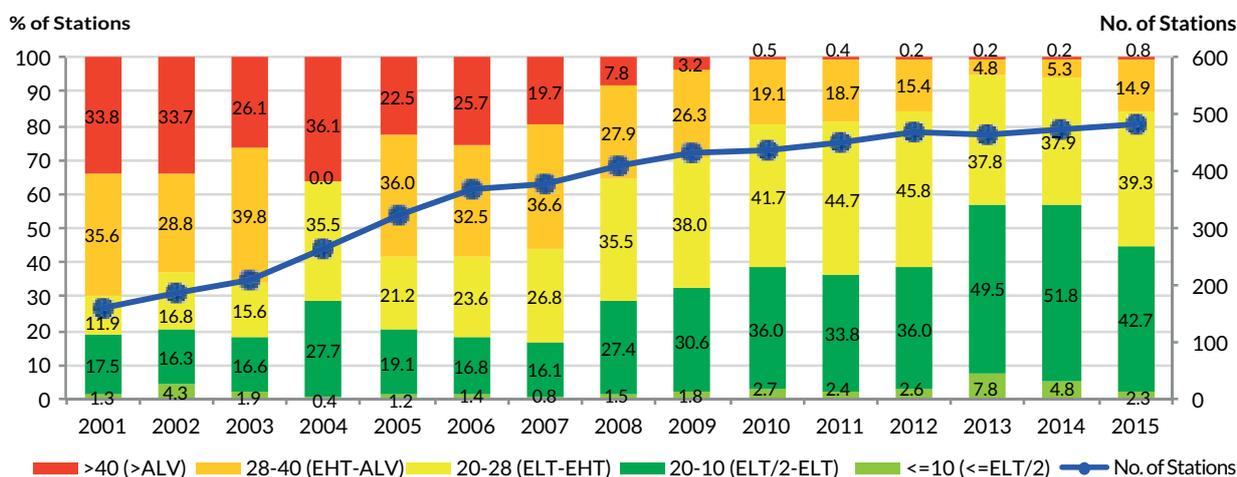
Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/default.aspx>
- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/documentacion-oficial/default.aspx>
- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/visor/default.aspx>
- <https://www.eea.europa.eu/data-and-maps/indicators/exceedance-of-air-quality-limit-3/assessment-2>



Annual PM10 mean concentration

Annual PM10 mean concentration: stations used for air quality evaluation classified according to the different ranges established in legislation (%)



Source: MAPAMA

- The percentage of stations with higher PM10 concentrations increased in 2015, while at the same time those with lower concentrations reduced.
- The percentage of stations with PM10 concentrations higher than the AVL (40 $\mu\text{g}/\text{m}^3$) has been lower than 1% since 2010.

The percentage of stations with least concentration of particles with diameter below 10 microns ($<10 \mu\text{g}/\text{m}^3$) whose readings were included in the evaluation, had reduced by more than half, changing from 23 in 2014 to 11. Stations with PM10 particles between 10 and $20 \mu\text{g}/\text{m}^3$ were also reduced.

At the other end of the scale, an increase in the number of stations that have been used for evaluation reporting higher concentrations of these particles was recorded. Indeed, the number of stations with PM10 concentrations $> 40 \mu\text{g}/\text{m}^3$ has multiplied fourfold (from one station in 2014 to four in 2015), whereas those recording concentrations between 28 and $40 \mu\text{g}/\text{m}^3$, have been multiplied by 3 (from 25 stations to 72).

The number of stations used for PM10 evaluation increased between 2014 and 2015 by almost 2% from 475 to 483. In this sense, it is important to emphasize that the more stations that can be used to evaluate air quality, the more representative the results will be because of the higher amount of data.

The report “2015 Air Quality in Spain Evaluation” underscores that only two zones in Spain exceeded the Daily Limit Value in 2015, after ruling out an episode of higher readings due to Saharan particles that year, which had to be excluded for the purposes of compliance with the limit values. The zones where the ALV was exceeded in 2015 were “Asturias Central” (ES0302) and “Terres de l’Ebre” (ES0915) and the one that was excluded, “Las Palmas de Gran Canaria” (ES0501).

In the “Air quality in Europe – 2016 report (EEA Report 28/2016)” the European Environment Agency concluded that “in 2014, 16 % of the urban population in EU-28 States were exposed to PM₁₀ levels over the daily limit value in the EU. Nevertheless, in comparison with the air quality reference values for protection of human health established by WHO, which are stricter, approximately 50% of citizens were exposed to PM₁₀ concentrations that exceeded the WHO recommendations”.

Indicator definition:

For particles over 10 microns (PM₁₀) the indicator shows the evolution of the Annual Limit Value through the percentage of stations included in each of the five ranges into which the annual average concentration is classified (measured in µg/m³) of PM₁₀, referring to the Evaluation’s Lowest Threshold (ELT), Evaluation’s Highest Threshold (EHT) and Annual Limit Value (ALV). These ranges are the following:

- PM₁₀ concentrations lower or equal to ELT/2 (10 µg/m³)
- PM₁₀ concentrations between ELT/2 and ELT (10-20 µg/m³)
- PM₁₀ concentrations between ELT and EHT (20-28 µg/m³)
- PM₁₀ concentrations between EHT and ALV (28-40 µg/m³),
- PM₁₀ concentrations higher than ALV (>40 µg/m³)

Notes on methodology:

- The origin of particles can be primary when they are directly emitted into the atmosphere (either naturally or from human activity), or secondary if they are produced in the atmosphere as the result of chemical reactions of precursor gases (mainly SO₂, NO_x, NH₃ and COVNM). In urban environments, the highest particle contribution comes directly from road traffic. This is followed by secondary particles, industrial, residential and domestic, construction emissions, mineral dust in suspension (the contribution from natural sources such as dust from the Sahara is significant) and marine aerosol contributions from shipping vessels around the coasts.
- The air quality targets established in current legislation for PM₁₀ are:
 - Daily Limit Value (ALV) of PM₁₀ for protection of human health (compliance date: 1st January 2005): 50 µg/m³. This is the average value in 24 hours, which must not be exceeded on more than 35 occasions in the calendar year.
 - Annual Limit Value (ALV) of PM₁₀ for protection of human health (compliance date: 1st January 2005): 40 µg/m³ in the calendar year.
- The details of the references on legislated values can be consulted in the “Evaluación de la calidad del aire en España 2015” report, by the Directorate General of Environmental Quality and Assessment and of the Natural Environment of the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA).

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Air Quality Database Directorate General of Environmental Quality and Assessment and of the Natural Environment. Data supplied on specific request

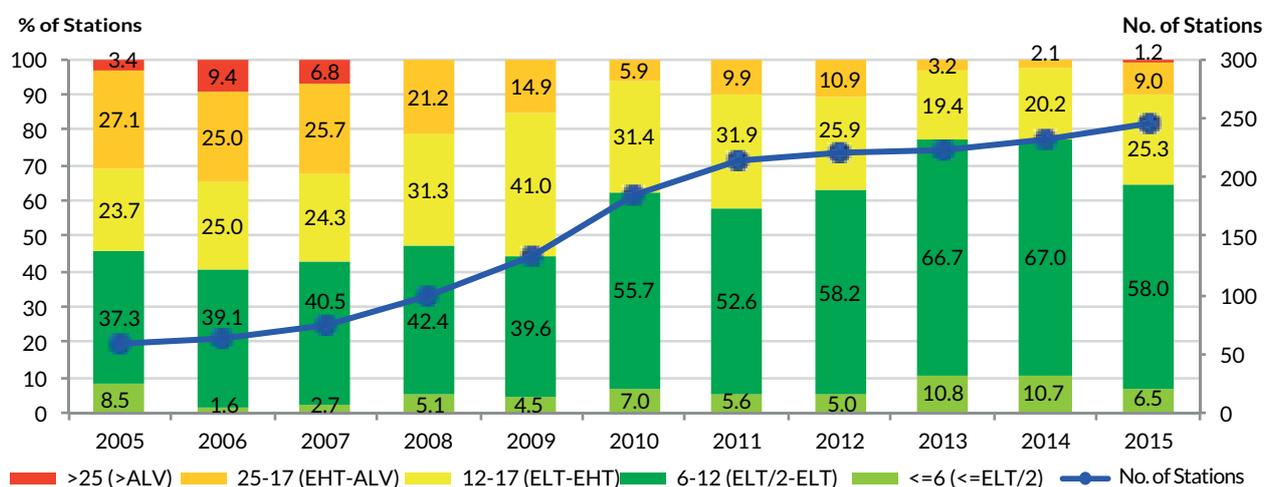
Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/default.aspx>
- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/default.aspx>



PM_{2.5} annual mean concentration

PM_{2.5} annual mean concentration: stations used for air quality evaluation classified according to the different ranges established in legislation (%)



Source: MAPAMA

- In 2015 the percentage of stations with higher PM_{2.5} concentrations increased: three stations exceeded concentrations of 25 µg/m³ (Annual Limit Value), which had not occurred since 2008.
- The percentage of stations with lower PM_{2.5} concentrations decreased in 2015.

In 2015, PM_{2.5} levels showed similar behavior to those of PM₁₀: the percentage of stations with lower particle concentration decreased, while the percentage of those with higher concentration increased.

What could initially be seen as a positive trend in terms of air quality, is thus thwarted when particles equal to or smaller than 2.5 microns are considered.

More specifically, the stations with concentrations of PM_{2.5} equal to or smaller than 6 µg/m³ in the evaluation, decreased by 36%, changing from 25 to 16 stations, and those with concentrations between 6-12 µg/m³, decreased by 9% from 156 to 142.

On the other hand, stations recording particles between 17 and 25 µg/m³, increased from 5 in 2014 to 22 in 2015 and those that recorded concentrations over 25 µg/m³, i.e. the ALV, change from none in 2014 to 3 in 2015.

The same behavior was also recorded in terms of evolution in the number of stations used for the evaluation, which increased by 5.2%, to reach 245 stations in 2015.

The analysis conducted in the report “Evaluación de la calidad del aire en España 2015” shows that the Daily Limit Value was only exceeded in one zone in Spain in 2015. This final result is after two episodes of Saharan dust in the atmosphere that year were excluded from the study. The zone where the ALV was exceeded was “Villanueva del Arzobispo” (ES0128) in Jaen, and the ones that no longer exceeded this value were “Algeciras Bay Industrial Zone” (ES0104) and “Granada and Metropolitan Area” (ES0118)

In the “Air quality in Europe – 2016 report (EEA Report No. 28/2016)” the European Environment Agency concluded that “in 2014, 8% of the urban population in EU-28 States were exposed to PM_{2.5} levels over the target value in the EU. Nevertheless, in comparison with the air quality reference values for protection of human health established by WHO, which are stricter, approximately 85% of citizens were exposed to PM_{2.5} concentrations that exceeded the WHO recommendations”.

Indicator definition:

For particles smaller than 2.5 microns (PM_{2.5}) the indicator shows the evolution of the Annual Limit Value through the percentage of stations included in each of the five ranges into which the annual average concentration is classified (measured in µg/m³) of PM_{2.5}, referring to the Evaluation’s Lowest Threshold (ELT), Evaluation’s Highest Threshold (EHT) and Annual Limit Value (ALV). These ranges are the following:

- PM_{2.5} concentrations lower or equal to ELT/2 (6 µg/m³)
- PM_{2.5} concentrations between ELT/2 and ELT (6-12 µg/m³)
- PM_{2.5} concentrations between ELT and EHT (12-17 µg/m³)
- PM_{2.5} concentrations between EHT and ALV (17-25 µg/m³)
- PM_{2.5} concentrations higher than ALV (>25 µg/m³)

Notes on methodology:

- As was the case of PM₁₀ particles, PM_{2.5} particles can be primary, when they are released directly into the atmosphere, or secondary, if they are produced in the atmosphere as a result of chemical reactions of precursor gases. In urban environments, the highest particle contribution is directly from road traffic (see methodology notes for the PM₁₀ indicator).
- The air quality targets established in current legislation for PM_{2.5} are:
 - Annual Target Value (ATV) of PM_{2.5} for protection of human health (compliance date: 1st January 2010) 25 µg/m³. In the calendar year.
 - Annual Limit Value (ALV) of PM_{2.5} for protection of human health (compliance date: 1st January 2015): 25 µg/m³.
- The details of the references on legislated values can be consulted in the “2015 Air Quality in Spain Evaluation” report, by the Directorate General of Environmental Quality and Assessment and of the Natural Environment of the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA).

Source:

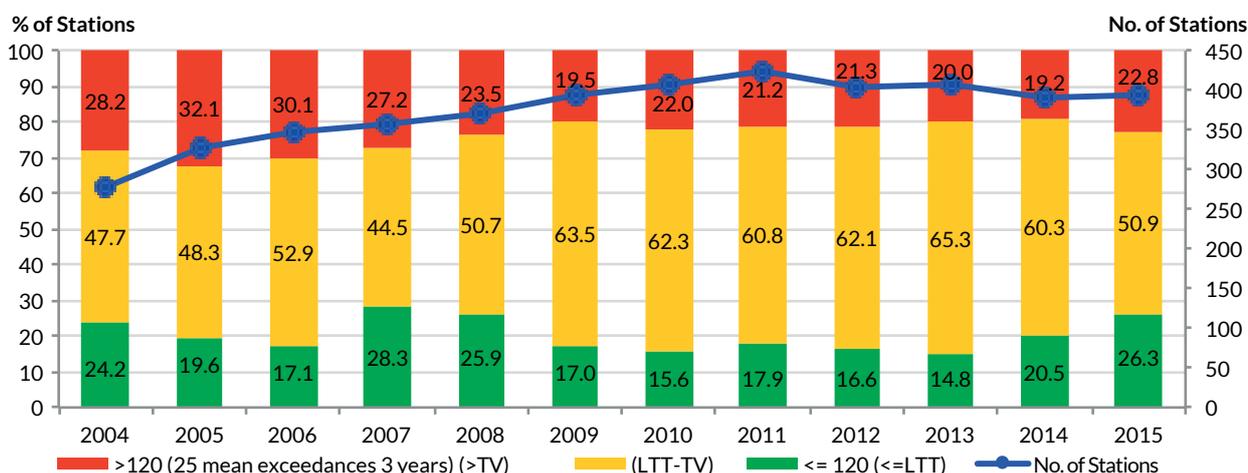
Ministry of Agriculture and Fisheries, Food and Environment, 2017. Air Quality Database Directorate General of Environmental Quality and Assessment and of the Natural Environment. Data supplied on specific request

Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/default.aspx>
- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/documentacion-oficial/>

Annual mean O₃ concentration

O₃ health: stations used in the air quality evaluation classified according to the different ranges established in legislation (%)



Source: MAPAMA

- In 2015 the number of stations with O₃ concentrations lower than or equal to 120 µg/m³ of the long-term goal, increased by 30%.
- Although to a lesser extent (20%), the number of stations with concentrations of O₃ that exceeded the TV (120 µg/m³ with 25 periods over the limit in 3 years) also increased.

In 2015 the behavior of the annual mean concentration of Ozone referring to the air quality stations used for the evaluation was characterized by an increase in the number of stations with O₃ concentrations lower than or equal to 120 µg/m³ of the Long-Term Target (LTT). This increase was 30%, changing from 80 stations in 2014 to 104 in 2015 in this range.

Nevertheless, during the same year there was an increase in the number of stations with O₃ concentrations that exceeded the Target Value (TV), i.e. 120 µg/m³ with 25 episodes in 3 years, increasing from 75 to 90 stations (20%).

However, the number of stations recording average concentrations between the LTT and the TV reduced in 2015 (201 stations) compared to those that were classified in this range in 2014 (235 stations), a decrease of 14.5%. This circumstance, along with the increase mentioned in the preceding paragraph, reveals that the total balance in 2015 shows a higher percentage of stations within the range that would represent the worst situation, in terms of Ozone, in air quality.

The “2015 Air Quality in Spain Evaluation” goes into further detail, specifying that in relation to protecting health, 125 zones were evaluated in 2015 (135 in 2014) with the following results: 46 recorded values above the target value (44 in 2014), 58 showed values between the target value and the long-term target (74 in 2014), and 21 showed values below the long-term target (17 in 2014).

As for Ozone, in its “*Air quality in Europe – 2016 report* (EEA Report No. 28/2016)” the European Environment Agency claims that for the EU-28 States, in 2014, “16 countries recorded concentrations over 25 times higher than the target value, and in total 11% of all stations informing about Ozone showed concentrations above the target value for protection of human health”.

Indicator definition:

The indicator shows the percentage of stations with sufficient number of data included in each of the three ranges for Ozone (O₃) classifying the maximum daily values of the mobile eight-hour measurements which, for protection of human health, must not exceed the mean on more than 25 occasions in a three-year period (it defines the Target Value - TV) or in the calendar year (it defines the Long Term Target - LTT). These ranges are the following:

- O₃ concentrations lower or equal to LTT (120 µg/m³)
- O₃ concentrations between LTT and TV
- O₃ concentrations above the TV (120 µg/m³ and 25 episodes over the limit in 3 years)

Notes on methodology:

- The air quality targets established under current legislation in relation to protection of human health concerning Ozone are:
 - Target Value (TV) of O₃ for protection of human health (compliance date: 1st January 2010; period 2010-2012) 120 µg/m³. Maximum daily of mobile eight-hour measurements. This must not exceed the average on more than 25 occasions over a three-year period.
 - Long-Term Target (LTT) for protection of human health (compliance date: not established) 120 µg/m³. Maximum daily of mobile eight-hour measurements in a calendar year.
- Compliance with the target values is evaluated as of that date. In other words, 2012 or 2015 are the first years whose data will be used to calculate the Ozone values for the next three or five years, as relevant.
- The details of the references on legislated values can be consulted in the “2015 Air Quality in Spain Evaluation” report, by the Directorate General of Environmental Quality and Assessment and of the Natural Environment of the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA).
- O₃ is a powerful, aggressive oxidizing agent in the troposphere, having negative effects on health and ecosystems, whilst also contributing to other global problems such as climate change. Tropospheric O₃ is formed secondarily, from precursor gases (mainly NO_x and VOC). Solar irradiation has a significant influence on its formation, and therefore levels are higher in the south of Europe in spring and summer.

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Air Quality Database Directorate General of Environmental Quality and Assessment and of the Natural Environment. Data supplied on specific request

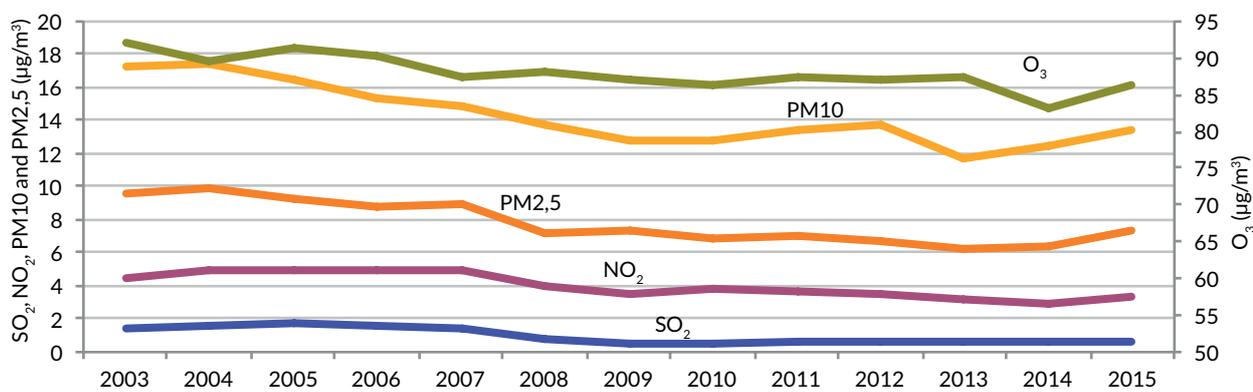
Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/default.aspx>
- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/documentacion-oficial/>



Regional background air quality: Mean SO₂, NO₂, PM10, PM2.5 and O₃ concentrations

Average of annual mean concentrations at EMEP Network background stations
(Particles: daily data; SO₂ and NO₂: hourly data; O₃: daily maximum, eight-hour data)



Source: MAPAMA

- As in the previous years, in 2015 SO₂ continued its downward trend in terms of annual mean concentration.
- Despite the mean concentration increases recorded in 2015, NO₂, PM_{2.5} and PM₁₀ and O₃ their mean concentrations have reduced since 2003.

The average regional background air quality in Spain is evaluated through the evolution of average annual concentrations of the pollutants considered.

In 2015, SO₂ levels maintained their decreasing trend in terms of the mean annual concentrations, changing from 0.59 to 0.56 (µg/m³) between 2014 and 2015 (-5.1 %).

The rest of the pollutants report different behavior however, with increases in mean concentrations between 2014 and 2015 of 15.8% for NO₂, 14.5% for PM_{2.5}, 7.7% for PM₁₀ and 3.6% for O₃. This is the second consecutive year in which particle concentrations have increased. In 2014 there were also increases in the average daily concentrations.

In global terms, throughout the 2003-2015 period, the average concentration of the annual mean of SO₂ have been reduced by 60%, partly influenced by the decrease reported in 2015. As for the rest of the pollutants, without considering the 2015 behavior, the average concentration values of NO₂, PM_{2.5} and PM₁₀, have reported reductions of 24.9%, 23.3 % and 21.9% respectively. The average ozone concentration however, was only reduced by 6.4%. In this sense, we should bear in mind that ozone is an oxidant (formed by a photochemical reaction between nitrogen oxides and volatile organic compounds with the help of solar irradiation) which takes place a long way from the emission sources and therefore is at higher concentrations in background stations.

The fact that this primary pollutants (precursors) have maintained their emissions level could be part of the cause of this minor variation.

As highlighted in previous issues of this publication, the conducted analysis shows an average trend, and it must therefore be emphasized that there can be occasional increases in concentrations that exceed the limits established in legislation.

Indicator definition:

The indicator shows the average concentrations of the annual mean of SO₂, NO₂, PM10, PM2.5 and O₃ at the background stations in the EMEP/GAW/CAMP network. The particle concentrations are calculated on the daily data, whereas the mean concentrations of SO₂ y NO₂ are taken from hourly data. To calculate the O₃ mean concentrations the maximum daily, eight-hour figures are used.

Notes on methodology:

- The indicator evaluates the background of contamination in Spain in a general manner. To do so, the average concentrations of annual mean for each pollutant per year are shown for all the stations included in the EMEP/GAW/CAMP Network. Information about the occasional episodes that have occurred in specific stations is not provided.
- The EMEP Program (*European Monitoring and Evaluation Programme*), created within the framework of the Geneva Convention, measures background atmospheric pollution. The Global Atmosphere Watch Programme (GAW) is a project undertaken by the World Meteorological Organization (WMO). The CAMP Program (Comprehensive Atmospheric Monitoring Programme, resulting from the OSPAR Convention, has the objective of identifying the atmospheric contributions to the Northeast Atlantic region and studying the effects of them on the marine environment. The EMEP/GAW/CAMP Network, which is used to comply with the objectives of the three aforementioned projects, monitors the tropospheric levels of residual atmospheric pollution - or background - and sedimentation thereof on the surface of the Earth, in order to protect the environment.
- The Spanish EMEP/GAW/CAMP network permits complying with the pollutant monitoring commitments in the EMEP, GAW and CAMP programs. In addition to determining the levels of background pollution in a region, the measurements permit evaluating transport from emission sources located long distances from them. They analyze the pollutants regulated by legislation (thus supporting regional and local networks) and other non-regulated pollutants in said legislation, used in scientific studies.
- The references on legislated values can be consulted in the "Evaluación de la calidad del aire en España 2015" report, by the Directorate General of Environmental Quality and Assessment and of the Natural Environment of the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA).

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Air Quality Database Directorate General of Environmental Quality and Assessment and of the Natural Environment. Data supplied on specific request

Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/default.aspx>
- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/atmosfera-y-calidad-del-aire/calidad-del-aire/documentacion-oficial/>





ATMOSPHERIC EMISSIONS AND CLIMATE CHANGE

2016 was a particularly relevant year in the fight against **climate change** at international level: on 4th November the Paris Agreement came into force. This Agreement was passed on 12th December 2015 at the 21st session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, held in Paris from 30th November to 13th December 2015. Spain signed the Agreement on 22nd April 2016 and ratified it on 12th January 2017, entering into force for our country on 11th February 2017.

One of the objectives of the Paris Agreement is to maintain the average world temperature increase below 2°C compared to pre-industrial levels, and even to limit it to 1.5°C, which will considerably reduce the risks and impacts of climate change. This is to be carried out in a context of sustainable development and eradication of poverty.

In November 2016, the 22nd session of the Conference of the Parties (COP 22) was held in Marrakech (Morocco), the 12th session of the Conference of the Parties, which worked as a meeting between the Kyoto Protocol Parties (CMP 12), as well as the first session of the Conference of the Parties relevant to the Paris Agreement (CMA 1). The Marrakech Conference was a boost for implementation of the Paris Agreement and gave signs that application of the Agreement had no about-turn, and of the constructive spirit of multilateral cooperation in terms of climate change. A key aspect in this sense is the Global Climate Action Agenda, where non-governmental players committed to actively participate in the fight against climate change to build the Paris Agreement goals. Among the noteworthy documents adopted are the Marrakech Action Proclamation and the Marrakech Partnership for Global Climate Action.

Spain, as a member of the EU and part of the United Nations Framework Convention on Climate Change, its Kyoto Protocol (in force, with binding commitments until 2020) and the Paris Agreement (taking over from the Kyoto Protocol at international level) is committed to binding objectives to reduce greenhouse gas emissions. Within the so-called “2020 Energy and Climate Package” the binding objective for Spain is to reduce its greenhouse gas emissions by 10% in various diffuse sectors (transport, residential, waste, etc.) compared to the 2005 figures, in order to contribute to the 20% reduction agreed by the EU for 2020, compared to 1990. A national regulatory



framework has been designed for this purpose. Conversely, emissions from industry and power generation are jointly regulated in the entire EU through the application of the European Emissions Trading System. In Spain, this system covers approximately 40% of national greenhouse gas emissions, and affects over 900 industrial plants and more than 30 airline operators.

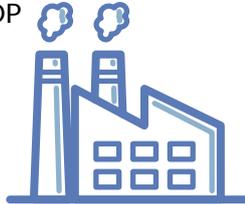
To continue on from the 2020 Energy and Climate Package, negotiations are underway on the 2030 Energy and Climate Framework to reduce emissions in the Union by at least 40% in 2030, compared to 1990, in which Spain has a commitment to reduce -26% emissions compared to 2005 for its diffuse sectors (not yet approved), and work is consequently underway on the Integrated National Energy and Climate Plan for the period spanning 2021 to 2030, and on the future Climate Change and Energy Transition Act. For the sectors included in the emissions trading system, the EU must reduce emissions by 43% by 2030 compared to 2005 levels. To reach this objective of 40%, the European Commission has submitted different draft bills. The first of them, in July 2015, to amend the Emissions Trading System Directive in the EU, and subsequently, in July 2016, draft bills for diffuse and for Land Use, Land-Use Change, and Forestry. Finally, in November 2016 the Commission submitted another package of measures on climate and energy until 2030, specifically dealing with energy efficiency and renewable energies.

In relation to **atmospheric emissions**, in December 2016 Directive 2016/2284 of 14th December 2016 was published, on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC, on national emission ceilings for certain atmospheric pollutants. On the other hand, a Royal Legislative Decree was passed on that same month, approving the amended text of the Integrated Pollution Prevention and Control Act, thus improving the regulations and legal security on the subject, by incorporating Act 16/2002 of 1st July de prevención y control integrados de la contaminación and the different regulations with statutory value that have amended it since its approval in 2002 in a single text. Transitional National Plan for large combustion plants, on the other hand, approved in November 2016, will permit these installations to make the necessary environmental investments in order to comply with the individual emission limits established in the Directive on Industrial Emissions, as of 1st July 2020.

Finally, in 2017, Royal Decree 115/2017 of 17th February was approved, which regulates the trade and handling of fluorinated gases and related equipment, and also the certification of those professionals who use them. It also establishes the technical requirements for installations that carry out activities releasing fluorinated gases. This initiative, which is the result of work over the previous months, will contribute to avoiding atmospheric emissions of greenhouse gases.

Greenhouse gas emissions

- GHG emissions in 2015 reported an increase of 3.5% compared to the previous year.
- In 2015, Spain contributed 7.8% to total GHG emission in the EU-28.
- Spain was the eleventh country with least GHG emissions per inhabitant (7.2 kt CO₂-eq/1000 inh) and the thirteenth country in terms of per GDP unit (312.1 kgCO₂-eq/€).



Particle emissions

- Particle emissions stabilized in 2015 and similar values to 2014 were recorded.
- Spain contributed 5.6% to total PM2.5 emissions in the EU-28 in 2014, and was the seventh country producing most emissions.



Registry of carbon footprint, offsetting and CO₂ removal

- The section on the carbon footprint and reduction commitments is the one with most registrations, accounting for over 90% each year. In 2016 it accounted for 92.5%.
- 92% of all received applications were registered, 2% were rejected and the remaining 6% are under analysis.



Emissions of acidifying, eutrophic and precursors of tropospheric ozone gases

- In 2015, aggregate acidifying and eutrophic emissions increased by 4.2%, whereas precursors of ozone increased by 2.4%.
- Between 1990 and 2015, the decrease in acidifying and eutrophic emissions reached 55.5% and the precursors of ozone 44.8%.
- Between 2010 and 2015, the emissions established cap limits were met. Only NH₃ was exceeded in 2010, 2014 and 2015.



Background Climate Carbon Projects

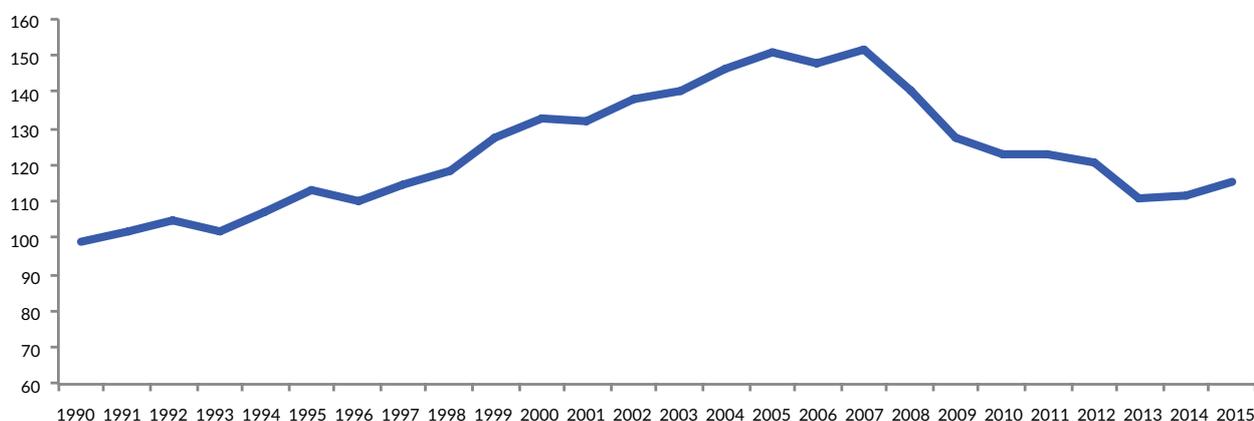
- In 2016, 63 proposals for Background Climate Carbon Projects and Programmes were selected, exceeding the 2015 campaign by one project.
- The initiatives associated with the residential and transport sectors accounted for over 60% of the projects in 2016. The residential sector alone accounted for almost 43% of the projects.





Greenhouse gas emissions

Greenhouse Gas Emissions (CO₂-equivalent)
Index: 1990=100 and 1995=100 for fluorinated gases



Source: EEA

- GHG emissions in 2015 reported an increase of 3.5% compared to the previous year.
- Spain contributed 7.8% to total GHG emission in the EU-28 in 2015.
- Spain was the eleventh country with least GHG emissions per inhabitant (7.2 kt CO₂-eq/1000 inh) and the thirteenth country per GDP unit (312.1 kgCO₂-eq/€).

In relation to the six gases included in the Kyoto Protocol, Greenhouse Gas Emissions (GHG) increased again in 2015. They increased more than in 2014, by 3.5% compared to 0.4% the previous year.

In 2007, a maximum in GHG emissions was recorded, followed by decreases in the subsequent years until 2014, and once again an increase in 2015, as above indicated.

Total emissions in 2015 amounted to 335661,5 kt of CO₂ equivalent, of which 76% was from the energy processing sector (the emissions from power generation and transport having the highest specific weight in this sector, at 26% and 25% respectively). Agriculture contributed 11% to total GHG emissions, and industrial processing held the third position, contributing 9%. Activities associated with waste management emitted 4% of total emissions.

When comparing these emissions with the 2014 contributions, the increase in total emissions has its origin in the rise of the energy sector emissions, which reported an increase associated with energy processing of 6.6%. This growth has noted the effect of the emissions a boost from power generation, characterized by an increase in petroleum based fuels, and a decrease in renewable energy sources (particularly hydraulic). An a rise of almost 4% in emissions produced through transport was also recorded, the residential sector reporting likewise an increase of nearly 6.6%. Emissions from agriculture also increased by slightly over 3%, whereas those from



waste management reported a slight decrease of 0.8%.

Special emphasis must be placed on the industrial sector, since its global emissions were reduced by almost 15% due to the decrease in the use of fluorinated gases, particularly those with higher warming potential, although this took place in a context of increasing industrial activity, particularly in the metallurgy industry.

In the overall total, the emissions included in the trading system accounted for 41% (10% more than in 2014); the diffuse sectors emitted 58% and aviation the remaining 1%.

In 2015, emissions from diffuse sectors, covering activities not subject to emissions trading, reported an overall decrease of 0.6% compared to the previous year. This reduction continues the decreasing trend that began in 2011. By sub-sectors, the increase of 12% in building construction is noteworthy (residential, commercial and institutional), breaking the downward trend of recent years. Transport and agriculture are the other two sub-sectors that increased their year-on-year rate of emissions, both at around 3%. The rest of the diffuse sectors reported reductions, emphasizing the reduction of 41% in fluorinated gases, as a result of a reduction in their use, as mentioned previously. Also worthy of mention is the 9% reduction in emissions from industry, outside the emissions trading system and other non-identified sectors, with a reduction of not even 1% in waste management.

As for the evolution of emissions in the diffuse sector concerning Annual Emissions Allocations in 2015, the recorded emissions are 12% below the assigned level, once again leading to a reduction in line with 2014, when the difference was slightly under 11%.

By gas types, CO₂ emissions account for 81% of the total, followed by CH₄ (11%) and N₂O (5%). Fluorinated gases jointly accounted for 3% of the total.

In the EU-28, Spain contributed 7.8% of total emissions in 2015 (the sixth country in emissions with values below Germany, United Kingdom, France, Italy and Poland). Nevertheless, per capita, Spain ranked 11th with least emissions (with 7.2 kt CO₂-eq/1000 inh) and 14th in terms of per GDP unit (with 312.1 kgCO₂-eq/€).

Indicator definition:

The indicator shows the aggregate greenhouse gas emissions included in the Kyoto Protocol, expressed in CO₂-eq, for Spain.

Notes on methodology:

- This indicator shows the total emissions of the six principal gases that contribute to the greenhouse effect (CO₂, CH₄, N₂O, HFCs, PFCs and SF₆), expressed jointly as CO₂ equivalent (CO₂-eq) in the form of an index referring to emissions for the base year according to the Kyoto Protocol (1990=100 and 1995=100 for fluorinated gases). To achieve this, the atmospheric warming potentials of the 4th Intergovernmental Panel on Climate Change assessment report were used.
- Only gross emissions are considered, excluding the net sinks (capture minus emissions) for the group "Land Use, Land Use-Change and Forestry". This group considers greenhouse gas emissions or absorptions from forests (including forest fires), crops, pasture, as well as from human settlements (from deforestation and conversion of arable land, pasture and other settlement lands).

Source:

- Ministry of Agriculture and Fisheries, Food and Environment, 2017. Emissions Inventory of Spain. Greenhouse Gas Emissions. Series 1990-2015. Summary report. March, 2017.
- European Environment Agency EEA greenhouse gas - data viewer. En Home / Data and maps / Datasets / Interactive data viewers / EEA greenhouse gas - data viewer.

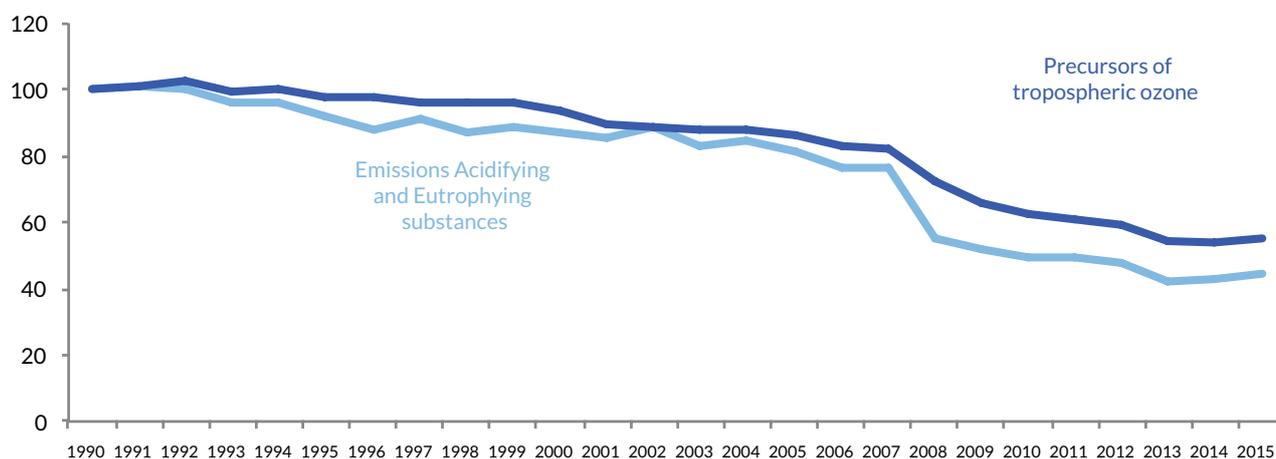
Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>
- <http://ec.europa.eu/clima/policies>



Emissions of acidifying and eutrophying substances and tropospheric ozone precursors

Emissions of acidifying and eutrophying substances and tropospheric ozone precursors index 1990=100



Source: MAPAMA

- In 2015 aggregate acidifying and eutrophying emissions increased by 4.2%, whereas precursors of ozone increased by 2.4%.
- Between 1990 and 2015 the decrease in acidifying and eutrophying emissions reached 55.5% and the precursors of ozone 44.8%.
- Between 2010 and 2015 the emissions established cap limits were met. Only NH_3 exceeded them in 2010, 2014 and 2015.

Aggregate emissions of acidifying and eutrophic gases increased once again in 2015, for the second consecutive year, while precursors of ozone increased for the first time since 2004. The former increased by 4.2% compared to 2014, and the latter by 2.4% only.

In the case of acidifying gases, all these acidifying gases and eutrophic gases increased between 2014 and 2015: SO_2 by 6.2%, NO_x by 2.7% and NH_3 by 4.6%.

Increases for precursors of tropospheric ozone were also reported: in addition to 2.7% for NO_x there was also an increase of 2.6% of NMVOC and 2.3% of CH_4 . A negligible, nearly imperceptible, decrease of CO (0.1%) should also be considered.

In the case of NO_x , the increase in emissions of this gas is largely due to the increase in gases from the electrical sector (responsible for 17% of the total) caused by increased use of fuels. The 3.4% increase in emissions from industrial activity (16% of total emissions) also had an influence on this figure. NMVOC emissions mainly come from the use of solvents, and account for 48% of the total, whereas the remainder of industrial activities (which contributed 14% of these emissions) also increased by 4.7%.



In relation to the 6.2% increase mentioned earlier for SO_x emissions, this was largely due to an increase in the use of coal to produce electricity, accounting for 50% of the emissions of this pollutant, 11% more than the previous year.

96% of NH_3 emissions in 2015 were from farming activities. In 2016 they were 4.6% higher than the previous year due to an increase in the swine herd and the use of animal manure as an organic fertilizer.

As for CO, this is mainly emitted by the residential sector (including small combustion installations), industry (mainly the iron and steel industries) and waste management, with these three sectors jointly accounting for 28% of these emissions. CO emissions from industrial combustion plants increased by 9.9% in 2015, but lower emissions from non-industrial combustion plants and waste conditioned emissions stability that year, owing to their major contribution to the total. Finally, the increase in CH_4 emissions is mainly due to agriculture, which contributed 60% of total emissions in 2015, increasing that year by 4.7% over 2014, mainly due to higher use of manure as fertilizer.

With regard to compliance with the limits established in the National Emissions Ceilings Directive, SO_x , NO_x and NMVOC emissions were within the maximum established limits (34%, 88% and 85%, respectively) for the period spanning 2010 - 2015. Only ammonia (NH_3) emissions exceeded the ceiling in 2010, 2014 and 2015, and were within the compliance levels in 2011, 2012 and 2013 thanks to the application of the adjustment, although with very tight margins (emissions level of 99% with respect to the maximum average limit for those three years).

Indicator definition:

The indicator presents the emissions indexes for the principal gases responsible for acidification and eutrophication of the environment (SO_2 , NO_x and NH_3) and for the precursors of tropospheric ozone (NO_x , NMVOC, CO and CH_4), in an aggregate through weighting factors and referred to 1990 as the baseline year (1990=100).

Notes on methodology:

- Emissions of acidifying and eutrophying gases are presented as their acid equivalents (potential of hydrogen generation). The weighting factors employed are: 31.25 acid/kg equivalents for SO_2 (2/64 acid/gram equivalents), 21.74 acid/kg equivalents for NO_x , expressed as NO_2 , (1/46 acid/gram equivalents) and 58.82 acid/kg equivalents for NH_3 (1/17 acid/gram equivalents). Emissions of precursors of tropospheric ozone have been estimated through the tropospheric ozone reduction potential (expressed as NMVOC equivalent). For weighting, the factors used were as follows: 1.22 for NO_x , 1.00 for NMVOC, and 0.11 for CO and 0.014 for CH_4 .
- Directive 2016/2284/EU of 14th December 2016, on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC This establishes the emissions reduction commitments by the member States for anthropogenic emissions of SO_2 , NO_x , NMVOC, NH_3 and fine particles (PM2.5) and imposes preparation, adoption and application of national atmospheric pollution programmes and monitoring of emissions and the effects of these and other pollutants, as well as presentation of relevant information on this subject.

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. National Inventory of Green House Gases - GHG 2017 - Series 1990-2015 (*National Inventory Report, NIR*) and Inventory of Atmospheric Pollutants 2017 - Series 1990-2015 (*Informative Inventory Report, IIR*). Directorate General of Environmental and Natural Environment Quality and Assessment. Data supplied on request in SNAP nomenclature.

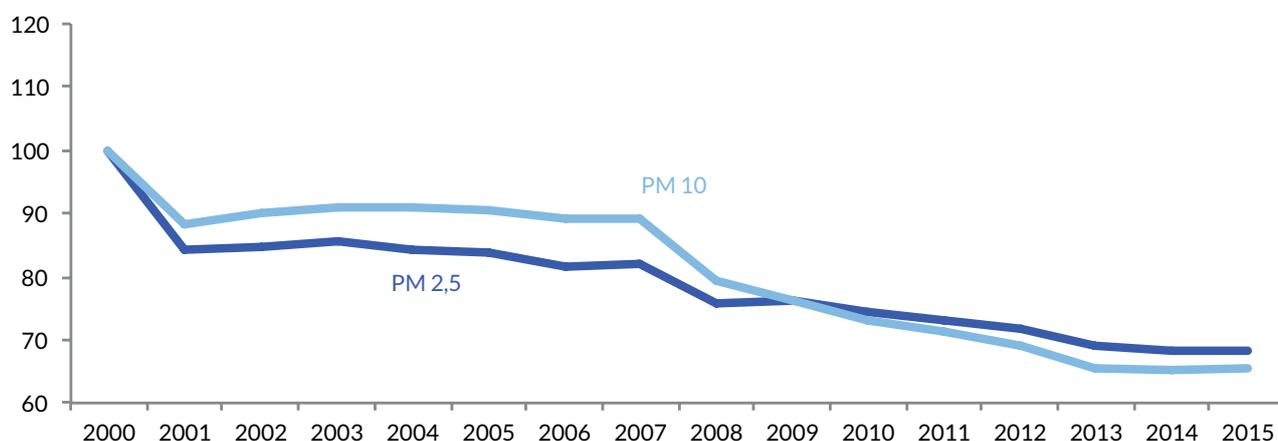
Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>



Particle emissions

Particle emissions: PM10 AND PM2.5 (Year 2000=100)



Source: MAPAMA

- *Particle emissions stabilized in 2015 and similar values to 2014 were recorded.*
- *Spain contributed 5.6% to total PM2.5 emissions in the EU-28 in 2014, and was the seventh country producing most emissions.*

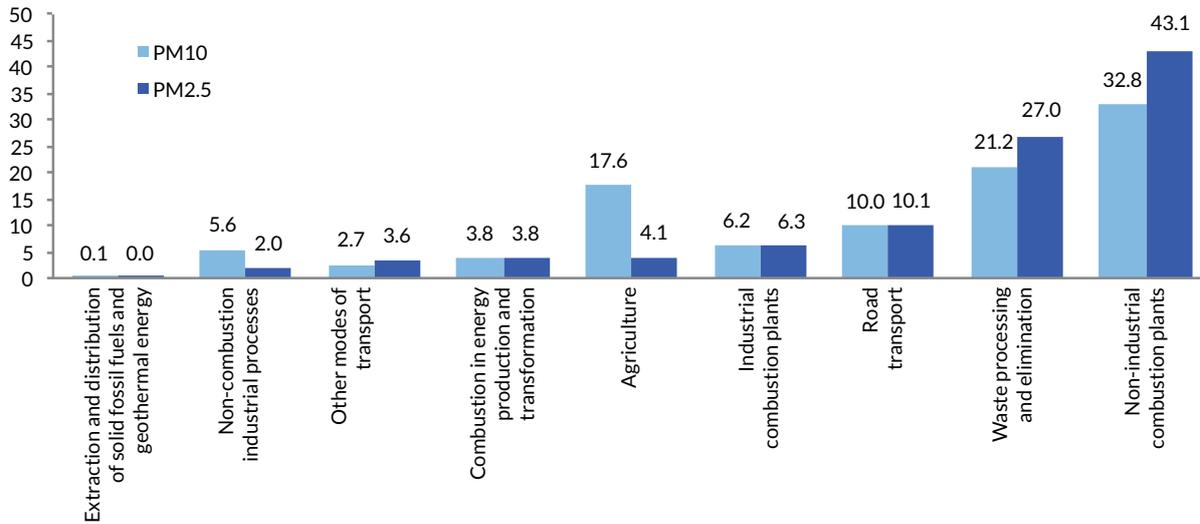
Particle emissions in 2015 were very similar to those recorded in 2014, both in terms of those with diameter below 2.5 μm (hereinafter PM2.5) and those with diameter below 10 μm (hereinafter PM10).

More specifically, PM2.5 remained practically the same (a variation of -0.01%), whereas PM10 increased by 0.52%. Compared to 2000, PM2.5 emissions decreased by 31.7% in 2015, with total emissions amounting to 124.5 kt, practically the same amount as in 2014.

80% of these emissions were produced by three sectors. Non-industrial combustion plants released almost 43.1% of the total, with stationary residential combustion accounting for 41% of the national total. Waste processing and elimination was the second highest contributor, producing 27% of total emissions, particularly through waste incineration (99.9% of the total emissions for this sector). Road transport was responsible for 10% of PM2.5 emissions, mainly due to combustion engines and tire and brake wear.

PM10 emissions in 2015 reached 168.2 kt, having reduced by 34.5% compared to 2000. This was the first year when an increase was recorded since those of 2002 and 2003. 80% of PM10 emissions was produced by four sectors: non-industrial combustion plants, waste processing and elimination, agriculture and road transport. The increase in the last year was influenced by industrial combustion plants as their emissions increased by 15.2%, although this increase was countered by the limited contribution of the emissions from this sector in the overall total (6.2%).

Distribution of particle emissions by sectors (%)
Year 2014



Source: MAPAMA

Excluding Greece, whose figures have not been accounted for, in 2014 Spain contributed to 5.6% of total PM2.5 emissions of the EU-28 States. Only considering road transport, Spain was responsible for 8.1% of the emissions in the EU-28, ranking the sixth highest emitter.

During the period spanning 2000-2014, Spain reduced its PM2.5 emissions by 32.8%, higher than the EU-28 average (24.9%), holding 8th position out of 28 in terms of reduction percentage.

Indicator definition:

The indicator presents the emissions of primary particles in suspension with aerodynamic diameter equal to or lower than 10 and 2.5 μm (PM10 and PM2.5). They are presented in the form of an index (2000=100). PM10»

Notes on methodology:

- Emissions calculations do not include emissions from international air or marine traffic (international bunker), or those from other sources or sinks (nature).
- The reduction commitment on fine particles emissions (PM2.5) established in Directive 2016/2284/EU compared to 2005, taken as the reference year, is to achieve a 15% reduction by any year between 2020 and 2029, and 50% by any year after 2030. For road transport, the commitment is applied to emissions calculated in terms of fuel sold.
- The presence of particles in the atmosphere is one of the main causes of air pollution. Particles are one of the most dangerous forms of pollution for human health. Their origins can be primary, emitted directly to the atmosphere in anthropical form; associated with road traffic and the different combustion and industrial processes; or naturally, in the form of dust, soil particles, marine saline particles, spores and pollen. They can also be secondary, when they are produced in the atmosphere as a result of chemical reactions of precursor gases (SO_2 , NO_x , NH_3 and NMVOC).

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. 2017 Inventory of Atmospheric Pollutants - Series 1990-2015 (*Informative Inventory Report, IIR*). Directorate General of Environmental and Natural Environment Quality and Assessment. Data supplied on request in SNAP nomenclature.

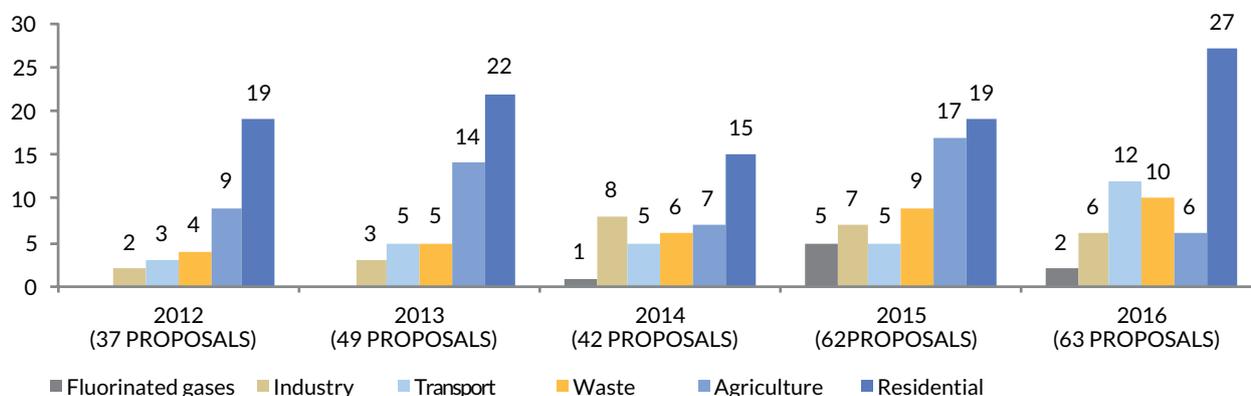
Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>
- <http://www.eea.europa.eu/data-and-maps/indicators/emissions-of-primary-particles-and-5/assessment-3>



Climate Projects performed under the Carbon Fund

Sectoral distribution of the selected Climate Projects



Source: MAPAMA

- *In 2016, 63 proposals for the Carbon Fund Climate Projects and Programmes were selected, exceeding the 2015 campaign by one project.*
- *The initiatives associated with the residential sector and transport jointly accounted for over 60% of the total in 2016. Projects for the residential sector alone accounted for almost 43% of the projects.*

Climate Projects have become genuine examples of the boost in business activity from the creation of employment in sectors and activities related to the fight against climate change in sectors characterized for being sources of greenhouse gas emissions in diffuse sectors.

With over 250 emission reduction projects being approved since 2012, this initiative contributes to Spain advancing towards a green economy and low carbon society. The aim of these projects is to reduce emissions in diffuse sectors, such as transport, residential, waste, agriculture and livestock, industry not included in the emission trading system and fluorinated gases. These projects will jointly reduce CO₂ equivalent emissions by over 7.4 million tonnes in the first four years.

In 2016, 63 Climate Projects and Programmes were selected from those submitted, whose promoters have formalized the relevant purchase contracts through which FES-CO₂ will buy the verified emission reductions they generate.

That year, the residential sector was once again the one with highest participation, accounting for 42.9% of the proposals. This was followed by the transport sector (19.0%), and somewhat at further distance, the waste sector (15.9%). The project proposals related to agriculture and industry accounted for 9.5% in both cases, whereas those related to fluorinated gases accounted for 3.2% of the projects.

To date there are over 20 Climate Project typologies, created on the basis of ideas from project promoters. The



Fund has designed methodologies for each of them in order to calculate the emission reductions.

The sixth call for Climate Projects to select those known as “diffuse sectors” was published by FES-CO2 in March 2017 in order to support and promote low-carbon activities through the purchase of verified emission reductions.



Indicator definition:

The indicator presents the number of Background Carbon Climate Projects contracts selected each year and their distribution by sector. Data is provided for the editions held to date, i.e. Years: 2012, 2013, 2014, 2015 and 2016.

Notes on methodology:

- The Background Carbon Climate Projects for a Sustainable Economy (FES-CO2) are projects to reduce Greenhouse Gas (GHG) emissions carried out in Spain.
- Climate Projects must be located in Spain and must be carried out in the so-called “diffuse sectors” (not subject to the European emissions trading system), such as the transport, agricultural, residential, waste sectors, etc. Projects related to carbon sink emission absorption are not covered in this programme.
- Emission reductions acquired through FES-CO2 must comply with a number of requirements, among others those established in Article 7 of Royal Decree 1494/2011 of 24th October, regulating the Background Carbon for a Sustainable Economy.

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Website: MAPAMA / Cambio climático / Proyectos Clima / Convocatorias y proyectos Seleccionados

Websites of interest:

- <http://www.mapama.gob.es/es/cambio-climatico/temas/proyectos-clima/>



Registry of carbon footprint, offsetting and CO₂ removal

Number of applications for registration by section
(May 2014 to 31st December 2016)

Register Sections	2014	2015	2016	2014-2016
Carbon footprint and GHG reduction commitment section	101	280	296	677
CO ₂ sequestration projects section	5	5	12	22
Carbon footprint offsetting section	1	5	12	18
Total applications for registration	107	290	320	717

Source: MAPAMA

- *Carbon footprint and reduction commitment section is the one receiving most registrations, accounting for over 90 % each year. In 2016, they accounted for 92.5 %.*
- *92 % of all received applications were registered, 2 % were rejected and the remaining 6% are under analysis.*

In 2016, the number of registration applications for all sections of the “Registry of carbon footprint, offsetting and CO₂ removal” increased compared to previous years. More specifically, registrations in 2016 increased by 10.3% compared to 2015.

As was the case in previous years, the carbon footprint section and reduction commitments in 2016 were the most numerous in terms of registrations, accounting for 90%.

The Registry commenced to be operational in May 2014, and since then a total of 717 registration applications have been received. Of these, an overwhelming majority (94.4%) have applied for registration in the carbon footprint and reduction commitments section. Only 3.1% were registered in the absorption projects section, and even less, 2.5%, were registered in the carbon footprint compensation section.

Consolidation of the Registry is evident from the increase in the percentage of applications that are eventually registered. 92% of received applications have been ultimately registered since the start of the Registry, compared to 83% in 2015. Only 2% of the applications for registration have been rejected, mainly due to failing to reply to correction requests, whereas the remaining 6% are still under analysis, pending a final decision.

Status of applications for registration by sections
(May 2014 to 31st December 2016)

Registry sections	Registered	Rejected	Under analysis	Total
Carbon footprint and GHG reduction commitment section	626	11	40	677
CO ₂ sequestration projects section	14	5	3	22
Carbon footprint offsetting section	17	1	0	18
	657	17	43	717

Source: MAPAMA

As of 31st December 2016, 371 organizations had registered their carbon footprint. The number of organizations may be lower than the registered footprints, owing to the fact that an organization can register their carbon footprint in several years. For example, in 2016 the 371 registered organizations had registered a total of 626 footprints.

Along these lines, according to the report “Registry of carbon footprint, offsetting and CO₂ removal, 2016 Annual Report”, prepared by MAPAMA’S Spanish Climate Change Office, the annual analysis reveals that “of the 371 registered organizations, 143 registered their carbon footprint for the first time in 2016, whereas 54 registered their carbon footprint for the first time in 2015 and have repeated their registration in 2016. There are 13 organizations that have applied for registration every year, and 10 that registered in 2014 and once again in 2016 have applied for registration in 2016, however not having registered their footprint in 2015”.

Indicator definition:

The indicator shows the number of carbon footprints, and carbon sequestration and compensation projects that are annually registered in the “Registry of carbon footprint, offsetting and CO₂ removal”. The total is given along with the number of carbon footprint registrations by activity sector since May 2014 to 31st December 2016.

Notes on methodology:

- On 29th May 2014 Royal Decree 163/2014 of 14th March came into force, by means of which the Register of carbon footprint, compensation and carbon dioxide absorption projects was created. This Register, which is voluntary, is born to promote calculation and reduction of carbon footprints by Spanish organizations, and to encourage projects to improve the sink capacity of Spain, as a horizontal measure contributing to combat climate change.
- The Register is divided into the following three sections:
 - Carbon footprint and GHG reduction commitment section: for organizations who voluntarily calculate their carbon footprint and establish a reduction plan.
 - CO₂ sequestration projects section: for agro-forestry sink projects that permit compensating the carbon footprints of the organizations registered in the previous section.
 - Carbon footprint offsetting section, where the compensations that have been implemented are registered, with institutional support for them being provided.
- Carbon footprints are registered annually, companies being able to register its carbon footprint for two or three years in the same act; owing to this the number of existing carbon footprints in a given year may be higher than the total number of companies who have registered their footprints.

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Report “Register of carbon footprint, compensation and carbon dioxide absorption projects, 2016 Annual Report”.

Websites of interest:

- <http://www.magrama.gob.es/es/cambio-climatico/temas/mitigacion-politicas-y-medidas/Portal-Huella-Carbono.aspx>
- https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-3379





2.4

WATER

Water is the basic resource to guarantee life for all living beings on the planet. It is under threat today from phenomena such as population growth, higher demand for food and energy, less availability due to the adverse effects of climate change, poor quality of available water resources or extreme weather phenomena such as droughts and flooding. Consequently, a water planning and management system is absolutely fundamental to guarantee a sufficient supply of water of sufficient quality.

Throughout the 20th century, an adequate water policy permitted increasing irrigated areas from 900,000 ha to 3,400,000, hydroelectric power from 200 MW to 17,000 MW, channeled water from 296 km of to dozens of thousands of kilometers and from 57 major dams to over 1200. These figures are just an example showing the evolution there has been in Spain to guarantee the availability of this resource.

The basin plans today place special emphasis on the challenge of ensuring good water conditions in order to comply with the Directive Framework for Water from the European Union. After 16 years of this Directive, and having passed the first deadline set for 2015, there is still a significant gap between meeting environmental objectives and satisfying the demands pursued in water planning.

Another fundamental aspects contemplated in planning is surveillance, monitoring and control of water quantities and qualities, through computerized data networks in real time such as the Automatic Hydrological Information System (AHIS) to prevent and manage flooding, or the Automatic Water Quality Information System (AWQIS). Also worthy of mention is the Integrated Rainfall Contribution Modeling System



(IRCMS) to assess the inventory of surface and groundwater resources, including hydrological regimes and the basic characteristics of water quality.

In the field of water treatment, an investment by the Ministry of around 1,100 million Euros is guaranteed until 2020 in order to comply with the objectives established in the Community Directive on treatment of waste urban water. This investment is achieved by including sewage and treatment action in the Plan of Measures for Growth, Competitiveness and Efficiency (Plan CRECE).

Insofar as climate change is concerned, MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment) launched a Plan to Promote the Environment for Adaptation to Climate Change in Spain (PIMA Adapta) in March 2015. Development of PIMA Adapta in terms of water management and associated hydraulic public domain is known as PIMA Adapta-AGUA. PIMA Adapta-AGUA projects and actions are carried out following four strategic lines, which include all the categories of adaptation options put forward by the Intergovernmental Expert Panel on Climate Change in their Fifth Assessment Report (AR5): management measures and adaptation of natural river reserves; adaptation to extreme phenomena; assessment of the impact of climate change on water resources and development of adaptation strategies, and development of climate change adaptation projects in the public hydraulic domain.



Water consumption

- In 2014 4272 cubic hectometers (hm³) of water were supplied through the public urban supply networks, of which 3214 hm³ were measured and recorded in the users' water meters. The remaining 1058 hm³ are included in the typology "unrecorded water volume".
- Since 2004, there has been an evident decrease in water consumed per inhabitant, computed in 828 hm³, which accounts for 20.5 % of the water consumed that year.



Dammed water reserves

- At the end of the 2015-2016 hydrological year, the total water reserves on the peninsula accounted for 51.4% of the dammed capacity, the lowest percentage of all years studied, accounting for a decrease of 3.7% compared to 2014-2015.



State of water bodies

- In 2016, 2829 surface water bodies were rated good or better in terms of ecological potential, 55.2% of the total, whereas 4476 surface water bodies were rated as in good chemical condition (87.4 %).
- Of the 729 analyzed groundwater bodies, 550 (75.4 %) were in good quantitative conditions and 474 (65%) in good chemical condition.



Quality of continental bathing water

- In 2016, the bathing season in continental waters lasted an average of 85 days, two more than in 2015, which recorded the lowest value since 2006.
- In 2016 there was a reduction in the percentage of sampling points in the excellent and good categories, with decreases of 3.1% and 1.4% compared to 2015.



Waste water treatment

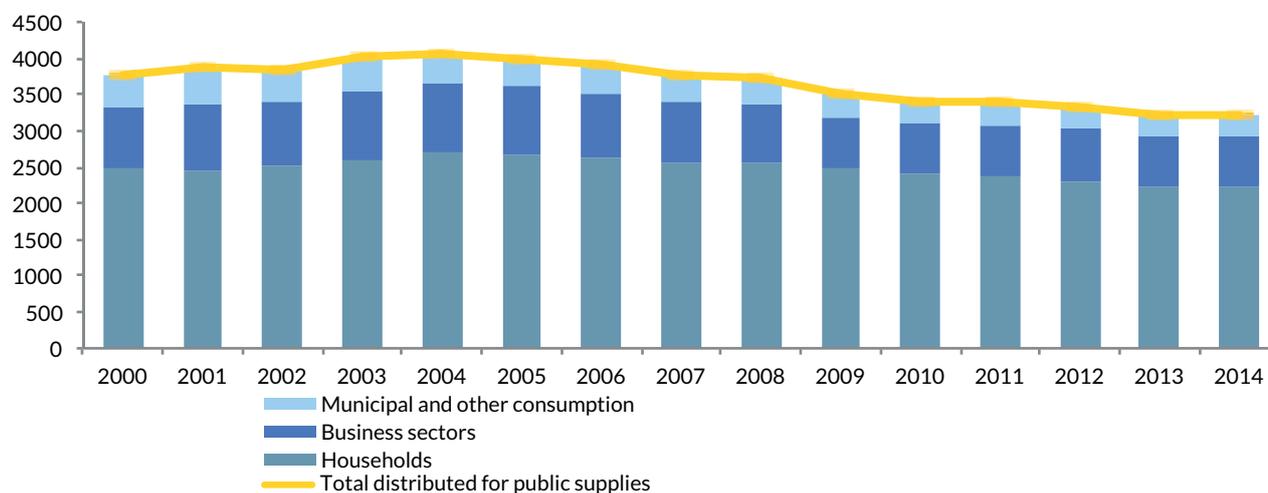
- In 2014, the percentage pollutant load that was treated in accordance with the provisions established in Article 4 (secondary or biological treatment) of Directive 91/271 was 84.1% and 66.8% in relation to Article 5 (tertiary or more thorough treatment).
- In 2014 there was a reduction of nearly 6.5 million in the pollutant load in inhabitants-equivalent, almost 10% less than in 2012.





Water consumption

Distribution of recorded, distributed water in the public supply grid by user groups(hm³)



Source: INE

- In 2014, 4272 cubic hectometers (hm³) of water were supplied through public urban supply networks, of which 3214 hm³ were measured and recorded in the users' water meters. The remaining 1058 hm³ are included in the typology "unrecorded water volume".
- Since 2004, there has been an evident decrease in water consumed per inhabitant, evaluated in 828 hm³, accounting for 20.5 % of the water consumed that year.

In 2014 water distribution in the public grid remained at the same level compared to the previous year, with a minimum increase of only 3 hm³ or 0.9 %, which is the same percentage of the domestic water consumption increase, whereas the use of water in business sectors decreased by 1.4% and municipal usage decreased by 2.3%.

There has been a decrease in recorded water consumption since 2004, which in 2014 was 20.5%. This reduction took place mainly in domestic use (29.3%), whereas in business sectors and municipal consumption the reductions were lower, 17.1% and 21.7 respectively. In terms of quantity, in 2014 public urban supply networks were supplied with 4272 hm³ of water, of which 3214 hm³ were measured and recorded in the users' water meters (slightly higher than 75% of the total supplied). The remaining 1058 hm³ were included in the "unrecorded water volume" typology (capacity estimates or unmeasured), divided into real and apparent losses. Real losses (leakage, breakage and supply network failures) were estimated at 651 hm³, and the rest (407 hm³) attributed to apparent losses (metering errors, fraud and estimated consumption). In general, losses have been reduced by approximately 5%.



By sectors, the volume of recorded, distributed water to households was 2238 hm³, accounting for 69.6% of the total. Business sectors used 685 hm³ (21.3%), whereas municipal consumption (garden irrigation, street washing and other uses) accounted for 291 hm³ (9.1%).

The communities that most increased the recorded, distributed water volume in 2014 were Castilla y Leon (7.2%), Principality of Asturias (5.2%) and C. Valencia (4.9%). On the contrary, the communities that most reduced their water consumption were the Canary Islands (-8.8%), Castilla-La Mancha (-8.2%) and La Rioja (-7.7%).

In 2014, the average water consumption per capita in households increased by 1.5%, to stand at 132 liters per inhabitant per day (calculated using the quotient between the total volume of recorded, distributed water in households and the resident population). Since 2004, there has been an evident decrease in water consumed per inhabitant, largely due to the water-saving awareness campaigns, reducing consumption by 828 hm³, accounting for 20.5 % of the water consumed that year.

Average consumption of water per person per day

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Liters/person	168	165	164	167	171	166	160	157	154	149	144	142	135	130	132
% variation		-1.8	-0.6	1.8	2.4	-2.9	-3.6	-1.9	-1.9	-3.2	-3.4	-1.4	-3.5	-3.7	1.5

Source: INE

The main source of water distributed by the public grid is surface water, which accounts for two thirds of the total (more specifically, 67.7% of the collected volume). The rest is from groundwater sources (27.9%) and desalinated sea or brackish water (4.4%).

In 2014, an increase of 3.3% in the unit cost of water was logged, with the national average standing at 1.89 Euros per cubic meter. By communities, the highest values were recorded in Catalonia (2.75 euros/m³), Region of Murcia (2.73) and the Balearic Islands(2.19). On the contrary, Castilla and Leon (0.95 euros/m³), Galicia (1.11) and La Rioja (1.15) reported the lowest unit costs.

Indicator definition:

The indicator presents the annual volume of recorded, distributed water by user groups: households, business sectors (industry, services and livestock) and municipal consumption (garden irrigation, street washing and other uses).

Source:

National Statistics Institute (INE): Statistics on the supply and treatment of water (several years). Check the web: INEbase / Agriculture and Environment / Water / Surveys on water supply and Sewerage / Results / Indicators on water / 2000-2014 Series / 1.1 Indicators on water supply by Autonomous Cities and Communities, main indicators and period

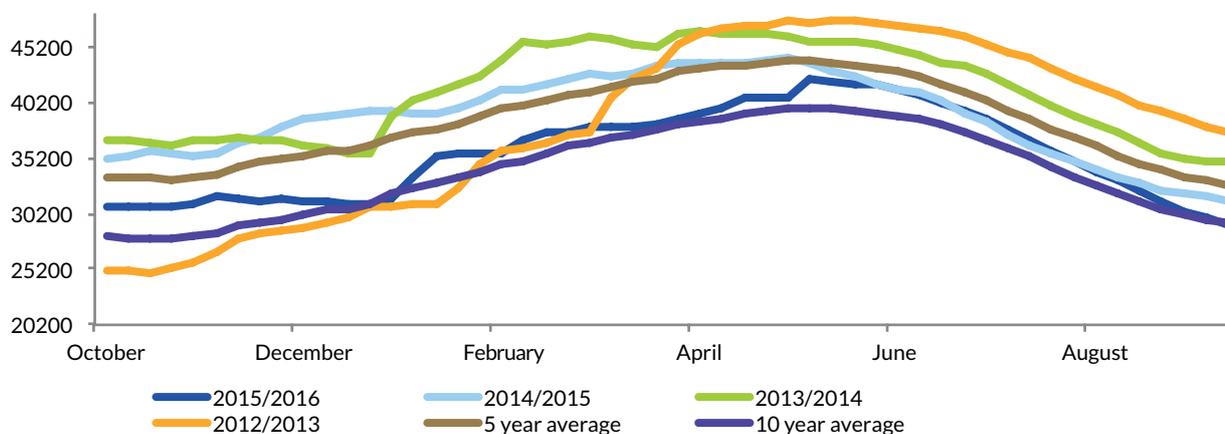
Websites of interest:

- http://www.ine.es/dyngs/INEbase/es/categoria.htm?c=Estadistica_P&cid=1254735976602



Dammed water reserves

Peninsular water reserve: volume of dammed water (hm³)
by hydrological years (from 1st October to 30th September the following year)



Source: MAPAMA

- *At the end of the 2015-2016 hydrological year, the total water reserves on the peninsula accounted for 51.4% of the dammed capacity, the lowest percentage of all years studied, accounting for a decrease of 3.7% compared to 2014-2015.*

Only counting mainland Spain, on 4th October 2016 there was a total dammed capacity of 55981 hm³, with 75.3% pertaining to the Atlantic Watershed and the remaining 24.7% to the Mediterranean Watershed. The increase in total dammed capacity is due to the addition of Siles reservoir in Jaen.

At the end of the 2015-2016 hydrological year, the total water reserves on the peninsula accounted for 51.4% of the dammed capacity, the lowest percentage of all values studied, with decreases in percentage compared to 2014 and 2015 of 11.3% and 3.7% respectively. When analyzing the graphs for the last two years, in 2015-2016 water reserves reported a more unstable growth, due to a discontinuous rainfall pattern with a sharp increase, particularly in January, that accounted for an increase of over 4000 hm³. In 2016, the maximum values recorded were lower than in 2015, the highest water reserves being between April and June, although between June and August they were equal to 2015. The decrease in water reserves was more pronounced after August, when it reached the lowest value in the set of recent years, very similar to the average over the last 10 years.



**Capacity (hm³) and reserves (%) of mainland reservoirs.
(Data as of 6th October 2016).**

AREA	Total reservoir capacity (hm ³)	Reserves (hm ³)	Reserves over total capacity (%)				
			2016	2015	2014	5 Year Average	10 Year Average
Atlantic Side	42138	23232	55.1	56.2	64.3	60.4	54.6
Mediterranean Side	13843	5517	39.9	51.9	57.7	52.0	46.7
Total Mainland	55981	28749	51.4	55.1	62.7	58.3	52.7

Source: MAPAMA

These values indicate the country is going through a period of drought. The basin organizations have designed hydrological indicators systems that to a certain extent permit forecasting situations of drought and assessing the seriousness they present.

In October 2016 the most serious situation concerning the hydrologic drought was identified in the Jucar Basin where, despite having improved the situation in the River Serpis system (under Warning values), the Marina Alta and Marina Baja systems were already under Emergency situation. In this demarcation, and in the Segura area, the declaration of drought situation was extended by Royal Decree 335/2016 of 23rd September, through to 30th September 2017, with regard to their territorial areas, which permitted taking exceptional measures to manage water resources.

Indicator definition:

Dammed water reserves in mainland reservoirs. This provides overall information and information by watersheds (Mediterranean and Atlantic).

Notes on methodology:

- Hydrological years start on 1st October and end on 30th September the following year.
- The Hydrological Information Department of MAPAMA receives the data from the respective Hydrographic Confederations, other intra-community hydraulic Administrations, the State Meteorology Agency and the data from the Spanish Electrical Grid. This information is used for technical processing of the data in order to establish the situation on the hydraulic reserves in real time and have reliable information about the volume of available water in all reservoirs with capacity over 5 hm³, also about the situation of operating systems, the reserves for irrigation and urban supply, the flow rates in the main rivers in each basin, the rainfall and the stored hydroelectric energy (calculated) as well as the electricity actually produced.

Source:

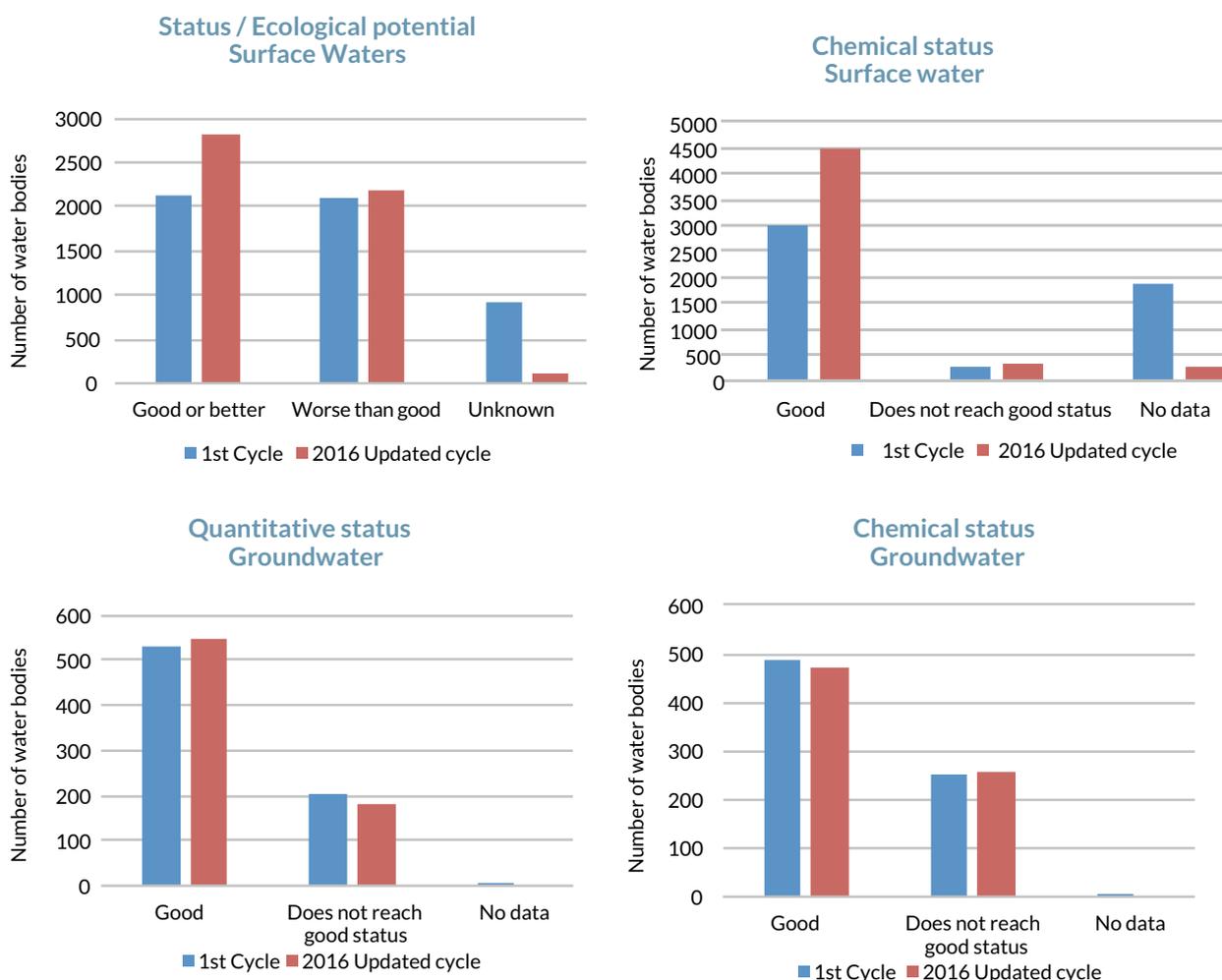
Hydrological Bulletin. General Water Directorate. Ministry of Agriculture and Fisheries, Food and Environment. Check the web: MAPAMA / Áreas de Actividad / Agua / Evaluación de los recursos hídricos / Boletín hidrológico

Websites of interest:

- <http://www.mapama.gob.es/es/agua/temas/evaluacion-de-los-recursos-hidricos/boletin-hidrologico/default.aspx>
- <http://www.mapama.gob.es/es/agua/temas/evaluacion-de-los-recursos-hidricos/>
- <http://www.mapama.gob.es/es/agua/temas/observatorio-nacional-de-la-sequia/>



State of water bodies



Source: MAPAMA

- *In 2016, 2829 surface water bodies were rated good or better in terms of ecological potential, 55.2% of the total, whereas 4476 surface water bodies were rated as in good chemical condition (87.4 %).*
- *Of the 729 analyzed groundwater bodies, 550 (75.4 %) were in good quantitative conditions and 474 (65%) in good chemical condition.*

The Texto Refundido de la Ley de Aguas sets the concepts and methodologies for establishing the mandatory status of water bodies in accordance with the Water Framework Directive (Directive 2000/60/EC).

A water body is a significant, differentiated part of surface water or a clearly differentiated volume from an aquifer, which is the basic subject of analysis when studying the accomplishment of environmental objectives. At a Cabinet Meeting on 8th January 2016 the Government gave the go-ahead to the Royal Decree approving the amendments of the hydrological plans of the 12 inter-community hydrographic areas (including “Eastern Cantábrico” which contains the internal basins in the Basque Country, under regional competence), and to the Royal Decree approving four intra-community hydrographic demarcations (three under the competence of



Andalusia and the one of Galicia Coast). These plans are added to that of the Hydrographic Demarcation of the Balearic Islands, also under regional competence, which was approved by Royal Decree in July 2015.

The hydrological basin plans in the second planning cycle (2015 - 2021) show the following situation in Spain:

Surface water bodies

- The ecological status/potential of surface water bodies shows that 2829 bodies are rated good or better status, of a total of 5122, representing 55.2% of the total. The percentage of natural surface water bodies that do not reach the required environmental objectives, since their status are worse than good, accounts for 42.7% (2186 water bodies), whereas the remaining 2.1% have an unknown status (107 water bodies).
- As for the chemical status, 5.7% of the surface water bodies were rated as “no data” (291 bodies), whereas 87.4% were in good status (4476 bodies) and only 6.9% did not reach that status (355 bodies).
- The second cycle hydrological plans bring to light that the percentage of surface water bodies that met the environmental objectives in 2015 was 54.8% of the total, compared to 61.4% that had initially been forecast for this timeline in the first cycle hydrological plans.

Groundwater bodies

- With regard to the 729 analyzed groundwater bodies, 550 have been rated as in good status (75.4%) and 179 in poor status (24.6%).
- These values vary slightly concerning chemical status, with 474 groundwater bodies in good status (65%) and 255 bodies in poor status (35%).
- There are no water bodies with unknown status.

Indicator definition:

Status of surface and groundwater bodies assessed by their percentage, the surface bodies being rated according to their ecological status (for natural water bodies) or their ecological potential (for highly modified or artificial water bodies), combined with their chemical status, and the groundwater bodies being rated according to their quantitative and chemical status, as established in current regulations.

Notes on methodology:

- Act 62/2003 pursuant to fiscal, administrative and social measures, amends Royal Legislative Decree 1/2001 of 20th July, which approved the Texto Refundido de la Ley de Aguas and transposes the Water Framework Directive, namely Directive 2000/60/EC. This Directive establishes the action framework for protecting, improving and conserving water resources and their relationships with ecosystems, promoting integrated management of the resource. One of the main environmental objectives of the Directive is to achieve good status of water bodies (surface and groundwater) in the EU by the end of 2015.
- Calculating the status of surface water bodies is carried out by taking the worst of the two partial diagnoses that are conducted: on the one hand the ecological status (for natural water bodies) or the ecological potential (for artificial or highly modified water bodies), and on the other hand, the chemical status. Similarly, the status of groundwater bodies is taken from the worst results of the chemical status diagnoses and the quantitative status. This way, the good status of surface water is reached when both the ecological status/potential and the chemical status are at least good, whereas in groundwater, it is reached when the chemical status and quantitative status are good.
- The Measuring Programmes in the Hydrological Plans permit reaching the objectives established for the status of water bodies. In accordance with European regulations, the worst value of each of the indicators is the one that determines the status of the surface or groundwater body, which on occasions can cause that the investment made to improve some of the indicators is not apparent owing to not achieving an improvement in all of them. This principle known as “one fails, all fail” is under review by the European Union in order to find alternatives to reporting on progress made in terms of water.

Source:

Data provided by the General Directorate of Water of the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA). Official data compiled in the Summary of the Spanish Hydrological Plans - Second Cycle of the Water Directive Framework (2015-2021) - Draft - Version 2.82.

Websites of interest:

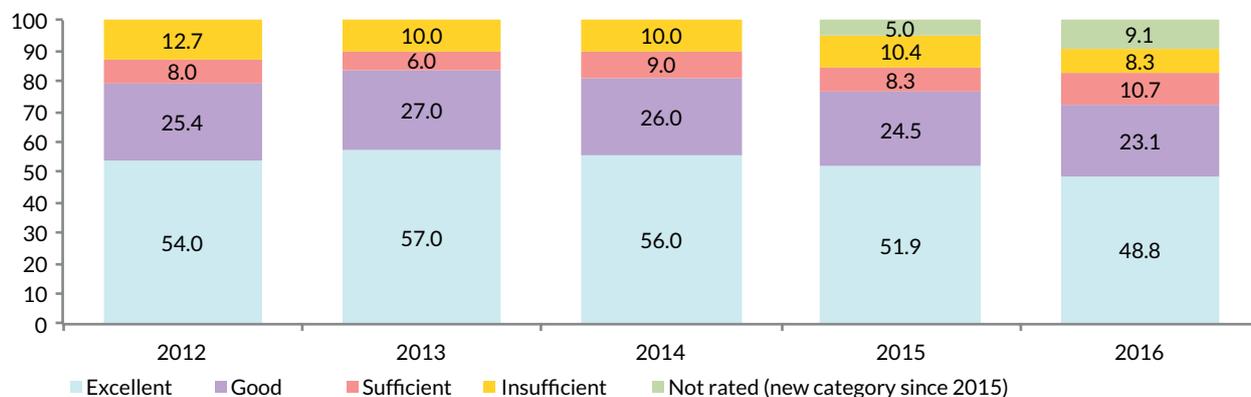
- <http://www.mapama.gob.es/ide/metadatos/>
- http://www.mapama.gob.es/es/agua/temas/planificacion-hidrologica/sintesispph2cicloborrador_tcm7-448673.pdf
- http://ec.europa.eu/environment/water/water-framework/pdf/4th_report/MS%20annex%20-%20Spain_es.pdf





Quality of continental bathing waters

Quality of continental bathing waters
Percentage of sampling points according to their category



Source: MSSSI

- In 2016, the bathing season in continental waters lasted an average of 85 days, two days more than in 2015, which recorded the lowest value since 2006.
- In 2016 there was a reduction in the percentage of sampling points in the excellent and good categories, with decreases of 3.1% and 1.4% compared to 2015.

In Spain the bathing season in continental waters lasts from June to September on average. In 2016, the bathing season in continental waters lasted an average of 85 days in Spain, two days more than in 2015, which recorded the lowest value since 2006.

With 124 days Madrid has the longest bathing season and Navarra the shortest, at just 52 days. Galicia indicated four seasons with different durations, Andalusia and Navarra two, and the rest one season for all their continental waters. In all cases the common season comprises the months of July (second fortnight) and August.

In regard to 2015, the category that reported the greatest variation is the “Not rated”, corresponding to sampling points where the minimum number of samples required under national legislation was not reached, it being increased by 4.1 percent. This, along with the exchange of percentages between insufficient categories (decrease of 2.1 points) and sufficient (increase of 2.4 points) led to a sharper decrease in the excellent categories (a decrease of 3.1 points) and good (decrease of 1.4 points).

At regional level, in 2016 eight regions reported some sampling points with insufficient quality, or not rated (only La Rioja, Madrid, Navarra and the Basque Country did not), whereas other eight reported more than half of their sampling points with excellent quality. The case of the C. Valencia is rather unusual, in that of the seven sampling points reported, four of them were rated excellent and three were not rated.



Quality of continental bathing waters. 2015 Sampling points classified by quality categories

Excellent	Good	Sufficient	Insufficient	Not rated
118	56	26	20	22

Source: MSSSI

The official census for the 2016 season in Spain consists of 228 zones of continental bathing waters. Cordoba is the only Spanish province that does not have any bathing zones. Eleven continental bathing water zones were cancelled from the official census in the 2016 season: one in Zaragoza, four in Avila, one in Caceres, two in Ourense and three in Lugo. In the case of the bathing zone in Rio Manzanares, Manzanares el Real, located in the area of La Pedriza Wilderness (Madrid), bathing was forbidden in 2016 as a result of environmental protection requirements. Three other bathing zones are also pending cancellation in Jaen, Burgos and Navarre.

At European level, at least a sufficient quality rating was achieved in 94.3% of the continental bathing zones, which represents an increase of 0.5% over the 2015 bathing season, according to the report by the European Environment Agency "Bathing Water Quality in 2016". On this subject, countries such as Bulgaria, Greece, Ireland, Luxembourg and Romania particularly stand out, as their bathing zones are all rated excellent, good or sufficient.

Indicator definition:

The indicator shows a percentage over the total sampling points of continental or interior bathing waters included every year in each of the quality ranges established by legislation, of which there are four since 2011: "Insufficient", "Sufficient", "Good" and "Excellent".

Notes:

- Directive 2006/7/EC regulates bathing water quality management in the European Union. In Spain, this directive was transposed to internal regulations via Royal Decree 1341/2007.
- The Directive and the Royal Decree rate bathing water quality as: "Insufficient" water quality, "Sufficient" water quality, "Good" water quality and "Excellent" water quality.
- The Ministry of Health, Social Services and Equality (MSSSI) coordinates the National Bathing Water Zones Information System (NAYADE) which is structured around a Bathing Zone, defined as a geographically delimited area, which has been censused by the competent regional authority, no bigger than the municipal area, consisting of a beach and a surface water body used for bathing where bathing is not specifically prohibited nor is refraining from bathing recommended permanently, providing there is a significant number of bathers or there is a nearby activity directly related to bathing and where there is no objective danger for bathers.

Source:

Ministry of Health, Social Services and Equality, 2016. Bathing Water Quality in Spain. Technical Report. 2016 Season. Check the web: Citizens / Environmental and occupational health / Water quality / Agua de baño / Publicaciones / Calidad del agua de baño en España. Year 2016

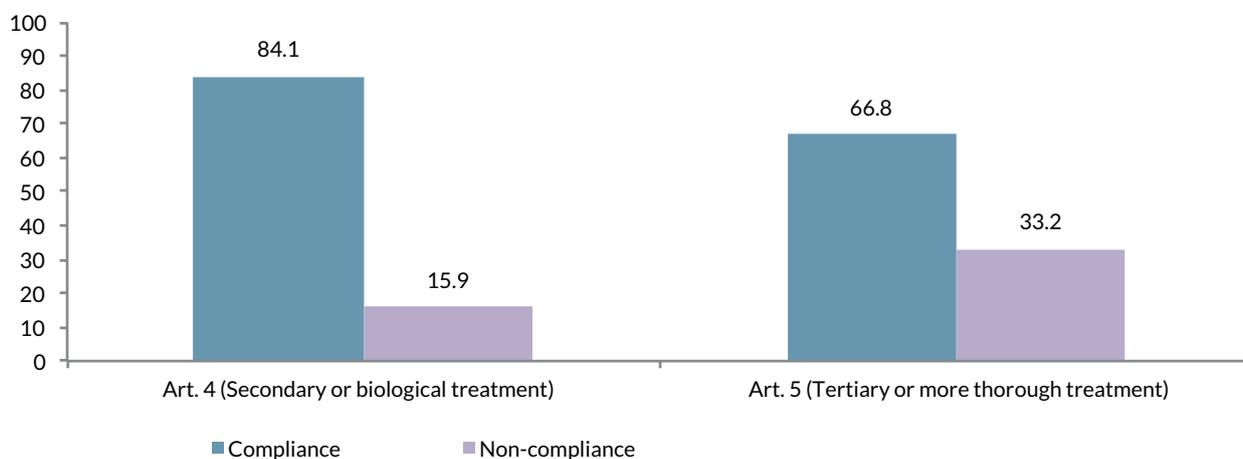
Websites of interest:

- <http://www.msssi.gob.es/profesionales/saludPublica/saludAmbLaboral/calidadAguas/aguasBanno/publicaciones.htm>
- <https://www.eea.europa.eu/publications/european-bathing-water-quality-in-2016>



Waste water treatment

Degree of compliance with Articles 4 and 5
of the Urban Waste Water Treatment Directive in % of inhabitants-equivalent. Year 2014



Source: MAPAMA

- *In 2014, the percentage pollutant load that was treated in accordance with the provisions established in Article 4 (secondary or biological treatment) of Directive 91/271 was 84.1%, and 66.8% in relation to Article 5 (tertiary or more thorough treatment).*
- *In 2014, there was a reduction of around 6.5 million in the pollutant load in inhabitants-equivalent, almost 10% less than in 2012.*

In accordance with the requirements in the Council Directive 91/271/EEC, concerning urban waste-water treatment, a biannual report is prepared on the degree of compliance of treatment in urban agglomerations of over 2000 population equivalent, the last of which was prepared with data compiled in 2014. Moreover, information about the forecast investments in sewage and treatment is supplied. According to the last report, dumping of organic pollutant load and nutrients in the EU has been reduced. At the same time the role of job creation and the growing investments in infrastructures for water services is also highlighted.

Directive 91/271/EEC establishes two clearly differentiated obligations: firstly “urban agglomerations” must provide the collection systems for collecting and channeling waste water, as applicable, and secondly, different treatments are envisaged for this kind of waste before they are dumped in continental or marine waters.

In 2014, the percentage pollutant load in accordance with the Directive was 84.1% in relation to Article 4 (secondary or biological treatment), and 66.8% in relation to Article 5 (tertiary or more thorough treatment). The comparison of the situation in 2014 with 2010 and 2012 leads to the following considerations:

- There is a reduction in the assessed pollutant load, of around eight million pollutant load in inhabitants-equivalent, almost 12% reduction in four years. This decrease could be due to the reduction in industrial activity in those years.



- In the analysis of compliance with Article 4, the non-complying load in population-equivalent remains stable in the last three biannual reports published and, above nine million, which, when added to the general reduction mentioned previously, leads to a reduction in the population-equivalent percentage within the compliance category decreases from 85% to 83%.
- In regard to Article 5, over 90% of the total in 2010 and 2012 corresponded to effluents that were still in the grace period for the adaptation of the discharge. This percentage decreased to 63% in 2014 by an amount over 24 million load in population equivalent, because some of these periods of shortcoming ended. The number of population equivalent that are included in the compliance category increased over the same period of time by almost 12 million, to represent 24.5%.

In the EU, most of the member states collect a considerable part of their waste water, with an average compliance index of 98%, and 20 of them reached compliance indexes of 100%.

92% of waste water in the EU was subjected to secondary or biological treatment (Article 4) in accordance with the provisions of the Directive: 16 member states recorded a compliance index between 90% and 100%. Spain, along with four other countries, complied at a rate of 50% to 90%.

In regard to tertiary or more thorough treatment and sensitive areas (Article 5), 12 countries reported a compliance index between 90% and 100%, four recorded levels between 50% and 90%, and nine member States were below 50%.

Indicator definition:

Degree of compliance of urban waste water treatment with the provisions established in Directive 91/271/EEC of 21st May 1991, concerning urban waste-water treatment, and subsequent amendments, expressed as a percentage of inhabitants-equivalent.

Notes:

- Directive 91/271/EEC, amended by Directive 98/15/EC defines collection, treatment and dumping systems of urban waste water. This directive has been transposed to Spanish regulations through Royal Decree Act 11/1995, Royal Decree 509/1996 developing it, and Royal Decree 2116/1998 amending the latter.
- Article 4 of this Directive deals with the deadlines for collected waste to be subjected to secondary treatment depending on the size of the agglomerations where they are originated from, and the requirements the subsequent effluent must meet at the facilities where it is treated.
- Article 5 of this Directive deals with the criteria to determine sensitive and less sensitive zones, the deadlines for treating waste water dumped in those zones and the specifications of the treatment facilities and the requirements the effluent must meet.
- The load per population equivalent is defined as The organic biodegradable load having a five-day biochemical oxygen demand (BOD5) of 60 g of oxygen per day, and considers the pollutant load of people, animals and industry in urban agglomerations, which are the zones having a sufficient concentration to collect and channel waste water.

Source:

Data supplied by the Directorate General for Water, from the biannual reports pursuant to the urban waste water situation.

Websites of interest:

- Royal Decree 509/1996 of 15th march, developing Royal Decree Act 11/1995 of 28th December establishing the regulations applicable to urban waste water treatment.
- <http://eur-lex.europa.eu/legal-content/ES/TXT/?uri=celex:52016DC0105>
- Eighth report on the status of execution and programmes for application (required in Article 17) of Directive 91/271/EEC of the Council, pursuant to urban waste water treatment.
- Waterbase - UWWTD: Urban Waste Water Treatment Directive - reported data



2.5 SOILS

Soil, as the outer layer of the Earth's crust, carries out a number of key environmental, social and economic functions that are fundamental for life and development of society. Soil is the physical substrate on which agricultural and forestry activities take place and is also from where plants obtain their nutrients and water to complete their life cycles. Soil is also the natural habitat for many species and is a key part of the landscape and cultural heritage, besides being a source for raw materials. In order to perform its many functions, it is necessary to maintain soil in good conditions.

Soil faces increasing threats. The appearance of erosion, the reduction in organic matter content, the diffused and local contamination, the compaction, the biodiversity loss and the salinisation contribute decisively to soil gradual degradation. This process ultimately leads to desertification.

Another serious threat to soil is urban expansion, whereby best quality agricultural land is occupied by cities and towns. According to the United Nations, in 2014 54% of the world's population lived in urban areas, and this figure is expected to rise to 66% by 2050. Urban development and construction of infrastructures lead to increased soil sealing, that is, the permanent covering of the soil surface with artificial materials such as asphalt.



The impact of climate change on soil dynamics is the main source of uncertainty, as it is expected to cause significant impact. The changes caused by increasing soil temperatures, changing rainfall patterns, both in terms of quantity and distribution, and alterations to the vegetation cover, among other factors, can all lead to an acceleration of erosion and desertification risks that in turn can further feed climate change.

The Food and Agriculture Organization of the United Nations (FAO) declared 2015 the *International Year of Soils*. This declaration was framed within the scope of the *Global Soil Partnership*, and among its initiatives were supporting policies and investments in sustainable soil management, protecting soil resources and educating the population on different aspects such as food safety, climate change mitigation and adaptation change and sustainable development. All this had the overall goal of making the civil society and those responsible for decision making fully aware about the importance of soil to support human life.

The results of the first report on the *Status of the World's Soil Resources*, scheduled in line with the *International Year of Soils (2015)* and prepared by FAO and the Intergovernmental Technical Panel on Soils: minimization of degradation and recovery of soil, stabilization and increase of organic matter deposits in soil, stabilization and/or reduction in the global use of fertilizers containing nitrogen and phosphorous, and improving knowledge, as being the four priority areas of action.

At European level, *The 7th Environment Action Programme (EAP)*, which came into force in January 2014, establishes that soil protection and the sustainable use of land are fields that require more action to be implemented at European and national scale.



Land occupation: comparison CLC 2006 vs. CLC 2012

- The CLC 2012 shows the following distribution of land cover in Spain: 2.4% artificial surface, 47.2 % agricultural areas, 49.1 % forestry land, 0.2% wetlands, and 1.1 % water bodies.
- The absolute figures expressed in ha, between CLC 2006 and CLC 2012 show an increase of the artificial surface area (7.8%) and wetlands (3.5 %), whereas the others practically remain constant.



Urban surface area

- Over the last decade (2007-2016), the surface area occupied by urban plots increased by 11.1%, although in the last year a fall of 5.3% was reported.
- In 2015, 60.6 % of total urban land, which amounted to 1,134,959 ha, was covered by buildings.

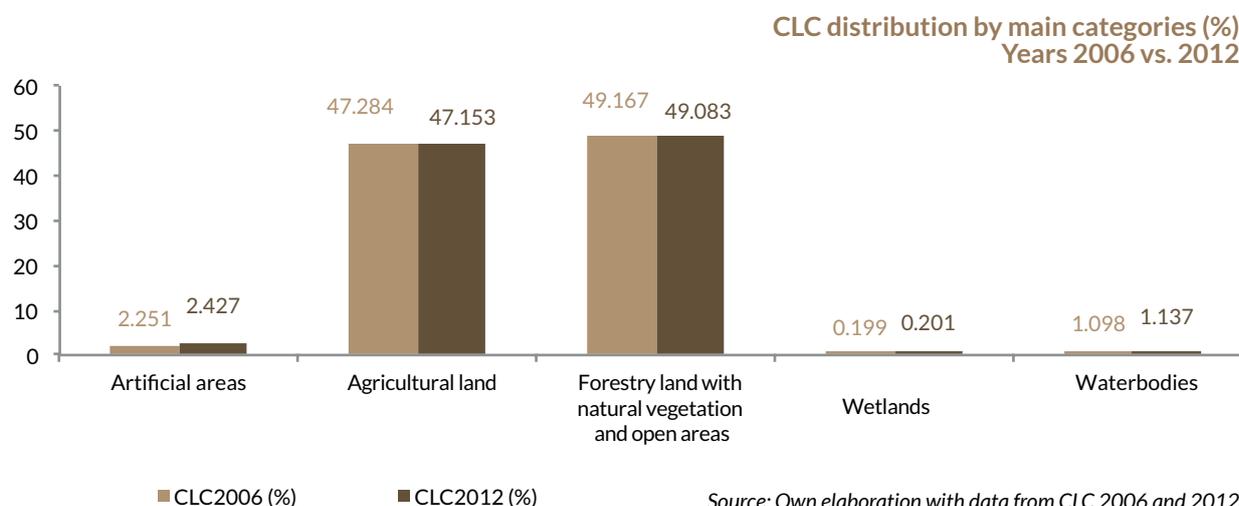


Soil loss through erosion

- The average annual soil loss in Spain is 14.65 tonnes/ha.
- The percentage of the surface area affected by moderate erosion processes in Spain is 69.73 %.
- Catalonia and Andalusia, with figures of 23.67 and 23.17 tonnes/ha, respectively, report the highest average annual losses.



Land cover: comparison CLC 2006 vs. CLC 2012



- *The CLC 2012 shows the following distribution of land cover in Spain: 2.4 % artificial surface, 47.2 % agricultural areas, 49.1 % forestry land, 0.2 % wetlands, and 1.1 % water bodies.*
- *The absolute figures expressed in ha, between CLC 2006 and CLC 2012 show an increase of the artificial surface area (7.8 %) and wetlands (3.5 %), whereas the others practically remain constant.*

The *Corine Land Cover* (CLC) Project analyses the distribution of land cover at European scale. The last two campaigns were in 2006 and 2012, with a new one having started in 2018.

From the information published in the CLC 2006 and 2012 reports, the distribution of land cover in Spain, in percentage values, has varied relatively little.

When considering that percentage to just one decimal digit, the artificial surface areas have increased by one decimal point from 2.3% to 2.4%, whereas the wetlands and water bodies maintain the same distribution in both editions, covering 0.2% and 1.1% respectively. On the contrary, agricultural and forestry zones with natural vegetation and open spaces both report a reduction of just one decimal point.

From the comparison of the absolute figures in both editions, there is an increase of 87,923.5 ha in the artificial land cover (+7.8%), 580.9 ha in wetland cover (+0.6%) and 19,322.23 ha in water bodies (+3.5%). Agricultural land cover however reports a reduction of 65,717.7 ha (-0.3%) and forestry land with natural vegetation and open spaces also shows a reduction of 41,792.9 ha (-0.2%). This comparison must be considered an estimate, since between both editions of the CLC there can be slight changes in the grouping that ultimately form the different categories, thus limiting direct comparisons to be conducted. Even the whole surface area of Spain varies between the two CLC's, increasing by 316.05 ha.



Indicator definition:

The indicator shows the percentage land cover distribution in Spain according to the *Corine Land Cover* 2006 and 2012 projects for the five main categories of occupation: artificial cover, agricultural land, forestry land with natural vegetation and open spaces, wetlands and water bodies.

Notes on methodology:

- *Corine Land Cover* (CLC) is a data base of land cover of plots at European level, at a reference scale of 1: 100.000 and is based on a hierarchical nomenclature with three levels including 44 classes, the minimum plot size being 25 ha.
- From the first CLC version in 1990, with 1990 as the reference date, the database has been periodically updated with versions in 2000 and 2006, CLC2012 being the third update of the project which is created along with its database of change between the previous reference year and the current one, between 2006 and 2012. A summary of the 44 CLC classes is as follows:

LEVEL 1	LEVEL 2	LEVEL 3	
1 ARTIFICIAL SURFACES			
1.1 Urban fabric	1.2 Industrial, commercial and transport units	1.3 Mine, dump and construction sites	1.1.1 Continuous urban fabric
			1.1.2 Discontinuous urban fabric
			1.2.1 Industrial or commercial units
			1.2.2. Road and rail networks and associated land
1.4 Artificial non-agricultural vegetated areas	1.3.1. Mineral extraction sites	1.3.2. Dump sites	1.2.3. Port areas
			1.2.4. Airports
			1.3.3. Construction sites
			1.4.1. Green urban areas
2 AGRICULTURAL AREAS			
2.1 Arable land	2.2 Permanent crops	2.3 Pastures	1.4.2. Sport and leisure facilities
			2.1.1. Non-irrigated arable land
			2.1.2. Permanently irrigated land
2.4 Heterogeneous agricultural areas	2.3.1 Pastures	2.4.1. Annual crops associated with permanent crops	2.1.3. Rice fields
			2.2.1. Vineyards
			2.2.2. Fruit trees and berry plantations
2.4.3. Land principally occupied by agriculture with significant areas of natural vegetation	2.4.4. Agro-forestry areas	2.4.2. Complex cultivation	2.2.3. Olive groves
			2.3.2. Pastures
			2.4.3. Land principally occupied by agriculture with significant areas of natural vegetation
			2.4.4. Agro-forestry areas
3 FORESTS AND SEMI-NATURAL AREAS			
3.1 Forests	3.2 Shrub and/or herbaceous vegetation association	3.3 Open spaces with little or no vegetation	3.1.1. Broad-leaved forest
			3.1.2. Coniferous forest
			3.1.3. Mixed forest
3.3.1. Beaches, dunes and sand plains	3.3.2. Bare rock	3.3.3. Sparsely vegetated areas	3.2.1. Natural grassland
			3.2.2. Moors and heathland
			3.2.3. Sclerophyllous vegetation
			3.2.4. Transitional woodland shrub
			3.3.4. Burnt areas
4 WETLANDS			
4.1 Inland wetlands	4.2 Coastal wetlands	4.2.3 Intertidal flats	3.3.5. Glaciers and perpetual snow
			4.1.1. Inland marshes
4.2.2 Salines	4.1.2 Peatbogs	4.2.1 Salt marshes	4.2.1 Salt marshes
			4.2.2 Salines
			4.2.3 Intertidal flats
5 WATER BODIES			
5.1 Inland waters	5.2 Marine waters	5.2.1 Coastal lagoons	5.1.1 Water courses
			5.1.2 Water bodies
5.2.2 Estuaries	5.2.3 Sea and ocean	5.2.2 Estuaries	5.2.1 Coastal lagoons
			5.2.2 Estuaries

Source:

Data from the *Central Data Repository* (CDR) of the European Environment Agency (<http://cdr.eionet.europa.eu/>).

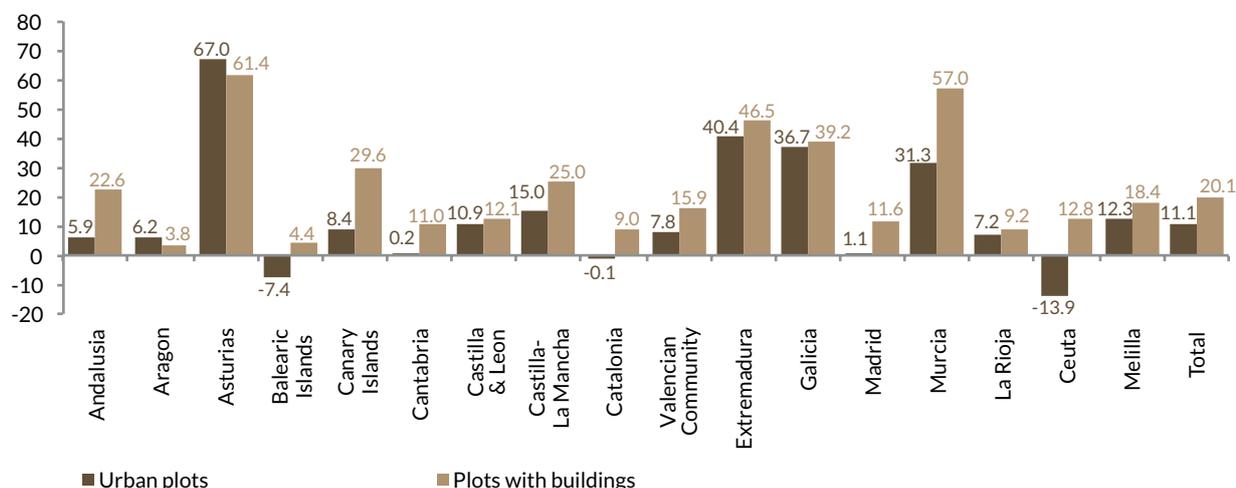
The information is available at EEA>Eionet>REPORTNET>CDR>Spain>CLC 2012 updated/revisionn> EEA, requests>Corine Land Cover>CLC 2012 updated/revision

Websites of interest:

- <http://www.ign.es/>
- <http://www.siose.es/>
- <https://www.eea.europa.eu/publications/CORO-landcover>
- <http://cdr.eionet.europa.eu/>

Urban surface area

Variation in surface area of urban plots and surface area of built plots between 2007 and 2016 (%)



Source: General Cadastre Directorate

- The area covered by urban plots in Spain amounted to 1,075,013.8 ha.
- In 2016, 60.6 % of total urban land had been built on (650,949.1 ha).
- The surface area occupied by urban plots increased in the last decade (2007-2016) by 11.1 %, although in the last year it reported a fall of 5.3 %.

According to the data by the General Directorate of the Cadastre, in 2016 the surface area occupied by urban plots amounted to 1,075,013.8 ha. Of this total, 60.6% had buildings (650,949.1 ha) and the remaining 39.4% did not (424,064.7 ha).

The data for the Basque Country and Navarra are excluded from this information, since they have their own cadastre services.

From an analysis of the evolution of the surface area occupied by urban plots in the last decade, from 2007-2016, as shown in the following table, it will be easy to see how the surface occupied by urban plots increased by 11.1%, whereas the proportion of urban plots that have been built on increased by 20.1% during the same period.

The graph above shows the variation in urban surface area for plots with buildings and those without, by autonomous community for the reference period 2007-2016. It can be observed how the biggest variations in surface area occupied by urban plots, in total (with and without buildings) took place in Asturias (67.0%), Extremadura (40.4%), Galicia (36.7%) and Murcia (31.3%). On the opposite side, the areas where there has been a reduction in surface area of urban plots were Ceuta (-13.9%) and the Balearic Islands (-7.4%).



The following table shows the evolution of total surface area occupied by urban plots with buildings in Spain over the last decade. It can be seen how, in the case of total surface area occupied by urban plots, after reporting maximum year-on-year growth in 2009 (+5.6%), this fell off to record increasingly lower figures, 2014 being the first year where negative growth was recorded (-0.2%) - in other words a reduction in the surface area occupied by urban plots. In the last two years this negative trend was accentuated, reporting a reduction in the surface areas of -0.1% and -5.3% respectively.

Total surface area of total urban plots and urban plots with buildings in Spain and variation compared to the previous year and between 2007 and 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Surface area of urban plots (ha)	967688	993882	1049925	1073858	1098777	1123134	1138311	1135985	1134959	1075014
Variation compared to previous year (%)	2.2	2.7	5.6	2.3	2.3	2.2	1.4	-0.2	-0.1	-5.3
Variation 2007-2016 (%)	11.1									
Surface area of urban plots with buildings (ha)	541823	553175	580413	594967	606859	622449	631614	645011	647862	650949
Variation compared to previous year (%)	2.0	2.1	4.9	2.5	2.0	2.6	1.5	2.1	0.4	0.5
Variation 2007-2016 (%)	20.1									

Author's note: The variation in the surface area of urban plots with buildings reported a maximum growth rate in 2009 (+4.9%), as is true with the total surface area, although this strong trend subsequently fell off. In the last two years a slight growth of 0.4% and 0.5% respectively has been recorded.

Source: General Cadastre Directorate

Indicator definition:

The indicator shows the variation in surface area occupied by urban plots and plots with buildings recorded in Spain for the Real Estate Cadastre (excluding Basque Country and Navarra), calculated between 2006 and 2015, expressed in %.

Notes on methodology:

- The data for the Basque Country and Navarra are excluded from this indicator, since they have their own cadastre services. The 2006 study was a pilot survey and was not used for estimates. The most recent surveys were conducted in 2009 and 2012, a procedure for regularization of the Cadastre through the currently ongoing 2013 - 2016 period. The 2012 survey includes a total of 33 classes, grouped into 14 main categories.
- The Real Estate Cadastre is an administrative register that depends on the Inland Revenue Ministry and Public Administrations where rural, urban and special properties are described (Royal Legislative Decree 1/2004 of 5th March, approving the Amended Text of the Cadastre Act). The Real Estate Cadastre Act is applicable in all national territory regardless of the provisions established in special regimes in the Basque Country and Navarra.

Source:

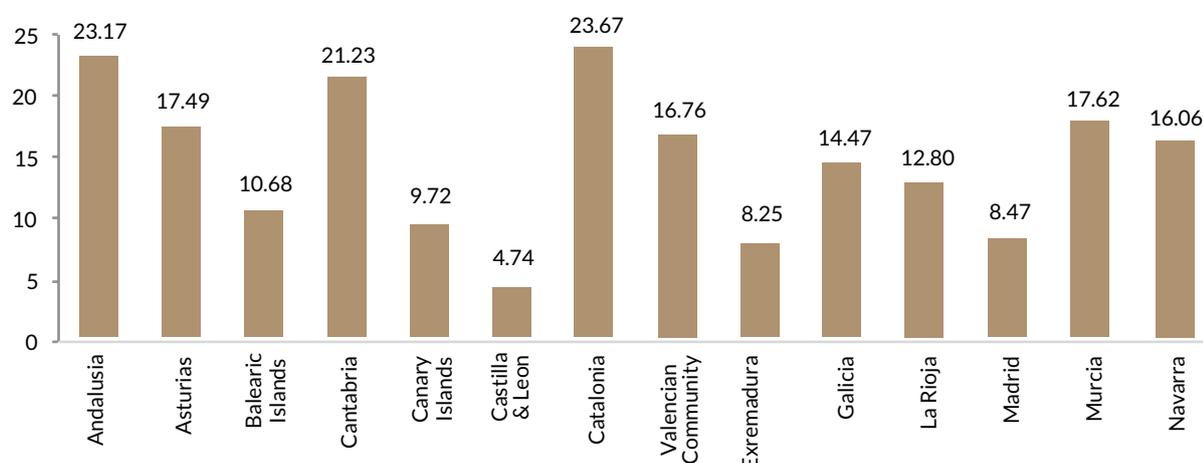
General Cadastre Directorate. Inland Revenue Ministry and Public Administrations. See website "Dirección General del Catastro": Catastro: Inicio / Difusión de la información catastral / Estadísticas catastrales / Catastro inmobiliario / Urbano

Websites of interest:

- <http://www.catastro.meh.es>
- http://www.catastro.meh.es/documentos/estadisticas_Metodologia_Catastro_2012.pdf

Soil loss through erosion

Average annual soil losses through erosion (t/ha). 2016



Source: MAPAMA

- *The average annual soil loss in Spain is 14.65 tonnes/ha.*
- *The percentage of the surface area affected by moderate erosion processes in Spain is 69.73 %.*
- *Catalonia and Andalusia, with figures of 23.67 and 23.17 tonnes/ha, respectively, report the highest average annual losses.*

Erosion / desertification is one of the most serious environmental problems affecting natural areas in Spain. Among other effects it causes a reduction in the fertility of agricultural and forestry land, it accelerates degradation of the land cover patterns and a reduction in the natural regulation of water flows.

As the *European Commission Thematic Strategy for Soil Protection* claims, soil loss through erosion is one of the main soil pressures at European level.

The National Inventory of Soil Erosion (INES) has the intent of continuously identifying, quantifying and analysing the evolution of the principal phenomena causing soil erosion on national territory, providing uniform, statistic, comparable information about soil erosion processes on national territory. Moreover, it provides information to delimit priority areas in the fight against erosion / desertification, and also serves as an instrument to coordinate policies on soil conservation.

According to the most recent data from INES, still without considering the autonomous communities of Aragon, Castilla-La Mancha and Basque Country (as there is no available data), the surface area affected by high erosion processes in Spain was 13.19% and the surface area affected by moderate erosion processes was 17.08%. This means that with losses of over 10 tonnes/ha per year, 30.27% of Spain's surface area was affected by moderate or high erosion processes in 2016. The remaining 69.73% of the surface area is affected by moderate erosion processes.



The mean soil losses in Spain in 2016 amounted to 14.65 tonnes/ha. The autonomous communities that recorded the lowest erosion losses, below 10 tonnes/ha, were Castilla y Leon (4.74 t/ha), Extremadura (8.25 t/ha), Madrid (8.47 t/ha) and the Canary Islands (9.72 t/ha). At the other end of the scale, the regions of Catalonia (23.67 t/ha), Andalusia (23.17 t/a), Cantabria (21.23 t/ha) and Murcia (17.62 t/ha) recorded the highest rates of soil erosion.

The following table shows the classification of soils by their erosion level. It can be observed how the surface area exposed to moderate erosion processes is predominant in all autonomous communities (over 50%). Nevertheless, the percentage of soil affected by high erosion processes determines the higher or lower final soil loss rate. To this effect, the communities with the highest rates of soil affected by high erosion processes in 2016 were Andalusia (22.63%), Catalonia (20.74%) and Cantabria (17.7%). There is a correlation between the autonomous communities that report a higher percentage of soil with high erosion rates (%) and those that report the highest average annual losses of soil (t/ha per year).

Surface area affected by erosion (%)
2016

Autonomous Community	Moderate Erosion Processes (%)	Medium Erosion Processes (%)	High Erosion Processes (%)
Andalusia	57.61	19.76	22.63
Catalonia	54.41	24.86	20.74
Cantabria	59.91	22.39	17.70
Asturias	61.92	21.67	16.42
Navarra	65.64	18.79	15.57
Murcia	66.41	18.13	15.46
Valencia	70.13	16.04	13.83
La Rioja	65.84	20.43	13.72
Galicia	74.34	13.06	12.61
Balearic Islands	76.62	13.69	9.70
Canary Islands	69.25	21.86	8.89
Madrid	81.28	10.89	7.83
Extremadura	83.75	9.81	6.44
Castilla & Leon	89.13	7.77	3.10

Source: MAPAMA



Indicator definition:

The indicator shows the annual loss of soil through “laminar and ravine” erosion, calculated by the “National Inventory of Soil Erosion” (INES) using the international “RUSLE” model, expressed in t/ha referring to the total geographical surface area of each autonomous community.

Notes on methodology:

- INES is part of the Spanish Natural Heritage and Biodiversity Inventory, through the forestry statistics as established in the Spanish Forestry Plan, Act 43/2003 of 21st November on Countryside, and Act 42/2007 of 13th December on Natural Heritage and Biodiversity.
- INES is structured in five modules, each pertaining to different types of erosion: “Laminar erosion”, “Erosion of gullies and ravines”, Land mass erosion”, “Riverbed erosion” and “Wind erosion”.
- “Laminar erosion” is a quantitative estimate of soil losses through application of the model adopted in Europe, namely the *RUSLE (Revised Universal Soil Loss Equation)*; grouping the results of the calculations in erosion levels:
 - 1) 0-5 t/ha year 3) 10-25 t/ha year 5) 50-100 t/ha year 7) >200 t/ha year
 - 2) 5-10 t/ha year 4) 25-50 t/ha year 6) 100-200 t/ha year
- The interval of soil loss determined as “Moderate” in the indicator is from 0 to 10 t/ha per year, “Average” is from 10 to 25 t/ha per year and “High” is over 25 t/ha per year.
- The erodible surface area is that which is susceptible to undergoing erosion processes, calculated by deducting the artificial cover, water bodies and wetlands from the geographic surface area.

Source:

Data supplied by the General Directorate of Rural Development and Forestry Policy. General Secretariat of Agriculture and Food. Ministry of Agriculture and Fisheries, Food and Environment.

Websites of interest:

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





2.6

NATURE

Conservation and enhancement of biodiversity is one of the priorities in Spain's policies. The latitude of the country and its strategic geographical situation and varied orography make for considerably varied climates. Moreover, as a peninsula and with its offshore islands, the variety of lithology and local environmental factors, in conjunction with the history of the population and land uses, lead to high natural and landscape diversity that make it one of the countries with the highest biodiversity in the European Union.

In order to tackle one of the greatest threats to biodiversity, the Implementing Regulation (EU) 2016/1141 of 13th July 2016 was approved, adopting a list of invasive alien species of Union concern pursuant to Regulation (EU) 1143/2014 of the European Parliament and of the Council. These species, most of them already included in the Spanish Catalogue of Invasive Alien Species (Royal Decree 613/2013 of 2nd August, regulating the Spanish Catalogue of Invasive Alien Species), may not be introduced, maintained, bred or released into the environment. Furthermore, the necessary measures must be adopted to prevent introduction or propagation of these species, and if they are already present in the natural environment, actions should be implemented to control and eradicate them.

Among the events related to conservation of nature, in 2016 Spain took part in the IUCN's World Conservation Congress in Hawaii (USA). The IUCN 2017-2020 Programme was established, including measures to combat illegal trafficking of species, maintaining the balance between renewable energies and biodiversity, promoting solutions based on nature to avoid climate change and protecting the marine environment, among others.



Spain also took part at the 13th Conference of the Parties (COP13) of the United Nations' Convention on Biological Diversity (CBD) held in Cancun (Mexico). 37 decisions of the Convention were approved: 20 on the Cartagena Protocol and 15 on the Nagoya Protocol. Among other matters, these decisions concern the consideration of biodiversity in production processes, the pollinators, protection of ecosystems and endangered species, sea pollution and climate change. At the conference, Spain adhered to the "Coalition of the Willing on Pollinators" in order to protect these species and their habitats, and to reverse their decline, applying measures such as promoting favorable habitats, fighting against their diseases and parasites and reducing pesticides.

In 2016, 39 Special Protection Areas for birds (ZEPA) were included in the Spanish Marine Protected Areas Network (RAMPE), and the European Union approved nine new Spanish marine areas as Sites of Community Importance (SCI) in Red Natura 2000.

2016 was also the centenary year of the first National Parks Act, passed in 1916. Two years later, the two first national parks were declared (Covadonga Mountain and Ordesa Valley) During this centenary year, the new National Park Network Director Plan was approved (Royal Decree 389/2016 of 22nd October) as the basic planning instrument to ensure internal coherence in the National Park Network and to promote its external outreach, establishing directives to enhance the protection and conservation system of Spanish nature and to favor awareness among citizens.

Finally, among the figures of international protection, with the 2016 Tajo-Tejo International Transboundary Biosphere Reserve declaration, Spain becomes the first country in the world in terms of number of biosphere reserves declared within the framework of UNESCO'S Man and the Biosphere Programme (MaB Programme).



Protected areas

- In 2016, the protected land cover area accounted for 32.8% of the total land cover, whereas marine areas reached 8%.
- The biosphere reserves in Spain account for 10.9% of national territory.



Forest defoliation

- In 2016, the general status of trees reported a worsening situation compared to the data compiled in 2014.
- 18% of trees in 2016 had defoliation rates of over 25%.



Common bird population trends

- The SACRE bird monitoring programme is one of the best examples of “citizen science”.
- With occasional oscillations, the trends of bird populations in forest areas are positive, and those in scrubland remain relatively stable. Nevertheless, the trends in agricultural and urban areas are negative.



Environmental surveillance

- In 2016, the percentage of detentions compared to the previous year increased by nearly 40%.
- Criminal offenses increased by 7.4% compared to 2015, totaling 2690.



Forest cover and other woodland formations

- Spain has 27.8 million hectares of countryside, of which 18.4 million hectares are forests.
- The autonomous communities with the highest percentage of forests in their territories are the Basque Country (54.9%), Catalonia (49.4%) and Galicia (49.0%).



Forest Reproductive Material

- In 2016, 29 units were added in the Spanish national register of basic material
- The total Base Materials included in the National List amounted to 7998 units.
- The authorized collection area for Base Materials in 2016 was 5.87 million hectares.



Diversity of wild species

- Of the 916 species of wild terrestrial vertebrates included in the EIDOS database, 104 (11.35%) are considered to be endangered species according to the IUCN category.
- In Europe, Spain has a high diversity of terrestrial vertebrates and vascular flora.



Protected areas

Protected areas in Spain. Year 2016

Protection Category		Terrestrial		Marine		Total Protected area (ha)
		(%)	(ha)	(%)	(ha)	
Protected area (ha)		16583846	32.76	8526059	7.99	25109905
PNA		7363769	14.55	511448	0.48	7875217
Red Natura 2000		13825030	27.31	8432232	7.91	22257262
Other international Categories	MAB	5544272	10.95	485267	0.46	6029540
	RAMSAR	281221	0.56	25606	0.02	306826
	ZEPIM	51858	0.10	96626	0.09	148484
	OSPAR	0	0.00	2034219	1.91	2034219

Source: MAPAMA

- *In 2016, the protected terrestrial area accounted for 32.8% of the total land cover, whereas marine areas reached 8%.*
- *The biosphere reserves in Spain account for 10.9% of national territory.*

In 2016 the protected terrestrial area in Spain was 16,583,846 ha, accounting for 32.8% of the total area. Protected marine areas on the other hand were estimated at 8,526,059 ha, accounting for 8% of the total area.

This protected area comprises protected natural areas (PNA), protected areas included in Red Natura 2000 and those associated with other international protection categories, such as biosphere reserves in the Man and Biosphere Programme by UNESCO (MaB Programme), Specially Protected Areas of Mediterranean Importance (ZEPIM) or wetlands included in the RAMSAR Convention, among others.

The surface area of protected natural areas increased slightly in 2016, accounting for 14.6% of the total terrestrial surface area of Spain, whereas the areas included in Red Natura 2000 accounted for 27.3% of the total terrestrial area of Spain.

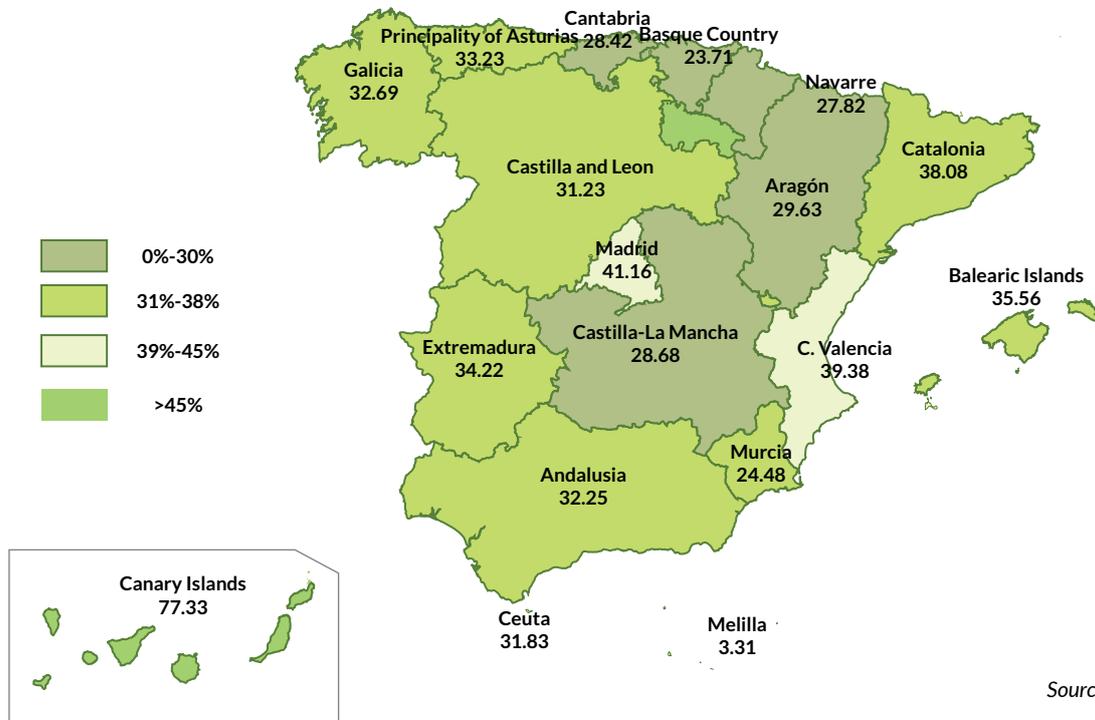
In relation to the areas protected under international instruments, the increase in recent years of biosphere reserves is noteworthy, now covering 10.9% of Spanish territory. In 2016, the Tajo-Tejo International Transboundary Biosphere Reserve.

In 2016 the Red Natura 2000 surface area, covering 22,257,262 ha, remained stable. In this respect, of the total 13,825,030 ha were terrestrial reserves and 8,432,232 ha were marine. It should not be forgotten that the Red Natura 2000 surface area data is not the sum of the SCI and ZEPA surface areas, since there are numerous overlaps between both types of areas that are not to be counted twice.



In relative terms of surface area, the Canary islands (77.3%), La Rioja (51.2%), Madrid (41.2%) and the C. Valencia (39.4%) are the regions with the highest percentage of protected terrestrial area.

Terrestrial protected area in Spain 2016



Source: MAPAMA

Indicator definition:

The total percentage of protected areas compared to the total surface area of Spain and the information disaggregated by the categories of protection: protected natural areas, Red Natura 2000 areas and the different areas protected by international instruments. The protected terrestrial area by autonomous communities is calculated according to the surface area of each autonomous community.

Notes on methodology:

- Act 42/2007 of 13th December 2007 pursuant to Natural Heritage and Biodiversity, defines protected natural areas as "... Those areas on the national territory, including fresh waters and maritime waters (...) that meet at least one of the following conditions and are declared as such:
 - Contain representative, singular, fragile, endangered natural systems or items, or others of special ecological, scientific, landscape, geological or educational interest.
 - Be specifically dedicated to protecting and maintaining biological diversity, geodiversity and the associated natural and cultural resources."
- Red Natura 2000 is a European ecological network consisting of Sites of Community Importance (SCI) and Special Areas of Conservation (SAC) defined in accordance with the Habitat Directive (Directive 92/43/EEC) and Special Protection Areas for birds (SPAB) established in view of the Birds Directive (Directive 2009/147/EC). The aim is to ensure long-term survival of the most endangered species and types of habitat in Europe, and is the most important political conservation and biodiversity tool in the European Union.
- For the purposes of calculating the indicator, the terrestrial surface area in Spain is 50,622,368 ha and the marine surface area is 106,648,206 ha.
- The overall protected area is not equivalent to the sum of the different protection figures, since there are major overlaps between some of them. This means that a specific area could be part of a PNA and at the same time be included in Red Natura 2000 or any other protection body. Basically, the areas where there are overlaps of different protection bodies are only counted once.

Source:

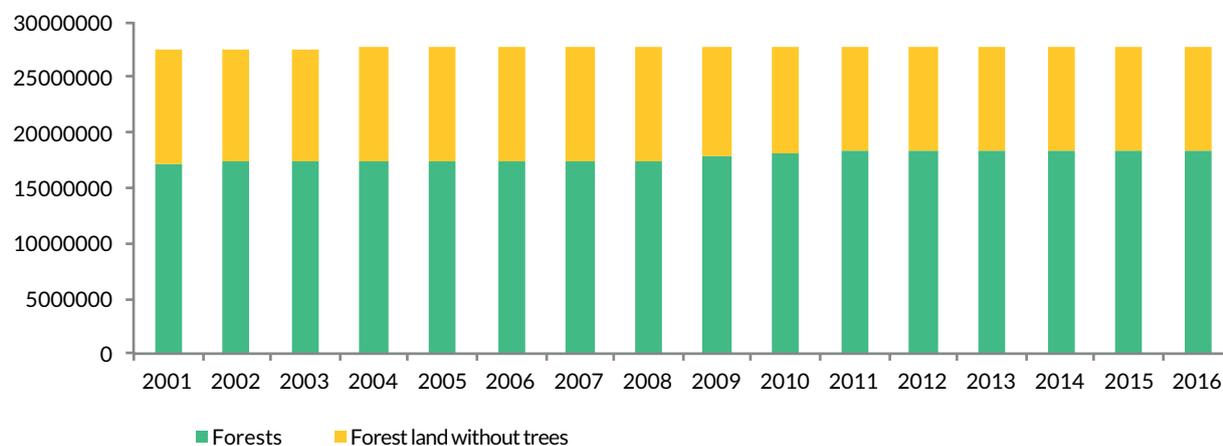
Banco de Datos de la Naturaleza. Directorate General of Environmental Quality and Assessment and of the Natural Environment. Ministry of Agriculture and Fisheries, Food and Environment.

Websites of interest:

- <http://www.mapama.gob.es/es/biodiversidad/servicios/banco-datos-naturaleza/default.aspx>
- <http://www.mapama.gob.es/es/biodiversidad/temas/espacios-protegidos/>
- <http://www.mapama.gob.es/es/parques-nacionales-oapn/default.aspx>

Forest cover and other woodland formations

Forest cover and other woodland formations (ha)



Source: MAPAMA

- *Spain has 27.8 million hectares of countryside, of which 18.4 million hectares are forests.*
- *The autonomous communities with the highest percentage of forests in their territories are the Basque Country (54.9%), Catalonia (49.4%) and Galicia (49.0%).*

Forests play a fundamental role in maintaining biodiversity and ecological processes. They are the habitat for numerous species, they protect soil from erosion, they regulate the hydrologic cycle and contribute to mitigating climate change.

The definition of forest and other wooded land adopted by the FAO includes forest areas with trees and without trees respectively, thus including the concept of scrubland.

Spanish “monte” covers slightly over 27.8 million hectares, accounting for 55% of the total national area. Over 66% of montes, 18.4 million ha, is forest area. The rest, 9.4 million ha, is mainly forest area without trees or with low tree density.

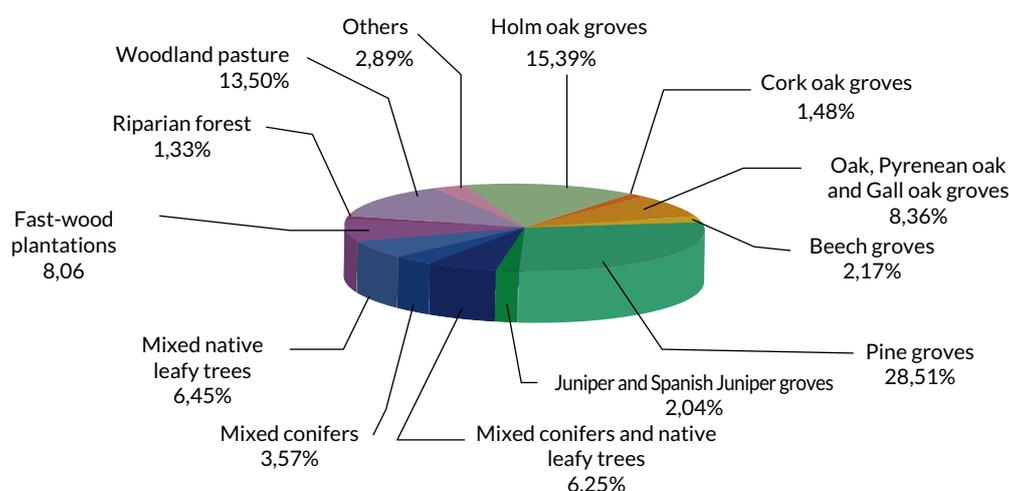
The autonomous communities with the highest percentage of forest areas in their territories are the Basque Country (54.9%), Catalonia (49.4%) and Galicia (49.0%). On the other hand, the Canary Islands with 17.7%, Murcia with 27.3% and Castilla and Leon with 31.3% are the ones with the least forest areas, below the national average which stands at 36.3%.

The singular geographical situation of our country and its variety in terms of climate, determine the wide diversity of forests. In fact there are four bio-geographic areas (Atlantic, Mediterranean, Macaronesian and Alpine) which confer specific peculiarities to their vegetation.

According to the National Forest Inventory, 18.4% of the forests are dominated by a single species, whereas slightly over 80% consist of two or more tree species. 1.6% of forests have over ten species.

The most representative species in terms of surface cover is the Holm Oak (*Quercus ilex*) which covers 2.8 million ha as oak grove (15.4% of the total area of our forests) besides being the dominant species in 88% of dehesas, accounting for a further 2 million ha. Insofar as conifers are concerned, *Pinus halepensis* pine groves cover 2 million ha (11.3% of the total forest area), along with *P. pinaster* and *P. sylvestris*, representing the majority of pure conifer woodland areas. All together, pine groves account for 28.5% of the total forest area.

Distribution of tree formations (%)



Source: MAPAMA

Indicator definition:

This indicator refers to the evolution of forest formations in Spain. In Spain, the concept "monte" (woodland or scrubland) is the result of combining forest areas with and without trees, that according to FAO corresponds to forest and other forest land, respectively.

Notes on methodology:

- Forest area (with trees): land populated by forest tree species as the dominant vegetation, and whose occupied/covered fraction (FCC) is equal to or over 10%. Equivalent to the FAO definition of *Forest Land*.
- Forest area without trees: land with occupied/covered fraction (FCC) is less than 10% of the forest tree species, where applicable, and consisting of low density woodland (FCC between 5% - 10%) and area without trees (FCC less than 5%). Includes scrubland, pasture and desert. Equivalent to FAO definition *OWL (Other Wooded Land)*.
- In 2016, the Forest Map of Spain were updated with data from the National Forest Inventory for the Catalonia autonomous region, maintaining the data from the rest of the regions.

Source:

Subdirección General de Política Forestal. General Directorate of Rural Development and Forestry Policy. Ministry of Agriculture and Fisheries, Food and Environment. MAPAMA.

National Forest Inventory (IFN) and its base cartography: the Forest Map of Spain (MFE), both elaborated every ten years at provincial level. IFN2 (1986-1996); IFN3 (1997-2007); IFN4 (started in 2008); MFE50 (1997-2007). MFE25 (started in 2007). National Data: Navarre, Galicia, Asturias, Cantabria, Balearic Islands, Murcia, Basque Country, La Rioja, Madrid and Catalonia: IFN4 and MFE25; for the remaining Autonomous Communities IFN3 and MFE50.

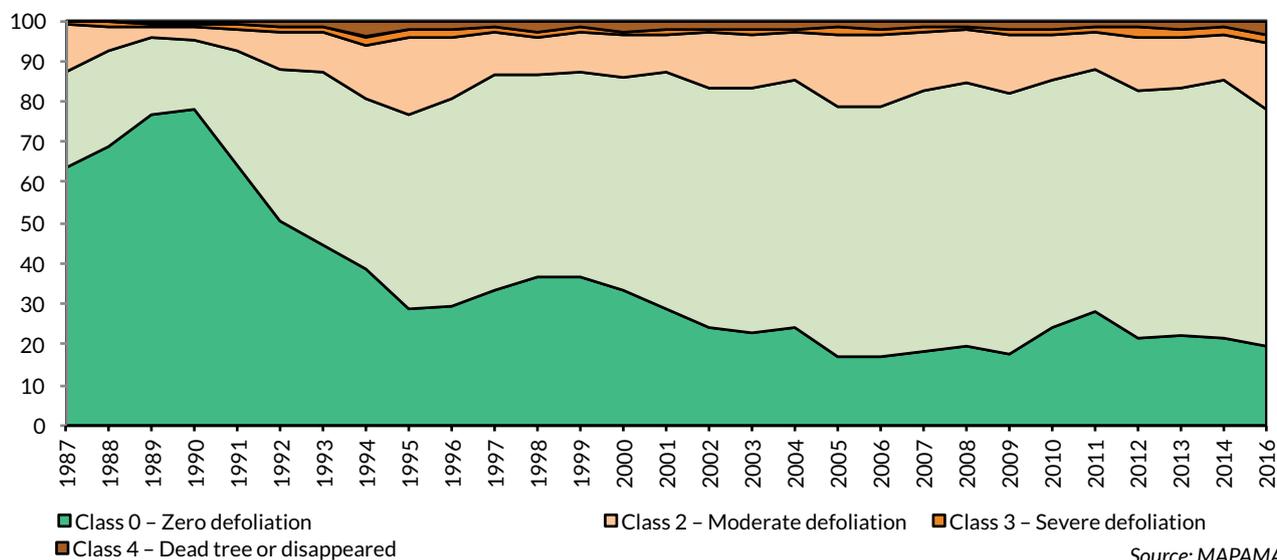
Websites of interest:

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



Defoliation of forest areas

Forest damage: percentage of trees by defoliation class (Forest Damage Inventory of Spain, 1987-2016)



- *In 2016, the general status of the woodland reported the existence of a worsening process compared to the data compiled in 2014.*
- *15 % of trees in 2016 had defoliation rates of over 25%.*

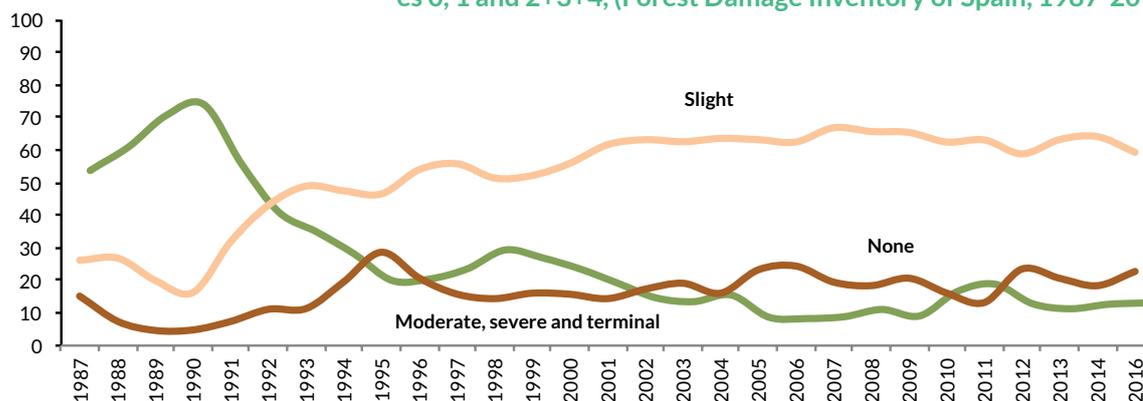
Since the last inventory in 2014 there has been a worsening in the status of forest areas. In 2016, 78.2% of the studied trees were healthy (class 0 and class 1) compared to 85.1% in 2014. The current situation is similar to that of 2006 (78.5%).

This worsening situation is also reflected in the percentage of trees with defoliation over 25% (class 2 and class 3), which has risen from 13.2% in 2014 to 18% in 2016, meaning that the number of damaged trees has increased. This deterioration is more evident in conifers, with 79.2% of healthy trees in 2016 compared to 88.6% in 2014. In leafy trees, although to a lesser extent, the situation in terms of healthy trees has also worsened, falling from 81.6% to 77.2% in 2016 for the same period.

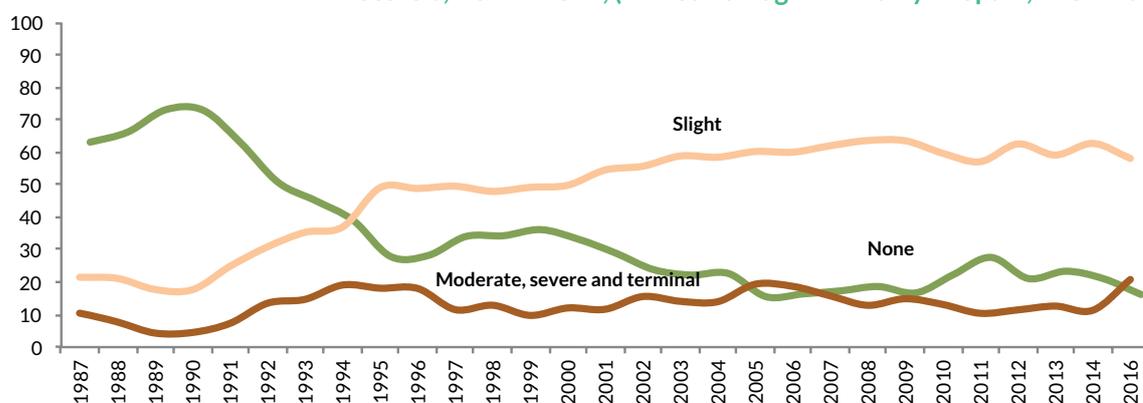
Dead trees (class 4) increased between 2014 and 2016 by 3.8% in conifers and 4% in leafy trees. The causes for this mortality rate are mainly due to healthy tree felling, forestry exploitation and decay processes due to occasional water shortages.

As for the possible agents causing damage to trees (>25% defoliation) in scrublands, the abiotic stress factors account for over 41% (mainly drought). The damage caused by insects accounts for almost 27%, mainly due to defoliating parasites (pine processionary), and to a lesser extent wood boring insects (*Coroebus florentinus* and *Cerambyx sp.*).

Forest damage: evolution of defoliation in leafy trees (percentage of damaged trees). Defoliation classes 0, 1 and 2+3+4, (Forest Damage Inventory of Spain, 1987-2016)



Forest damage: evolution of defoliation in conifers (percentage of damaged trees). Defoliation classes 0, 1 and 2+3+4, (Forest Damage Inventory of Spain, 1987-2016)



Source: MAPAMA

Indicator definition:

Defoliation of forest areas is the process by means of which a plant species loses its leaves due to disease or climate stresses, causing premature or abnormal falling of leaves. The defoliation degree indicator for forests permits identifying the health status of forests and the evolution thereof.

Notes on methodology:

- The indicator is analyzed in accordance with loss of foliage from treetops in a number of sampling points, classified in the following categories:

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

- In the framework of the International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests, the European Level I Forest Damage Network is an international large-scale systematic network with over 5700 monitoring points arranged in a 16 x 16 km grid covering all of Europe, established in 1986 based on a random starting point. The health status of trees and the main factors that have negative effects on them are analyzed annually through this network. There are currently 620 sampling points in the Spanish network. The design of the system, within the former Community Regulation *Forest Focus* and the current financial instrument LIFE+ (FutMon Project), permits the development of monitoring activities on other aspects, such as the effects of climate change on forests, the sustainable management and the conservation of forest biodiversity.
- In 2015 no field data were taken, and consequently there are no data for that year.

Source:

Forest Statistics and Inventory Department of the General Directorate of Rural Development and Forestry Policy. Ministry of Agriculture and Fisheries, Food and Environment.

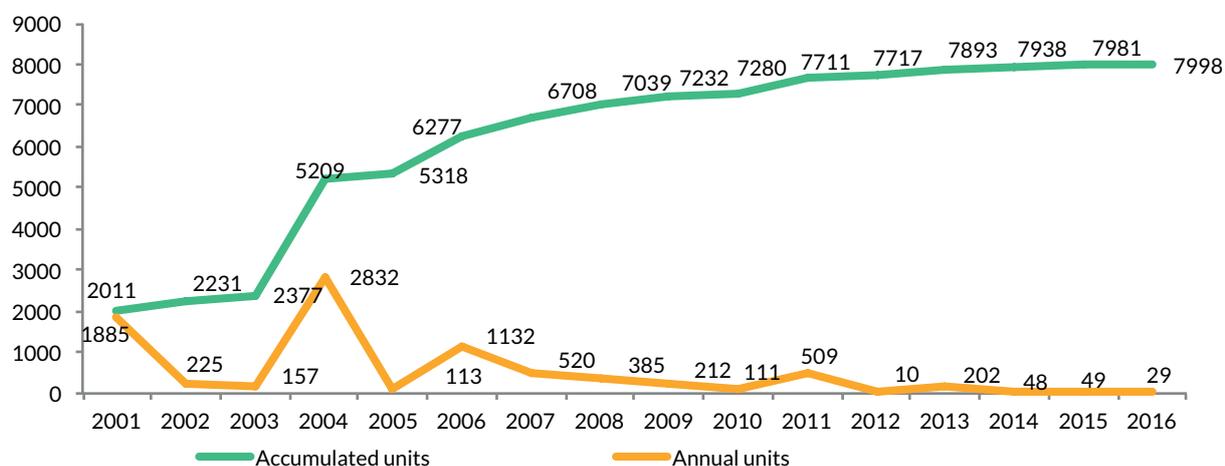
Websites of interest:

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



Forest reproductive material

Number of units of approval in the National Base Material Catalogue



Source: MAPAMA

- *In 2016, 29 units were added in the National Register of Base Materials (Seeds, Fruit, Cuttings used to produce new plants).*
- *The total Base Materials included in the National Catalogue amounted to 7998 units.*
- *The authorized collection area for Base Materials in 2016 was 5.87 million hectares.*

In 2016, 29 new units of approval were included in the National Register of Base Material, which after deducting the cancellations now has a total of 7998 authorized base materials. Of the total units of approval, 7415 refer to the source identified category (7382 seed sources and 33 stand sources), 386 units to the selected category (selected stands), 143 to the qualified category and 54 to the tested category.

In terms of surface area, the units of approval cover approximately 5.87 million hectares, accounting for a slight reduction in the last year of the area authorized for collection of forest reproductive material on 826.2 hectares, due to the cancellations. Approval of base materials by the autonomous communities has not been uniform, there being a large difference between the number of units of approval from one community to another. Castilla and Leon is the community with the highest number of units of approval, with 3518 and an authorized area of 665,077.4 ha. This is followed by the C. Valencia and La Rioja with 777 units (852,923 ha) and 756 units (1,623,569.2 authorized ha) respectively. At the other end of the scale are the Balearic and Canary Island archipelagos with 44 (16,512 ha) and 51 units (46,538.4 authorized ha) respectively, as the communities with the least number of units of approval.

Units of admission in the National Base Material Catalogue. Year 2016

TYPE OF BASE MATERIAL	CATEGORY	No. UNITS OF APPROVAL AS OF 2016	AREA OF ADMISSION UNITS (ha)
Seed sources	Identified	7382	5839017.60
Stands	Identified	33	14000.30
	Selected	386	18936.00
Seed orchards	Qualified	27	113.50
	Tested	4	
Parents of families	Qualified	36	Unquantified.Insignificant
	Tested	4	
Clones	Qualified	80	N/A
	Tested	46	
TOTAL		7998	5872067.40

*It must be taken into account that the considered areas sometimes overlap as they are occupied by different species, or on other occasions for practical reasons municipal areas or entire countryside zones are authorized as base materials, when their surface area exceeds the actual surface area occupied by forest.

Source: MAPAMA

Indicator definition:

Evolution of units of approval in the National Base Material Catalogue (seed, stand, seed bed, family parents, clones and clone mixtures) classified according to category (identified, selected, qualified and controlled).

Notes on methodology:

- Base Material consists of the plantation and clone populations from which reproductive material is obtained (seeds, plant parts and whole plants) to be used for restocking forests. The approved base material types are currently seed sources, stands, seed beds, parents of families, clones and Clonal mixtures.
- The National Base Material Register is an administrative register of all these types of base material for obtaining the different categories of forest reproductive material: identified, selected, qualified and controlled. The principal objectives of the National Register are to provide users with a guarantee as to the origin and quality of forest reproductive material and to provide consumers with knowledge about their features, thus enabling the right choice of the most suitable source material.
- Characterization of the base material types (seed, stand, seed orchards, parents of family, clones and clonal mixtures) is defined in Royal Decree 289/2003 of 7th March, pursuant to marketing of reproductive forest materials.
- Management of the National Catalogue entails ecologic and phenotypic characterization of all the approved materials, and is performed by the Directorate General of Rural Development and Forestry Policy (MAPAMA) in collaboration with the Autonomous Communities. The new base materials are published in the Official State Journal and are part of the Community Base Material List.

Source:

Information supplied by the Sub-directorate General of Forestry and Countryside. General Directorate of Rural Development and Forestry Policy. Ministry of Agriculture and Fisheries, Food and Environment.

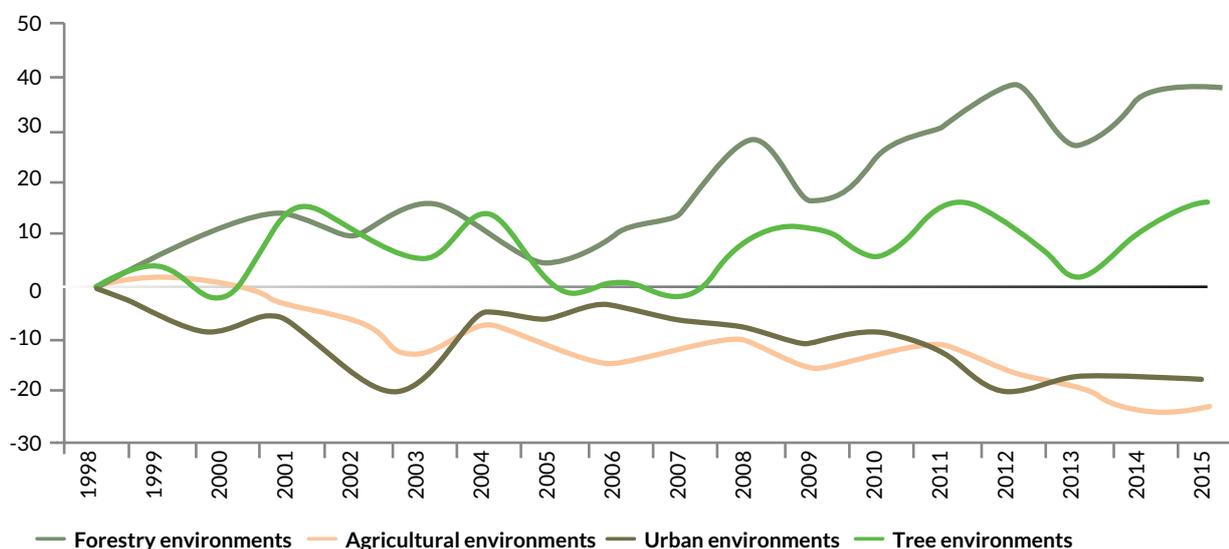
Websites of interest:

- http://www.mapama.gob.es/es/desarrollo-rural/temas/politica-forestal/recursos-geneticos-forestales/rgf_catalogo_materiales_base.aspx



Common bird population trends

Common bird population trends by environment.
Change percentage (1998=0)



Source: SEO/BirdLife

- *The SACRE bird monitoring programme is one of the best examples of “citizen science”.*
- *With occasional oscillations, the trends of bird populations in forest areas are positive, and those in scrubland remain relatively stable. Nevertheless, the trends in agricultural and urban areas are negative.*

The fauna group of birds is an excellent indicator of the diversity status, since the trends in bird populations comprise multiple ecological factors, they are sensitive to environmental changes, they are present in all habitats and are easy to sample

The Monitoring Programme for bird trend in spring (SACRE Programme), which began in 1996 permits knowing bird trends that present significant differences depending on the different types of environment.

Bird populations linked to agricultural environments have been reporting negative trends for several years. Nevertheless, in 2016 there was a slight improvement which began in 2015. Whichever the case, the decline compared to the year when sampling began is still very significant: the joint evolution of 25 species populations of birds associated with agricultural environments shows a 22.6% fall in 2016 compared to the reference year (1998). Agricultural intensification, usually associated with an increase in the use of pesticides, and with the loss of traditional farming mosaics, featuring interspersed crops, fallow land, isolated trees and scrubland, appears to be behind this decline.



The situation is similar in the case of birds associated with urban environments, whose populations also show a decreasing trend. In 2016 there was a joint decline of 16.6% compared to 1998 for the most representative birds in urban environments, where most of the population live.

More encouraging however are the records concerning bird populations in forest environments. Despite the annual fluctuations, which do not always report growth, the overall evolution has been positive in recent years. 2016 was no exception, recording a population growth in the last campaign.

Finally, the trend observed in bird populations associated with bushy environments has remained relatively stable since 1998, although there was a certain decline in the last year.

Indicator definition:

Annual percentage of change in common bird populations in Spain, compared to the existing population in the reference year, 1998.

The trends are separated by bird populations in different environments: agricultural, urban, forest and bush.

Notes on methodology:

- This indicator is calculated in Spain by the Spanish Ornithology Society (SEO/Birdlife) through the Monitoring Programme for bird trends in spring (SACRE Programme). The programme is carried out with participation by almost 1000 volunteers, comprising one of the best examples of "citizen science" in our country.
- The reference year for calculation of the indicator is 1998. Although SACRE has been ongoing since 1996, 1998 was the first year when samples were taken from all over the state employing a standardized methodology. The methodology for data acquisition can be consulted via the following link: http://www.seo.org/wp-content/uploads/2012/04/instrucciones_sacre_2013_3.pdf

Source:

- Data supplied by the Spanish Ornithology Society through the specific query made from the Banco de Datos de la Naturaleza at the Directorate General of Environmental Quality and Assessment and Natural Environment of the Ministry of Agriculture and Fisheries, Food and Environment
- Spanish Ornithology Society, 2016. SEO/BirdLife Bird Monitoring Programme. Year 2015

Websites of interest:

- <http://www.seo.org/2012/05/07/resultados-de-los-programas-de-seguimiento-de-avifauna/>
- <http://www.seo.org/2012/04/13/sacre/>



Diversity of wild terrestrial species

Diversity of wild terrestrial species

	Total No. of species	No. of threatened species
Terrestrial mammals	115	19
Birds	581	58
Amphibians	36	5
Reptiles	92	15
Freshwater fish	92	7
Terrestrial invertebrates	57000	>258 (> 0.5 %)
Vascular plants	7069	825
Non-vascular terrestrial plants	>2000	>170 (>9 %)
Bryophytes	1100	170 (15 %)
Fungi	23000	?
Total estimated terrestrial species	91000	?

Source: MAPAMA

- *Of the 916 species of wild terrestrial vertebrates included in the EIDOS database, 104 (11.35%) are considered to be endangered species according to the IUCN category.*
- *As far as Europe is concerned, Spain has a high diversity of both terrestrial vertebrates and vascular flora.*

In 2016 a standardization project was implemented in order to compile data and information about wild species in Spain. The information, considered official, is taken from the different MAPAMA projects in recent years (atlas, red books, catalogues, inventories, reports, etc.), as well as from information sources integrated in the Terrestrial Species Inventory. This initiative has given the information a common standard structure, based on the *Plinian Core* international standard.

The data provided for the taxonomic vertebrate groups and vascular flora are obtained from a standardized database called EIDOS.

A complete analysis for all terrestrial species is not possible because of a lack of information concerning a major part of the other taxonomic groups, particularly invertebrates and fungi.

Despite this, it is fair to claim that Spain has a very high diversity in terms of species. It is estimated that there are 916 vertebrate species and 7069 vascular plant species, of which 11.37% and 11.35% respectively are endangered according to one of the IUCN categories.



The wealth and originality of terrestrial vertebrates in Spain is particularly high in the European and Mediterranean environments. Spain is only behind Turkey within this geographical area in terms of wealth of species and endemic level.



Indicator definition:

Number of wild terrestrial species living spontaneously in Spain and number thereof that are included in one of the endangered protection categories according to the International Union for the Conservation of Nature (IUCN).

Notes on methodology:

The Spanish inventory of terrestrial species is regulated under Royal Decree 556/2011 of 20th April, pursuant to development of the Spanish Natural Heritage and Biodiversity Inventory. It includes the distribution, abundance and state of conservation of terrestrial fauna (vertebrates and invertebrates) and flora (vascular and non-vascular) in Spain.

Source:

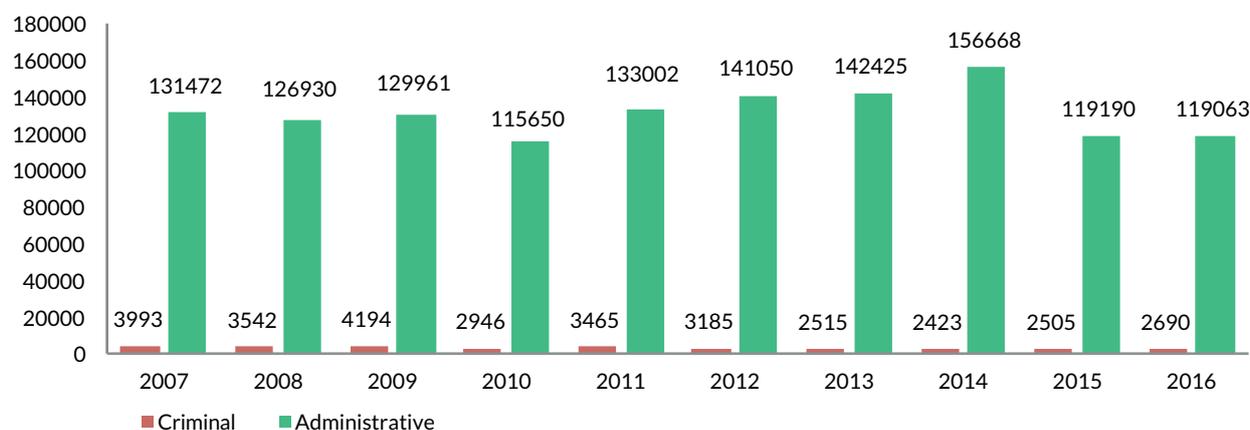
Banco de Datos de la Naturaleza. Sub-directorate General of the Natural Environment pertaining to the Directorate General of Environmental Quality and Assessment and of the Natural Environment.

Websites of interest:

- <http://www.mapama.gob.es/es/biodiversidad/temas/inventarios-nacionales/inventario-especies-terrestres/>
- http://www.mapama.gob.es/es/biodiversidad/servicios/banco-datos-naturaleza/Eidos_acceso.aspx

Environmental surveillance

Number of offenses related to the environment recorded by the Civil Guard



Source: Own elaboration with data from SEPRONA

- *In 2016, the percentage of detentions compared to the previous year increased by nearly 40%.*
- *Criminal offenses increased by 7.4% compared to 2015, totaling 2690.*

The Nature Protection Service (SEPRONA), created under Act 2/1986 of 13th March, pursuant to State Security Forces, has the functions of protecting soil, water and the atmosphere, animal health and the conservation of flora and fauna species, game and fishing, and fire fighting.

The evolution of the number of actions by SEPRONA concerning the environment in the last decade (2007-2016) shows a reduction of around 10%, although with fluctuations throughout the period. The number of administrative offenses show a general upward trend reaching in 2014 the maximum for the decade, a decrease being reported in 2015. In 2016 there was a slight reduction compared to those processed in 2015. In terms of evolution in the number of criminal offenses, although there has been a total decrease of 30%, a slight increase can be observed since 2014.

Interventions by the Civil Guard in the environment

INTERVENTIONS BY THE CIVIL GUARD IN THE ENVIRONMENT							
		2011	2012	2013	2014	2015	2016
Offenses	Criminal	3465	3185	2515	2423	2505	2690
	Administrative	133002	141050	142425	156668	119190	119063
Total offenses		136467	144235	144940	159091	121695	121753
Detentions		313	298	368	478	374	523

Sources: own elaboration with data from SEPRONA.

In 2016 the number of offenses processed by SEPRONA was similar to the previous year, with a slight increase of 0.05% from 121,695 interventions to 121,753. Administrative offenses decreased slightly, by 0.11% standing at 119,063; whereas criminal offenses increased by 7.4% to reach the figure of 2690 offenses. Of the total number of offenses, 97.8% were administrative and 2.2% were crimes.

As for the number of detentions, in 2016 there was a considerable increase, almost 40% compared to the previous year. Of all detentions linked to crimes, 29.3% were for cruelty or abandonment of pets, 18.5% for electricity fraud and 15.7% for the use of poisonous and chemical substances. Finally, the number of detentions related to forest fires was only 7.6% of the total.

Indicator definition:

The indicator refers to the number of interventions concerning the environment carried out by SEPRONA and other Civil Guard units.

Notes on methodology:

- To calculate this indicator, only action by SEPRONA and other Civil Guard units related to the environment has been taken into account.
- When characterizing the offense type, we must bear in mind that inspection campaigns are sometimes carried out in specific fields, which leads to an increase in the number of specific offenses.

Source:

- Ministry for home affairs, 2016. Oficina de información y atención al ciudadano de la Guardia Civil. Dirección General de la Guardia Civil.. Directorate General of the Civil Guard.
- Ministry for home affairs, 2016. Nature Protection Service (SEPRONA). Directorate General of the Civil Guard.

Websites of interest:

- https://www.fiscal.es/fiscal/publico/ciudadano/fiscal_especialista/medio_ambiente
- <http://www.mapama.gob.es/es/actuaciones-seprona/default.aspx>
- http://www.guardiacivil.es/es/servicios/atencionciudadano_1/





COASTS AND MARINE ENVIRONMENTS 2.7

Protection of the coast and the marine environment are two of society's principal environmental concerns. Spain has over 10,000 kilometers of coastline, which require special attention as it defines a space of significant business and social activities (tourism, fishing and fish-farming, ship transport, energy-related activities, sea-linked sport and leisure activities, etc.), and provides urban spaces with significant populations that very often grow exponentially in summer periods. This attention is even more important as these are complex areas with enormous environmental value. The current legislative framework consists of Act 2/2013 of 29th May, pursuant to protection and sustainable use of the coast including amendments to the Coast Act 22/1988, and the General Coastal Regulations, approved by Royal Decree 876/2014 of 10th October.

The incidence of tourism in this coastal environment, for example, is clear by the fact that only on the maritime / terrestrial public domain strip (MTPD) there are nearly 3000 catering establishments and 100 hotels, this number multiplying in the area adjacent to protection easements, in addition to many other activities and facilities. Evidence of this incidence can be seen through over 6100 occupation and exploitation authorizations that were processed in 2016 regarding MTPD. Through these authorizations, environmental protection of the coastline can be made compatible with business exploitation, a fundamental aspect in a country where tourism, mainly sun and sea, accounts for 11% of the Gross Domestic Product (GDP).

Insofar as action **to protect the coast** is concerned, after drafting the Strategy for Coast Adaptation to Climate Change, envisaged in Act 2/2013 of 29th May, following the strategic environmental assessment procedure, the Environmental Impact Declaration was approved in 2016. This was the first time that a state law envisaged an instrument for this purpose, to analyze and subsequently adopt measures to adapt our coast to the impacts from climate change.

Likewise, work has started to regenerate and recover the environment in Portman Bay in Murcia, which will entail removal of sterile material deposited there, and redoing the beach line.



In recent years, **protection of the marine environment** has taken a giant step forward with the passing of a new instrument that guarantees adequate planning of uses of the marine environment in order to ensure its correct environmental status: such is Act 41/2010 of 29th December, pursuant to the protection of the marine environment. Among other subjects, this act regulates the marine strategies and the Spanish Marine Protected Areas Network (RAMPE). The first cycle of the Marine Strategies has already been completed, after finalization in 2015 of the proposal for programmes of measures and the publication of the strategic environmental declaration in 2017.

In 2016, intensive work continued, aimed to make progress towards the international commitment to protect 10% of the marine surface area. Along this line, approval of Order AAA/1366/2016 of 4th August is noteworthy, which designates special zones of conservation of sites of community importance in the Mediterranean Marine Region of the Natura 2000 Network, approves the relevant conservation measures and proposes the extension of the geographical limits of two sites of community importance in that region. With this new Order, progress towards adequate management of Red Natura 2000 marine spaces in the Mediterranean has been made. The spaces declared as SAC (Special Areas of Conservation) for which the relevant management plans were approved, are as follows:

- Área marina del Cap Martinet
- Valles submarinos del Escarpe de Mazarrón, (formerly Medio Marino)
- Fondos Marinos del Levante Almeriense
- Fondos Marinos de Punta Entinas-Sabinar
- Arrecifes de Roquetas de Mar
- Fondos Marinos de la Bahía de Estepona
- El Saladillo-Punta de Baños

On the other hand, at the end of 2016 the European Commission approved the marine SCI space, east and south of Lanzarote - Fuerteventura, upon a proposal that Spain had filed the year before.

There are several marine spaces already included in the Spanish Marine Protected Areas Network (RAMPE) (one protected marine area, the marine reserves of fishing interest under the competence of the State, the special conservation sites in the Macaronesian region and 46 Special Protection Areas for Birds), and it is expected for more spaces to be included in the near future. The huge progress made in recent years to extend protected marine spaces in Spain must be highlighted - from less than 1% in 2011 to over 8% at the start of 2015 and progress is still being made to achieve the international commitment of protecting 10% of the marine Surface area by 2020.

Finally, in relation to protection of the marine environment, approval in 2017 of Royal Decree 363/2017 of 8th April is relevant, by means of which the framework for marine space planning was passed with the aim of promoting sustainable growth of maritime economies, sustainable development of marine spaces and sustainable exploitation of marine resources. It transposes Directive 2014/89/EU of the European Parliament and of the Council, of 23rd July 2014 to our legal framework. This is also true for the development and consolidation of the Spanish

Marine Protected Areas Network, which permits implementing regulations to establish uniform criteria for managing marine sites of higher environmental value, and also defining the Lista Patrón de especies marinas and developing the conservation plans for those that are included in the Spanish Endangered Species Catalog.

Waste on beaches, an indicator in the marine strategy framework

- In 2016, 34,057 objects were collected from beaches during the campaign that was carried out in the Marine Waste on Beaches Monitoring Programme, 28.68% more than in 2013.



- Most of the objects were plastics, with percentage between 60% and 70% in the four analyzed years.

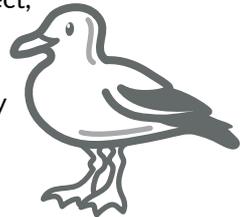
Delimited coast

- The 100,580 meters of new delimited coastline, approved in 2016, mean the Spanish coastline is delimited along 95.87% of its length.
- The General Coastal Regulation establishes that delimitation is the instrument to determine the maritime / terrestrial public domain.



Spanish Marine Protected Areas Network (RAMPE)

- There are currently 81 spaces in the RAMPE network: 10 marine reserves of fishing interest, 24 Special Areas of Conservation, one Protected Marine Area - which is also an SCZ, and the 46 Special Protection Zones for Birds under State's competence.
- It is expected to include 10 new marine spaces in this Network as a result of the INDEMARES project, proposed by Spain as Sites of Community Importance (SCI), of which 9 have already been approved by the EU.



Quality of marine bathing waters

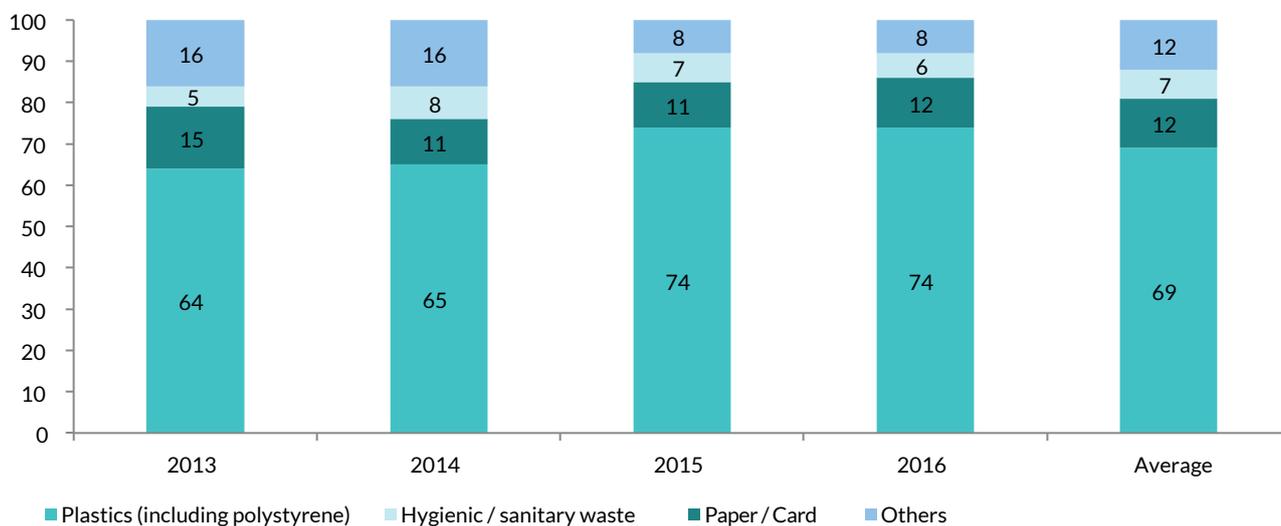
- The main conclusion concerning the quality of marine bathing waters is stability, very similar values to those of 2015 being attained, with 88.7% of the sampling points rated as excellent.
- The duration of the bathing season on the coast in 2016 was 9 days longer than in 2015, with an average total of 127 days, a maximum of 275 days in the Canary Islands, and a minimum of 87 days in Galicia.
- Spain is eighth in the EU in terms of percentage of bathing areas rated as excellent, the second in the number of waters rated as such.





Waste on beaches, an indicator in the marine strategy framework

Distribution of waste collected by type (%)



Source: MAPAMA

- *In 2016, 34,057 objects were collected from beaches during the campaign that was carried out in the Programa de Seguimiento de basuras marinas en playas, 28.68% more than in 2013.*
- *Most of the objects were plastics, with percentage between 60% and 70% in the four analyzed years.*

On the basis of the experience gained, in 2013 MAPAMA decided to increase routine surveillance and monitoring of beaches, including some in the Mediterranean and the Canary Islands, and creating the current “**Marine Waste on Beaches Monitoring Programme**”, which is seasonally carried out on 26 beaches on the Spanish coastline. This programme is carried out in order to count and classify objects found on beaches according to their typology (plastic, rubber, wood, paper and card, glass, fabric, hygiene / sanitary items, medical waste and others), to compare the situation on different beaches around Spain, to calculate trends and provide systematic information that permits establishing measures to reduce waste reaching the marine environment.

Statistical analysis of the data compiled over the first four years of this programme, provided a relevant vision of the marine waste accumulation density on beaches around the entire Spanish coast. As can be seen in the following graph, the highest percentage of objects are plastics, with percentages between 60% and 70%.

In the four analyzed years, the increase in objects collected compared to the 2013 data was 28.68%, although the maximum was reached in 2014 where collected objects increased by 34% in one year.

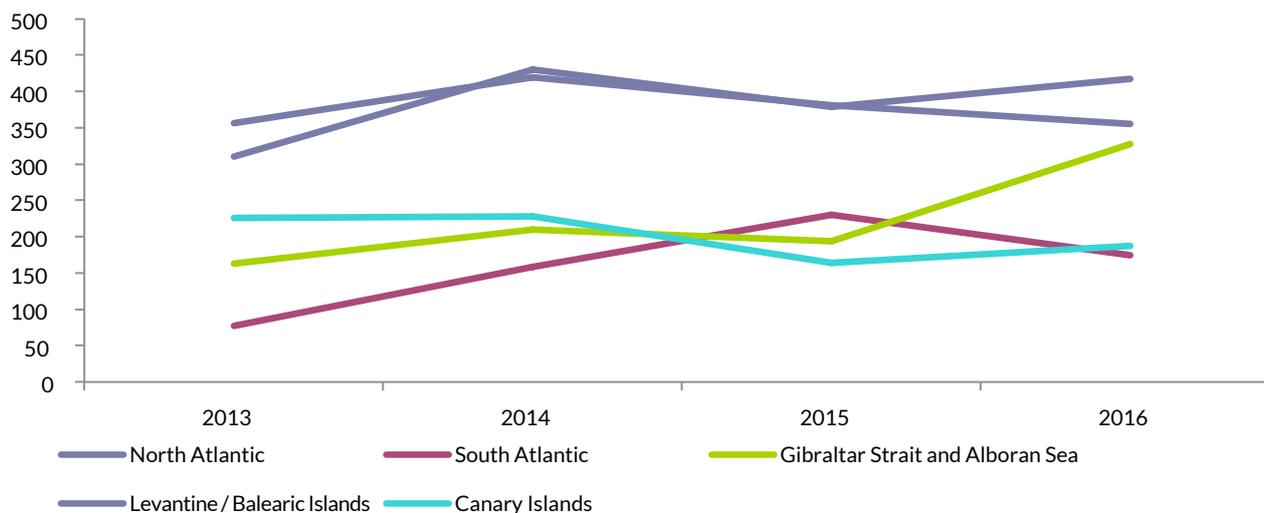
Campaign number and objects collected

	2013	2014	2015	2016	TOTAL
Campaigns	96	103	100	100	399
Objects	26466	35631	32046	34057	128200
Average	276	346	320	341	321

Source: MAPAMA

By area, there is a lot of variation too depending on the year, with notable increases, such as in the Gibraltar Strait and Alboran Sea in 2016 with over 50% increase, although the areas with highest levels are the longer coastlines: North Atlantic and Levantine Balearic.

Average of objects collected
per campaign and area



Source: MAPAMA

In 2015 the five marine strategy monitoring committees met to discuss the proposal for the programmes of measures, prior to public consultation process. The regional administrations proposed new measures, and redesigned others, in order to adapt them to the real situation of each coastal section. Of the 95 proposed new measures in the resulting document, in 34 the Autonomous Communities were the responsible authority, in many cases shared with other General State Administration authorities. Public consultation of the programmes of measures began on 23rd December 2015 and, once the allegations had been considered, they were published in 2016 and notified to the European Commission. The final documents can be consulted on MAPAMA'S website.

At European level, work has started on preparing the second cycle of marine strategies. Within this process at the end of 2016, the vote on Decision 2017/848 of the Commission is relevant, laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised



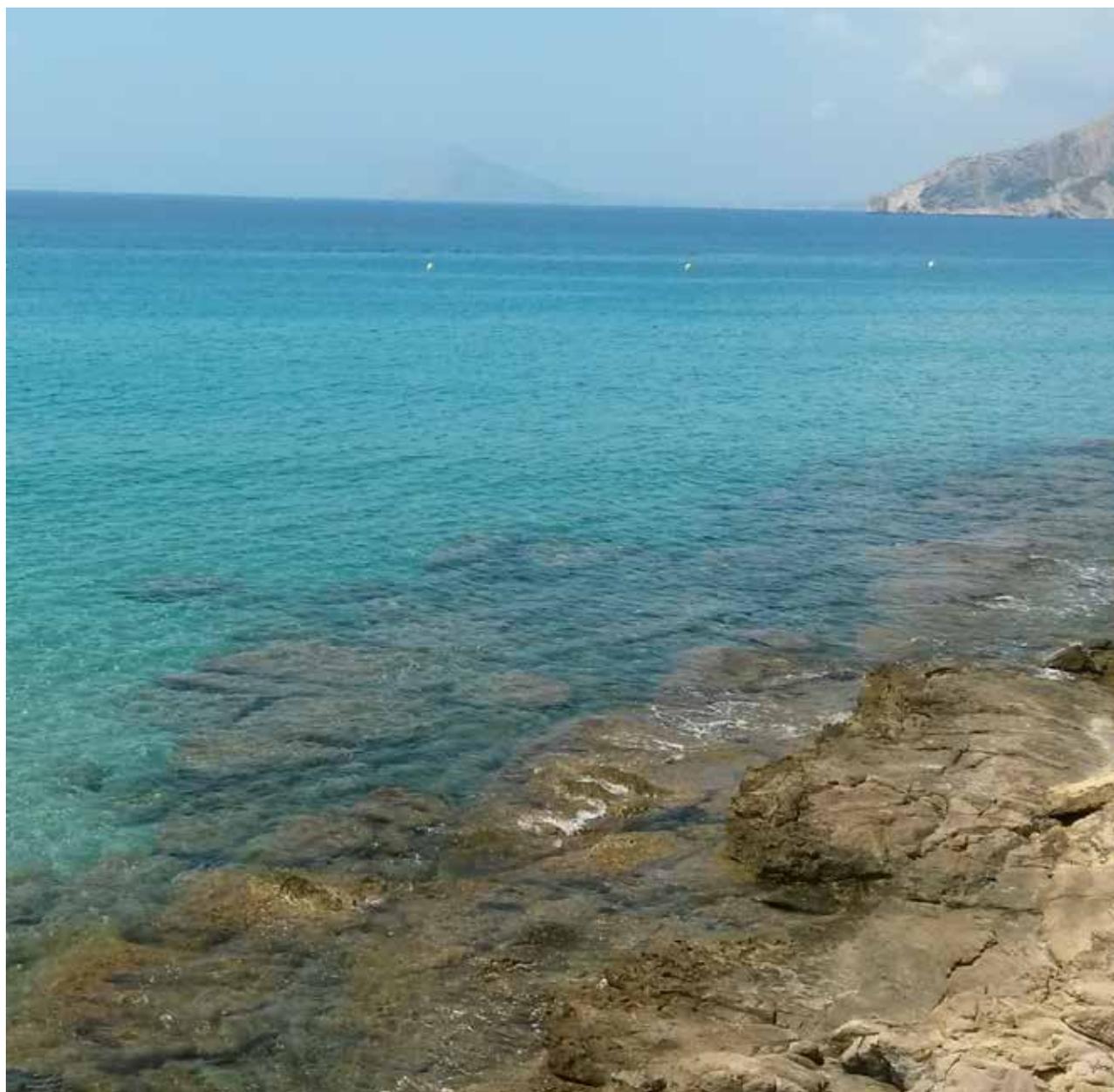
methods for monitoring and assessment, and repealing Decision 2010/477/EU. Likewise, the new Appendix III of the Marine Strategy Framework Directive was approved, in relation to the indicative lists of descriptors that should be taken into account when designing marine strategies through Directive 2017/845.

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Information supplied by the General Directorate on Sustainability of the Coast and the Sea.

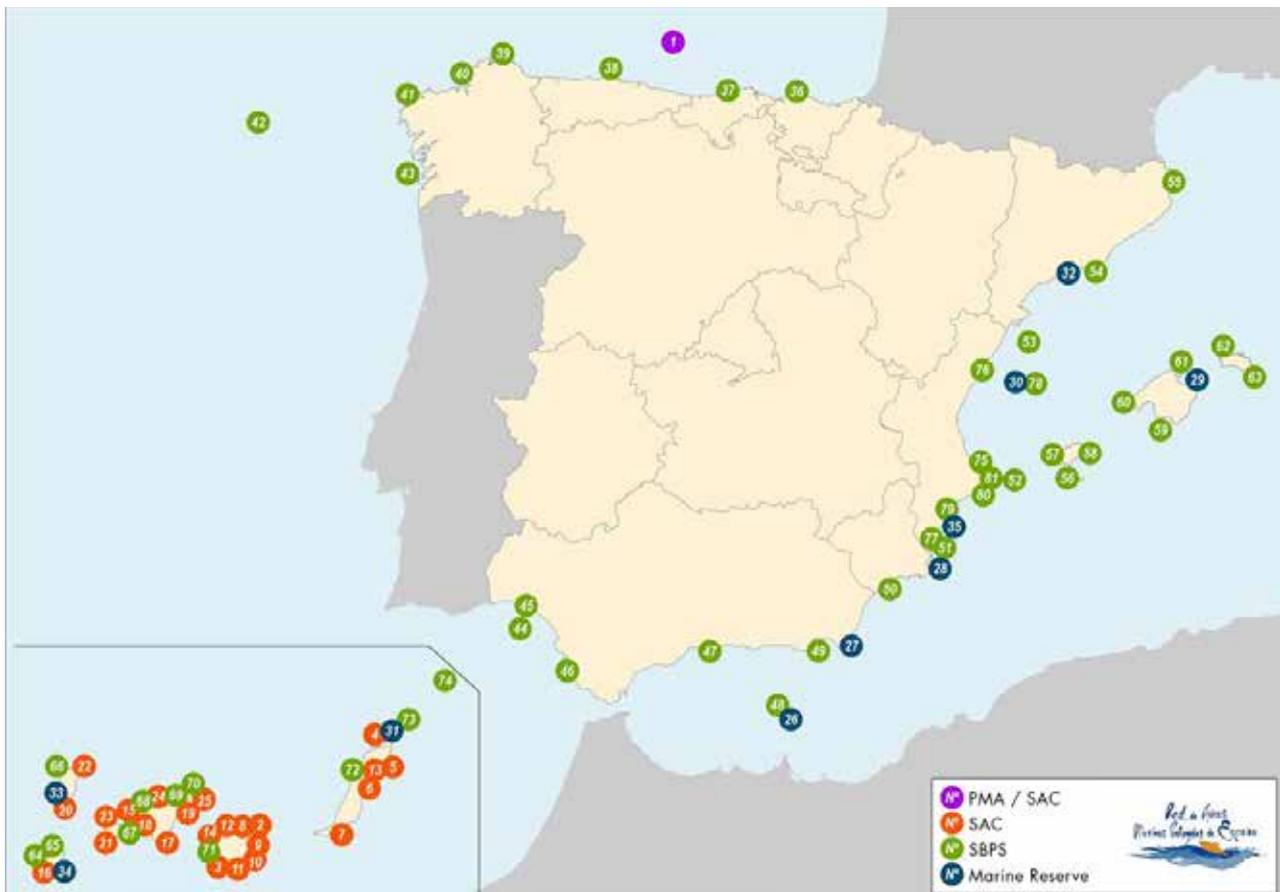
Websites of interest:

- <http://www.mapama.gob.es/es/costas/temas/proteccion-medio-marino/actividades-humanas/basuras-marinas/default.aspx>
- <http://www.mapama.gob.es/es/costas/temas/proteccion-medio-marino/estrategias-marinas/default.aspx>
- http://ec.europa.eu/environment/marine/index_en.htm





Spanish Marine Protected Areas Network (RAMPE)



1 El Cachucho	28 Cabo de Palos – Hormigas Islands	55 Espacio marino de l'Empordà
2 La Isleta marine area	29 Cala Ratjada-Levante de Mallorca	56 Formentera and South Ibiza Marine Area
3 Mogán marine strip	30 Columbretes Islands	57 Western and Northern Ibiza Marine Area
4 Sebadales de La Graciosa	31 Graciosa Island and North Lanzarote Isles	58 Eastern Ibiza Marine Area
5 Sebadales de Guasimeta	32 Masía Blanca Marine Reserve	59 Southern Mallorca and Cabrera Marine Area
6 Sebadales de Corralejo	33 La Palma Island	60 Western Mallorca Marine Area
7 Sotavento de Jandía Beach	34 La Restinja – Calmas Sea	61 Northern Mallorca Marine Area
8 Conifal Bay	35 Tabarca Island	62 Northern and Western Menorca Marine Area
9 Gando Bay	36 Ria de Mundaka- Cabo de Ogoño Marine Area	63 Southeastern Menorca Marine Area
10 Cabrón Beach	37 Islotes de Portios-Isla Conejera-Isla de Mouro Marine Area	64 Western El Hierro Marine Area
11 Sebadales de la Playa del Inglés	38 Cabo Peñas Marine Area	65 Roques de Salmor Marine Area
12 Costa de Sardina del Norte	39 Punta de Candelaria-Ría de Ortigueira-Estaca de Bares Marine Area	66 Northern La Palma Marine Area
13 Cagafrecho	40 Costa de Ferrolterra-Valdoviño Espacio marino de la	67 La Gomera- Teno Marine Area
14 Sebadales de Güigüi	41 Espacio marino de la	68 Santo Domingo and Roque de Garachico Cliffs Marine Area
15 Teno-Rasca Marine Strip	42 Banco de Galicia SBPS	69 Roque de la Playa Marine Area
16 Mar de las Calmas	43 Espacio marino de las Rías Baixas de Galicia	70 Anaga Marine Area
17 Sebadales del Sur de Tenerife	44 Gulf of Cadiz	71 Mogán-La Aldea Marine Area
18 San Andrés Sea Cave	45 Espacio marino del Tinto y del Odiel	72 La Bocayna Marine Area
19 Sebadal de San Andrés	46 Espacio marino de la Bahía de Cádiz	73 Lanzarote Isles Marine Area
20 Fuencaliente Marine Strip	47 Malaga Bay – Cerro Gordo	74 Banco de la Concepción SBPS
21 Santiago-Valle del Gran Rey Marine Strip	48 Alboran Island Marine Area	75 L'Almadrava
22 Garafia Coast	49 Almeria Bay	76 Orpesa i Benicàssim Marine Area
23 Los Órganos Coast	50 Murcia and Almeria Coastal Isles Marine Area	77 Cabo Roig Marine Area
24 San Juan de la Rambla Coast	51 Espacio marino de Tabarca-Cabo de Palos	78 Columbretes Islands Marine Area
25 Sebadales de Antequera	52 Cabo de la Nao Marine Shelf	79 Tabarca Marine Area
26 Alboran Island	53 Espacio marino del Delta de l'Ebre-Illes Columbretes	80 Ifac SBPS Marine Area
27 Cabo de Gata-Níjar	54 Espacio marino del Baix Llobregat-Garraf	81 Marina Alta Marine Area

Source: General Directorate on Sustainability of the Coast and the Sea. MAPAMA

- There are currently 81 spaces in the RAMPE network: 10 marine reserves of fishing interest, 24 Special Areas of Conservation, one Protected Marine Area - which is also an SCZ, and the 46 Special Protection Zones for Birds under State's competence.
- It is expected to include 10 new marine spaces in this Network as a result of the INDEMARES project, proposed by Spain as Sites of Community Importance (SCI), of which 9 have already been approved by the EU.



Act 42/2007 of 13th December, pursuant to Natural Heritage and Biodiversity, includes international directives on conservation of marine biodiversity, and specifically creates the figure of Protected Marine Areas as one of the categories of protected natural spaces. Likewise, it determines that these protected marine areas can be included in the Spanish Protected Marine Area Network (RAMPE).

Act 41/2010 of 29th December, pursuant to the Protection of the Marine Environment, formally created RAMPE, defining it and determining which protected marine spaces will comprise it and under what conditions.

Royal Decree 1599/2011 of 4th November was approved in 2011, establishing the criteria of protected marine spaces for integration in the Spanish Protected Marine Area Network.

There are currently 81 spaces in the RAMPE network: 10 marine reserves of fishing interest, 24 Special Areas of Conservation, one Protected Marine Area - which is also an SCZ, and 46 Special Protection Zones for Birds under State's competence.

In 2015 Spain proposed including 10 marine spaces from the INDEMARES projects as Sites of Community Importance (SCI), nine of which were listed as SCI in the Official Journal of the European Union in 2015, the tenth being included at the end of 2016.

Of the 10 approved SCI, six are in the Mediterranean bio-geographic region: Volcanes de fango del Golfo de Cádiz, Sistema de cañones submarinos occidentales del Golfo de León, Canal de Menorca, Sur de Almería - Seco de los Olivos, Espacio marino de Illes Columbretes y Espacio marino de Alborán. Another two sites are found in the Atlantic bio-geographic region: Banco de Galicia and Sistema de cañones submarinos de Avilés, and 2 in the Macaronesian bio-geographic region: Banco de la Concepción, Espacio marino del oriente y sur de Lanzarote-Fuerteventura.

These 10 SCIs will be included in the future Spanish Marine Protected Areas Network (RAMPE).

The obligation of drafting a **Director Plan for RAMPE** is established in Act 41/2010 (Article 29). The Director Plan will be the basic coordination instrument to achieve the objectives of RAMPE and will serve as a reference document for action that the State and the Autonomous Communities must take concerning the Network as a whole, and in particular in view of the requirements established at international and European Union level.

The Director Plan will be approved by Royal Decree and, in accordance with the environmental impact assessment regulations and the Marine Environment Protection Act, being required to be subject to the procedure of Strategic Environmental Assessment before it is implemented.

Indicator definition:

The indicator presents the marine spaces included in the Spanish Marine Protected Areas Network.

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2016. Information supplied by the *Dirección General de Sostenibilidad de la Costa y del Mar*.

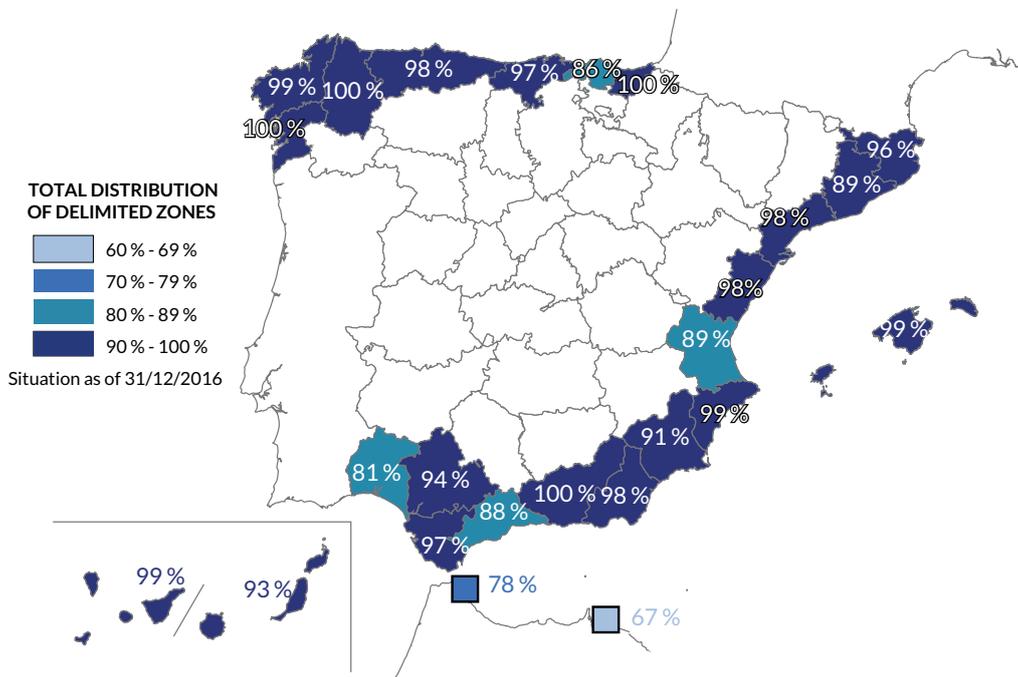
Websites of interest:

- <http://www.mapama.gob.es/es/costas/temas/proteccion-medio-marino/biodiversidad-marina/espacios-marinos-protegidos/red-areas-marinas-protegidas-espana/red-rampe-index.aspx>



Delimited coast

Percentage length of delimited coast. Year 2016



Source: Dirección General de Sostenibilidad de la Costa y del Mar. MAPAMAss

- *The 100,580 meters of new delimited coastline, approved in 2016, mean the Spanish coastline is delimited along 95.87% of its length.*
- *The General Coastal Regulation establishes that delimitation is the instrument to determine the maritime / terrestrial public domain.*

The **General Coastal Regulation**, approved in Royal Decree 876/2014 of 10th October, develops the legislation on coasts in order to settle the historical problems inherent to our coastline, guaranteeing legal security and promotion of activities that create employments and wealth in a sustainable manner. The immediate legislative precedents are in Act 2/2013 of 29th May, pursuant to Protection and Sustainable Use of the Coast, and the Amendment of the Coast Act 22/1988 of 28th July.

In 2016 100,580 meters of new delimitation were approved, which means that now 95.87% of all Spanish coastline is delimited. The principal goal behind this was to continue processing the files of the sections that had not yet been delimited and analyze those that should be, after revision.

The General Coastal Regulation introduces some important novelties in processing delimitation procedures, so that registration is mandatory thus guaranteeing adequate coordination between Administrations. These Administration Departments include the Dirección General de Costas, the Property Register and the General Directorate for Cadastre .

Access to delimitation information of Maritime / Terrestrial Public Domain can be achieved via three methods:



- Through the Ministry's Viewer.
- Through the Cadastre's Electronic Site of the Ministry of Finance and Civil Service, without the need of an electronic signature, and is available in Spanish and English for more convenient consultation by citizens from other countries.
- Accessing the WMS Service of the Maritime Terrestrial Public Domain.

Indicator definition:

The indicator presents the length of delimited coast by provinces and is expressed as the percentage of the total coast length in the province.

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Information supplied by the Dirección General de Sostenibilidad de la Costa y el Mar.

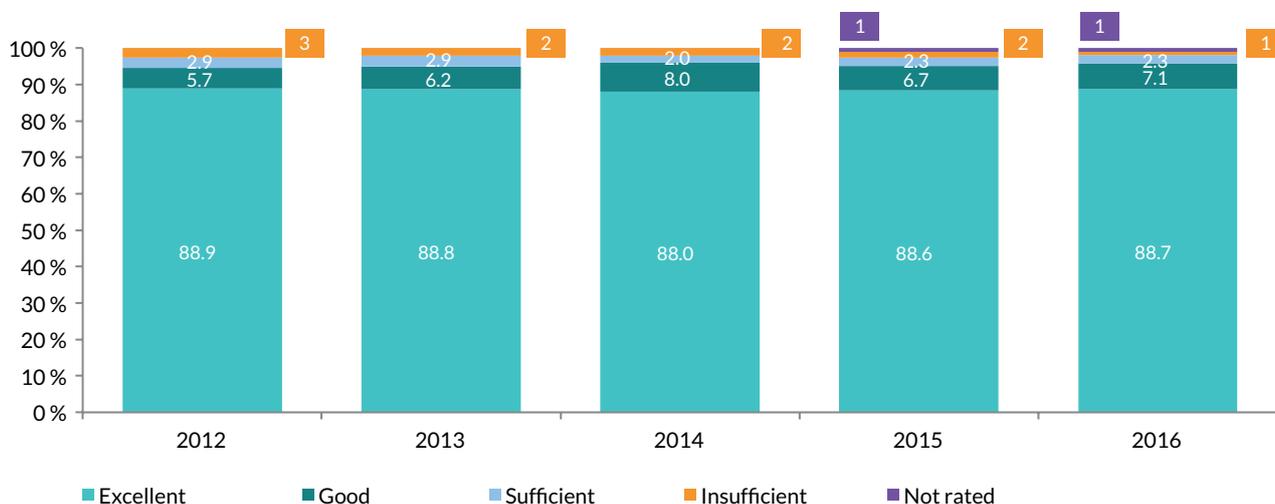
Websites of interest:

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



Quality of marine bathing waters

Percentage of sampling points classified by quality categories



Source: MSSSI

- *The main conclusion concerning the quality of marine bathing waters is stability, very similar values to those of 2015 being attained, with 88.7% of the sampling points rated as excellent.*
- *The duration of the bathing season on the coast in 2016 was nine days longer than in 2015, with an average total of 127 days, a maximum of 275 days in the Canary Islands, and a minimum of 87 days in Galicia.*
- *Spain is eighth in the EU in terms of percentage of bathing areas rated as excellent, the second in the number of waters rated as such.*

The report on bathing water quality in Spain is prepared each year by the Ministry of Health, Social Services and Equality, classifying each point in four ranges defined in current legislation, along with a category “Not rated” which corresponds to the sampling points where the number of minimum samples according to national legislation are taken. Moreover, this report is the basis of the Spanish contribution to the European report that the EU Commission prepares.

In the 2016 report there is a clear continuity of the trend following on from 2015, with an increase of 0.1% in the “Excellent” category, 88.7% of the sampling points being rated in that category. The values in other categories also remain stable, with the highest increase being 0.4% in the “Good” category, and the maximum decrease in the “Insufficient” category, recorded at 0.6%. In the Sufficient and “Not rated” categories there were no changes.

As for quantitative values, the number of sampling points increased by one point, with very small changes by categories: two more in the “Excellent” category, nine more in the “Good” category, one more in the “Sufficient” category, eleven less in the “Insufficient” category and one more in the “Not rated” category, which appears to indicate an improving trend with a reduction at the points with lower quality. Samples were not taken at Bocabarranco and Tauro beaches as they were undergoing works throughout the entire 2016 season.



The Autonomous Communities that have registered most sampling points for maritime waters are Galicia (436) and Andalusia (345). The average number of checks per sampling point is 10.7 at national level, the same as the previous year.

In 2016 there were a total of 109 short-duration pollution situations, with average duration of two days. There were a total of 30 exceptional circumstances in Spanish maritime bathing waters in 2016, with average duration of 9.5 days. In regard to abnormal situations, there were 11 in 2016 in coastal waters, with average duration of 31 days.

Quality of marine bathing water. Year 2016
No. of sampling points classified by quality categories

Excellent	Good	Sufficient	Insufficient	Not rated
1728	139	45	19	18

Source: MSSSI

The bathing season in our country generally lasts from the beginning of May to the end of September, with the exception of the Canary Islands whose bathing season is practically all year around, save for a brief winter break. The autonomous communities all defined at least one bathing season in 2016. Andalusia, Asturias, Catalonia, Ceuta, C. Valencia, Balearic Islands and Melilla registered just one maritime waters bathing season; Canary Islands and Murcia registered two; Cantabria three, Basque Country four and Galicia eleven.

At European level, 97.2% of the sampling points met the minimum quality standards in 2016, as established by the Directive on bathing waters, which was similar to 2015 (97.1%). Of these European level sampling points, 87% were rated “Excellent”, which in 2015 was 85.8%, an improvement that was inversely reflected in the decrease of sampling points rated as “Insufficient” quality (1.3% in 2016 and 1.6% in 2015).

In 2016, 23 of the EU member states -those with coasts- reported on 14,821 coastal bathing zones (without counting Albania, whose data are being revised). All the bathing zones in Belgium, Lithuania, Malta, Romania and Slovenia were at least rated “Sufficient” (Cyprus, Estonia, Greece, Croatia, Latvia and Holland did not record any bathing waters of “Insufficient” quality, but did have “Not rated” zones, and in five other countries more than 95% of the waters were rated “Excellent”. Slovenia (100%), Cyprus (99.1%), Malta (98.9%), Greece (97.1%) and Croatia (96.4%). Spain ranked eighth in the EU in this subject. In number, Spain was second, only behind Italy with 4414 sampling points rated “Excellent” and ahead of France, which only had 1634 sampling points in the “Excellent” category.

Spain is the third country in terms of highest number of coastal sampling points, with 1949, accounting for 13.1% of the EU total in 2016, approaching the number in France (2066) but a far cry from Italy where there are 4864 sampling points.

Indicator definition:

The indicator shows a percentage over the total sampling points included every year in each of the quality ranges established by legislation, of which there are four since 2011: “Insufficient”, “Sufficient”, “Good” and “Excellent”.

Notes:

- Directive 2006/7/EC regulates bathing water quality management. In Spain, this aspect is regulated by transposing the Directive to internal regulations via Royal Decree 1341/2007.
- The official census for the 2016 season in Spain identified 1688 zones of maritime bathing waters. For the census, all the Entities and Administrations with bathing zones within their territory took part. 12 communities and autonomous cities, 24 provinces and 399 townships.
- 17 zones of marine bathing waters rated “Insufficient” over five consecutive years were canceled from the 2016 census. Furthermore, Andalusia reported cancellation of one sampling point due to changes in the circumstances under which El Cable beach was designated as a bathing zone.
- In the 2016 bathing season, 1 SP/BZ (sampling point per bathing zone) was reported in 88.9% of cases, and 2 SP/BZ in 8.3%, with a maximum of 8 SP/BZ (Matalascañas beach in Huelva), leading to a national average of 1.2 SP/BZ. The average BZ per township was 4.9 with a maximum of 29 in Cartagena (Murcia). In Mediterranean waters the average was 3.1 BZ per township, whereas on the Atlantic and Cantabria sides, the average was 4.2.
- The annual rating of the sampling points is carried out in conjunction with the data from the last three seasons, owing to which data from 2013, 2014 and 2015 were used in 2016.
- As a bathing water quality management tool, and in order to facilitate information collection, a national bathing water information system was developed, known as NAYADE, supported by a Web application.

Source:

Bathing Water Quality in Spain. Technical Report. 2016 Season. Check the web: Ministerio de Sanidad, Servicios Sociales e Igualdad. Health/ Professionals/ Public Health. Environmental and Occupational Health/ Water Quality/ Aguas de Baño/ Publicaciones.

Websites of interest:

- <http://www.msssi.gob.es/profesionales/saludPublica/saludAmbLaboral/calidadAguas/aguasBanno/publicaciones.htm>
- <http://www.eea.europa.eu/publications/european-bathing-water-quality-in-2016>
- <https://nayadeciudadano.msssi.es/>





2.08

GREEN CIRCULAR ECONOMY

One of the emblematic initiatives of the EU's strategy for growth and employment "Europe 2020" is to achieve efficient use of resources, using them sustainably through changes in production and consumption models.

The European Environment Agency identifies the transition towards a green economy in Europe and neighbouring countries as one of the necessary responses in order to ensure long-term sustainability. Three dimensions are identified in that transition: to increase the efficiency of resources, making it necessary to extract the maximum value from resources and minimize the emissions and waste produced; increase the resilience of ecosystems and reduce the risks for health and welfare, and finally to change the production and consumption systems so that they meet the basic social demands through environmental, socio-economic and financial and tax policies that support investment in innovation and infrastructure.

At the end of 2015 the Commission adopted a package of measures on the circular economy that included an action plan for the European Union. The adopted measures cover the complete lifecycle of products: design, production, consumption and management of waste and secondary raw materials. This package of measures and proposals to drive the green growth in the EU considers the need to improve efficiency of resources in order to move towards an increasingly green, more competitive economy. In addition to more efficient use of resources, eco-innovation, sustainable use of raw materials, improved production and consumption patterns, plus the prevention and appropriate management of waste, comprise the framework proposed by the European Commission to develop this economic model for future growth.

In Spain, the current planning for efficient waste management is based on the 2014-2020 National Waste Prevention Program and the National Waste Management Framework Plan (PEMAR 2016-2022). Both initiatives are in line with the aforementioned 2020 Strategy and with the priority targets of the 7th EU Environment Action Program (EAP), valid until 2020. Spain's commitment to a circular economy means that developing a Circular Economy Strategy consistent



with the European strategy is necessary. This future strategy will be designed according to a circular model in which resources remain in the production cycle for a longer time, thus producing less waste as part of it will no longer be considered waste and will be usable materials in other production processes. It is the complete opposite of the linear economic model consisting of Take - Make - Consume - Dispose. The Spanish strategy is expected to be structured around major horizontal lines of action: technological innovation in production processes, green public purchasing and promoting the use of the European ecological label and of the ECO Management and Audit Scheme.

There are several initiatives that have been adopted to improve efficient use of resources in recent years. In this sense, implementation of voluntary agreements that associations, businesses and private individuals have performed regarding efficient use of resources going beyond the legally enforceable requirements are particularly noteworthy. It is desirable for associations and industries to continue committing to further improving waste management. The “More food, less waste” Strategy cannot be ignored. A program that “reduces losses and waste of food and exploits food that has been discarded”, designed by the Ministry in 2013. With the aim of limiting food losses and waste and reducing environmental stress, the strategy has a three-year horizon that permits achieving the established action and then revising the strategy once the initial period has ended.

Along these same lines and as a result of the work carried out in previous months, in January 2017 Royal Decree 20/2017 was approved pursuant to vehicles at the end of their useful life, which establishes the measures aimed at preventing waste being produced from vehicles, at collecting and preparing them for further use, recycling and other forms of recovery of vehicles at the end of their working life, including their components, in order to reduce waste elimination and improve effectiveness in protecting human health and the environment throughout the lifecycle of vehicles. This is a clear example of the principle of a circular economy, which, as described earlier, is based on converting waste into resources that can be used in production processes, thus avoiding consumption of new materials and processing waste (dumping it in tips or incinerating it).

The Spanish Group for Green Growth is a benchmark business cluster on the efficient use of resources. In their 2016 report “Crecimiento verde: España hoy y mañana” a number of interesting recommendations are set out. Furthermore, their website defines a circular economy as “*that which optimizes material stocks and flows, energy and waste from the perspective of efficient use of resources in a product. Under this paradigm, everything we currently know as waste must be turned into a new raw material, with a residual amount of waste being produced*”.



Energy intensity of the economy

- The energy intensity in Spain is below the mean in the EU.
- Only nine of the EU28 states had lower energy intensity of their economy than Spain in 2015.
- In 2015 the energy intensity of Spain's economy increased by 0.9%.



National consumption of materials



- In 2014, national consumption of materials increased for the first time since 2008, rising by 0.8% compared to 2013.
- As was the case in previous years, productivity of materials continued its upward trend.
- Per capita, the intensity of national consumption of materials also reported an increase over 2013, thus breaking the existing trend.

Organizations with Eco-Management and Audit Scheme (EMAS)

- There were 925 organizations registered with EMAS in 2016.
- In 2016, Spain held the third position in number of organizations registered with EMAS, behind Germany and Italy.

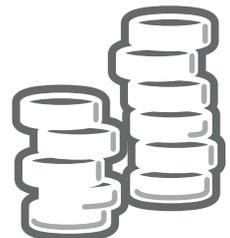


Environment taxes

- In 2015, Spain had the highest income from environmental taxes in recent years, with an increase of 5.0% over 2014.
- Also in 2015, Spain contributed 5.7% of all environmental taxes in the EU-28, once again holding sixth position in terms of highest contributions.
- Environmental taxes accounted for 1.89% of Spain's GDP in 2015 and 2.4% of the GDP of EU-28.

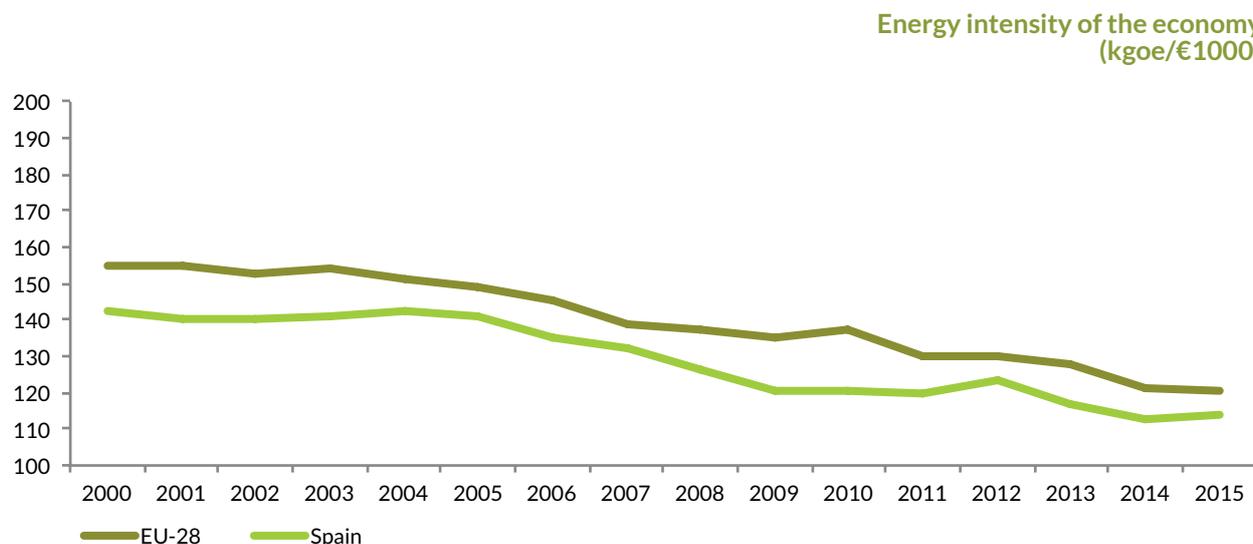
Approach to green employment

- In 2016 the number of people occupied in services that could be considered "environmental" increased to nearly 124,000.
- Those occupied in activities such as water supply, sewage, waste management and decontamination accounted for between 0.6% and 0.8% of the total employed persons.





Energy intensity of the economy



Source: Eurostat.

- *The energy intensity in Spain is below the mean in the EU.*
- *Only nine of the EU28 states had lower energy intensity of their economy than Spain in 2015.*
- *In 2015 the energy intensity of Spain's economy increased by 0.9%.*

Energy intensity estimates the quantity of energy necessary to produce one unit of the Gross Domestic Product, and can therefore be considered an approximation of the economy's energy efficiency. The less energy a country uses to produce one unit of economic wealth, the more efficient its economy is.

In the last year there was a slight increase (0.9%) in the energy intensity in Spain's economy, from 112.7 kgoe/€1000 in 2014 to 113.7 kgoe/€1000 in 2015.

The cause of this increase is in the increase in energy consumption, which was higher than the GDP (4.1% compared to 3.7% respectively), which has increased the gap in the ratio.

In recent years Spain has reported an energy intensity below the mean in the EU, and is ranked 10th in countries with lowest intensity, better than Holland, France and Finland for example.

In this sense it is worth highlighting that in 2015 7.5% of gross domestic consumption of energy in the UE-28 was by Spain, which is ranked fifth among these countries. Nevertheless, when this consumption is per capita, Spain is ranked fifteenth.

In November 2016 the European Commission presented a package of measures to enhance competitiveness of the European Union, in line with the change that is taking place in world energy markets stemming from the transition towards clean energy. One of the lines of action is "giving priority to efficiency", considering the binding target of reaching 30% energy efficiency between now and 2030 (above the 27% agreed in 2014), which will



also reduce the dependence on imported energy and will create employment. This strategy promotes a more competitive energy system, one that is more modern and cleaner which will also lead to a reduction in emissions of greenhouse gases to the atmosphere.

The communication “Clean Energy for All Europeans” (COM (2016) 860 Final) includes legislative proposals referring to energy efficiency, renewable energies, design of the electricity market and security in the electricity supply and governance rules for the Energy Union. The Commission also proposes new ecological design perspectives and a strategy for automated, connected mobility.

Indicator definition:

Annual relation between gross domestic energy consumption and gross domestic product (GDP). It measures energy consumption in an economy, and therefore permits knowing the economy's energy efficiency in general. This ratio is presented for the mean of EU-28 states and for Spain, permitting a comparison of the two trends.

Notes on methodology:

The gross domestic energy consumption is calculated as the sum of gross domestic consumption of five types of energy: coal, electricity, crude oil, natural gas and renewable energy sources. The GDP figures are taken in linked volumes referring to 2005. This ratio is measured in kilograms of oil equivalent (kgoe) per 1000 Euros.

Energy intensity is a way of assessing energy efficiency, since it analyzes if economic growth is achieved with less energy consumption.

Source:

Eurostat. Information obtained from the website. Available on: Database/Tables by themes/Environment and Energy/Energy/ Energy statistics- main indicators/ Energy intensity of the economy (tsdec360).

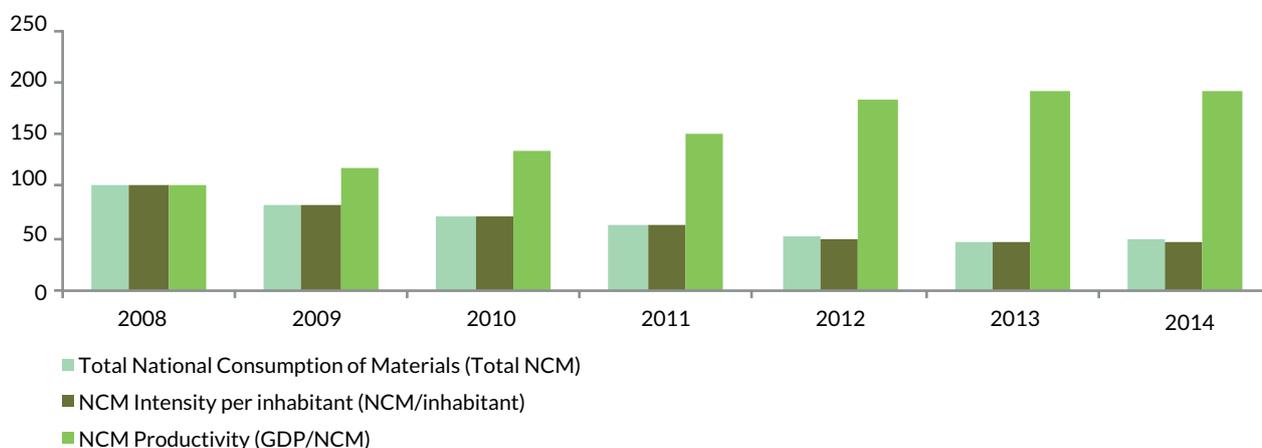
Websites of interest:

- <http://ec.europa.eu/eurostat/data/database>
- <https://www.eea.europa.eu/data-and-maps/indicators/total-primary-energy-intensity-3/assessment><https://ec.europa.eu/jrc/en/energy-efficiency/eed-support>



National consumption of materials

National consumption of materials: total, intensity and productivity (Index 2008 = 100)



Source: INE

- *In 2014, national consumption of materials increased for the first time since 2008, rising by 0.8% compared to 2013.*
- *As was the case in previous years, productivity of materials continued its upward trend.*
- *Per capita, the intensity of national consumption of materials also reported an increase over 2013, thus breaking the existing trend.*

To identify the behavior of the economy in relation to the environment, the principal indicators used stem from the **Material Flow Account**: this is the productivity of materials and national consumption of materials per capita, both stemming from national consumption of materials.

In 2014 the national consumption of materials was 391.1 million tonnes, 0.8% more than in 2013. It measures the total quantity of materials directly used by the economy, with the main component being national extraction (80.3% of the total) which compared to 2013 fell by 0.5%.

The main extracted materials in national territory in 2014 were non-metallic minerals and biomass (56.8% and 39.8% of the total respectively). Concerning the former, materials linked to construction, such as limestone and gypsum, sand and gravel and construction or ornamental stones, accounted for 46.8% of all national extraction.

The other component in the physical trade balance which represented 19.7% of material consumption is the difference between imports and exports. It increased by 6.8% in 2014 compared to the previous year, with both variables having increased at a similar rate, leading to the aforementioned increase in national consumption of materials. Imports were higher than exports and reached 240.6 million tonnes in 2014, compared to 163.7 million of the latter.

2014 also saw an increase in productivity of materials in our economy of 0.5%, reaching 2646.8 Euros per tonne.



This is the lowest increase in recent years, which in 2013 was 4.7% and in 2012 was 22%.

The relationship between the national consumption of materials and the population shows the intensity of this consumption per capita, which in 2014 was 8.4 t/inhabitant. This figure is similar to the two previous years, although slightly higher than in 2013 by 1.1%, thus breaking the previous decreasing trend.

National consumption of materials, productivity and intensity (GDP and inhabitant) in Spain

	2008	2009	2010	2011	2012	2013	2014
National Consumption of Materials (NCM) (1000 t)	811939.7	662726.5	588651.0	519537.2	413070.4	387880.7	391087.6
Productivity of materials: GDP/NCM (euros/t)	1380.4	1630.8	1836.3	2059.7	2514.7	2632.3	2646.8
NCM intensity per capita (t/inhabitant)	17.7	14.3	12.6	11.1	8.8	8.3	8.4

Source: INE

Eurostat assigns Spain in 2014 5.8% of total material consumption in EU-28, same as the estimate for 2015. In 2014 Spain was the second country in the EU-28 states with least national consumption of materials per capita (with the same forecast for 2015). Only Italy has lower values.

Indicator definition:

The indicator presents an index (2008 = 100) of the evolution of national consumption of materials (NCM) and two of the principal ratios stemming from it: Productivity of NCM and intensity of NCM per capita.

Notes on methodology:

- The National Consumption of Material is the total quantity of materials directly used in the economy. The material flow accounts shows the physical *inputs* of materials that enter the national economic system and the *outputs* to other economies or to the natural environment. National extraction includes the annual quantity of solid, liquid and gaseous raw materials (excluding water and air) extracted from the environment for use as material *input* in the economic system. These include biomass, minerals and fossil fuels.
- Material productivity refers to the quantity of Gross Domestic Product (GDP) generated per national consumption unit of materials in euros per tonne. It is calculated as the ratio between the GDP and national consumption of materials and permits knowing the performance of the economy in relation to the environment.
- The intensity of NCM per capita assesses the distribution of consumed resources each year among the total inhabitants and is calculated by dividing the national consumption of materials between the population.

Source:

National Statistics Institute. Material Consumption Accounts. Check the web: INEbase / Agriculture and Environment / Environmental accounts / Material Flow Accounts / Results / Material Flow Accounts. Base 2010 / 2008-2014 Series: Direct material flows and main indicators of flow materials / Latest data / Results

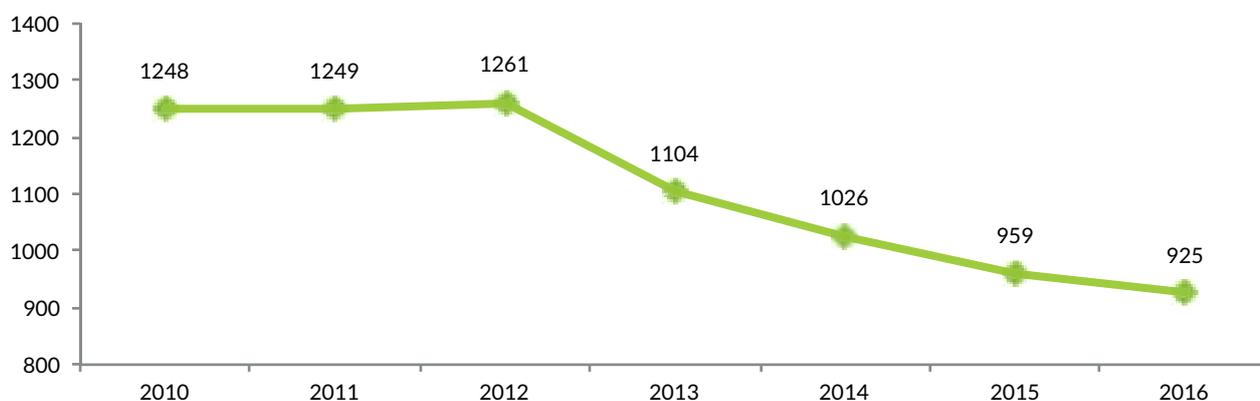
Websites of interest:

- http://www.ine.es/dyngs/INEbase/en/operacion.htm?c=Estadistica_C&cid=1254736176943&menu=ultiDatos&idp=1254735976603
- <http://www.ine.es/prensa/np1000.pdf>



Organizations with Eco-management and Audit Scheme (EMAS)

Number of Spanish organizations adhered to EMAS



Source: MAPAMA

- *There were 925 organizations registered with EMAS in 2016.*
- *In 2016, Spain held the third position in number of organizations registered with EMAS, behind Germany and Italy.*

Through voluntary registration in EMAS, companies make a statement about their commitment to the environment through the implementation of an environmental management system that permits evaluating, managing and improving their environmental performance.

In 2016 Spain had 925 organizations and 1025 registered centers. These figures are lower than previous years, with the maximum being recorded in 2012 with 1261 registered organizations.

This decreasing trend must be read in accordance with the economic crisis of the last few years. Nevertheless, this situation shows signs of change with an increase in the business fabric in the Central Companies Directory of the National Statistics Institute, which states that on 1st January 2016 the number of active companies in Spain was quantified at 3.24 million, an increase of 1.6% compared to 2015 (second consecutive increase in the number of active companies after six years of decrease).

The commitment by the Spanish business sector to the environment is evident when analyzing the European context. Of the 3943 organizations registered with EMAS in 2016 in EU-28 states, 925 were Spanish (23.5% of the total registered European countries), with Spain, Germany and Italy holding the leading positions in terms of number of registered organizations in this scheme.

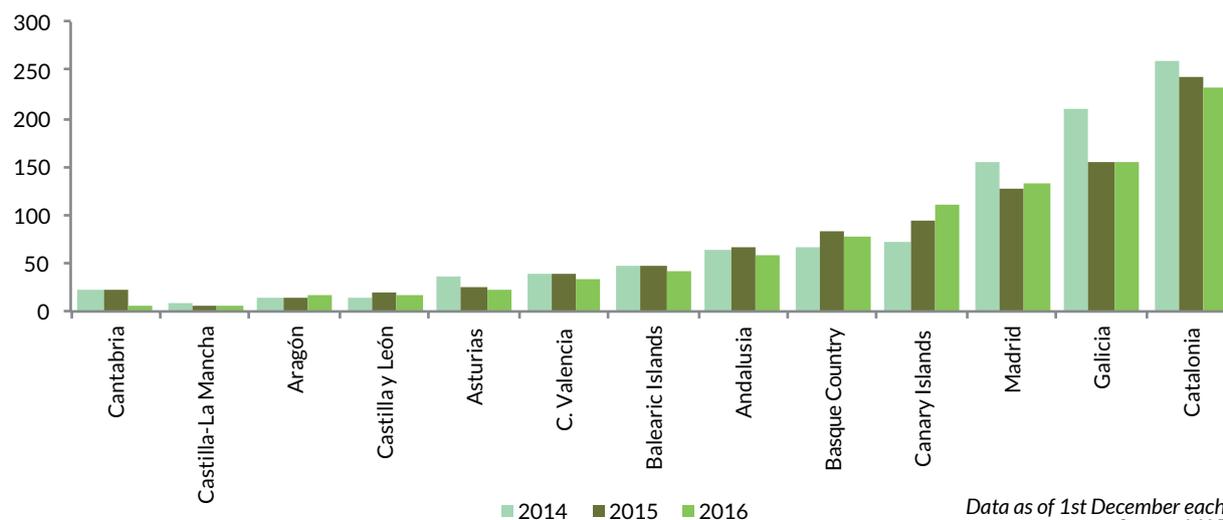
The pattern over previous years concerning distribution by sectors remains the same in 2016, with slightly over 70% being services (including water supply, sewage, waste management and decontamination and supplies of electricity, gas, steam and air conditioning), almost 20% in the manufacturing industry and around 5% in the



construction industry. The sectors including agriculture, livestock farming, forestry and fisheries, along with mining industries are the least committed to EMAS.

By autonomous communities in Spain, adhesion distribution varies greatly. Only Catalonia, Galicia, Madrid and the Canary Islands accounted for 70% of all registered centers in Spain. There was a general decrease in the number of registered centers in the Autonomous Communities between 2015 and 2016. The case of the Canary Islands is particularly noteworthy, where 12% of the total registered centers in 2016 are located, and which also grew by 17% (from 94 to 110).

**Number of Spanish organizations adhered to EMAS.
(Only Autonomous Communities with more than five adhered companies).**



Data as of 1st December each year.
Source: MAPAMA

Indicator definition:

The indicator presents the number of registered organizations at the end of each year in the Eco-management and Audit Scheme (EMAS).

Notes on methodology:

- EMAS (*Eco-Management and Audit Scheme*), is a voluntary rule in the EU that recognizes organizations which have implemented an Eco-Management Scheme and have acquired a commitment to continuous improvement, verified through independent audits. In Spain, Royal Decree 239/2013 of 5th April, establishes the application standards for Regulation (EC) 1221/2009 of the European Parliament and of the Council, of 25th November 2009, pursuant to voluntary participation by organizations in a community eco-management and audit scheme (EMAS).
- The European EMAS website features information added to the database in real time, owing to which the information on registered organizations at the end of each year must be specifically consulted at a given time. The information on the EU-28 states features the number of registered organizations as of 1st December 2016, owing to which it can be considered as final data for 2016.
- Revision and update of the records in the European database (still pending adaptation in some countries), along with the effects of the economic crisis over recent years (which has led to a large number of registered companies closing down, and many others have adjusted their budgets and done away with the procedures to renew their inclusion in EMAS), are just some of the reasons for the decrease in the number of EMAS registered companies. Nevertheless, this situation has been generalized throughout the EU, meaning that Spain is still in the leading positions in the ranking of EU countries with organizations registered in EMAS.

Source:

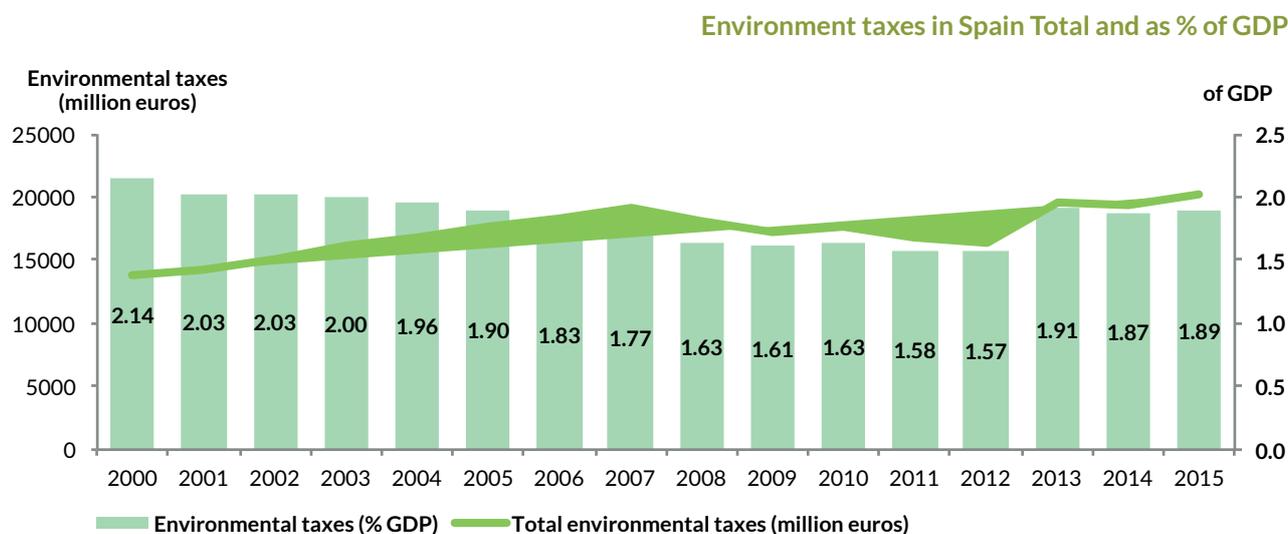
Data supplied by the Directorate General of Environmental Quality and Assessment and of the Natural Environment. MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment). The 2014, 2015 and 2016 data refer to 1st December each year.

Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-comunitario-de-ecogestion-y-ecoauditoria-emas/>
- http://ec.europa.eu/environment/emas/index_en.htm



Environmental taxes



Source: Eurostat.

- *In 2015, Spain had the highest income from environmental taxes in recent years, with an increase of 5.0% over 2014.*
- *Also in 2015, Spain contributed 5.7% of all environmental taxes in the EU-28, once again holding sixth position in terms of highest contributions.*
- *Environmental taxes accounted for 1.89% of Spain's GDP in 2015 and 2.4% of the GDP of UE-28.*

Environmental taxes have the aim of affecting the environmental performance of players in the economy (producers and consumers) and also to collect funds that can be assigned to protection of the environment.

The public income in Spain from environmental taxes amounted to 20306 million Euros in 2015 (representing 1.89% of the GDP). This is the highest income in recent years, with an increase of 5.0% over 2014. The analysis of this trend clearly shows the effects the crisis has had on this collection process. since from 2007 there has been a decrease in income, and it was only in 2013 when the first increase was recorded after the low in 2012. Between 2012 and 2015 there has been an increase of 24.3%.

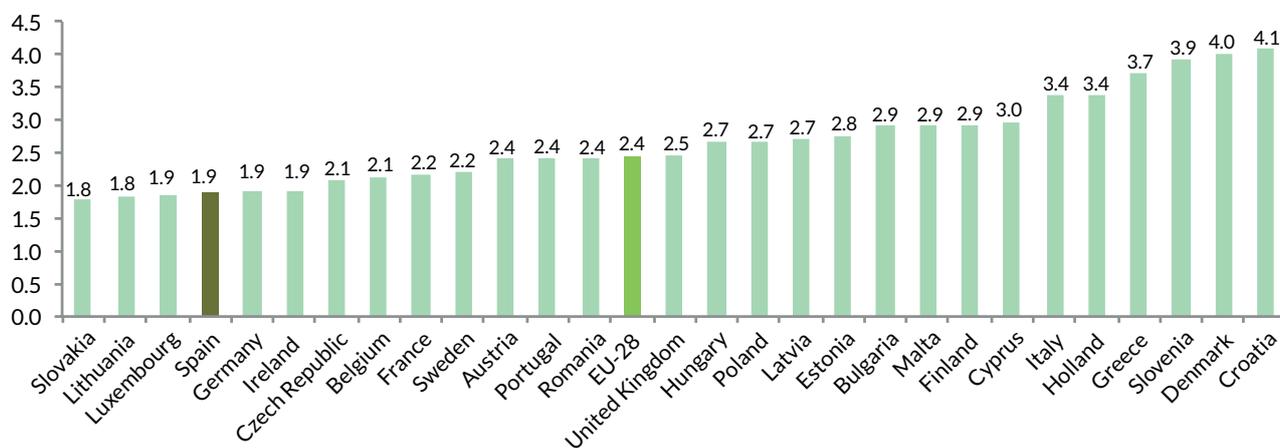
The collection in the last year was especially relevant on energy, which accounts for over 83% of the environmental taxes. Taxes on transport are also relevant, accounting for 12.5% of the total environmental taxes. However, taxes on pollution and on the use of resources have been less significant although they were the ones that most increased in the last year.

In 2015 Spain contributed 5.7% of total environmental taxes in EU-28, and once again, as was the case of the previous year, held sixth position of the countries that most contribute. By tax category, Spain contributed 6.2% of total energy taxes and 3.6% of transport taxes.

In the EU-28 states, environmental taxes accounted for 2.4% of the GDP in 2015. In this sense, with the aforementioned 1.89% of the GDP, Spain held fourth position of the countries with lowest percentage of environmental tax in relation to the GDP.



Environmental taxes as a percentage of the GDP. Year 2015



Source: Eurostat.

Indicator definition:

The indicator presents the annual value of the quantity collected as environmental taxes. It is expressed in million Euros and as a percentage of the Gross Domestic Product.

Notes on methodology:

- Regulation (EU) 691/2011 of the European Parliament and of the Council, of 6th July 2011, on European environmental economic accounts, is the reference framework for common concepts, definitions, classifications and accounting rules for preparing environmental accounts. For the first time it includes a module of this account for annual transfer.
- The environmental tax account is itemized in two final consumers as receivers of this type of tax: businesses and households. Environmental taxes are defined as those whose taxable amount consists of a physical unit (or similar) of a material that has a proven, specific negative impact on the environment. It includes taxes on energy, taxes on transport and taxes on pollution (dumping and release of pollutants to the atmosphere, for example) and taxes on resources (including capture of water and extraction of raw materials except oil and gas) and forestry resources, among others, and excludes value added tax.

Source:

Information from Eurostat. Available on: Data / Database by themes / Environment and energy / Environment (env) / Environmental taxes (env_eta) / Environmental tax revenues (env_ac_tax)

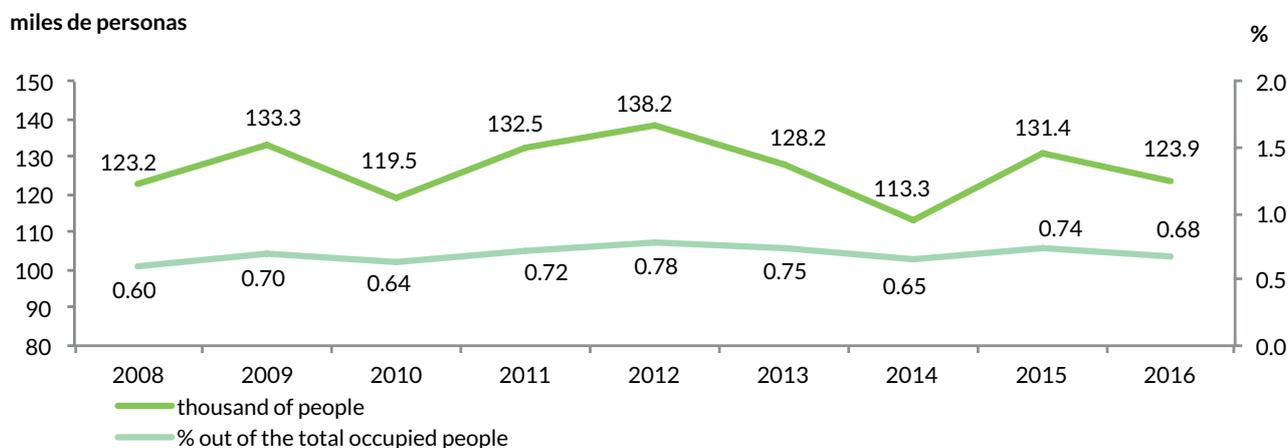
Websites of interest:

- http://www.ine.es/dyngs/INEbase/es/categoria.htm?c=Estadistica_P&cid=1254735976603
- <http://www.ine.es/prensa/np999.pdf>
- http://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_tax_statistics



Approach to green employment

Employed by activity branch: group E (water supply, sewage, waste management and decontamination) of CNAE (Spanish Business Activity Codes) 2009 (thousands of people and % over total number of employed)



- *In 2016 the number of people occupied in services that could be considered “environmental” increased to nearly 124000.*
- *Those occupied in activities such as water supply, sewage, waste management and decontamination accounted for between 0.6 % and 0.8 % of the total employed persons.*

Today there is no consensus to characterize the green employment situation which permits the access to systemically elaborated data on this important economic niche. It is possible however to analyze the evolution of a part of the employment associated with certain activities linked to environmental services.

The Active Population Survey, undertaken annually by the National Statistics Institute, includes detailed information about people employed in activities included in Group E of the 2009 National Business Activity Code (CNAE), which gathers water supply, sewage, waste management and decontamination in one group. The number of employed persons in these activities as a whole can be used as an approach to monitor the evolution of employment in certain services that can be considered to be related to the environment.

Data since 2008 show an irregular behavior with a pattern that is difficult to define. There was a minimum number of persons employed in this group of activities in 2014, caused by a reduction in all areas except for “decontamination” and “other waste management services”. In comparison with the total, those occupied in activities such as water supply, sewage, waste management and decontamination accounted for between 0.6% and 0.8% of the total employed persons.



**Total occupied persons in Spain and for activities associated with environmental services,
by activity branch (thousand of persons)**

Occupied in Spain	2008	2009	2010	2011	2012	2013	2014	2015	2016
Totals	20469.7	19106.9	18724.5	18421.4	17632.7	17139.0	17344.2	17866.0	18341.5
E: Water supply, sewage activities, waste management and decontamination	123.2	133.3	119.5	132.5	138.2	128.2	113.3	131.4	123.9
36 Capture, treatment and distribution of water	41.0	41.6	44.3	44.9	44.9	43.8	37.7	39.8	45.6
37 Collection and treatment of waste waters	6.2	7.5	7.4	5.6	6.2	7.3	5.4	5.0	6.9
38 Collection, treatment and elimination of waste; reuse	69.5	77.8	63.4	76.5	77.6	69.5	62.1	77.9	66.2
39 Decontamination and other waste management services	6.5	6.4	4.3	5.6	9.5	7.7	8.1	8.7	5.2
% over total occupied persons	0.60	0.70	0.64	0.72	0.78	0.75	0.65	0.74	0.68

Source: INE

The Eurostat statistics on “Environmental economy: employment and growth” is encompassed within the Environmental Services and Assets Account. In accordance with the estimates, employment in the environmental economy in EU-28 has increased from 2.8 million jobs (measured in full-time workers) in 2000, to 4.2 million in 2014. The activities covered in this group are those of waste management, waste water management, energy resources, water, and other environmental protection. The contribution by employment in energy resources management is particularly noteworthy in this growth.

Indicator definition:

The indicator shows the number of people employed in the activity branches included in Group E of the 2009 Spanish Business Activity Code, which includes activities related to **water supply, sewage, waste management and decontamination**, exclusively, expressed in thousands of people. It also shows the % of those employed people over the total. It is therefore a **very limited estimate**, since it excludes those occupied in other CNAE 2009 groups of business activities that could also be considered as environment related (conservation of the environment, game management, environmental research, environmental technology, etc.), and those in other sectors who carry out environmental activities, such as the experts in the environment departments of manufacturing or service industries.

Notes on methodology:

The indicator only refers to people employed in Group E of the Spanish Business Activity Code (CNAE 2009) and includes those involved in water supply, sewage, waste management and decontamination. It can be considered a partial approach for the purpose of studying trends, but cannot be considered a global figure of the number of people employed in environment, and hence of the “green employment”.

Source:

National Statistics Institute, 2017. Active Population Survey (EPA). Check the web: INEbase/Labour market/Economic activity, employment and unemployment/Economically Active Population Survey/Annual Results/Average of the four quarters of the year/ Employed persons/ 3.24 Employed by sex and branch of activity. Absolute values and percentages over the total for each sex

Websites of interest:

- http://www.ine.es/dyngs/INEbase/en/categoria.htm?c=Estadistica_P&cid=1254735976595
- <http://www.eea.europa.eu/themes/economy/intro>
- <https://www.eea.europa.eu/themes/sustainability-transitions/#>
- <http://www.eea.europa.eu/media/newsreleases/the-2018green-economy2019-can-encourage>
- http://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_economy_-_employment_and_growth





ENVIRONMENTAL RESEARCH, DEVELOPMENT AND INNOVATION

2.9

Strategic planning of R&D&I in Spain is encompassed in a global context in which different administration departments participate. There are several frameworks that operate within this environment: Regional, State and European. Coordination of the different policies is fundamental for optimum development thereof.

2016 saw a continuation of the science, technology and innovation policies, consolidating the work carried out over previous years.

At State level, the legal, strategic and financial framework of the Spanish Science, Technology and Innovation System was delimited by the 14/2011 Act of 1st June, on Science, Technology and Innovation, the 2013-2020 Spanish Science, Technology and Innovation and the State Plan, 2013-2016 for Scientific and Technical Research and Innovation Plan.

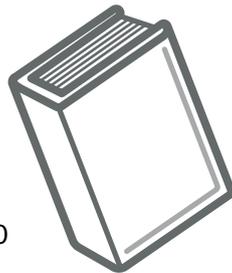
In December 2015 creation of the State Research Agency was approved, as contemplated in the Science, Technology and Innovation Act, which opened on 20th June 2016. The Agency was created with the mission of promoting scientific and technical research in all fields of knowledge, through competitive, efficient adjudication of public resources, monitoring of financed actions and their impact, and consultancy on the planning of actions and initiatives through which R&D policies of the General State Administration are instrumented.

Once regional R&D&I strategies have been submitted and approved under the Research and Innovation Strategies (RIS3), in order to comply with the *ex ante* condition established by the European Commission for jointly financing R&D&I activities with ERDF (European Regional Development Fund) for the period 2014-2020, autonomous communities develop their research and innovation priorities.



Principal bibliometric indicators in the field of environmental science

- 4.1% of all Spanish scientific publications in 2015 were related to the field of environmental science. There was a total of 5260 documents.



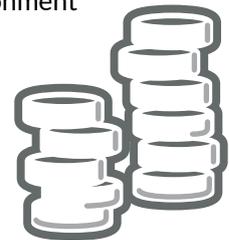
General State Administration's R&D&I Budget for environmental programs

- In the 2017 General Budget, the credits assigned to R&D&I for environment programs accounted for 3.5% of the total.



R&D&I grants for environmental issues by the General State Administration

- The grants awarded by the General State Administration in 2015 for the environment amounted to 126.6 million Euro, distributed among 597 approved applications.



Environmental thematics in calls for public R&D grants

- Between 2013 and 2015 applications for 4692 project in some way related to the environment were submitted, accounting for 13.4% of all applications.



Public financing for environmental R&D

- In 2015, the final Budget credits for the environmental socio-economic objective accounted for 3.77% of the total credits.





Principal bibliometric indicators in the field of environmental science

Principal bibliometric indicators in the field of environmental science

Year	Number of documents	Percentage over world production	Standardized impact	Publications rate Q1	Rate of excellence	Rate of excellence with leadership	Rate of international cooperation	Spain's position in the world ranking by number of documents
2006	2618	3.5%	1.43	63.0%	14.8%	11.5%	36.8%	10
2007	2852	3.4%	1.45	63.4%	17.1%	12.9%	36.8%	10
2008	3149	3.7%	1.46	66.1%	16.8%	13.3%	38.5%	10
2009	3547	3.7%	1.45	66.0%	16.2%	12.7%	37.4%	10
2010	4002	4.0%	1.45	64.7%	16.2%	12.3%	39.7%	9
2011	4398	3.9%	1.45	66.3%	15.3%	11.1%	43.5%	8
2012	4637	4.1%	1.45	65.4%	15.4%	11.6%	43.8%	8
2013	4829	4.0%	1.47	67.7%	15.3%	11.0%	46.9%	8
2014	5181	4.0%	1.49	66.0%	16.1%	11.7%	48.6%	9
2015	5260	4.1%	1.49	64.4%	16.8%	11.7%	52.3%	8

Source: ICONO-FECYT taken from Scopus data (consulted in May 2017)

- **4.1% of all Spanish scientific publications in 2015 were related to the field of environmental science. There was a total of 5260 documents.**

Spanish scientific production in environmental sciences has grown by 101% over the last 10 years, increasing from 2618 documents in 2006 to 5260 in 2015. In 2015 Spain held the eighth position in the world ranking of environmental scientific production, one better position than in 2014.

The standardized impact in 2015 was again 1.49, the same as in 2014, which means that the environmental science documents are cited 49% more than the world average in the area. This data exceeds the average in Spain, for which the standardized impact is 1.30.

The production indicator of articles in 25% of the journals with highest impact, reached 64.4% in 2015, 13 percent higher than the average in Spain, with excellence rate reaching 16.8%, when the average figure in Spain is 12.9%.

The indicator on documents published through international cooperation is particularly noteworthy, as this figure has reported year-on-year increases since 2009, to stand at 52.3% in 2015. This indicator was also above the Spanish average, which currently stands at 47.1%.

**Indicator definition:**

Bibliometric variables: number of documents, standardized impact, percentage of documents in Q1 journals, excellence percentage, excellence with leadership percentage, percentage of documents with international cooperation and the position of Spain in the world *ranking* by number of documents.

Notes on methodology:

- Documents: articles in research journals, editorials, meeting summaries and book reviews.
- Standardized impact: average world quotes by document for the year and area in which the document was published.
- Journals in Q1: publications in journals in the first quarter (25%).
- Excellence: publications that are within the 10% most cited, taking into consideration the year of publication and subject category.
- Excellence with leadership: publications that are within the 10% most cited, and are led by a Spanish author, taking into consideration the year of publication and subject category.
- International cooperation: publications in which the associate authors are from more than one country.

Source:

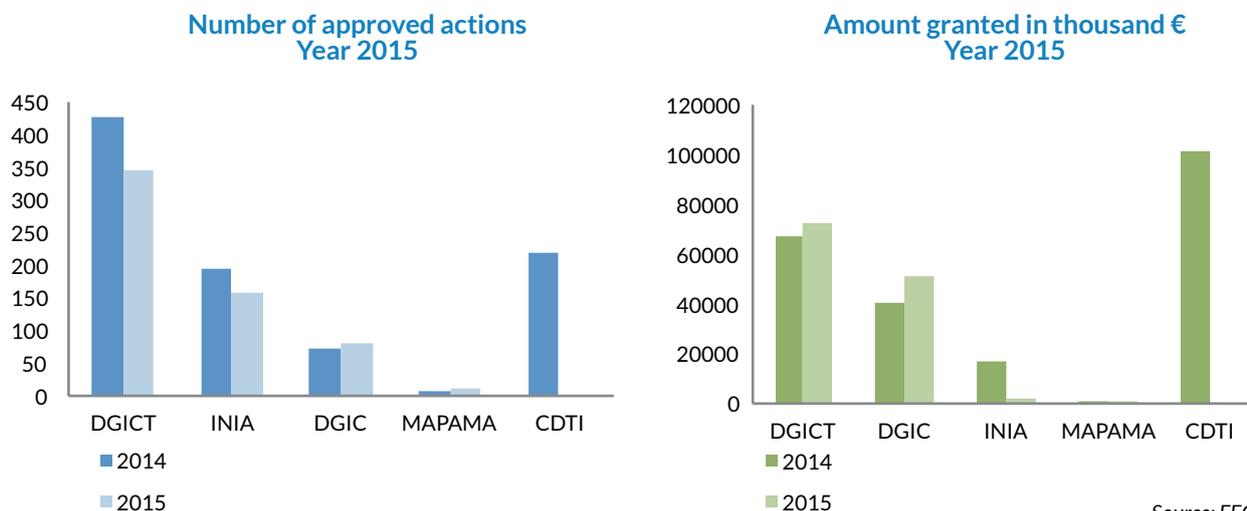
ICON-FECYT taken from Scopus data (consulted in May 2017).





R&D&I Grants for the Environment by the General State Administration

Number and amount granted for actions approved
by the General State Administration for Environmental R&D&I



Source: FECYT

- **The number of grants awarded by the General State Administration in 2015 for the environment was 597 with a total granted amount of 126.6 million Euros.**

The number of R&D&I actions awarded grants by the General State Administration (GSA) for environmental issues in 2014 and 2015 is the one shown by this indicator. Actions and financing considered are those for the programs called for by:

- Ministry of Agriculture and Fisheries, Food and Environment: “Scientific Research Projects in the National Park Network”.
- National Institute for Agricultural and Food Research and Technology (INIA): “Grants for Training Research Staff (FPI-INIA)”, “Complementary Actions”, “R&D&I PROJECTS”, “Research, Development and Innovation Projects in the Rabbit Farming Sector (2014)” and “Post-doctorate Contracts (2015)”.
- Center for Industrial Technology Development (CDTI): “EEA Grants”, “CDTI’s R&D Projects on Environmental and Climate Change: Business R&D&I”, “Challenges and Essential Enabling Technology”, all called in 2014.
- Directorate General of Scientific and Technical Research (DGICT): the selected challenges are “Action on Climate Change and Efficiency in the Use of Resources and Raw Materials”, and “Food Safety and Quality: Sustainable and Productive Agricultural Activity, Natural Resources, Marine and Maritime Research” for the calls for Research Challenges.



- Directorate General of Innovation and Competitiveness (DGIC): the selected challenges are “Action on Climate Change and Efficiency in the Use of Resources and Raw Materials”, and “Food Safety and Quality: Sustainable and Productive Agricultural Activity, Natural Resources, Marine and Maritime Research” for the calls for Collaboration Challenges.

The 2015 figures comprise a total of 597 actions with environmental grants, with the total sum amounting to 126.6 million Euros. That year, as in 2014, the calls for Research and Collaboration Challenges are particularly noteworthy.

**Notes:**

- The amount of these actions corresponds to the pluri-annual expenses commitment.

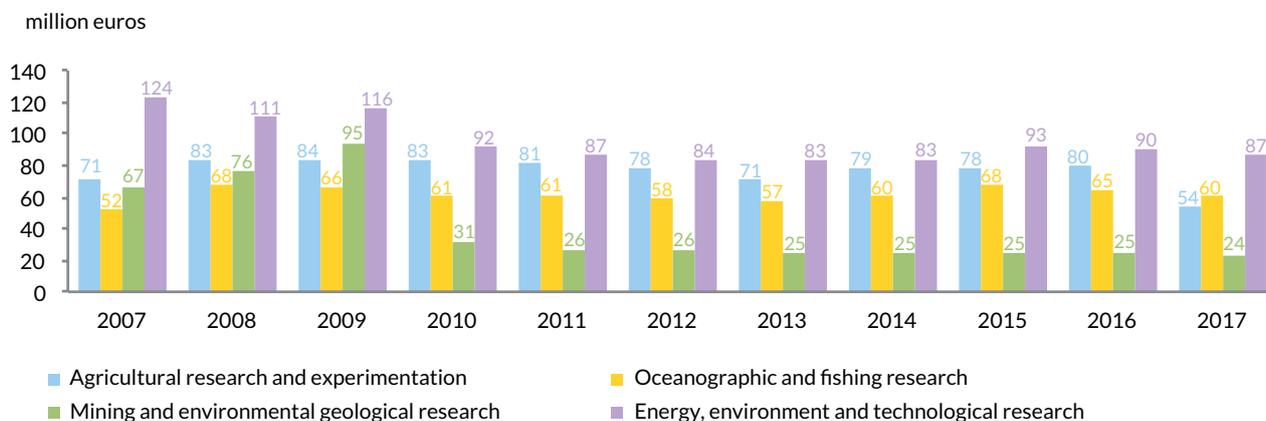
Source:

Data supplied by the Department of Indicators and Monitoring of R&D&I Policies by the Spanish Foundation for Science and Technology, based on data supplied by the different grant-calling entities. Ministry of Economy, Industry and Competitiveness.



General State Administration R&D&I Budget for **environmental programs**

Evolution of the R&D&I budget by expenditure in environmental programs



Source: Ministry of the Treasury and Public Administration, General Budget.

- **IN THE 2017 GENERAL BUDGET, CREDITS ASSIGNED TO R&D &I for environmental programs, accounted for 3.5% of the total.**

The evolution of the Budget for R&D&I for environmental programs in recent years is shown in the graph. "Energy, Environmental and Technological Research" has the highest budget each year, followed by "Agricultural Research and Experimentation". However, agricultural experimentation was relegated to third position in 2015 owing to the increase in "Oceanographic and Fisheries Research".

The expending programs considered as for the environment are the following: 467D Agricultural Research and Experimentation; 467E Oceanographic / Fisheries Research; 467F Geological / Mining and Environmental Research and 467H Energy, Environmental and Technological Research. These four groups of programs jointly accounted for 3.5% of the R&D&I budget in 2017, having been reduced by 0.5% compared to the previous year.

The funding in 2015 for environmental programs represented 4% of the total credits assigned to R&D&I in the General Budget.

Note:

Consulted in April 2017.

Source:

Budget data for the R&D&I (Cost Policy 46), from the Ministry of the Treasury and Public Administration, General Budget.

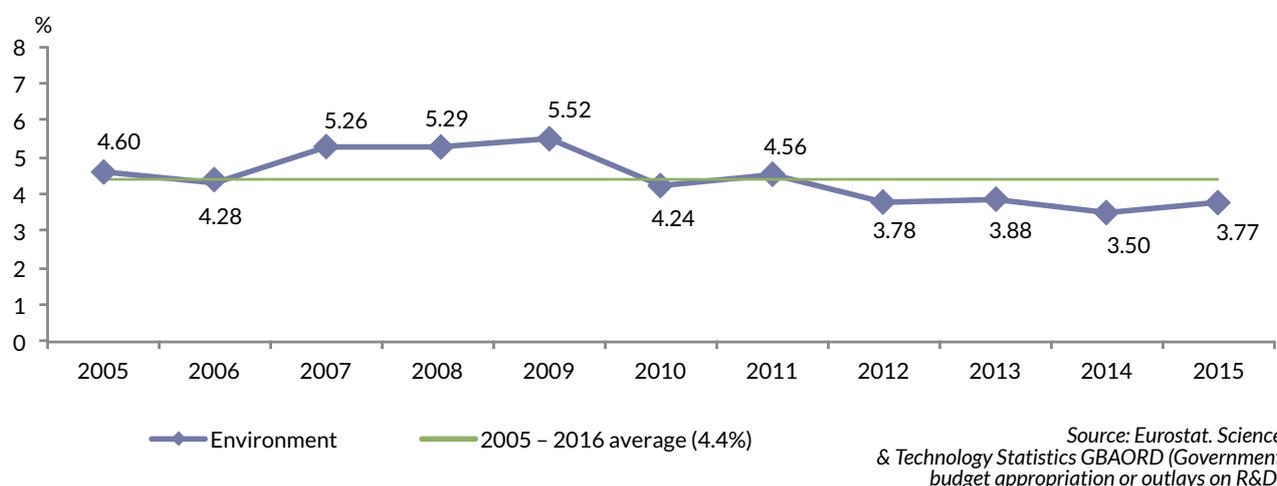
Further information

- <http://www.pap.minhfp.gob.es/sitios/pap/es-ES/Paginas/Inicio.aspx>
- <http://icono.fecyt.es/Paginas/home.aspx>



Public financing for environmental R&D

Percentage distribution of final credits by socio-economic environmental objective



- In 2015 the final Budget credits assigned to the environmental socio-economic objective accounted for 3.77% of the total budget credits.

The analysis of financial resources assigned by the General State Administration and the Autonomous Communities to Research and Development activities, is the objective of the GBAORD Statistics (*Government budget and appropriations or outlays for Research and Development*).

This research operation also informs about the socio-economic objectives towards which governments aim their R&D funding. For this purpose, the statistics include the budgets identified by the NABS (Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets) socio-economic objectives, the official budget classification proposed by the European Union.

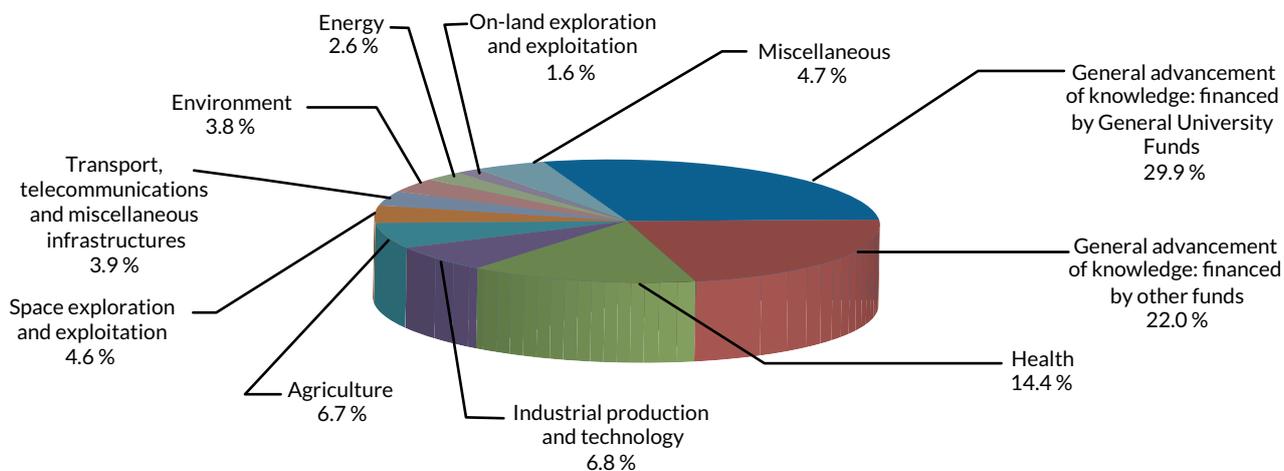
This is a statistical operation carried out by the Secretariat of State for Research, Development and Innovation of the Ministry of Economy, Industry and Competitiveness, and has been included in the National Statistics Plan for several years. It is carried out in accordance with the statistical reporting requirements by the Organization for Economic Cooperation and Development (OECD) and the European Union's Statistics Office (Eurostat).

The above graph shows the evolution of the final budget credits for the environmental socio-economic objective that the Public Administrations assign to R&D, expressed as a percentage over the total R&D budget.

In 2015, 3.77% of the total final credits by the socio-economic objective was assigned to environmental programs, this percentage having been increased compared to the previous year (3.5% in 2014), but below the average for the last decade, which stands at around 4.4%. In 2005, this percentage reached 4.6% of the total final credit distribution, and reached its highest figure in 2009 at 5.5%. On the other hand, the following graph shows the percentage distribution in 2015 of these final credits by socio-economic objectives.



Percentage distribution of final credits by socio-economic objectives (based on NABS). 2015



Note: The category "other" includes: Defense (1.4%); Culture, leisure, religion and media (1.3%); Political and social systems, structures and processes (1.1%) and Education (0.89%).

Source: Eurostat. Science & Technology Statistics. GBAORD (Government budget appropriations or outlays on R&D)

Note:

Public financing for R&D, known as GBAORD Statistics (*Government budget and appropriations or outlays for Research and Development*) has the aim of determining the financial resources that the public administration departments, both central and regional, assign to R&D activities, by identifying the data in two stages: budgets approved by parliaments at the start of the budget year (initial credits) and definitive budgets, revised and approved during the budget year (final credits).

Source:

Eurostat. Science & Technology Statistics. GBAORD (*Government budget appropriations or outlays on Research and Development*)

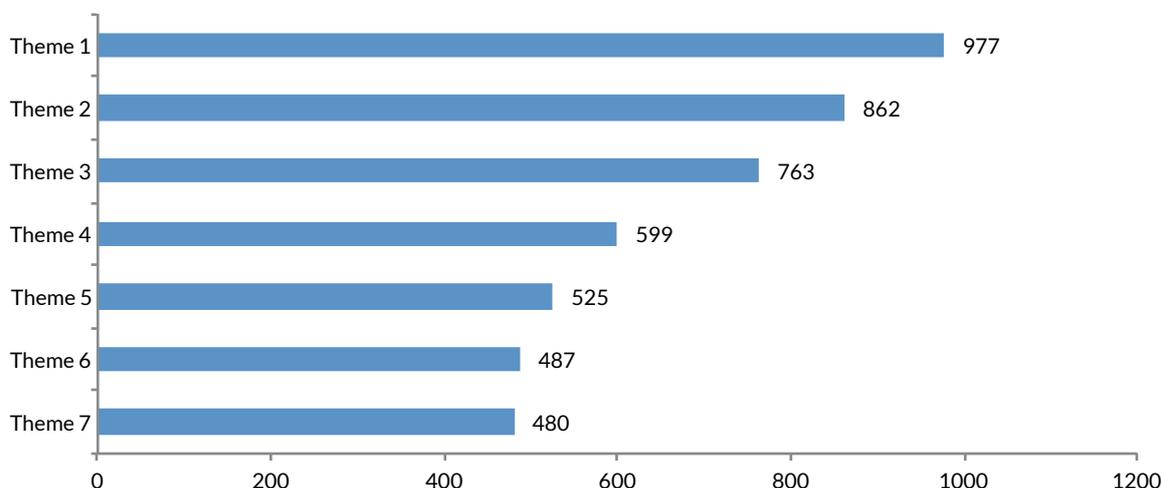
Further information

- <http://ec.europa.eu/eurostat/web/science-technology-innovation/statistics-illustrated>



Environmental thematics at calls for public R&D funding

Environmental thematics in calls for public grants:
Number of project applications by environmental themes. 2013-2015



Source: FECYT

- *Between 2013 and 2015 applications for 4692 project in some way related to the environment were submitted, accounting for 13.4% of all applications.*

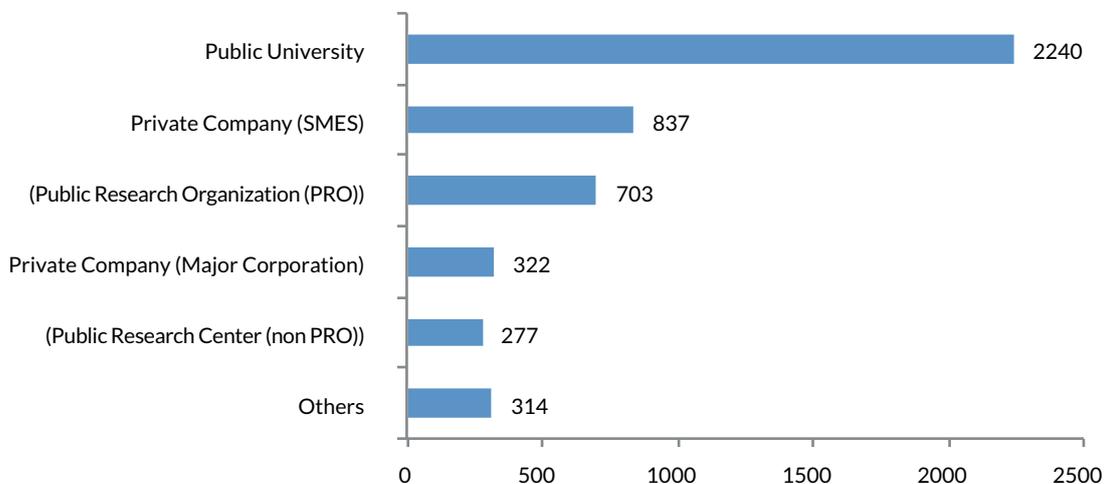
In 2016 the Spanish Foundation for Science and Technology (FECYT), the Secretariat of State for Research, Development and Innovation (SEIDI) and the Secretariat of State for the Information Society and Digital Agenda (SESIAD) launched a joint project on Natural Language Processing Technologies in R&D&IPOLICIES.

Within the project activities is the exploitation of non-structured information (texts) from project summaries requested within the State Plan for Scientific and Technical Research and Innovation. Through this analysis, “themes” or groups of words that usually arise can be identified in a collection of documents, which permits generating knowledge about themes related to R&D&I PUBLIC GRANTS. The selected “themes” for the environment were the following:

- Theme 1: “species, climate change, biodiversity, ecosystem, climatic, ecological, Mediterranean, marine, community, forestry”.
- Theme 2: “waste, biomass, catalyst, reuse, fuel, gas, emissions, water, industrial”.
- Theme 3: “plant, crop, soil, fungus, vegetable, tomato, species, pests, resistance, agricultural”.
- Theme 4: “energy, power, electrical, converter, solar, battery, renewable energies, photovoltaic, temperature, load”.
- Theme 5: “pollutant, water, contamination, soil, emerging, toxicity, environmental, rock, metal, mineral”.
- Theme 6: “energy, city, management, building, urban, *smart*, energy efficiency, service, infrastructure”.
- Theme 7: “sensor, signal, system, localization, detection, emergency, aerial, GPS, navigation, real time”.



Environmental thematics in calls for public grants: number of project applications by entity type. 2013-2015



Source: FECYT

Source:

Cornerstone Sectoral R&D Watchdog Project (FECYT-SEIDI-SESIAD) Data supplied by the Department of Indicators and Monitoring of R&D&I Policies by the Spanish Foundation for Science and Technology. Calls included in the State Plan from 2013 to 2015.







2.10

WASTE

In December 2015 the European Commission presented the “Circular Economy Package” integrated in the action plan “closing the loop” and a regulation package revising several waste directives, mainly the waste framework Directive 2008/98/EC, Directive 94/62/EC on packaging and packaging waste and Directive 1999/31/EC on the landfill of waste sites. From then on, and throughout all 2016, there have been simultaneous negotiations in the European Parliament and the Council; with the latter having held up to 25 meetings and a common position has almost been adopted. In addition to attending the meetings of the European Council, the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA) has organized many meetings requested by affected players in order to voice their opinions in relation to the proposed regulations.

Within the Coordination Commission on Waste in 2016, the different specialist working groups continued to work on carrying out each of their specific tasks. Several in-person meetings were held, mainly by the groups working on simplification, standardization and electronic processing, and on electrical and electronic appliance waste. As a result of the working group on simplification, standardization and electronic processing, the implementation of the Production and Waste Management Register , with information uploaded by the autonomous communities, has been started. Likewise, the services of the “ESIR” electronic platform for implementation of the waste transfer procedure via electronic channels, have been extended



The working group on electrical and electronic equipment waste (WEEE) has made progress in the implementation of the contents of Royal Decree 110/2015, particularly concerning the technical aspects of installations and assessment of applications for integrated management systems to adapt them to the new requirements as collective systems of joint responsibility of producers under the provisions of the new regulations. Furthermore, according to the provisions of Article 29, the 2016 objectives on sorted collection of WEEE have been established, which will be calculated in accordance with indications in Temporary Provision Four, i.e. 45% of the mean weight of electrical and electronic devices introduced onto the Spanish market in 2013, 2014 and 2015. In terms of the objective by inhabitant and year, for 2016, in all national territory, a total minimum objective of 5.46 kg WEEE per inhabitant is established, estimating collection of 4.62 kg WEEE from domestic use and 0.84 kg of WEEE from professional use.

Also in 2016, work continued on preparing and processing several regulation projects concerning waste:

- In relation to packaging waste, work took place on transposing Directive (EU) 2015/720 of the European Parliament and Council, of 29th April 2015, amending Directive 94/62/EC as regards reducing the consumption of lightweight plastic carrier bags.
- Publication of Order PRE/772/2016 of 19th May, amending Appendix IV of Royal Decree 219/2013 of 22nd March, pursuant to restrictions of certain hazardous substances in electrical and electronic appliances.
- Processing of the Ministerial Order amending Appendix II of Royal Decree 1383/2002 of 20th December, pursuant to management of vehicles at the end of their useful life. Likewise work took place on drafting the new text to regulate this subject, expected to be passed in 2017.
- Preparation of the Environmental Inspection Plan by MAPAMA, for which there was participation in the Environmental Inspection Network (REDIA) and a working group was created under the waste inspection plan aimed to draft the Inspection Plan and Program models, for standardization of inspections throughout all national territory.



Production of municipal waste

- 2015 saw consolidation of an uninterrupted period of reduction which began back in 2007, showing a 22.96% decrease in municipal waste.
- In 2015, Spain produced 8.3% of the total municipal waste produced in EU-28, slightly lower (1.2%) than the waste in 2014.
- Per capita, Spain produced a total of 434 kg in 2015, 219 kg less than in 2000.



Processing of municipal waste

- In line with the decrease in waste production, the quantity of waste per capita subject to some kind of processing fell by 3.13% in the last year, standing at 434 kg per inhabitant.
- In 2015 dumping at landfill sites underwent a decrease of 7.73% compared to the previous year, standing as a destination for 55% of municipal waste (although more than 60% of this waste were previously processed at other facilities).



Recycling and exploitation of packaging waste

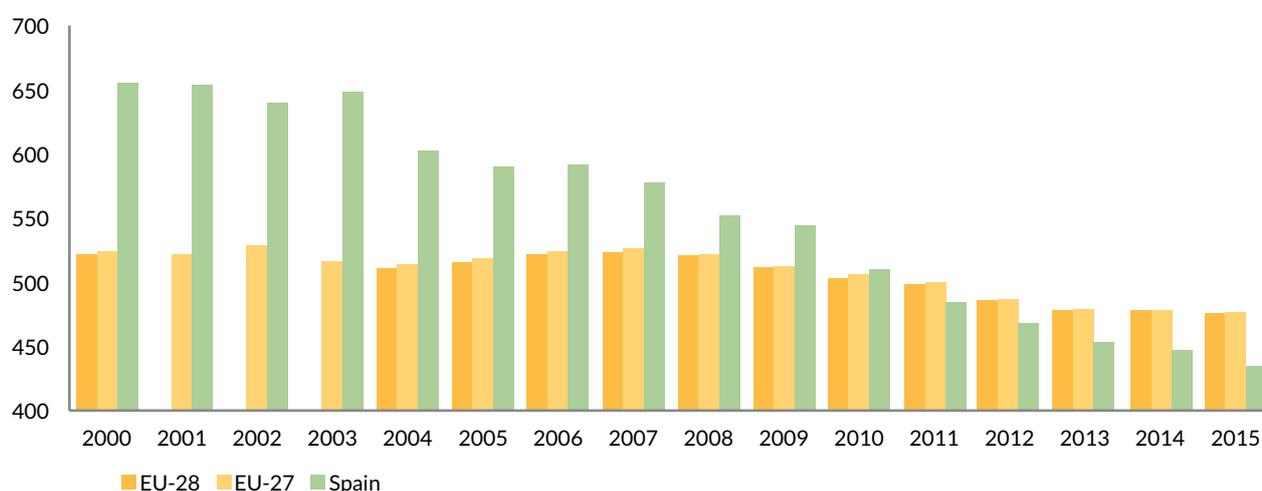
- The quantity of recycled packaging waste increased in 2015 by 2.5% compared to the previous year, and exploited packaging waste through energy recovery increased by 1% in the same period.
- Production of packaging waste increased by 4.2%, which has led to a slight decrease of 0.2% and 2.3% respectively in recycling and Recovery rates.
- Spain is 1.6% away from reaching the objective of recycling 70% of packaging waste, established by the EU for 2025.





Production of municipal waste

Production of municipal waste per inhabitant (kg/inhabitant)



Source: Eurostat.

- 2015 saw consolidation of an uninterrupted period of reduction which began back in 2007, showing a 22.96% decrease in municipal waste.
- In 2015, Spain produced 8.3% of the total municipal waste produced in EU-28, slightly lower (1.2%) than the waste in 2014.
- Per capita Spain produced a total of 434 kg in 2015, 219 kg less than in 2000.

In 2015, Spain produced a total of 20151000 tonnes of municipal waste, 3.29% less than the previous year, and 23.98% less than in 2000.

In terms of waste produced per inhabitant, 434 kilograms were produced in 2015, 219 kg (3.13%) below the amount per inhabitant produced in 2014 and 33.5% less than in 2000.

When analyzing the 2000-2015 period, in both cases we see that after an initial period of instability with continued variations between increases and decreases from 2000 to 2006 (reflecting the changes in methodology for compiling information on waste), in 2015 the decrease in waste production was consolidated, reporting a continuing trend since 2007 leading to a 22.96% reduction in the case of produced tonnage of municipal waste, and 24.92% in the case of kg waste per inhabitant, this is undoubtedly a result of the economic situation and the prevention measures being implemented. The biggest annual decrease took place between 2003 and 2004, with a reduction of 5.59%, falling from 27270000 to 25746000 tonnes of municipal waste.

When examining the production data for this kind of waste in the European Union (EU 28), we can see that in 2015 Spain produced 8.3% of the total waste produced in the EU-28 states. Spain stands in eleventh place in the ranking of countries that produce least waste per inhabitant, behind Belgium, with 418 kg per inhabitant and east European countries such as Romania (the country that produces least municipal waste, at 247 kg



per inhabitant) or Bulgaria at 419 kg/inhabitant. In regard to the produced tonnage of waste, our country at 20511000 tonnes is one of the five countries that most municipal waste produce, along with Italy (29524000 t), United Kingdom (31567000 t), France (33399000 t) and Germany (51046000 t), whereas at the other end of the scale are countries such as Malta, Luxembourg, Estonia, Cyprus and Latvia who produce 269000, 356000, 473000, 541000 and 857000 tonnes, respectively.

Indicator definition:

Estimated annual amount of municipal waste produced per inhabitant.

Notes on methodology:

- The indicator shows production of municipal waste expressed as kilograms per inhabitant (kg/inhabitant) and refers to waste collected by municipal services or similar services outsourced by city and town halls. Most of this flow of waste is from households, although waste from similar sources, such as shops, offices and public institutions can be included depending on how municipal regulations are established. Electrical and electronic appliances waste, clothing, batteries, accumulators, furniture and fittings are included in this category, as is waste and rubble from minor construction and home repairs. Any waste collected from the cleaning of public highways, green areas, recreation areas and beaches, dead pets and abandoned vehicles, are also included as domestic waste.
- The data used are those published by Eurostat on its website, and at the time the indicator was prepared, the 2015 figures were “estimates” and may be subject to correction at a later date. It must also be stated that there are no data for Ireland, Greece or Portugal.
- In 2013, the European Union comprised 28 countries, after adhesion of Croatia. The updating process of the series has not yet ended, and therefore there are years for which there are no data. This circumstance will be corrected over time.

Source:

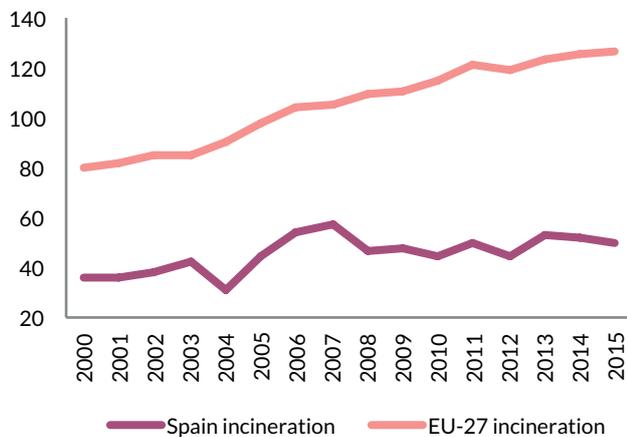
- Eurostat. “Municipal waste [env_wasmun]”. Information from Eurostat website: Eurostat/Data/Database/Database by themes/Environment and energy/Environment/waste/waste streams/Municipal waste (env_wasmun).

Websites of interest:

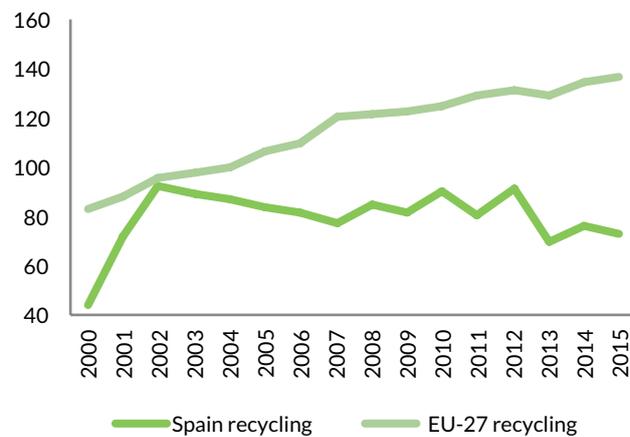
- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/prevencion-y-gestion-residuos/http://ec.europa.eu/eurostat/data/database>
- <http://ec.europa.eu/eurostat/waste>
- <http://www.ine.es/prensa/np949.pdf>

Processing of municipal waste

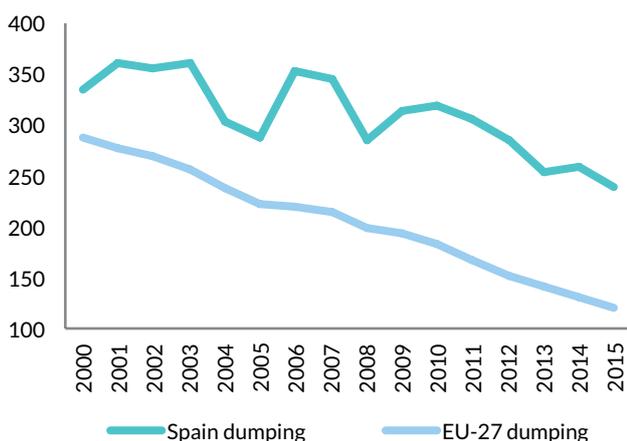
Incineration EU-27 and Spain (kg/inh)



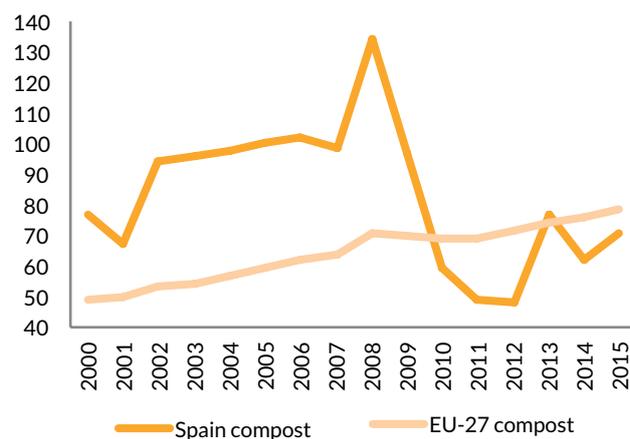
Recycling EU-27 and Spain (kg/inh)



Dumping EU-27 and Spain (kg/inh)



Compost EU-27 and Spain (kg/inh)



2015. Estimated data.

Source: Eurostat.

- *In line with the decrease in waste production, the amount of waste per capita subject to some kind of processing fell by 3.13% in the last year, standing at 434 kg per inhabitant.*
- *In 2015 dumping at landfill sites underwent a decrease of 7.73% compared to the previous year, standing at 55% of municipal waste.*

Municipal waste management in Spain has improved dramatically in recent years; with optimization in the development and application of legislation on waste undoubtedly having contributed to this positive evolution, and also the increase in processing infrastructures and increased awareness by the public administration and society at large.



According to Eurostat estimates, in 2015 Spain processed all of its municipal waste, 20151000 tonnes, of which 55% was dumped in landfill sites, 11.62% was incinerated, 16.83% was recycled and 16.45% was sent to composting plants (both in the case of landfill and incinerated waste the percentages include rejected waste from other processing plants).

Per capita, 434 kg/inhabitant were processed, 3.13% less than in 2014 (448 kg/inh), a reduction consistent with the 3% reduction in produced municipal waste in 2014, mentioned in the foregoing indicator, and undoubtedly affecting the management figures under discussion. In terms of processing, in the year-on-year comparison we can also see a considerable decrease in the amount of waste taken to landfill sites, 7.73%, falling from 259 kg/inh to 239 kg/inh. This decrease consolidates the trend observed in Spain since 2000, with a total decrease of 28.45%. Both incineration and recycling of materials were reduced in 2015, more specifically 3.85% and 3.95% respectively, which now stands at 50 and 73 kg/inh, whereas composting has undergone a significant increase of 14.51%, to stand at 71kg per inhabitant. Despite these decreasing year-on-year figures, incineration and recycling have increased by 38.8% and 65.90% respectively since 2000.

In the EU-27 states in 2015, the mean kg per capita of processed municipal waste has increased to 463 kg/inh, 0.86% and 7.4% more than the previous year and than 2000, respectively. Spain holds 13th position in the *ranking* of countries that most kg/inh waste is processed, with Denmark holding first position at 789 kg/inh and Romania last at 216 kg/inh.

When a more thorough study of the European data on processing is carried out, we can see that the figures are in general fairly positive:

- The mean waste taken to landfill sites is 120 kg/inh, 58.34% less than in 2000. Germany with 1kg/inh is the country with least landfill waste, whereas Malta dumps 558 kg/inh of waste in landfill sites. Spain is halfway down the list of European countries, with 239 kg of waste per inhabitant, although the Spanish data includes dumped waste rejected from other facilities, whereas the other member states do not include this information, only the waste that is directly dumped without previous processing.
- In terms of incineration, the mean stands at 127 kg/inh, 0.79% more than last year, and 58.75% higher than in 2000, with Spain holding 17th position in the incineration *ranking*.
- Recycling of materials at European levels has a mean figure of 137 kg per inhabitant, slightly higher than the previous year, although 65.06% higher than in 2000. Spain is one of the countries that recycles less, with only Poland, Croatia, Malta, Romania and Slovakia recycling more.
- In terms of composting, the mean is 79 kg per inhabitant, 30 kg more than in 2000 and 3.94% more than in 2014. Spain is the 10th country that composts more municipal waste.



Indicator definition:

The indicator shows the annual quantity of kg of municipal waste processed per inhabitant, specifying the municipal waste dumped in landfill sites, incinerated (including incineration for energy recovery), composting and recycling.

Notes on methodology:

- Most of this stream of municipal waste is from households, although similar waste from sources within the municipality, such as shops, offices and public institutions can be included depending on how municipal regulations are established concerning waste collection. Electrical and electronic appliances waste, clothing, batteries, accumulators, furniture and fittings are included in this category, as is waste and rubble from minor construction and home repairs. Any waste collected from the cleaning of public highways, green areas, recreation areas and beaches, dead pets and abandoned vehicles, are also included as domestic waste.
- The data used are those published by Eurostat on its website, and at the time the indicator was prepared, the 2015 figures were “estimates” and may be subject to correction at a later date. It must also be stated that there are no data for Ireland, Greece or Portugal.

Source:

- Eurostat. “Municipal waste generation and treatment, by type of treatment method (tsdpc240)”. Information from Eurostat website: Eurostat/Data/Database/Tables by themes/Environment and energy/Environment/waste/waste streams/Municipal waste generation and treatment, by type of treatment method (tsdpc240).

Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/prevencion-y-gestion-residuos/>
- <http://ec.europa.eu/eurostat/data/database>
- <http://ec.europa.eu/eurostat/waste>





Recycling and recovery of packaging waste

Packaging waste produced, recycled and recovered

MATERIAL	Produced packaging waste (t)		Recycled packaging waste (t)		Recovered packaging waste (t)		Recycling rate (%)		Recovery rate (%)	
	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015
Glass	1368393	1425669	953266	943483	960442	1003547	69.7	70.39	70.2	70.39
Plastic	1418487	1474731	602245	649343	836755	901043	42.5	44.03	59	61.1
Paper and cardboard	3356000	3550000	2625000	2731486	2789044	2754966	78.2	76.94	83.1	77.6
Metals	424946	393620	344443	314522	344443	314522	81.1	79.91	81.1	79.91
Wood	290395	298047	186707	195136	217692	226590	64.3	65.47	75	76.02
Others	4348	11947	0	0	0	506	0	0	4.58	4.24
TOTAL	6862569	7154014	4711661	4833970	5148376	5201174	68.7	68.41	75	72.7

Source: MAPAMA

- *The quantity of recycled packaging waste increased in 2015 by 2.5% compared to the previous year, and exploited packaging waste through energy recovery increased by 1% in the same period.*
- *Production of packaging waste increased by 4.2%, which has led to a slight decrease of 0.2% and 2.3% respectively in recycling and exploitation rates.*
- *Spain is 1.6% away from reaching the objective of recycling 70% of packaging waste, established by the EU for 2025.*

In 2015 the recycling and exploitation rates reported a slight decrease compared to the previous year, for the first time during the study period, i.e. 2005-2015. The recycling rate stands at 68.4%, which is 0.2% less than in 2014 when it reached 75%, whereas exploitation of waste was 72.7% in 2015, with 5201174 tonnes having been exploited for energy recovery, 2.3% below the figure for the previous year which was 75%.

As for groups of packaging materials, we can see that the **recycling rate** for paper and cardboard and for metals underwent a decrease compared to 2014 of 1.2% and 1.1% respectively, falling from 78.2% to 76.9% in the case of paper and cardboard and 81.1% to 79.9% for metals. On the other hand, increases were reported for glass, plastic and wood of 0.6%, 1.5% and 1.1% respectively. The highest recycling rate in 2015 was for metal packaging (79.9%), whereas the lowest was for plastic packaging (44%). In terms of **exploitation** there was a very similar pattern, with decreases again for paper and cardboard and metals of 5.5% and 1.2% respectively, and also for other materials which decreased by 0.3%, whereas there were increases of 0.4%, 2.1% and 1% for glass, plastic and wooden packaging respectively. The highest rate of exploitation was once again for metals, and the lowest was for other materials packaging at 4.2%, followed by plastic packaging at 61.1%.



When studying itemized data for the 2014-2015 year-on-year figures, we can see that although the amount of **recycled waste** and exploited waste increased by 2.5% and 1% respectively, the tonnage of produced packaging waste also increased, although at a higher rate, and in 2015 the figure reached 7154014 tonnes, accounting for 4.2% more than in 2014. By materials, all packaging waste groups increased in terms of quantity, except for metals, which were reduced considerably (-7.3%). In detail, 1425669 tonnes of glass packaging was produced, an increase of 4.1% over the previous year; 1474731 tonnes of plastic packaging, 3.9% more than in 2014; 3550000 tonnes of paper and card, an annual increase of 5.7%; 298047 tonnes of wooden packaging, 2.6% more than the previous year, and 11947 tonnes of other material packaging, 174.7% more than in 2014.

As for **recycled packaging waste**, the aforementioned increase of 2.5% translates as 4833970 tonnes of recycled packaging in 2015, of which 56.5% was paper and cardboard, with recycling having increased by 4% over the previous year; 19.5% was glass packaging, an increase of 1% over the previous year; 13.4% was for plastic packaging, an increase of 7.8% compared to 2014; 6.5% was metal packaging, a year-on-year increase of 8.6%; and 4% was for wood, 4.5% more than the previous year.

In relation to **exploited waste packaging** involving energy recovery, in 2015 the figure reached 5201174 tonnes, having increased compared to 2014 for all materials except for metals, which decreased by 8.6%, and paper and cardboard underwent a decrease of 1.2%. The most significant increase in this area was by the “other materials” group which increased considerably from 0 to 506 tonnes, followed by plastic packaging, which increased by 7.6%, glass packaging by 4.4% and finally wooden packaging by 4%.

As for compliance with the objectives established by the European Union on recycling and exploitation, Spain is well on the way to meeting the ultimate goals set in the Communication by the European Commission to the Parliament, the Council, the European Economic and Social Committee and the Committee of Regions “Towards a circular economy: a zero waste program for Europe” of July 2014. This establishes that the recycling rate of packaging waste must increase by 2030 to 80%, setting the interim goals of 60% for 2020 and 70% for 2025. In view of the analysis contained in these pages, Spain today has passed the interim marker set for 2020, and will almost certainly meet the final goal of 80% by 2030.

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Recycling rate	50.4	54	56.3	59.1	60.3	61.9	64.4	66.5	66.6	68.7	68.41
Recovery rate	56.1	60.7	62.1	65.4	67.8	70	72.1	73	73.3	75	72.7



Indicator definition:

Recycling rates and recovery rates of packaging waste expressed in tonnes and in %.

Notes on methodology:

- The recycling and recovery rates are calculated on the basis of the recycled and recovered tonnage (including incineration with energy recovery) over the total packaging waste produced (assimilated to packaging sold on the market).
- The packaging waste data refer to domestic, commercial and industrial packaging. The objectives of Act 11/1997 of 24th April, pursuant to Packaging and Packaging Waste, and Royal Decree 252/2006 of 3rd March, amending the recycling and recovery objectives of said Act, are as follows:
- Before 31st December 2008 and in successive years, between a minimum of 55% and a maximum of 80% of the weight of packaging waste must be recycled.
- Before 31st December 2008 and in successive years, the following amounts of materials contained in packaging waste must be recycled:
 - 60% weight of glass.
 - 60% weight of paper and cardboard.
 - 50% weight of metals.
 - 22.5% weight of plastics (exclusively material that can be newly transformed into plastic)
 - 15% weight of wood.
- Recovery or incineration in incineration facilities with energy recovery of a minimum of 60% weight of packaging waste.

Source:

- Data supplied by the Sub-directorate General of Waste. Directorate General of Environmental Quality and Assessment and Natural Environment. Ministry of Agriculture and Fisheries, Food and Environment.

Websites of interest:

- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/prevencion-y-gestion-residuos/>
- <http://ec.europa.eu/eurostat/data/database>
- <http://ec.europa.eu/eurostat/waste>
- <http://www.ecoembes.com>
- <http://www.sigre.es>
- <http://sigfito.es>
- <http://www.ecovidrio.es/>





2.11

AGRICULTURE

Because of its climatic diversity, Europe is home to an array of agricultural production models. Agriculture is an essential part of the economy and development of European society. There is a wide degree of consensus at European level on what challenges agriculture will have to face in the coming years.

The foreseeable increase in the demand for agricultural food produce, in terms of quantity and quality, is one of the main future challenges in a scenario of climate change, linked to a growing population and growing consumption in general. Furthermore, a supply of high quality raw materials is required, in line with the demands of European consumers, in order to meet increasingly strict food safety requirements.

At the same time it is necessary to tackle the challenge of sustainability (in the broadest sense, considering the economic, social and environmental aspects of this) and conservation of the environment, linked to the viability of farms, mitigation and adaptation to climate change, in benefit of future generations, producing more food with less resources, i.e. producing better, minimizing losses, greenhouse gas emissions, vulnerability to the impact of climate change and maximizing profitability, efficacy and resilience to climate change.

In addition to these challenges is the problem of depopulation and aging of large rural areas in the European Union. In the case of Spain, large areas of our territory have the lowest population densities in all of Europe. Moreover, 35% of the farmers in these areas are 65 years old or more, and only 4% are under 35 years old. The lack of opportunities for young people and women is one of the key factors to one of



the biggest problems facing the rural environment in Spain, and must be addressed urgently.

Throughout its history, the Common Agricultural Policy (CAP) has been a fundamental pillar for the construction of Europe. In recent years the PAC has undergone major changes in order to deal with these new challenges. Knowledge, modernization of farms and technology and innovation are the principal instruments the farming industry has in order to tackle the new challenges and thus direct production towards models more efficient, more sustainable and less dependent on other resources (fertilizers, phytosanitary products, etc.).

The agricultural industry is one of the driving forces behind Spain's economy, above all in rural areas. According to *Eurostat* data, Spain is the country with most area in terms of organic farming, ahead of Italy and France. The Development of organic production, the increase in integrated agricultural techniques to obtain healthy, quality produce, the irrigation techniques with an efficient use of water, the use of soil management techniques such as conservation agriculture, or the use of technology like precision farming techniques make up the Spanish farming industry showing its clear vocation towards modernization and optimization in the use of resources. Of course all the above must be implemented considering the variable of climate change, and blending the objectives of the Paris Agreement with those for sustainable development which were defined in the 2030 Agenda.

This technological development, married to the characteristics of Spain's geography, with some natural handicaps for farming production, such as farming in mountainous regions, agriculture in the Mediterranean areas, intensive crops on arid land or agriculture in outermost regions, mean that Spain is one of the EU states with most agricultural diversity.



Consumption of fertilizers

- The overall consumption of fertilizers (as a commercial product) decreased by 2.5% in the 2015/16 season.
- In the 2015/2016 season, mean consumption by fertilizable area in Spain was 115.7 kg/ha.
- The C. Valencia and the Canary Islands, with 266.4 kg/ha and 264.0 kg/ha, respectively, are the regions that consumed most fertilizer in the last season.



Organic farming

- The area dedicated to organic farming reached 1968570 ha in 2015.
- In the EU-28 states, Spain contributed 17.7% of the total organic farming area. In Spain, 70% of the organic farming area is concentrated in Andalusia and Castilla-La Mancha.
- Olive groves, with 197136 ha, account for 10% of the total area of organic farming.



Integrated agriculture

- The area in Spain for integrated production has doubled in the last decade, standing at 832991 ha in 2014.
- Andalusia has 66.6% of the entire area dedicated to integrated agricultural production.
- Olive groves, with 477606 ha, account for 57.3% of the total area of integrated agriculture.

Irrigated surface area

- In 2016 14.6% of total agricultural land in Spain was irrigated land.
- The C. Valencia and Region of Murcia are the two autonomous communities with the highest percentage of irrigated agricultural land (around 40%).



Consumption of phytosanitary products

- In 2015, mean consumption of phytosanitary products was 2.8 kg of active ingredient per hectare.
- By product groups only the consumption of fungicides showed a decrease (-2.1%) in 2015.
- The Canary Islands, Region of Murcia and the C. Valencia were the regions where most phytosanitary products were consumed in 2015.



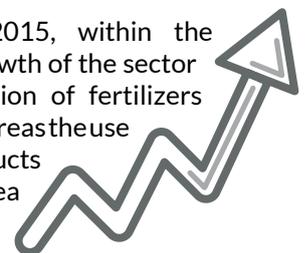
Organic livestock farming

- In 2015, the number of organic livestock farms increased by 24.3% to reach 7553.
- Andalusia and Catalonia were home to more than 75% of organic livestock farms in 2015.
- The highest percentage of these farms are beef cattle farms (45.5 %).



Efficiency in agriculture

- In 2015, an increase of 6.1% of the GAV of agriculture, livestock and fisheries was recorded.
- Consumption of phytosanitary products increased by 2.6% and the irrigated surface areas increased by 0.5%, whereas consumption of fertilizers decreased by 3.5%.
- In the period 2000-2015, within the framework of a GAV growth of the sector of just 3.5%, consumption of fertilizers decreased by 17.3%, whereas the use of phytosanitary products and irrigated surface area increased by 11.5% and 12% respectively.





Consumption of fertilizers

Consumption of inorganic chemical fertilizers in Spain by growing seasons

In commercial products (thousand t)	2011/12	2012/13	2013/14	2014/15	2015/16
Simple nitrogenous	2056	2367	2585	2612	2503
Simple phosphates	179	156	167	194	215
Simple potassium	190	215	243	275	292
Compounds	1630	1849	1876	1805	1752
Total fertilizers	4055	4587	4871	4886	4762
In nutrients (thousand t)	2011/12	2012/13	2013/14	2014/15	2015/16
Total N	819	961	1036	1014	987
Total P ₂ O ₅	341	377	428	403	388
Total K ₂ O	307	338	356	365	372
Total fertilizers	1467	1676	1820	1782	1747

Source: ANFFE

- *The overall consumption of fertilizers (as a commercial product) decreased by 2.5% in the 2015/16 season.*
- *In the 2015/2016 season, mean consumption by fertilizable area in Spain was 115.7 kg/ha.*
- *The C. Valencia and the Canary Islands, with 266.4 kg/ha and 264.0 kg/ha, respectively, are the regions that consumed most fertilizer in the last season.*

Rational application of fertilizers permits increasing crop yield and the nutritional quality of crops, ensuring profitability and efficiency of farms, and meeting society's growing demand for quality food produce.

In accordance with the information supplied by the International Fertilizer Association (IFA) in their report "Fertilizer Outlook 2015-2019", in 2015 the global consumption of fertilizers in terms of nutrients hit a record figure of 184.6 million tonnes.

This report also expects world demand to increase annually at around 1.5-2%, reaching over 200 million tonnes by 2019, which agrees with the forecasts by the FAO (Food and Agriculture Organization of the United Nations) in their report "World Fertilizer Trends and Outlook to 2018".

According to provisional data supplied by the National Association of Fertilizer Producers (ANFFE), consumption of fertilizers in Spain in the 2015/2016 season, from July 2015 to June 2016, reported a slight decrease compared to the previous season of 2.5% (referring to commercial products). In previous seasons this consumption has kept below 5 million tonnes of product, a normal amount in the years before the crisis, with a maximum of 5.1 million tonnes in the 2007/2008 growing season.

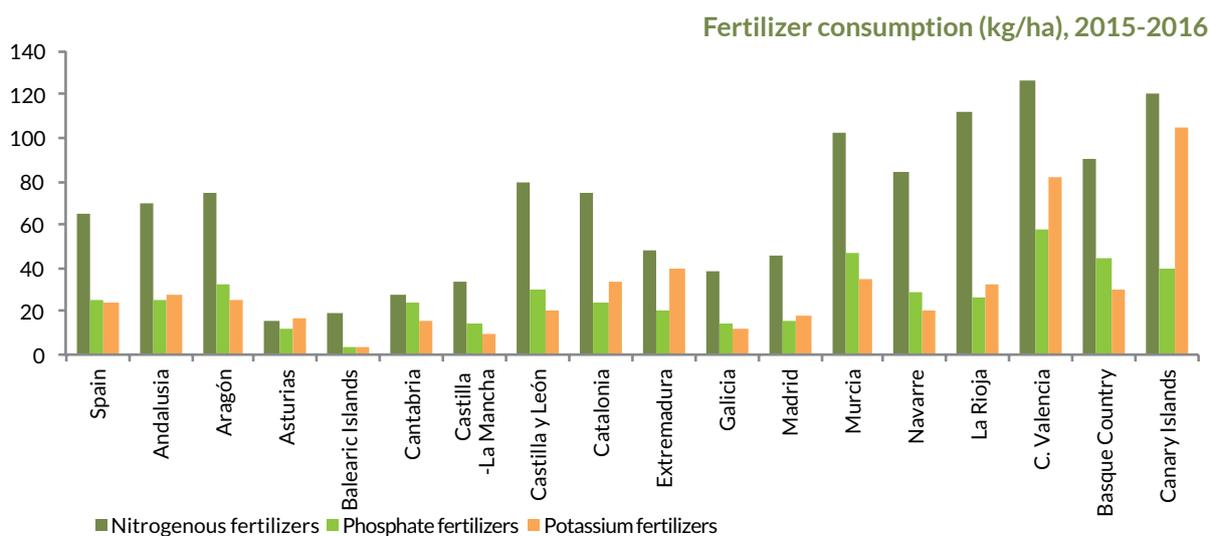
By commercial product type, the consumption in the last season was not uniform, with an increase in



consumption of phosphate fertilizers (10.8%) and potassium fertilizers (6.2%) while a decrease in nitrogenous fertilizers (-4.2%) and compounds (-2.9%).

By fertilizing elements (in nutrients) there was a decrease in the last season of 2.1% and 5.8% in the case of nitrogenous and phosphates respectively, whereas potassium based fertilizers increased by 2.5%.

Mean consumption by fertilizable area in Spain in the 2015/2016 growing season reached 115.7 kg/ha. This consumption, referring to the agricultural sector, is highly variable depending on the degree of intensification



Source: Own elaboration with data from ANFFE

and modernization of farms. These two aspects justify the fact that consumption of fertilizers is higher in autonomous communities with greater agricultural tradition. The C. Valencia (266.4 kg/ha) and the Canary islands (264.0 kg/ha), followed by the Region of Murcia (182.9 kg/ha) and La Rioja (170.0 kg/ha) were the autonomous communities that most fertilizer consumed per fertilizable hectare.

Indicator definition:

Consumption of fertilizers in Spain, by nutrients (N, P₂O₅ and K₂O). The evolution of each type of fertilizer is analyzed, both in absolute (total consumption in tonnes) and relative terms (kg/hectare of fertilizable area).

Notes on methodology:

- The fertilizable area is arable land, minus fallow land plus natural pasture.
- Fertilizing products are those that are used in agriculture or gardening and which, because of its nutrient content, enhance growth of plants, increase yield and improve crop quality, or which, due to specific action, appropriately modify the fertility of soil and its physical, chemical or biological characteristics. This category includes manure, special products and additives.
- For the purposes of calculating the indicator, consumption is understood as the sum of sales made by manufacturers plus imports of the same products for agricultural use.

Source:

- Application areas: Ministry of Agriculture and Fisheries, Food and Environment, 2017. "Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE), 2016".
- Fertilizing products: Asociación Nacional de Fabricantes de Fertilizantes (ANFFE), 2017. Check the web: (Información Sectorial > Evolución del Consumo).

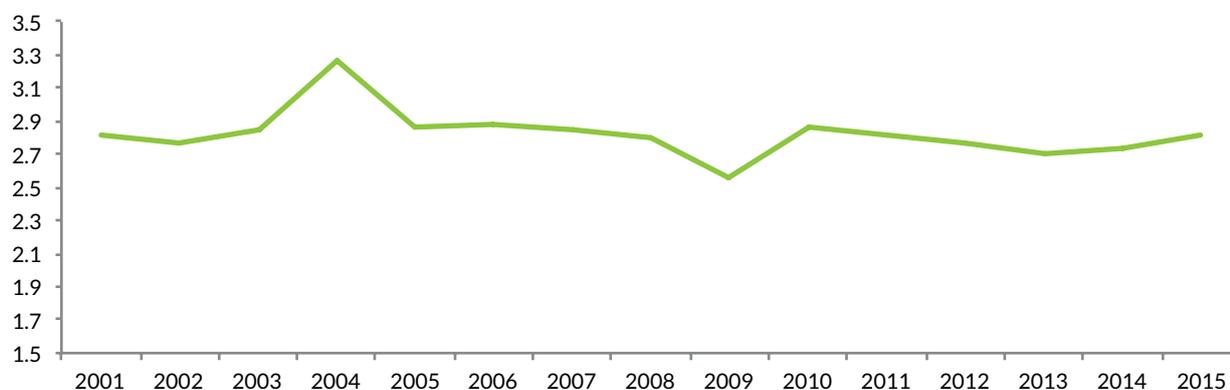
Websites of interest:

- <http://www.mapama.gob.es/es/agricultura/temas/medios-de-produccion/productos-fertilizantes/>
- <http://www.anffe.org/>



Consumption of phytosanitary products

Consumption of phytosanitary products
(kg active ingredient / ha)



Source: Own elaboration with data from AEPLA and MAPAMA.

- *In 2015, mean consumption of phytosanitary products was 2.8 kg of active ingredient per hectare.*
- *By product groups only the consumption of fungicides showed a decrease (-2.1%) in 2015.*
- *The Canary Islands, Region of Murcia and the C. Valencia were the regions where most phytosanitary products were consumed in 2015.*

Phytosanitary products contribute to increasing crop yields. They consist of one or more active ingredients and other ingredients, which in addition to protecting plant and their produce from harmful organisms, prevent the undesirable effects that could entail risks for humans, animals and the environment.

The 2015 report by the National Action Plan for Sustainable Use of Phytosanitary Products, presents a number of actions that have been taken by the Public Administration. These actions are encompassed in the specific priority and general objectives: to promote integrated management of pests and to reduce the risks and effects stemming from the use of phytosanitary products, particularly in relation to human health and environment.

In 2015 these objectives materialized in the form of different actions, including 150 outreach campaigns on the sustainable use of phytosanitary products, training of 3234 advisors, distribution of over 48000 publications on best practices and the approval of seven guides for integrated management of pests. Another especially significant measure of the Action Plan is still the promotion of the Red de Vigilancia Fitosanitaria (phytosanitary watchdog network), which in 2015 had 16000 monitoring points and covered over 5.6 million hectares.

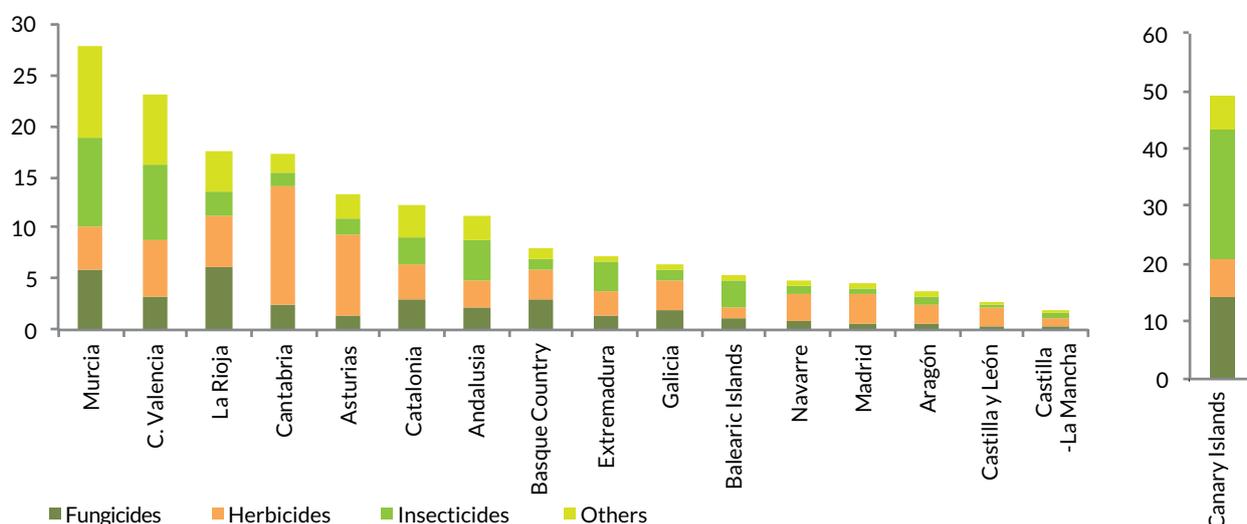
Consumption of phytosanitary products, expressed in kg of active ingredient per ha, has remained more or less stable over the last decade. A significant minimum was recorded in 2009 with a unique year-on-year decrease of 12.0%. In 2015, mean consumption of phytosanitary products increased by 2.7%, standing at 2.8 kg of active ingredient per hectare.



By product type, consumption and distribution in 2015 was as follows: increase of 2.3% to reach 32283.9 t of herbicide products, accounting for 31.4% of total consumption (102720 t); annual increase of 1.5% to reach 30041.9 t of insecticides, nematocides and acaricides, which reached 29.2% of the total, a consumption of 20037.7 t of fungicides, accounting for 19.5% of the total, and other forms representing 19.2% of the total at 20357 t. In 2015 only the use of fungicides decreased in consumption (-2.1%).

By autonomous communities, the highest consumption per hectare in 2015 was in the Canary Islands with 49.7 kg/ha, followed by the Region of Murcia (27.8 kg/ha) and the C. Valencia (23.1 kg/ha). Castilla-La Mancha (1.9 kg/ha), Castilla and Leon (2.6 kg/ha) and Aragon (3.7 kg/ha), on the other hand, being the autonomous communities with least intensive agriculture, recorded stable consumptions of lower magnitude.

Consumption of phytosanitary products. Year 2015 (kg/ha)



Source: Own elaboration with data from AEPLA and MAPAMA.

Indicator definition:

Consumption of phytosanitary products by active ingredient and hectare in Spain, both overall and by groups: herbicides, insecticides, fungicides, etc.

Notes on methodology:

For the purposes of calculating the indicator, "area of application of phytosanitary products" is understood as the area comprising arable land, excluding fallow land and other unfarmed land (i.e. land exclusively used for arable crops and woody crops).

Source:

- Phytosanitary products: Asociación Empresarial para la Protección de Plantas (AEPLA).
- Application areas:
 - Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE), 2015. MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment).
 - Anuario de Estadística Agroalimentaria, 2015. MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment).

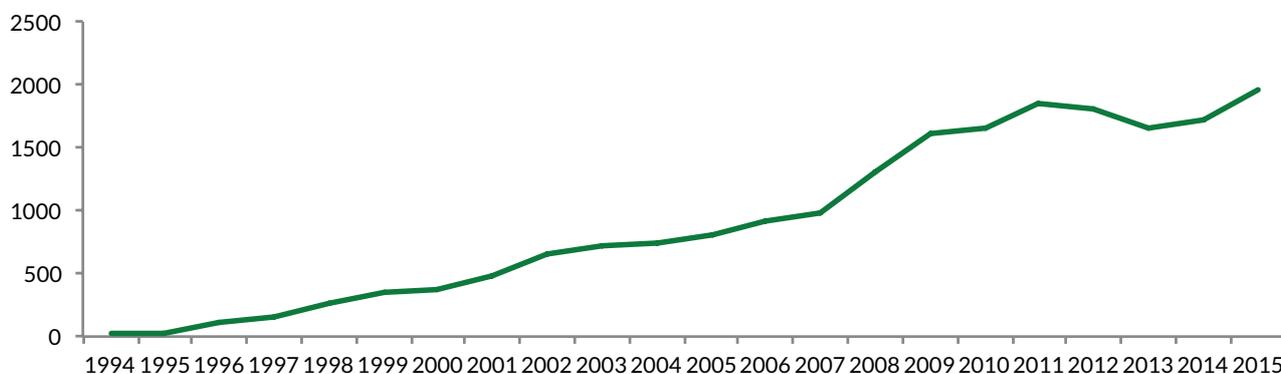
Websites of interest:

- <http://www.mapama.gob.es/es/agricultura/temas/default.aspx>
- <http://www.aepla.es>
- <http://www.mapama.gob.es/es/estadistica/temas/estadisticas-agrarias/agricultura/esyrce/>
- <http://www.mapama.gob.es/es/agricultura/temas/medios-de-produccion/productos-fertilizantes/>
- <http://www.mapama.gob.es/es/estadistica/temas/publicaciones/anuario-de-estadistica/default.aspx>



Organic farming

Area of organic farming (thousand ha)



Source: MAPAMA

- *The area employed in organic farming reached 1968570 ha in 2015.*
- *In the EU-28 states, Spain contributed 17.7% of the total organic farming area. In Spain, 70% of the organic farming area is concentrated in Andalusia and Castilla-La Mancha*
- *Olive groves, with 197136 ha, account for 10% of the total area of organic farming.*

According to Eurostat, organic farming production in the EU-28 states increased by 7.7% in 2015, reaching 11.1 million ha, of which 17.7% was sourced in Spain.

The 2015 data consolidate Spain as the country with most area of organic farming in the European Union, ahead of Italy (1.5 million hectares), France (1.3 million) and Germany (1.1 million).

The report "Organic Farming. Statistics 2015" (MAPAMA, 2016) points out that the area dedicated to organic farming in Spain reached a new maximum of 1,968,570 hectares in 2015, meaning a yearly increase of 15.1%.

Of this total, 1,410,531 ha were qualified (71.6% of the total); 453,842 ha in the first year of organic farming (23.1%) and only 104,197 ha were under conversion (5.3%). This area distribution shows the development and the increase of organic production, and the consolidation of the organic sector.

As for the number of organic farming operators (producers, processors and traders), the total figure was 37,870 in 2015.

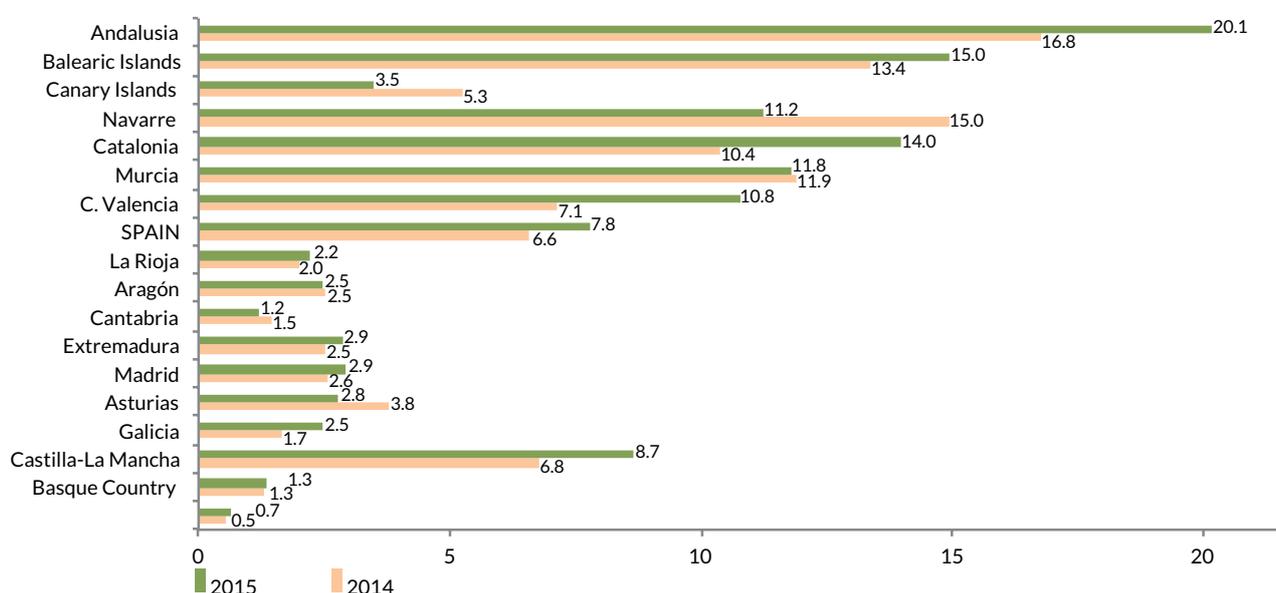
By farm type, the area of permanent pastures and meadows accounted for 51.5% of the total; permanent crops 25.5% and arable land 22.3%. Included in the permanent organic crops, the area of olive groves is particularly noteworthy, standing at 197,136 ha (approximately 7.6% of the total olive groves in Spain); then 113,958 ha of nuts (15.0% of the total area) and vineyards at 96,591 ha (10.0% of the total vineyards in Spain). Insofar as arable land is concerned, cereal production for grain is particularly noteworthy (209,001 ha) as is the area of



fallow land (151,478 ha).

Andalusia increased this area of organic farming by 18.5% to reach 1,011,076 ha in 2015. It is the autonomous community with the largest area of organic farming (51.4% of the total), followed by Castilla-La Mancha, at 365,567 ha (an annual increase of 28.4% accounting for 18.6% of the total) and Catalonia with 142,022 ha (an annual increase of 34.2% and 7.2% of the total). In relation to the Useful Agricultural Area (UAA), in relative terms, Andalusia is the community with the highest percentage (20.1%), followed by the Balearic Islands (15.0%), Catalonia (14.0%) and the Region of Murcia (11.8%).

Area of organic farming in relation to Useful Agricultural Area (%)



Source: Own elaboration with data from MAPAMA

Indicator definition:

The indicator shows the cultivated area of organic production.

Notes on methodology:

- Useful Agricultural Area (UAA): The sum of permanent crop, meadow and pasture land. The data are from the "Encuesta sobre Superficies y Rendimientos de Cultivos (ESYRCE)".
- The legislative framework regulating organic farming since 1989 in Spain is the Rules on Generic Organic Farming Appellation, and at European level, Regulation (EC) 834/2007 of 28th June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91 (Official Journal of the EU of 20/07/2007).
- Organic farming is characterized by being a production system that does not use chemical synthesis products, thus permitting conservation of soil fertility and obtaining top quality food produce. It is a production system of growing importance in the Spanish food industry.

Source:

- Ministry of Agriculture and Fisheries, Food and Environment, 2016. "Agricultura Ecológica Estadísticas 2015".
- Ministry of Agriculture and Fisheries, Food and Environment, 2016. "Encuesta sobre Superficies y Rendimientos de Cultivos 2015".

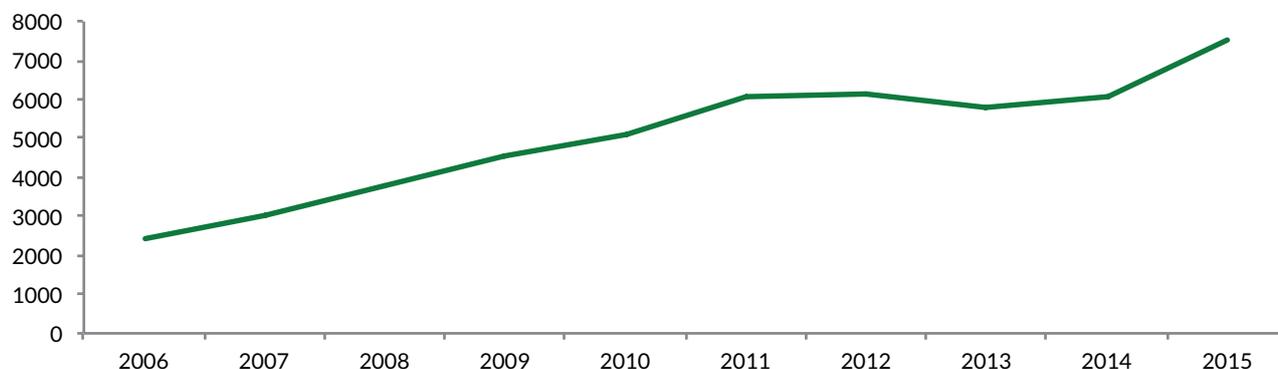
Websites of interest:

- <http://www.mapama.gob.es/es/alimentacion/temas/la-agricultura-ecologica/>



Organic livestock farming

Number of organic livestock farms



Source: MAPAMA

- *In 2015, the number of organic livestock farms increased by 24.3% to reach 7553.*
- *Andalusia and Catalonia were home to 75% of organic livestock farms in 2015.*
- *The highest percentage of these farms are beef cattle farms (45.5 %).*

Organic livestock farming is a key, fundamental element for harmonious development of organic production in Spain. Evolution of this type of farming is similar to organic arable farming in agriculture, although somewhat slower, mainly due to the effort required for breeding in this type of farming, and subsequent difficulties in its marketing.

The relationship between organic agriculture and organic livestock is obvious, since the territorial basis on which organic livestock farming builds is mainly permanent meadow and pasture land (31.1% of the total organic area in 2015), woodland (14.5% of the total) and temporarily other environments such as fallow land (7.7% of the total) from organic crops.

According to the report “Agricultura Ecológica Estadísticas 2015” (MAPAMA, 2016), the number of livestock farms in Spain increased in the last year by 24.3%, to reach 7553 farms.



No. of organic livestock farms

	2014	2015	Variation 2015/2014 (%)
Cattle	2874	3515	22.3
Sheep	1721	2169	26.0
Goat	647	777	20.1
Pig	132	155	17.4
Poultry	260	294	13.1
Bees	155	181	16.8
Horses	285	456	60.0
Other livestock	4	6	50.0
Total	6078	7553	24.3

Source: MAPAMA

That year, 46.5% of organic livestock farms were cattle units, mostly for meat production (97.7% compared to 2.3% of dairy units); 28.7% were sheep farms, also for meat production and only 10.3% were goat farms.

There was a positive evolution in the number of all production categories in 2015, particularly in horses (60.0%), sheep (26.0%), cattle (22.3%) and goat (20.1%).

By autonomous communities, Andalusia is the leader in terms of organic livestock farms, with 3962 farms (65.7% of the total) and an annual growth of 40.9%, followed by Catalonia with 792 farms (10.5% of the total) and a growth of 2.6%. Further away, the above are followed by the Balearic Islands, with 286 farms (3.8% of the total) and a reduction of 2.4% and then Galicia and Extremadura, each with 263 farms. The Region of Murcia is the autonomous community with the least number of organic livestock farms registered (two goat farms).

The type of farm products by autonomous communities presents a varied situation. For example, in the case of cattle farms, there are two different zones from a production perspective, beef farms, which are mostly in the southwest of Spain, and dairy farms, in the Cantabria and Galicia regions. In this sense, the communities of Andalusia and Extremadura jointly account for over 72% of the meat farms, whereas, Galicia and Asturias combine more than 68% of the dairy farms.

Indicator definition:

Number of organic livestock farms. Data are separated by type of farm and by distribution among the different autonomous communities.

Notes on methodology:

The legislative framework regulating organic farming in Spain (agriculture and livestock) changed in 2014 with the passing of Royal Decree 833/2014 of 3rd October, establishing and regulating the General Registry of Ecological Farming Operators and creating the Mesa de Coordinación de la Producción Ecológica (Ecological Production Coordinating Panel). This regulation repeals Royal Decree 759/1988 and Royal Decree 1852/1993, which until that moment had been the reference regulations on the subject in our country. In the EU the principal references are Regulation (EC) 834/2007 of the Council, of 28th June 2007, on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91, and Commission Regulation (EC) 889/2008, of 5th September 2008 laying down detailed rules for the implementation of Council Regulation (EC) 834/2007 on Organic Production and Labeling of Organic Products, with regard to organic production, labeling and control.

Source:

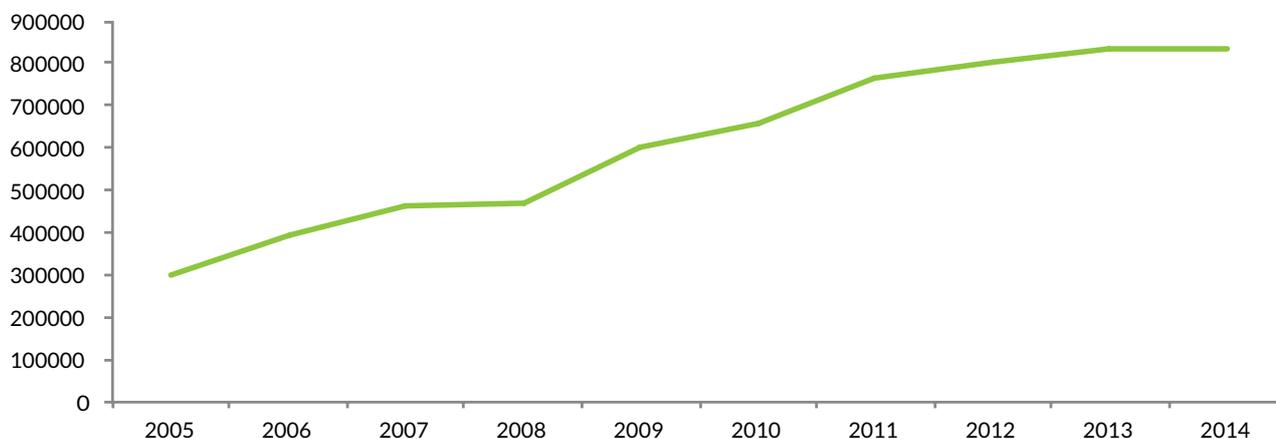
Ministry of Agriculture and Fisheries, Food and Environment, 2016. "Organic Farming Statistics 2015".

Websites of interest:

- <http://www.mapama.gob.es/es/alimentacion/temas/la-agricultura-ecologica/>

Integrated Agriculture

Area of integrated agricultural production (ha)



Source: MAPAMA

- *The area for integrated production in Spain has doubled in the last decade, standing at 832991 ha in 2014.*
- *Andalusia has 66.6% of the entire area dedicated to integrated agricultural production.*
- *Olive groves, covering 477606 ha, is the crop with highest distribution, covering 57.3% of the total area of integrated production.*

Integrated production agricultural systems are based on the use of natural resources and production mechanisms that ensure in the long-term a sustainable agriculture. On this basis biological methods are promoted for integrated pest control and other techniques that reduce the use of chemicals.

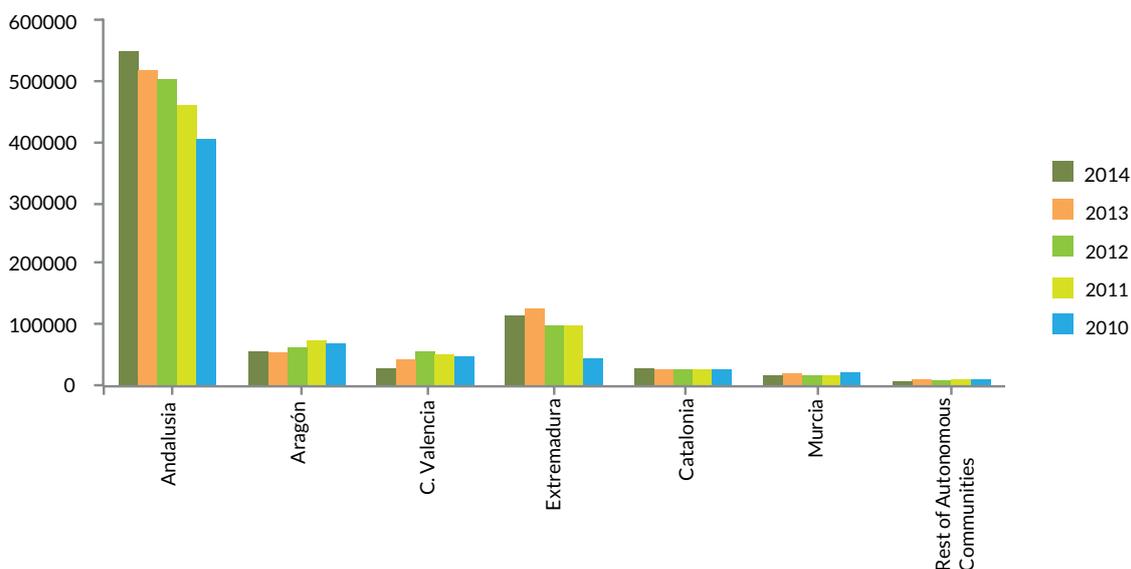
Jointly, agricultural produce obtained using these techniques are more respectful of the balance of ecosystems, reducing any unnecessary contamination of water, soil and the atmosphere, and permitting the produce to have the least possible quantity of undesirable chemical residues.

According to data compiled in the report "Resumen de los datos sobre Producción Integrada. Año 2014" (MAPAMA, 2015), the total area of integrated production in Spain reached 832991 hectares in 2014. The evolution of integrated farming in the last decade has been very positive, with the area increasing by approximately 440000 ha (112%) in that period.

As for distribution of area of integrated production by autonomous communities, Andalusia has the greatest area of integrated production at 554389 ha (66.6% of the total area). A long way behind is the autonomous community of Extremadura, at 119328 ha, contributing 14.3% to the total, Aragon with 58052 ha (7.0% of the total) and the C. Valencia at 32181 ha (3.9% of the total).



Evolution of integrated production by autonomous communities (hectares)



Source: MAPAMA

By crop types, over half of the integrated production area consists of olive groves, more specifically 57.3% of the total (477,606 ha), followed by cereal crops at 9.1% (76,911 ha), rice at 8.0% (66,424 ha) and cotton, at 6.3% (52,067 ha). Non-citrus fruit crops cover 54,832 ha (5.8% of the total area), whereas citrus fruit crops cover 34,857 ha (4.2% of the total). The remaining 10% includes other crops.

Indicator definition:

The indicator shows the cultivated area of integrated production.

Notes on methodology:

- The legislative framework regulating integrated production in Spain is Royal Decree 1201/2002 of 20th November, regulating integrated production of agricultural products.

Source:

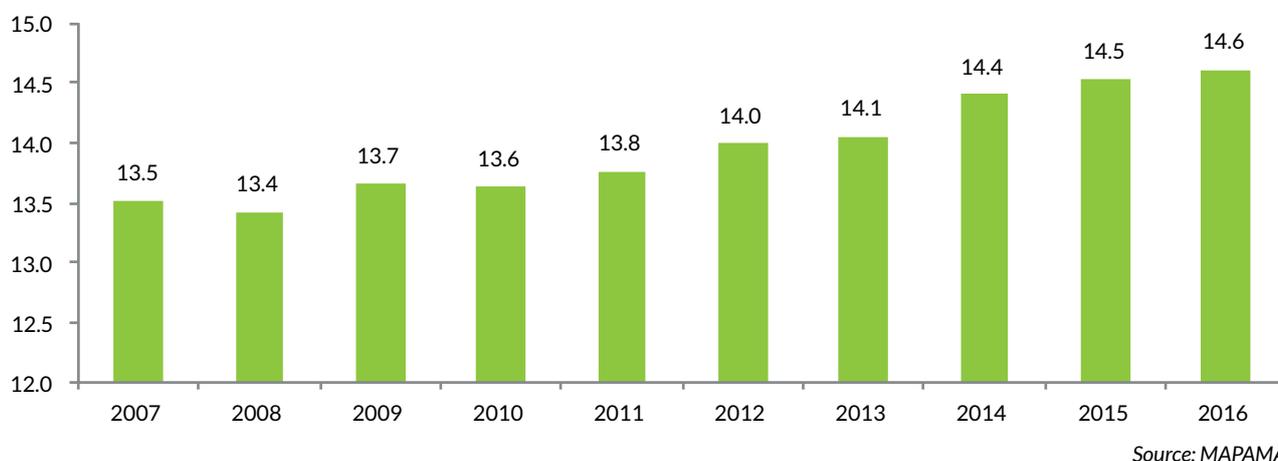
Ministry of Agriculture and Fisheries, Food and Environment, 2015. "Resumen de los datos sobre Producción Integrada. Año 2014".

Websites of interest:

- <http://www.mapama.gob.es/es/agricultura/estadisticas/estadistica-produccion-integrada.aspx>

Irrigated surface area

Irrigated surface area compared to total agricultural area (%)



- *In 2016, 14.6% of total agricultural land in Spain was irrigated land.*
- *The C. Valencia and Region of Murcia are the two autonomous communities with the highest percentage of irrigated agricultural land (around 40%).*

Irrigated land is an essential part of Spain's agricultural economy and is one of the most important instruments to promote sustainable rural development in agricultural areas. With a view to the future, and considering the fact that climate change will lead to less availability of water in Spain, and more irregular distribution of rainfall, this aspect must be taken into account when setting up new irrigation areas, planning crops or modernizing existing irrigation systems. Modernization has been the main commitment to ensure competitive, profitable, rational agriculture, with efficient consumption of water.

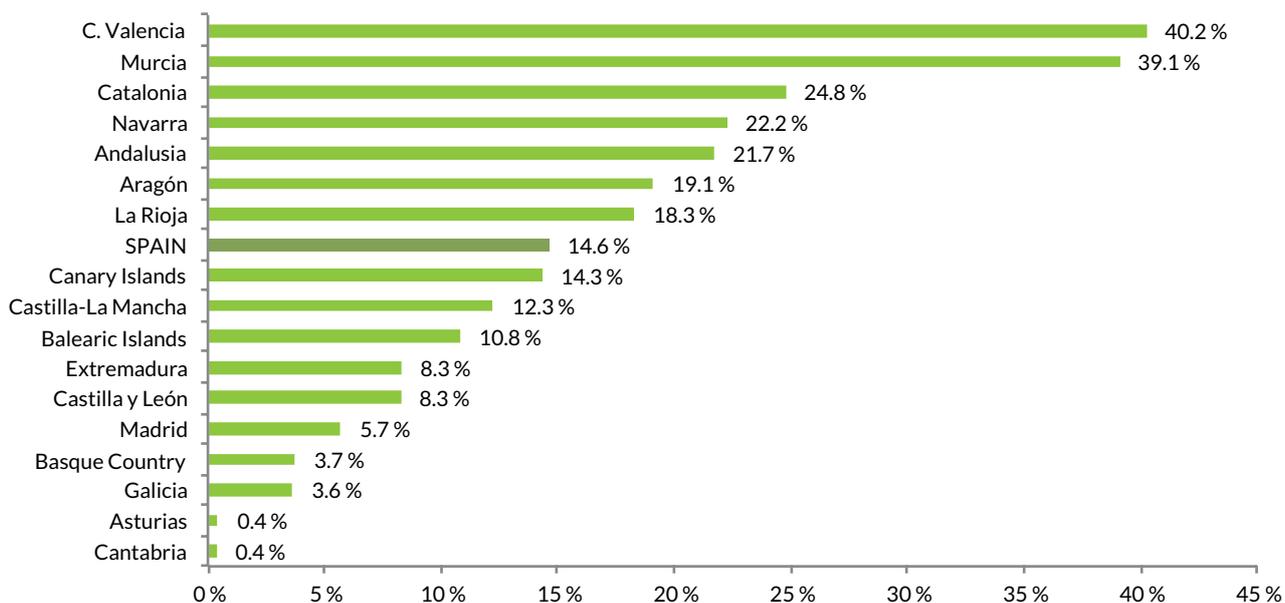
In general terms, the evolution of irrigated area in recent years has reported a gradual increase in the irrigated area compared to the total agricultural area, increasing from 13.5% in 2007 to 14.6% in 2016. In the last decade the irrigated area has increased by approximately 292000 hectares, to reach a total of 3690896 ha in 2016.

The C. Valencia is the region with most irrigated area, with 40.2% of its agricultural area as irrigated land, followed by the Region of Murcia (39.1%), Catalonia (24.8%) and Navarre (22.2%). At the other end of the scale are Asturias and Cantabria as the communities with least proportion, both with 0.4% irrigated land over their total agricultural area. All these figures refer to 2016.

By crop types, the largest irrigated areas in 2016, according to the "Encuesta sobre Superficies y Rendimiento de Cultivos. Año 2016" (MAPAMA, 2017), were cereal crops, accounting for 25.5% of the total irrigated area, followed by olive groves (21.0% of the total), vineyards (10.0% of the total), non-citrus fruit crops (8.5%) and citrus fruit crops (7.6% of the total).



Irrigated surface area compared to total agricultural area (%). 2016



Source: MAPAMA

Indicator definition:

The indicator shows the evolution of the quotient between the irrigated area of agricultural land and the total national area of agricultural land, in percentage. This data is also provided at regional level.

Notes on methodology:

- The irrigated agricultural area is the area used for crop production or improvement of pasture by supplying water, regardless of the number of irrigation sessions per year.
- The total agricultural area is considered to be the sum of the area covered by crops, fallow, greenhouses and home vegetable plots.
- The irrigated surface area has been obtained from the Encuesta sobre Superficies y Rendimiento de Cultivos (ESYRCE), subtracting irrigated forest areas from the irrigated geographical area and adding greenhouse areas.

Source:

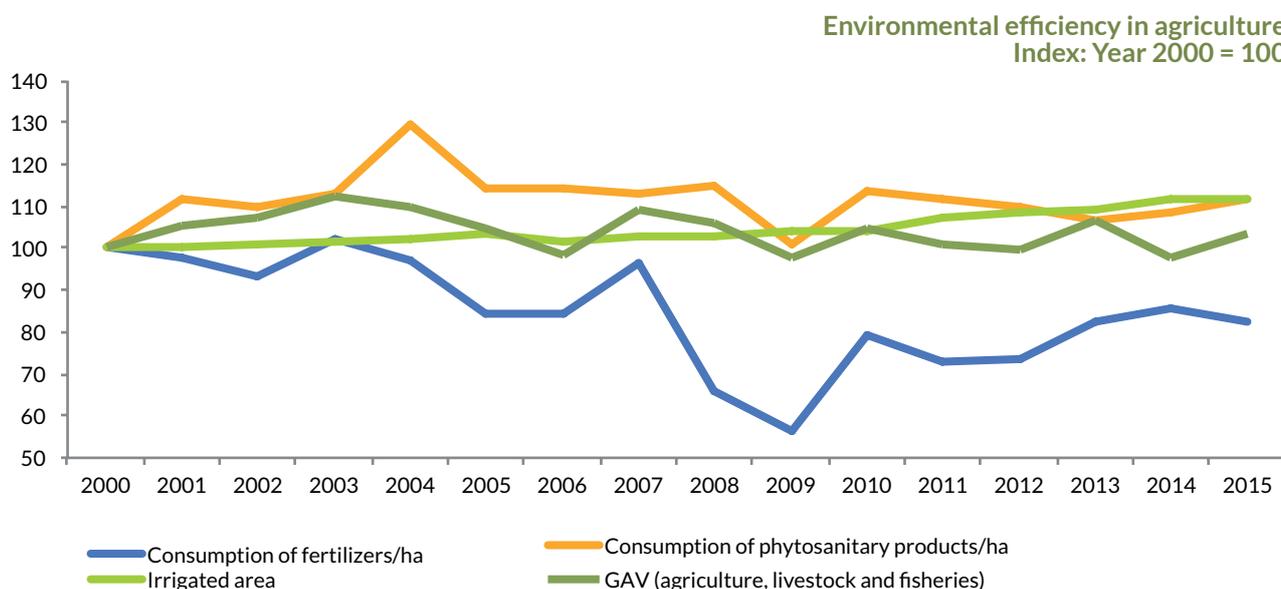
Ministry of Agriculture and Fisheries, Food and Environment, 2017. "Encuesta sobre Superficies y Rendimiento de Cultivos. Año 2016". General Technical Secretariat. MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment).

Websites of interest:

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



Environmental efficiency in agriculture



- In 2015, an increase of 6.1% of the GAV of agriculture, livestock and fisheries was recorded.
- Consumption of phytosanitary products increased by 2.6% and the irrigated surface areas increased by 0.5%, whereas consumption of fertilizers decreased by 3.5%.
- In the period 2000-2015, within the framework of a GAV growth of the sector of just 3.5%, consumption of fertilizers decreased by 17.3%, whereas the use of phytosanitary products and irrigated surface area increased by 11.5% and 12% respectively.

Agriculture in Spain is a strategic business sector, although as such it causes important environmental pressures. Soil, water and the composition of the atmosphere are sensitive to this activity, either through consumption of resources (such as water for irrigation), application of compound chemicals (such as fertilizers for soils or phytosanitary products on the different crops), not to forget the emission of pollutants to the atmosphere.

For the reference period between 2000 and 2015, the evolution of environmental efficiency of this sector has been analyzed through the existing relationship between its economic growth and three variables which being linked to agricultural activity are responsible for the environmental pressures. These variables are the irrigated area, the consumption of fertilizers and the consumption of phytosanitary products. As it can be seen in the graph, the irrigated area shows an upward trend through the reference period, whereas the other two variables report irregular behavior over the same period.

The ideal situation for environmental efficiency in the agricultural sector is clear when there is a clear disassociation between economic growth of the sector and the rest of the variables. In other words, with a growing Gross Added Value (GAV), the consumption of resources and agricultural inputs should show a decreasing trend of the different variables.



In the referred period, the evolution of the Gross Added Value (GAV) of agriculture, livestock and fisheries increased by 3.5%, whereas the year-on-year rate, according to initial data for 2015, has reported a growth of 6.1%.

At the same time, consumption of fertilizers per hectare is the variable that has the most irregular behavior over the period, recording minimum values in 2008 and 2009 due to the economic crisis. In this respect, for the entire reference period, it is possible to observe how consumption of fertilizers shows a cumulative decrease since the start of the period of 17.3%, leading to a year-on-year reduction between 2014 and 2015 of -3.5%. This is the variable that is most disassociated from the behavior of the GAV. It should also be taken into account that, in the year-on-year periods, consumption of fertilizers is highly influenced by the climate of the year concerned. Late frosts, lack of rainfall or abundant rainfall, etc., are all strong conditioning factors of the price, and consequently the use of fertilizers.

The consumption of phytosanitary products during the same reference period (2000-2015) shows year-on-year figures similar to the GAV, with significant peaks and troughs. In this respect and for the analyzed period, the consumption of phytosanitary products also reported positive growth, both in the last year (2.6% between 2014 and 2015) and throughout the entire period (11.5%).

Along these same lines, the irrigated area shows a higher disassociation from behavior of the GAV. This variable has undergone constant growth, with slight yearly increases, which in 2015 was 0.5%, whereas the accrued figure for the entire reference period was almost 12.0%.

In the period from 2000 to 2015, in relation to the GAV growth in the sector, we highlight signs of environmental efficiency in terms of fertilizer consumption, whereas a disassociation with the use of phytosanitary products or irrigated area is not evident.

Indicator definition:

The indicator shows the relationship between the evolution of the Gross Added Value (GAV) of agriculture, livestock and fisheries, and the evolution of the variables: consumption of phytosanitary products, consumption of fertilizers and the area of irrigated cropland.

Notes on methodology:

- The Gross Added Value for the sector refers jointly to agriculture, fisheries, game and forestry.
- For the purposes of interpretation of the indicator, positive environmental efficiency is deemed to exist when the economic growth evolution of the sector shows a disassociated trend (contrary and divergent) from the trend followed by the pressures it causes on the environment.
- When analyzing the evolution of fertilizer consumption, it should be taken into account that this variable is highly dependent on climatic variables in the agricultural year, since the amount of rainfall, the quantity and duration of droughts, frosts, etc., determine the use of these products and their market prices to a great extent.

Source:

- Gross Added Value: National Statistics Institute. National Accounting of Spain. Base 2010. Gross Domestic Product at market prices and its components. Current prices. Accounting series 1995-2015.
- Consumption of fertilizers: Anuario de Estadística, 2015. Ministry of Agriculture and Fisheries, Food and Environment.
- Consumption of phytosanitary products: Asociación Empresarial para la Protección de Plantas (AEPLA).
- Irrigated surface area: Ministry of Agriculture and Fisheries, Food and Environment, 2017. "Encuesta sobre Superficies y Rendimiento de Cultivos. Año 2016".

Websites of interest:

- <http://www.mapama.gob.es/es/agricultura/temas/default.aspx>
- <http://www.anffe.com>
- <http://www.aepla.es/>
- <http://www.mapama.gob.es/es/agricultura/temas/medios-de-produccion/productos-fertilizantes/>
- <http://www.mapama.gob.es/es/estadistica/temas/publicaciones/anuario-de-estadistica/default.aspx>



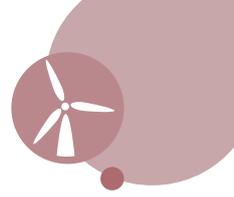


2.12

ENERGY

In 2014, the European Council agreed to the EU 2030 Climate and Energy Framework, establishing the goal of cutting greenhouse gas emissions by at least 40% before that year, compared to the level of emissions recorded in 1990. The Paris Agreement, reached at the end of 2015, validated and gave priority to this approach. In order to reach this goal, the European Commission has designed several key legislation proposals, such as the 2015 reform of the EU Emissions Trading System, aimed at the energy sector and industry, or the proposals in July 2016 to speed up the transition to a low-carbon economy in the rest of the sectors of Europe's economy, and to consider the role of soil uses.

This proposal was presented in summer 2016 in conjunction with “A Framework Strategy for a resilient Energy Union with a forward-looking climate change policy” and is part of a climate change policy for the future. This policy defines the binding goals for reduction of greenhouse gases which the Member States must meet in the period spanning 2021-2030 in the transport, residential, commercial and institutional sectors, agriculture and waste, in addition to also defining the role of the use of land and forestry in those goals. Furthermore, the European Commission also submitted a mobility strategy with low carbon emissions, establishing the basis for developing applicable measures for vehicles with low or zero emissions, and for alternative low-emission fuels.



Along the same lines, on 30th November 2016, the European Commission presented a package of measures on “Clean Energy for all Europeans” with the aim of guaranteeing the competitiveness of the European Union in the so-called transition towards clean energy, without losing sight of the need to protect consumers as “*active, central players in the future energy markets*”, who will have the possibility of producing and selling their own electricity. The legislative proposals in this package encompass energy efficiency, renewable energies, innovation in clean energies, building renewals, electricity market design, electrical supply security and governance of the Energy Union. In order to regulate the latter, a new regulation proposal was submitted whereby Member States have the obligation of designing a Comprehensive National Energy and Climate Change Plan for the period 2021-2030, foreseeing the set-up of plans for the periods 2031-2040 and 2041-2050, in order to meet the objectives of the 2050 road map.

The European Commission also proposes measures to promote public and private investment and to promote the industrial competitiveness of the EU, as well as new eco-design perspectives and a strategy for connected, automated mobility.

In line with the aforementioned objective of reducing greenhouse gas emissions, and bearing in mind that one of the major pollution problems today is the annual release into the air of tonnes of emissions from fossil fuel combustion to produce energy or as intermediate processes in industry, on 25th November 2016 the Cabinet approved, on proposal of the Ministry of Agriculture and Fisheries, Food and Environment, and Energy, Tourism and the Digital Agenda, the Transitional National Plan (TNP) for large combustion plants. The elaboration of this plan is based on the prerogative that Directive 2010/75/EU of the European Parliament and of the Council, of 24th November 2010, on industrial emissions (IED) offers Member States the possibility of developing and applying a transitional national plan for large combustion plants, valid between January 2016 and June 2020, facilitating the necessary environmental investments in order to comply with the emissions limit values set forth in the IED by 1st July 2020. In order to adhere to the plan, the plant must submit an official application, with the first permit having been granted before 27th November 2002, or must have submitted a complete permit application before said date, providing that the plant has been operating since before 27th November 2003.

There are currently 29 plants that have adhered to the TNP. This means that throughout its validity, the emission limit values that will be applicable to them are those defined in their Integrated Environmental Authorization (IEA), without exceeding the global annual emission ceilings (the so called bubble), established for each pollutant by Decision 2012/115/EU, which are linearly reduced over time until the end of the period.

Evolution of final energy demand

- In 2015, final energy consumption was 84609 ktoe, having undergone an increase of 1.1% over the previous year. This is the first time energy demand has increased in the last six years.
- Over the period 2005-2015 primary energy consumption decreased by 20.1%.
- Gas consumption, accounting for 16.1% of demand, at 13655 ktoe, is the only energy source that decreased in 2015 compared to the previous year.



Environmental energy efficiency

- Primary energy intensity in Spain increased in 2015 by 0.3% compared to the previous year, although there is a cumulative decrease of 28.8% compared to 2000.
- The final energy intensity however, decreased by 1.9% in 2015.



• The reduction in the hydraulic and wind potential in 2015 led to an increase in the demand for fossil fuel energy, and therefore a decrease in renewable energies and the subsequent increase in energy consumption, both primary and final.

Consumption of renewable energies

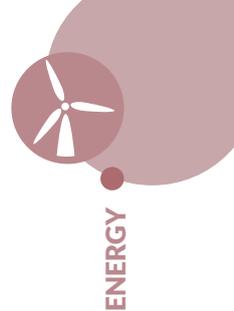
- Renewable energies fell in terms of their participation in the primary energy demand by 1.1% in 2015.
- Despite a year-on-year reduction between 2014 and 2015 of 3.1%, between 2000 and 2015 the demand for renewable energies increased by 148.9%, with solar energy being the source that has reported highest growth.
- Gross internal consumption of renewable energies in the EU-28 states increased in 2015 to 211,046.2 ktoe, 3.9% more than the previous year, and 64.1% more than in 2006.



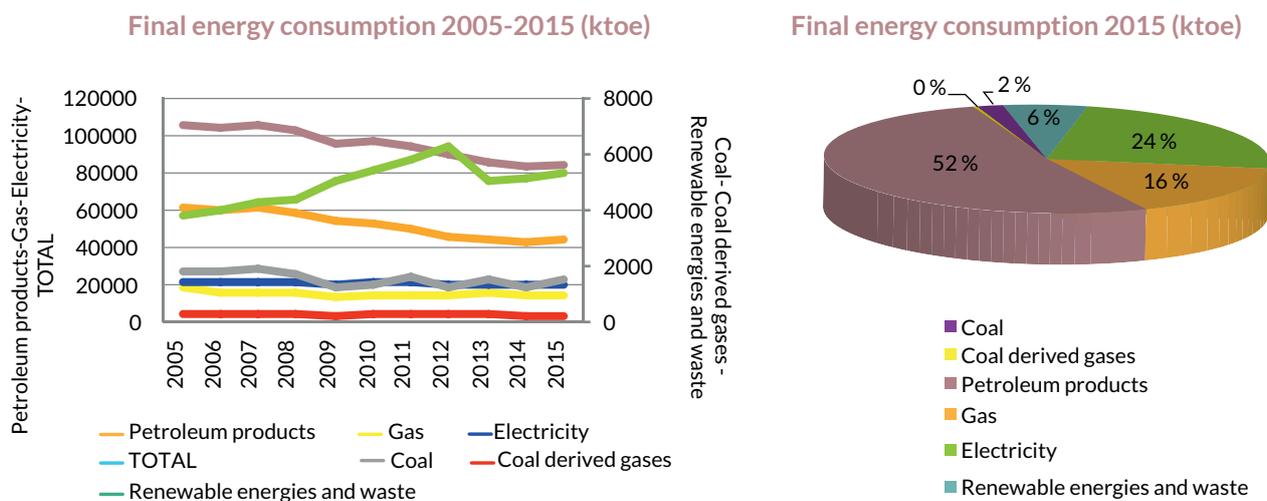
Guarantees of origin and electricity labeling

- Since it began in 2007, this certification system has undergone an enormous evolution: 38881 plants, which accounted for a total of 46561 MW installed power in 2016, compared to 1005 plants in 2007 with 26265 MW.
- In 2016, 85823 Guarantees of Origin (GoO) were issued, of which 83679 were for renewable energies and 2144 for high-efficiency co-generation.
- 26800 GWh of the issued GoO were redeemed in 2016, 979.7% more than the year the system was implemented.





Evolution of final energy demand



- In 2015, final energy consumption was 84609 ktoe, an increase of 1.7 % over the previous year, the first time energy demand has increased in the last six years.
- Between 2005-2015 primary energy consumption decreased by 20.1%.
- Gas consumption, accounting for 16.1% of the demand, at 13655 ktoe, is the only energy source that decreased in 2015 compared to the previous year.

According to data from the Ministry of Energy, Tourism and Digital Agenda, final energy consumption in Spain, including consumption for non-energy purposes, reached 84,609 kilotonnes of oil equivalent (ktoe) in 2015. Breaking away from the decreasing trend observed over recent years, an increase of 1.7% was recorded for this indicator in 2015, undoubtedly in line with the current growth of the economy and supported by the increase in the final demand for renewable energies, which stood at a year-on-year figure of 3.8%, and even so it must be emphasized that final energy consumption decreased by 20.1% in the last decade (2005-2015).

The demand structure has the following distribution, describing the variation between 2014 and 2015.

- 52.2% corresponds to petroleum products (44197 ktoe), emphasizing the increase in consumption of these products in transport.
- 23.5% comes from electricity (19,955 ktoe), an increase of 2.2% over 2014.
- 16.1% comes from gas /13,655 ktoe), with consumption having fallen in all sectors due to the reduction in demand and the increase in temperature during the year.
- 6.2% is for renewable energies and waste (5287 ktoe), maintaining similar figures to the previous year (2014), where biomass is notable at 3953 ktoe, followed by biofuel at 978.2, thermal solar power at 277.3 ktoe and geothermal power at 18.8 ktoe.

- 1.7 % is from coal (1515 ktoe), an increase of 32.5.% over 2014.
- 0.2% was coal derived gases (239 ktoe), also reporting an increase in consumption of 1.7%.

In Europe (EU-28), final energy consumption in 2015 increased by 2.19% compared to the previous year, standing at 1083956.6 ktoe, although as was the case in Spain, in the period spanning 2005-2015 there has been a considerable decrease in this kind of demand (9.09%). Spain is the fourth main consumer of final energy in the EU-28 states, behind Germany at 212123.6 ktoe, United Kingdom and Italy at 131370.2 and 116444.1 ktoe, respectively. At the other end of the list are countries such as Malta, the one with least final energy consumption (572.3 ktoe), followed by Cyprus at 1659.5 and Estonia at 2765.1 ktoe.

Fossil fuels are also, by far, the principal source of energy in the EU, although their specific weight has fallen significantly in recent decades, from 83% in 1990 to 73% in 2015, and even so European dependence on fossil fuel imports increased in the same period with 73% being imported in 2015 compared to 53% in 1990. The efforts made to reduce the proportion of fossil fuels in their energy consumption by countries such as Denmark from 91% in 1990 to 69% in 2015, Latvia (from 83% to 61%) and Romania (from 96% to 74%) are particularly noteworthy. Likewise, the success of the energy policies in countries such as Sweden, Finland and France must be highlighted, where fossil fuels now account for less than half of the energy consumption, more specifically 30%, 46% and 49% respectively.

Indicator definition:

This indicator shows the evolution of final energy consumption or demand, the latter being the energy supplied to consumers to be converted to useful energy and whose consumption is measured through meters or provided by data from suppliers available on the market in the form of fuel, heat and electricity.

Notes on methodology:

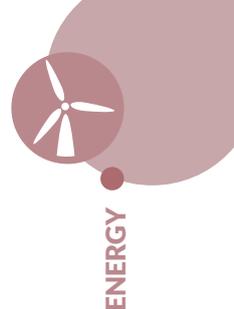
- One tonne of oil equivalent (toe) is the equivalent of 107 kcal. Conversion of the physical units to toe is carried out based on the lower calorific value of each of the considered energy sources.

Source:

- Ministry of Energy, Tourism and Digital Agenda (MINETAD)
- <http://www.minetad.gob.es/energia/balances/Balances/Paginas/CoyunturaTrimestral.aspx>
- Eurostat: <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=ten00095&plugin=1>

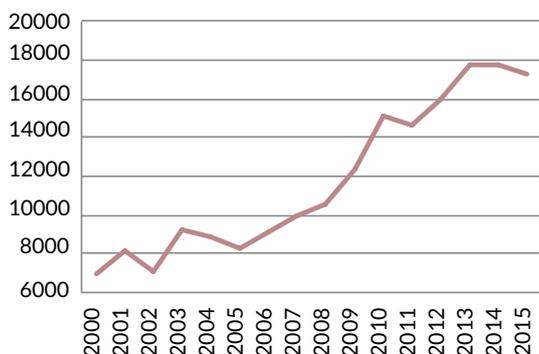
Websites of interest:

- <http://www.minetad.gob.es/energia/es-ES/Paginas/index.aspx>
- [http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/599279/EPRS_BRI\(2017\)599279_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/599279/EPRS_BRI(2017)599279_EN.pdf)
- www.enerclub.es

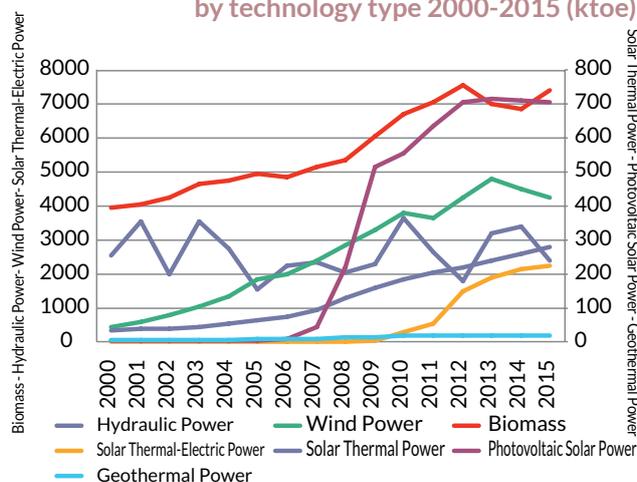


Consumption of renewable energies

Evolution of renewable energies consumption 2000-2015 (ktoe)



Evolution of renewable energies consumption by technology type 2000-2015 (ktoe)



- Renewable energies fell in terms of their participation in the primary energy demand by 1.1% in 2015.
- Despite a year-on-year reduction between 2014 and 2015 of 3.1%, between 2000 and 2015 the demand for renewable energies increased by 148.9%, with solar energy being the source that has reported the highest growth.
- Gross internal consumption of renewable energies in the EU-28 states increased in 2015 to 211046.2 ktoe, 3.9% more than the previous year, and 64.1% more than in 2006.

In terms of primary energy demand, in 2015 renewable energies reported a decrease of 3.1% compared to the previous year, with their share in total primary energy consumption falling by 1.1%, which now stands at 14%. The figures for primary renewable energy consumption amount to 17243 ktoe, compared to 17796 ktoe in 2014.

When analyzing the 2015 figures in greater depth, we can see that the distribution by supply resources of primary renewable energy demand is headed up by biomass, accounting for 42.74% of the consumption at 7370 ktoe, followed by wind and hydraulic power at 24.6% and 13.9% respectively (4243 and 2397 ktoe), solar thermal-electric power at 12.9% (2231 ktoe), photovoltaic solar power at 4% (705 ktoe), solar thermal power at 1% (277 ktoe) and geothermal power at 0% (20 ktoe). When analyzing the year-on-year figures for 2014-2015, as a result of lower availability of resources, hydraulic and wind power underwent respective decreases of 28.8% and 5.1%. Likewise, photovoltaic solar power decreased by 0.2%, ending the list of renewable energies that reported decreases in 2015. The rest of the energies saw an increase in consumption at the following percentages: biomass by 7.9%, solar thermal by 6.9%, solar thermal-electric by 4.1% and geothermal power by 5.2%.

Consumption of primary renewable energy has increased by 148.9% since 2000, from 6926 ktoe to 17243 ktoe in 2015, with an all-time record for this type of energy in 2014. The mix of renewable resources during this period also underwent significant changes, and today there is much greater balance between the different

types of transformation technologies: biomass currently dominates the market, as was the case in 2000, but with a smaller share (5.7% less), whereas hydraulic power, which was the second source of energy at 36.7% share in 2000, has been overtaken by wind power which formerly stood at just 5.8% through exponential growth of 942.5%. The most obvious evolution has undoubtedly been solar technology: solar thermo-electric power, which has increased from 0 to 2231 ktoe, photovoltaic power, which in 2000 supplied 2 ktoe increased to 705 ktoe in 2015 (35,150% growth), and thermal power with an increase of 793.5%, from 31 to 277 ktoe. Geothermal power, on the other hand, has increased by 300%, from 5 to 20 ktoe.

In relation to electricity generation from renewable energy, the lack of available wind and water resources, owing to the fact that 2015 was a very dry year in general in Spain, with a mean rainfall of just 500mm, and the subsequent drawdown of electrical generation through these resources, has caused this indicator to decrease by 12.1%, and only 36.6% of total electricity generation, 97 TWh out of 280 TWh, was produced through renewable resources. Generation using biogas and solid urban waste however, underwent a significant growth of 29%, as did solar thermal electric power, which increased by 4.1%, whereas photovoltaic and biomass maintained their electrical production levels.

At European level, gross internal consumption of renewable energies in the EU-28 states increased in 2015 to 211046.2 ktoe, 3.9 % more than the previous year, and 64.1% more than in 2006. Germany is the country that reported highest consumption in 2015, with 18.1% of all consumption in the EU-28 states (38354.2 ktoe), having increased by 86.3% since 2006, and Spain was fifth, at 16618.5 ktoe, 7.8% of consumption in EU-28. At the other end of the scale are Malta and Cyprus, the countries who consume the least amount of energy from renewable sources, standing at 20 ktoe and 146.6 ktoe, respectively.

Indicator definition:

This indicator shows the evolution of renewable energy consumption in terms of primary energy demand through the period spanning from 2000 to 2015.

The European indicator (EUROSTAT) provides data for gross domestic consumption in Europe, i.e. the total energy demand of a country required to meet its domestic consumption. This includes consumption by the energy sector, transformation and distribution losses and final energy consumption by users. It does not include energy supplied to international maritime bunkers (fuel oil). It is calculated as follows: primary production + recovered products + net imports + variation in *stock - bunkers*.

Notes on methodology:

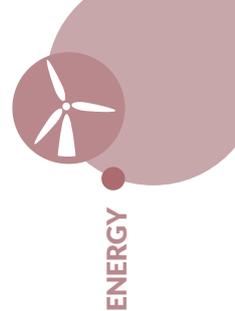
- Biomass includes solid urban waste (SUW), biomass, biogas and biofuels.

Source:

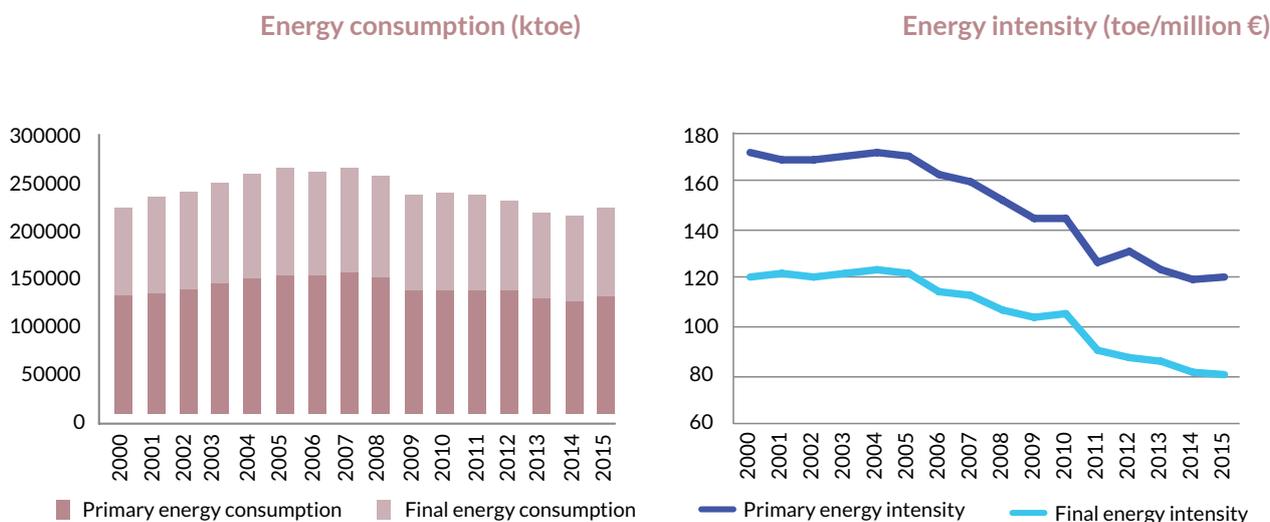
- IDAE. Renewable energy statistic reports
- <http://www.idae.es/informacion-y-publicaciones/estudios-informes-y-estadisticas>
- EUROSTAT/Data/Database/Database by themes/Environment and energy/Energy/Energy statistics-supply, transformation and consumption

Websites of interest:

- <http://www.idae.es/index.php/idpag.802/relcategoria.1368/relmenu.363/mod.pags/mem.detalle>
- <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdcc330>
- http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_107a&lang=en



Environmental efficiency in energy



Source: MINETAD

- *Primary energy intensity in Spain increased in 2015 by 0.3% compared to the previous year, although there is a cumulative decrease of 28.8% compared to 2000.*
- *The final energy intensity however, decreased by 1.9% in 2015.*
- *The reduction in hydraulic and wind potentials in 2015 led to an increase in the demand for fossil fuel energy, and therefore a decrease in renewable energies and the subsequent increase in energy consumption, both primary and final.*

Consumption of primary energy in Spain reached 123225 ktoe in 2015, 4% more than the previous year's demand, although 1.1% less than in 2000. This increase, which took place after a period of negative growth of around 20% since 2008 owing to the economic crisis and the fall in the demand for oil and coal products, is mostly due to the increase in consumption of these products; more specifically oil, coal and natural gas. Obviously, this increase in consumption has a direct effect on the increase of its share in electrical generation, and consequently a reduction in the demand for renewable energies (specifically 3% in the year-on-year comparison), which, despite favorable evolution by the other sources, has been significantly affected by the low hydraulic and wind potentials, which account for 38.5% consumption of these energy types.

Primary energy intensity, on the other hand, reported an increase of 0.3% in 2015, compared to the 2014 figures, although if we compare the figures to 2000, there is an overall decrease of 28.8%. The national indicator thus shows a significant evolution of the annual mean, even higher than the figures for the rest of Europe, where, between 2004 and 2013, it reached 1.8% compared to 2.2% of the national annual mean. We are therefore able to see that despite annual decreases of the improvement of energy efficiency as a result of the growing use of primary energy, this indicator has undergone major evolution since the turn of the century.

As for final energy consumption, the figure in Spain was 84609 ktoe in 2015, 4.8% below the 2000 figure

and 1.7% above the demand in the previous year, thus breaking away from the downward trend since 2008. This expansion stems from the growth in demand for oil products and electricity, which account for 70.9% of global final energy demand, and an increase in final consumption of renewable energies, particularly biomass and biofuels. On the other hand, final energy intensity decreased by 31.4% since the turn of the century, and 1.9% compared to the previous year, which undoubtedly consolidates progress towards a more energy efficient society.

Another indicator that affects energy efficiency studies of countries is their degree of self-sufficiency, i.e. the degree of energy dependence. There has been an improvement in terms of energy dependence in Spain in recent years, largely due to the wider role played by renewable energies in our energy system, and hence, between 2008 and 2015 dependence fell by eight percent, from 81.3% to 73.3%. Nevertheless, in 2015 the increase in the demand for fossil fuels, as a result of the already mentioned contraction of hydraulic and wind potentials, led to an increase in energy imports and subsequent reduction in self-sufficiency of 0.5%, which now stands at 73.3%, twenty percent higher than the European mean, which is 54%.

Indicator definition:

The indicator describes the environmental efficiency of energy through an analysis of the evolution of primary and final energy intensities (the lower the intensity, the more the efficiency), which show the relationship between energy consumption and the amount of economic activity, and are calculated as the quotient between primary and final energy consumption and the gross domestic product (GDP) at market prices. It shows positive and negative fluctuations of the different variables that have a direct influence on the analysis of energy efficiency.

On the other hand, the indicator on energy dependence shows to what extent an economy is dependent on energy imports to cover its energy requirements, and is calculated by dividing net imports by the sum of gross domestic energy consumption and marine bunkers.

Notes on methodology:

- Energy efficiency refers to the set of actions that permit optimizing the ratio between the quantity of consumed energy and the final products and services obtained. It therefore consists of reducing energy consumption, while maintaining the same energy services but without reducing comfort or living conditions and guaranteeing supply, while also protecting the environment and enhancing sustainability.
- Energy consumption used to calculate the aforementioned intensities include energy uses and non-energy uses.
- The intensities included in the indicator are the result of dividing the relevant energy consumptions (ktoe) and the gross domestic product at market prices, expressed in million € in 2005, supplied by the National Statistics Institute (INE).

Source:

- Ministry of Energy, Tourism and Digital Agenda, Energy in Spain, 2015.
- INE, Gross Domestic Product at market prices. National Accounting of Spain. BASIS 2010.
- EUROSTAT Energy - Main tables - Energy statistics: quantities.

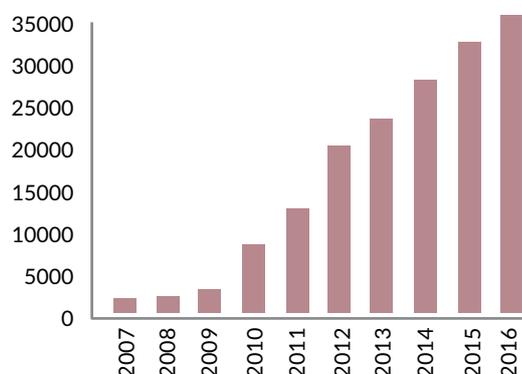
Websites of interest:

- <http://www.minetad.gob.es/energia/balances/Balances/Paginas/Balances.aspx>
- <http://www.minetad.gob.es/energia/balances/Balances/Paginas/CoyunturaTrimestral.aspx>
- <http://ec.europa.eu/eurostat/web/energy/data/main-tables>
- <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdcc310>

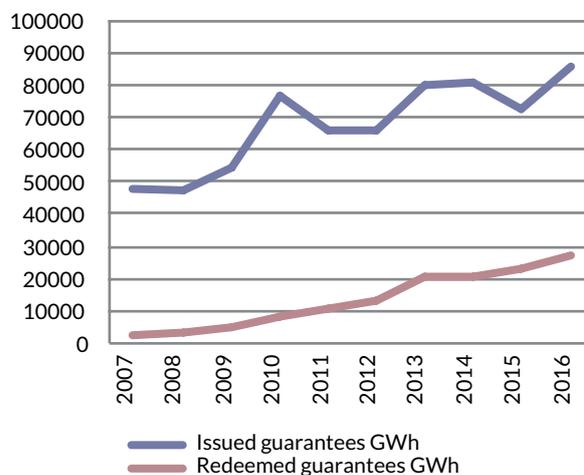


Guarantees of origin and electricity labeling

No. of plants 2007-2016



Guarantees of origin 2007-2016 (GWh)



Source: CNMC

- *Since it began in 2007, this certification system has undergone an enormous evolution: 38,881 plants, which accounted for a total of 46561 MW installed power in 2016, compared to 1005 plants in 2007 with 26265 MW.*
- *in 2016, 85823 Guarantees of Origin (GoO) were issued, of which 83679 were for renewable energies and 2144 for high-efficiency co-generation.*
- *26800 GWh of the issued GoO were redeemed in 2016, 979.7% more than the year the system was implemented.*

According to the data supplied by the National Markets and Competition Commission (CNMC), 85823 GWh Guarantees of Origin (GoO) were issued in 2016 (83679 of them for renewable energy sources and 2144 for high-efficiency cogeneration), 18.2% more than in 2015 when a total of 72575 GWh was reached. In 2016 this accounted for 32.6% of total national production, and 65.8% regarding production from renewable energy sources and cogeneration, and has increased considerably since the system began in 2007, so that today 80.9% more guarantees are issued than in the first year. Nevertheless, the number of issued guarantees has registered peaks and troughs, with two troughs in 2011 falling by 14.1% and a decrease of 9.9% in 2015. In the year we are dealing with in this report, i.e. 2016, 85.4% of the issued guarantees (a total of 73,350 GWh) was transferred to national marketing companies.

In addition to the issued guarantees, other figures must be considered in order to show the evolution of this electrical generation certification system from renewable sources. Indeed, the number of energy production plants that took part in the system has also reported a very positive gradual evolution, with the value increasing by 10.3% compared to the 2015-2016 year-on-year figures, and 3370% over the period spanning 2007 to 2016. The installed power represented by these 38881 plants taking part in the system now amounts to 46561 MW, 77.2% more than the initial 26265 GWh in 2007. In terms of the categories of these plants, it must be pointed out that 32211 of them are photovoltaic plants, 1148 are wind farms, 612 mini-hydraulic plants (<10 MW), 53



biomass, 32 solar thermal, 33 mini-hydraulic over 10 MW, 8 waste and 1 ocean thermal.

In terms of redeemed guarantees, i.e. those transferred to final electricity consumers, the figure reached 26800 GWh in 2016, 16.7% more than the previous year, and 979.7% more than in 2007, with evolution having remained constant during the study period with the exception of a slight stagnation in 2014, which meant that a positive evolution was not possible.

In terms of electricity labeling for the year 2016, the mix of power generation sources by the participating marketing companies and the generic ones which did not take part in the guarantee of origin system, shows the following figures:

ENERGY MIX YEAR 2016

ENERGY MIX (%)	Generation mix	Generic marketing mix
Renewable energies	39.8 %	12.7 %
High-efficiency cogeneration	0.8 %	0.1 %
Cogeneration	9.0 %	13.2 %
CC Natural Gas	11.1 %	16.2 %
Coal	14.2 %	20.9 %
Fuel/Gas	2.6 %	3.8 %
Nuclear	21.3 %	31.3 %
Others	1.2 %	1.8 %
CARBON DIOXIDE EMISSIONS (kg CO ₂ per kWh)	0.25	0.36
RADIOACTIVE WASTE AA (milligram per kWh)	0.51	4711661

Source: CNMC



Indicator definition:

The indicators provides data about the guarantees issued and redeemed through the Guarantee of Origin (GoO) System, expressed in GWh, and the number of plants that have applied for them and the installed power they represent.

Notes on methodology:

- GoO are an instrument that, by means of an electronic certification, accredits that a certain quantity of electricity has been generated using renewable sources or high-efficiency cogeneration anywhere in the country. It also provides information about the environmental impact associated with that generation.
- The guarantees are issued by CNMC and consist of a recording of the number of megawatts-hour of net electrical power generated during a given period in the account of the power generation plant that applied for the guarantee. The record is made in favor of the power generation plant owner, who will be the initial holder of the guarantees of origin.
- Redeemed guarantees: those for which the holder requests for redeeming to a final electricity consumer in the invoices, determined by the Unique Supply Point Unified Code, causing the cancellation through redemption of those guarantees of origin during this process. Guarantees redeemed on a client must be equal to or less than his consumption in busbars at the plant during the relevant period.
- Transferred guarantees: the owner of the power generation plant requests to transfer the granted guarantees of origin to a national marketing company, which then becomes the holder of those guarantees of origin.
- Exported guarantees: the owner of the power generation plant requests to transfer the granted guarantees of origin to a marketing company in another EU member state and, in order to do so, must previously waive the received energy premium. The guarantees related to a request for export have not been deducted from the issued guarantees in this indicator.
- Electricity labeling: on the basis of information about the guarantees of origin, the CNMC calculates an energy source mix from the participating marketing companies for the previous year, as well as the national generation mix and a generic mix for those who have not taken part in the GoO. The environmental impact in terms of CO₂ emission and radioactive waste is also calculated. This information must be included in the invoices that are sent to end consumers. Among the generic marketing companies, in addition to those who have not acquired guarantees of origin, all the Reference Marketing Companies are included.
- The letters shown in the boxes for CO₂ emissions and radioactive waste in the table “2016. Energy Mix” correspond to the environmental impact rating of the participating plants, on a scale from A to G, where A denotes the minimum environmental impact, and G the maximum.

Source:

- National Markets and Competition Commission;
- <https://gdo.cnmc.es/CNE/navegacion.do?accion=home&reloadNews=true>

Websites of interest:

- <https://ec.europa.eu/energy/en/topics/renewable-energy/renewable-energy-directive>
- <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0028>



2.13

INDUSTRY

The Industrial Production Index (IPI) of Spain in 2016, the correction of the seasonal and calendar effects, reported a growth of 1.9% compared to the previous year, registering the third consecutive year of growth. All activity sectors considered in this indicator, mining, manufacturing, generation and distribution of electricity, water and gas and collection, treatment and distribution of water, reported year-on-year increases, except for energy which decreased by 0.9%. Capital goods reported a higher increase, of 3.9%. The most significant increases in industrial production by autonomous communities were those registered in Castilla y León (5%), Galicia (4.1%) and C. Valencia (3.9%), while the largest decreases were in Asturias (7.1%), La Rioja (5.1%) and Aragon (3.7%).

Industrial production also increased in the EU-28 states in 2016 by 1.6% compared to 2015, thus consolidating the positive growth trend that began in 2014 following the economic crisis. In fact, between 2010 and 2016 this indicator increased by 5.6%, recording some very significant increases in industrial production particularly in countries such as the Czech Republic, Hungary, Romania, Ireland, Slovenia and Slovakia.

In addition to the increase in industrial production, the General Turnover Index for the Market Services Sector and the Industrial Orders Index also reported growth in 2016 compared to the previous year. The former grew by 4.2%, experiencing a rise in all autonomous communities, particularly Galicia at 8.8%, and the latter by 0.5% for orders in industry, with positive growth rates for durable consumer goods (5.6%) and negative growth for energy (-15.6%).

In this depiction of the situation of industry, we also need to consider the Business Turnover Index, which measures the evolution of the turnover in certain business sectors accounting for 50% of the GDP at market prices, namely: mining and manufacturing industries, electricity and water supply, sewage and waste management, commerce and non-financial market services. In 2016, growth of 2.7% was also reported for this index in the corrected series compared to 2015, with all sectors reporting positive growth, headed by non-financial market services with an increase of 4.8%, except for electricity and water supplies which decreased by 9.4%.



In strictly environmental terms, particularly noteworthy is the response to the legal requirement of developing a National Action Framework established in Directive 2014/94/EU of the European Parliament and of the Council, of 22nd October 2014, on the deployment of alternative fuels infrastructure. In December 2016 the Government approved a package of measures with a view to implementing an infrastructure for alternative fuels and designing a framework for alternative energies in transport, which would permit reducing dependence on oil and promoting the sustainable transport market.

The goal is to achieve a 10% market share in renewable energies in transport by 2020. To achieve this, the information to user obligations are regulated along with the technical requirements on electrical vehicle recharging points and electricity supply facilities for ships and refueling of natural gas and hydrogen, as well as including measures to promote sustainability in transport.

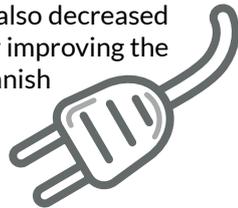
On 16th December 2016, on proposal by the Ministry of Agriculture and Fisheries, Food and Environment, the Cabinet approved Royal Legislative decree 1/2016 passing the amended text of the Integrated Pollution Prevention and Control Act, thus providing a clearer, more harmonised legal text guaranteeing better regulatory quality and higher legal security pursuant to industrial emissions. The aforementioned Royal Legislative Decree integrates Act 16/2002, of 1st July, on Integrated Pollution Prevention and Control and its successive amendments: Act 1/2005 of 9th March regulating the greenhouse gas emission rights trading system; Act 27/2006 of 18th July regulating the rights to information, public participation and access to justice in environmental matters; Act 34/2007 of 15th November on Air Quality and Conservation of the Atmosphere; Act 42/2007 of 13th December on Natural Heritage and Biodiversity; Act 40/2010 of 29th December on Geological Storage of Carbon Dioxide; Royal Decree 8/2011 of 1st July on support measures for mortgage debtors and Act 5/2013 of 11th June, amending Act 16/2002 of 1st July on Integrated Pollution Prevention and Control and Act 22/2011 of 28th July on Contaminated Waste and Soils.

This Act affects around 6000 existing plants, which must obtain integrated operating permits, known as Integrated Environmental Authorization, where the environmental conditions are set, more specifically the limit values of air, water, soil and waste pollutant emissions based on the Best Available Techniques included in the reference documents on best available techniques (BREF documents) which have been negotiated at European level.



Final energy consumption by industrial sector

- Final energy consumption by the industrial sector in Spain fell in 2015 by 4.7% compared to the previous year, to stand at 18897 ktoe.
- The industrial sectors that consumed the least amount of energy in 2015 were the textile, leather and footwear industries, non-energy related mining and the wood, cork and furniture industries.
- The final energy intensity also decreased by 7.7%, thus considerably improving the energy efficiency of Spanish industry in 2015.



Industry taxes and investment in environmental conservation

- In 2014 industry invested a total of €554282095 in environmental conservation, 0.3% less than the previous year, with 53.2% for protecting air and climate.
- Current costs increased in 2014 compared to 2013 by 5.1%, to reach €185886711, the maximum in the period spanning 2005-2014.
- The total cost defrayed by industry increased in 2014 by €88293893, 3.8% more than the previous year.



GHG emissions in industry

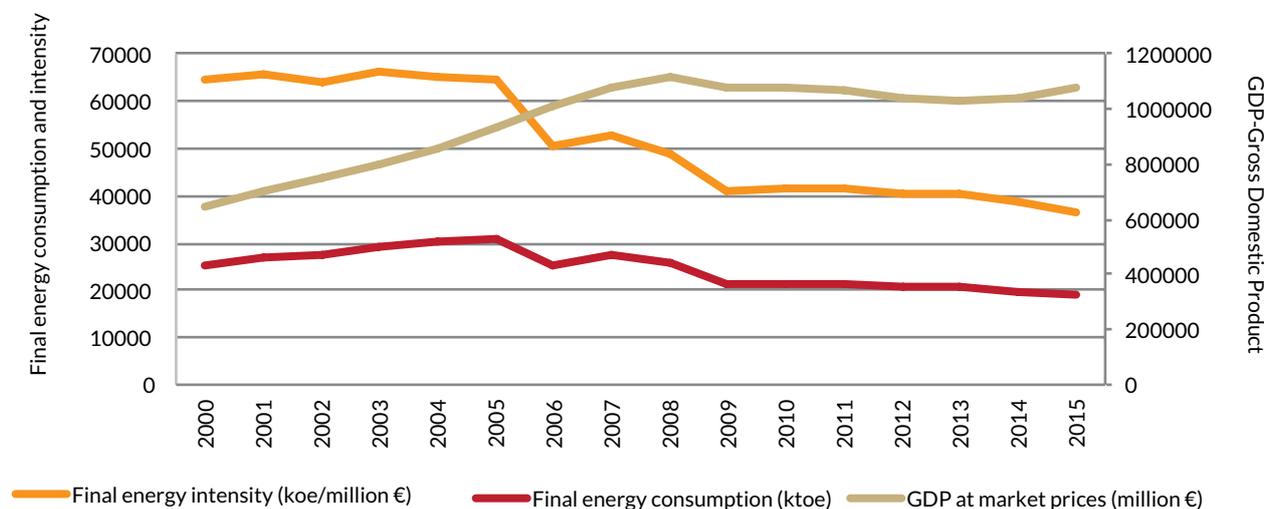
- Global GHG Emissions reached 335662 kt of CO₂-eq in 2015, 3.5% more than in 2014.
- GHG Emissions in the industrial sector accounted for 44.4% of all emissions in 2015. More specifically, the energy sector accounted for three quarters of these emissions.
- In 2015, 57.9% of total emissions from the industrial sector were from power generation, 27.6% from manufacturing and construction, 8.1% from mining, 6.2% from the substitution products for ozone layer depletion substances, 2.9% from the metal industry, 2.5% from the chemical industry, 0.6% from non-energy related fuel and solvent products and 0.4% from production of other products.





Final energy consumption by the industrial sector

Final energy consumption and intensity - industrial sector 2000-2015



Source: IDAE

- *Final energy consumption by the industrial sector in Spain fell in 2015 by 4.7% compared to the previous year, to stand at 18897 ktoe.*
- *The industrial sectors that consumed the least amount of energy in 2015 were the textile, leather and footwear industries, non-energy related mining and the wood, cork and furniture industries.*
- *The final energy intensity also decreased by 7.7%, thus considerably improving the energy efficiency of Spanish industry in 2015.*

In 2015, according to data from the Institute for Energy Diversification and Conservation (IDAE) pertaining to the Ministry of Energy, Tourism and Digital Agenda (MINETAD), the final energy consumption of the industrial sector in Spain reached 18897 kilotonnes of oil equivalent (ktoe), 939 ktoe less than in 2014. This decrease is the largest since 2009, when a fall of 18.03% was recorded due to less economic activity. In 2010, consumption rose slightly, by 1.3%, and then fell off again for five consecutive years to reach this year-on-year decrease of 4.7% in 2015.

If we take all data from the series into account, from the turn of the century, we can see that consumption has fallen by 25.4% from 25331 ktoe in 2000, a fall that rises to 39.2% if we compare it to the 2005 figures, when consumption was 31,103 ktoe, the highest in the period.

In the breakdown by energy sources, of the 18,897 ktoe, a total of 1397.3 ktoe was consumed using coal, 728.9 ktoe from bituminous coal, anthracite and agglomerates, 2717 from oil products, mostly diesel oil (1121.3 ktoe) and oil coke (1101.1 ktoe), 6897 from natural gas, 1345.9 ktoe from renewable energies, highlighting biomass that accounted for 95.6% of the demand, and 6539.8 ktoe from electrical power.



As for sectors, in 2015 the non-metallic mineral industry was the sector that most final energy consumed, with a total of 3273 ktoe, 17.3% of the total industrial demand, most of it from oil products and natural gas. This was followed by the steel and melting industry with 3008 ktoe (15.9%), most of which was coal; the chemical industry with 2819 ktoe (14.9%) almost all from natural gas, and the food, drink and tobacco industry with 2285 ktoe (12%), also mainly natural gas. At the other end of the scale are the textile, leather and footwear industries, being the ones with least final energy demand at 324 ktoe (1.7%), followed by non-energy related mining industries at 406 ktoe (2.1%) and wood, cork and furniture at 452 ktoe (2.3%).

In terms of final energy intensity, the 2015 data were positive and therefore also the energy efficiency in Spanish industry operations, having reduced intensity by 7.7% compared to the previous year. Therefore, this indicator now stands at 17568.2 koe per million €, having fallen below the 19000 koe per million € for the first time since 2009. If we compare the entire period (2000-2015) we can see that intensity has decreased considerably since 2000 through to 2015, more specifically by 55.18%, from 39196.9 koe per million € in 2000, with slight increases in 2010, 2011 and 2013, although none higher than 1%.

In industry in the EU-28 countries, final energy consumption increased in 2015 to 274737.3 ktoe, accounting for 25.3% of the total final energy consumed in the EU during the same period. Industry in our country accounts for 6.8% of industrial consumption in Europe, and 1.7% of the total final energy demand in the EU, whereas Germany accounts for 22.1% and 5.6% respectively, and France 10.4% and 2.6%. In the 2014-2015 year-on-year comparison, consumption by industry decreased by 0.01%, although the percentage reached up to 17.6% reduction compared to 2000.

Indicator definition:

This indicator shows the final energy consumption figures for industry, including non-energy related consumption, i.e. those products consumed by industry as raw materials, which are not directly used for energy production. It also includes final energy intensity, expressed in koe per million €, which is the result of dividing the relevant energy consumption, expressed in ktoe by the 2005 GDP at market prices, expressed in million €.

The indicator for the EU-28 figures includes all industrial sectors except the energy sector. The quantities of fuel transformed at electrical power plants by industrial self-producers and the quantities of coke transformed into blast furnace gas are not a part of the total industrial consumption, but are included in the energy transformation sector.

Notes on methodology:

- Energy efficiency refers to the set of actions that permit optimizing the ratio between the quantity of consumed energy and the final products and services obtained. It therefore consists of reducing energy consumption, while maintaining the same energy services but without reducing comfort or living conditions and guaranteeing supply, while protecting the environment and enhancing sustainability.
- The lower the final energy intensity, the more energy efficient industry is.

Source:

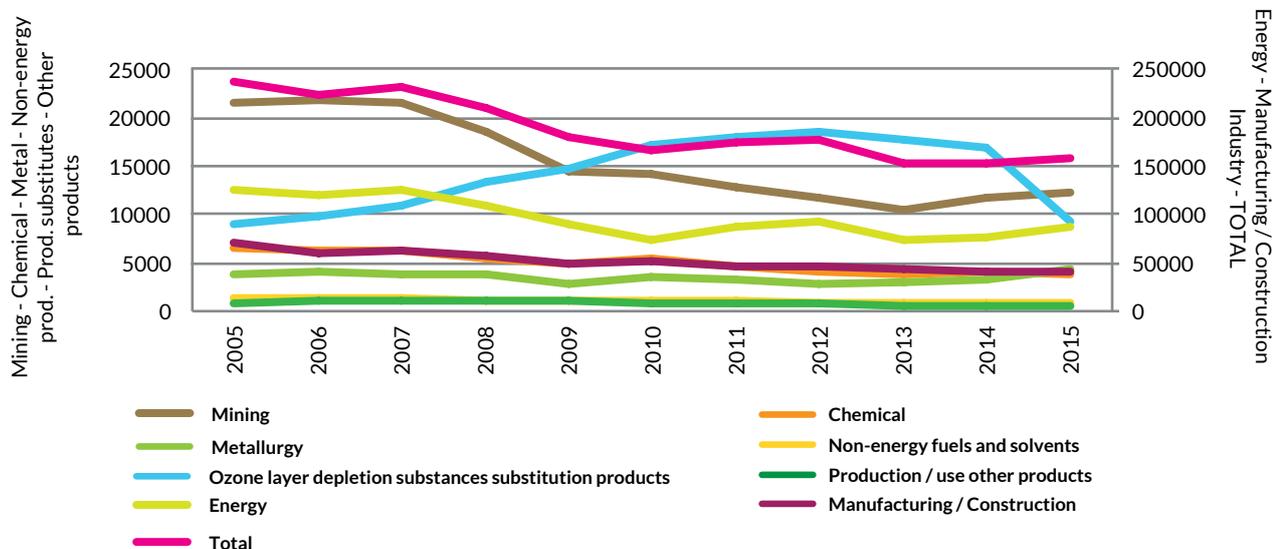
- Institute for Energy Diversification and Conservation (IDAE, as per the Spanish acronym).
- <http://www.idae.es/informacion-y-publicaciones/estudios-informes-y-estadisticas/EUROSTAT/energy/data/main-tables/energy-statistics-quantities/final-energy-consumption-by-sector>
- INE, Gross Domestic Product at market prices. National Accounting of Spain. BASIS 2010.

Websites of interest:

- <http://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=tsdpc320&language=en>



GHG Emissions in Industry 2005-2015. Total by sectors (kt CO₂ equivalent)



Source: MAPAMA

- *Global GHG Emissions reached 335662 kt of CO₂-eq in 2015, 3.5% more than in 2014.*
- *GHG Emissions in the industrial sector accounted for 44.4% of all emissions in 2015. More specifically, the energy sector accounted for three quarters of these emissions.*
- *In 2015, 57.9% of total emissions from the industrial sector were from power generation, 27.6% from manufacturing and construction, 8.1% from mining, 6.2% from the substitution products for ozone layer depletion substances, 2.9% from the metal industry, 2.5% from the chemical industry, 0.6% from non-energy related fuel and solvent products and 0.4% from production of other products.*

According to the data supplied by the Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA), total greenhouse gas emissions (GHG) in 2015 reached 335661.5 kilotonnes of CO₂ equivalent (kt CO₂-eq), meaning an increase of 15% compared to the base year and 3.5% (slightly over 11000 kt CO₂-eq) compared to the previous year, consequently registering a year-on-year increase of these emissions for the second consecutive year.

Emissions from the industrial sector, which include industrial processes, the energy industry and manufacturing and construction, accounted for 44.4% of the total GHG emissions, followed by transport and other energy sectors, at 38.1%. Agriculture accounted for 10%, and waste management for 4%. More specifically, emissions from energy processing processes accounted for three quarters of global emissions, particularly electrical generation, which accounted for 26% of these emissions.

Breaking the data down, in 2015 the industrial sector released a total of 148989.2 kt CO₂-eq, 4882.2 kt CO₂-eq less than the previous year: 57.9% was from power generation, 27.6% from manufacturing and construction, 8.1% from mining, 6.2% from the substitution products for ozone layer depletion substances, 2.9% from the metal industry, 2.5% from the chemical industry, 0.6% from non-energy related fuel and solvent products and



0.4% from production of other products.

Energy emissions, which in the 2014-2015 comparison increased by 13.9%, reached 86223.6 kt CO₂-eq in 2015, 31.1% less than in 2005; manufacturing and construction however reported a much lower year-on-year increase, of just 1.9%, and a more significant reduction over the period spanning 2005-2015 of 41%.

Industrial processes on the other hand, reduced their emissions by 14.9%, mainly due to the decrease in the use of fluorinated gases after the passing of Royal Decree 1042/2013, of 27th December, approving the regulation on the Greenhouse Fluorinated Gases Tax, which is accrued on the first sale or delivery of fluorinated gases with higher warming potential after production or import. Within these industrial processes, attention is brought to the 10.3% fall in emissions in the chemical industry, and the 26.6% increase in emissions produced by the metallurgy sector in the 2014-2015 annual comparison.

Indicator definition:

This indicator shows the greenhouse gas emissions (GHG) for the industrial sector, including in this sector power generation, manufacturing and construction industries, mining, chemical, metal industries, non-energy related fuel and solvent products, substitution products for ozone layer depletion substances, manufacturing and utilization of other products, and finally, other minor production industrial processes. This classification is the one used in the Common Reporting Form (CRF) adopted by the United Nations Framework Convention.

Notes on methodology:

- Industrial processes include: mining, substitution products for ozone layer depletion substances, metallurgy, chemical industry, non-energy related fuels and solvents, and other products.
- The greenhouse gases included in the supplied data are as follows: CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, HFCs and PFCs mixes, and NF₃. The base year is 1990 for CO₂, CH₄, and N₂O, and 1995 for HFC, PFC and SF₆.
- The emission figures are expressed in terms of CO₂ equivalent (CO₂-eq), calculated according to the atmospheric warming potentials in the 4th Assessment Report from the Intergovernmental Panel on Climate Change (IPCC). Reference is only made to gross emissions, excluding the net sinks (capture minus emissions) from the account for the group "Land Use, Land Use Change and Forestry".
- The emission estimates calculated for the 2017 edition of the GHG Emissions Inventory have almost entirely been made using the IPCC-2006 methodologies.

Source:

- MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment). Emissions Inventory of Spain. Greenhouse gas emissions. Informative Inventory Report. 1990-2015.
- <http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>

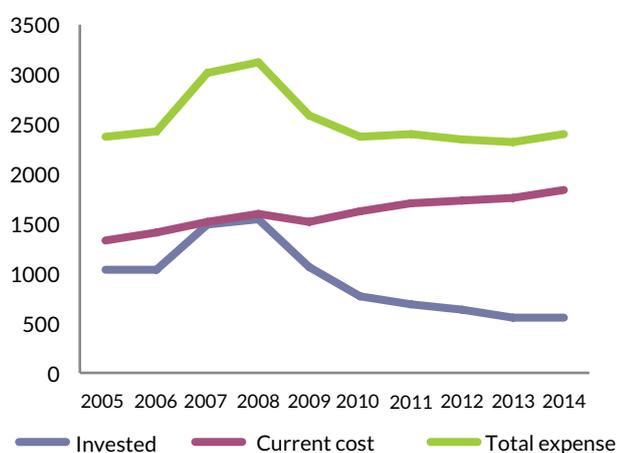
Websites of interest:

- <https://www.ipcc.ch>
- http://canviclimatic.gencat.cat/es/reduex_emissions/guia_de_calcul_demissions_de_co2/
- <http://www.fao.org/3/a-i4260s.pdf>

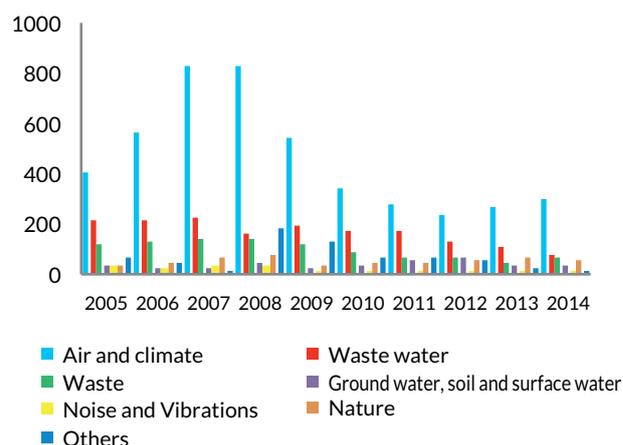


Industry taxes and investment in environmental conservation

Total environmental conservation cost (Million euros)



Environmental conservation investment by areas (Million euros)



Source: INE

- In 2014 industry invested a total of €554282095 in environmental conservation, 0.3% less than the previous year, with 53.2% for protecting air and climate.
- Current costs increased in 2014 compared to 2013 by 5.1%, to reach €185886711, the maximum in the period spanning 2005-2014.
- The total cost defrayed by industry increased in 2014 by € 88293893, 3.8% more than the previous year.

In 2014 Spanish industry invested a total of €554282095 in environmental conservation, €1836184 less (0.3%) than the previous year, when it reached €556118279. Of the total investment in 2014, 53.2% was for air and climate protection, €295034237, 14.6% for waste water (€81416638); 11.5% for waste management (€63840540); 10.9% for nature conservation (€60833267); 5.7% for conservation of ground water, soil and surface water (€32078110); 2.7% for other activities (€15353359), and 1% for combating noise and vibrations (€5725944).

In the year-on-year comparison between 2013 and 2014 we can see that industry has increased the amounts assigned to air, climate and waste management by 10.6% and 32.7% respectively, whereas the other areas have reported decreases, which is particularly significant in the case of noise and vibrations (28.1%), waste water (28.1%) and other investment activities (26.1%). Investment in conservation of nature, soil, surface and ground water has decreased to a lesser extent, by 6.2% and 7.2% respectively.

On the other hand, current costs in 2014 reported also an increase of 5.1% compared to 2013, amounting €185886711, reaching a maximum for the study period, during which this indicator grew by 39%, with an initial figure of €1327038013 in 2005.



With regard to the total cost made by the industrial sector, which is the sum of the aforementioned investment and the current costs, after studying the 2005-2014 data, it reports a positive year-on-year figure for 2013-2014, with an increase of €88293893 to stand at €2400168806, 3.8% more than the previous year, with this increase decreasing by 1.6% compared to 2005. The maximum cost in the period was in 2008, when industries spent a total of €3129379326 on environmental conservation, 23.7% more than the expenditure in 2014.

Indicator definition:

The indicator shows the evolution of the total investment in environmental conservation made by the industrial sector, which is the result of the sum of the investments made in integrated equipment and installations to prevent pollution and in independent equipment and installations to treat pollution, in order to reduce or eliminate emissions of air pollutants and noise pollution, for the treatment of waste water and solid waste and in order to use less pollutant raw materials or at least a lower quantity of these.

It also includes the evolution of the total cost incurred by the industrial sector, representing the sum of the investment plus the current costs, understanding the latter to be operating costs that are charged to the profit and loss account in the General Accounting Schedule, whose main purpose is conservation of the environment.

Notes on methodology:

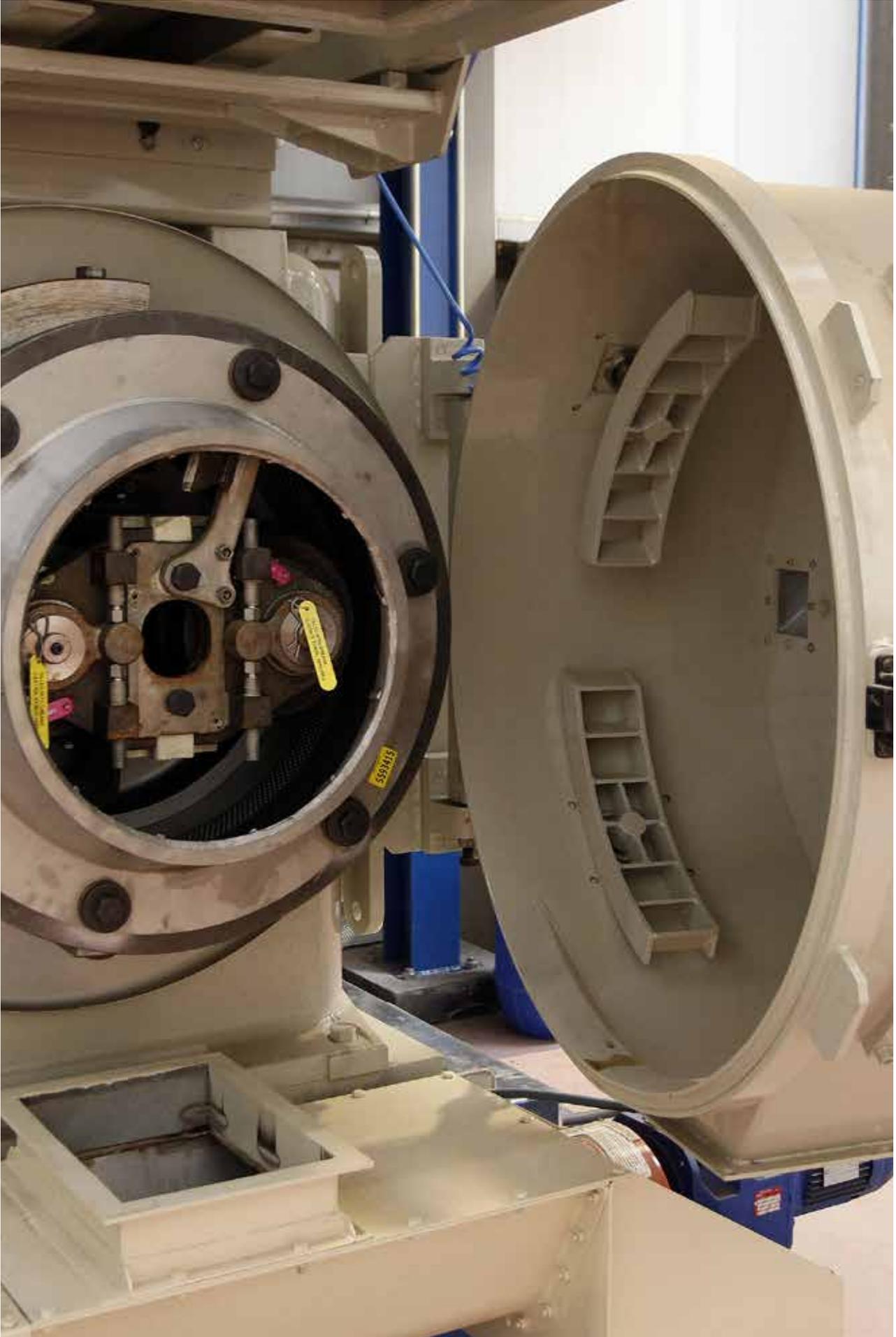
- The data provided here are taken from the Industrial Survey on industry expenditure on environmental protection by the National Statistics Institute, which includes companies with over 10 remunerated employees whose principal activities are listed in sections B, C or D of the Business Activities Classification (CNAE-2009). Data for the autonomous cities of Ceuta and Melilla are included, although they are not published in order to maintain statistical secrecy.
- The term “environmental protection/conservation” refers to all activities that have the main objective of preventing, reducing and eliminating pollution or any other type of environmental deterioration, excluding those that have beneficial effects on the environment and respond to technical, hygienic or safety needs of businesses.

Source:

- INE (National Statistics Institute): INEbase / Agricultura y medio ambiente / Protección ambiental y residuos / Encuesta del gasto de la industria en protección ambiental. Series 2008-2014

Websites of interest:

- <http://www.ine.es/prensa/prensa.htm>





2.14

FISHING

According to the United Nations Food and Agriculture Organization (FAO) the world catching of fish, crustaceans, molluscs and other water-dwelling animals amounted to 92.6 million tonnes in 2015, of which, 81.5 million tonnes were from marine waters and 11.9 million tonnes from fresh (continental) waters. According to this organization, fishery production at world level is undergoing constant growth, with the supply of fish having increased by 1.6% in the last year. Sea fishing accounts for 87.7% of all catches, China still being the main producing country, followed by Indonesia, USA and Russia. Just twenty-three countries account for 80% of total catches. Spain, at 967240 tonnes, is in twentieth position in this group (1.2%).

On 25th September 2015, the member states of the United Nations approved the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). Several of these goals are related to the fishing and fish-farming industry, and one of them specifically focuses on the oceans: (SDG 14) Conserve and sustainably use the oceans, seas and marine resources for sustainable development. In this scenario, aquaculture is consolidated as one of the strategic food producing sectors undergoing rapid growth.

In this sense, the FAO report "The State of World's Fisheries and Aquaculture 2016" emphasizes that in 2014 the supply of fish from fish farms exceeded catches from natural resources for the first time ever. In 2015, total world fish farming production increased by 4.0%, and reached 76.6 million tonnes.



Meeting the growing demand for fish as food, and food safety and nutrition, are some of the other goals of the 2030 Agenda.

The United Nations Convention Framework on Climate Change held in Paris in December 2015, specially highlighted the function of aquatic ecosystems on regulating temperature and establishing CO₂ levels, and urged for a reversal in the over-exploitation of resources and current pollution of water bodies in order to recover the services and production capacity of the oceans.

The relevance of the fishing sector in Spain and the European Union as a whole is undeniable. The development of the Common Fisheries Policy (CFP), undergoing continuous adaptation, aims to ensure compatibility of the sector's future with sustainable regulation of aquatic resources, and to balance the use and conservation thereof in a responsible manner from an environmental, social and economic point of view.

The constant re-dimensioning of the Spanish fishing fleet, which is materialized as a constant reduction in the number of fishing vessels (capacity and power of the fleet), and the variation in the annual catch and the growth of Spanish aquaculture production, are obvious signs that suggest progress is being made in the search for sustainability of the sector through a balance between capacity and existing fishing resources.



Number of vessels and fishing fleet capacity

- In the period between 2006 and 2015 there was a decrease in the Spanish fishing capacity operating in national fishing grounds of 29.2% in terms of number of vessels, 26.2% in tonnage and 24.2% in power.
- 96.7% of the vessels fish in national fishing grounds, whereas only 3.3% operate outside these waters.
- All coastal Autonomous Communities report decreases in their fishing fleets.



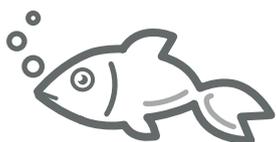
Fishing fleet catches

- 17.5% of all catches in the EU-28 in 2015 were by Spain.
- Total catches by the Spanish fishing fleet fell by almost 19%.
- Nevertheless, catches in adjacent waters were similar to the previous year.



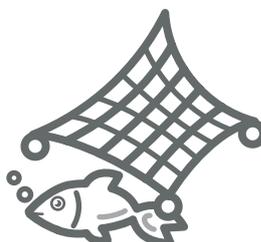
Fish farming production

- In 2015, total fish farm production increased by 9.9%, to reach 336539 tonnes.
- Marine aquaculture grew by 11.7% in 2015.
- Mussel production, reporting growth of 12.1%, reached 270635 tonnes in 2015.



Environmental efficiency in the fishing and aquaculture sector

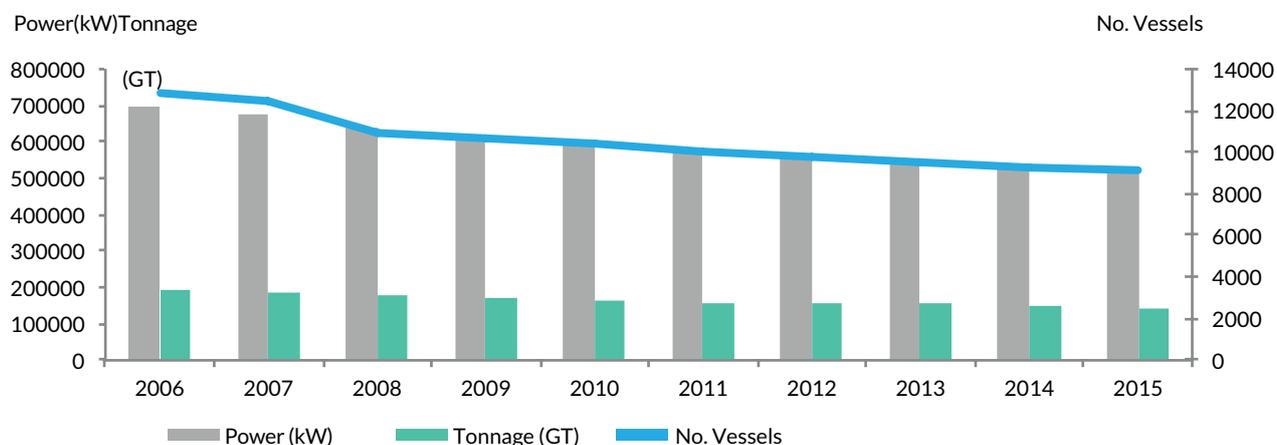
- The evolution of the variables linked to catches and to the fishing fleet capacity: number of vessels, tonnage and power, are a direct result from the application of the Common Fisheries Policy based on sustainability criteria.
- In 2015 the GAV increased, as did aquaculture production, whereas the number of catches and the characteristics of the fishing fleet decreased.





Number of vessels and fishing fleet capacity

Number of vessels and fishing fleet capacity
(national fishing grounds)



Source: MAPAMA

- *In the period between 2006 and 2015 there was a decrease in the Spanish fishing capacity operating in national fishing grounds of 29.2% in terms of number of vessels, 26.2% in tonnage and 24.2 % in power.*
- *96.7% of the vessels fish in national fishing grounds, whereas only 3.3% operate outside these waters.*
- *All coastal Autonomous Communities report decreases in their fishing fleets.*

One of the goals of the Common Fisheries Policy (CFP) is to achieve an expert, professional fishing fleet that is economically profitable and that guarantees sustainable exploitation of marine resources.

This fishing fleet, in accordance with the directives on allowable catches, would take optimum advantage of the resources without posing risks for biological balance of populations while protecting the integrity of the physical environment.

In the last year, following the EU's policies and directives, and in application of Royal Decree 1173/2015 on development of the European Maritime and Fisheries Fund with regard to subsidies for definitive and temporary standstill of the fishing activity, has continued the adjustment, modernization and reconversion process of the Spanish fishing fleet in accordance with criteria of sustainability and efficiency of the sector.

In this respect, and in accordance with the "2016 Fishing Fleet Statistics" (MAPAMA, 2017), which carried out a census of the operating fleet as of 31st December 2015, the total Spanish fishing fleet (operating in national and non-national fishing grounds) comprised 9409 vessels, with a total tonnage capacity of 342569 GT and a power of 799011 kW in 2015.

Of the national total, 9088 vessels fished in national fishing grounds (96.7%) and only 311 fished outside these fishing grounds (the remaining 3.3%).

The evolution of the characteristics of the Spanish fishing fleet over the last decade shows how the adjustment and re-dimensioning process has continued over recent years. In that period, the

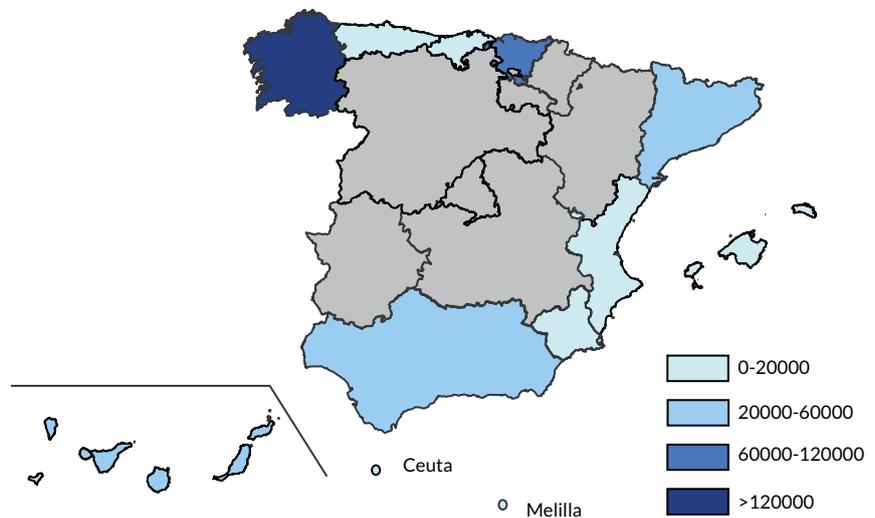


Spanish fishing fleet underwent a reduction of 29.2% in terms of number of vessels, 26.2% in terms of tonnage (GT) and 24.2% in terms of power (kW). In the last year, the adjustment to the fleet materialized in a reduction of 2.2 % in terms of number of vessels, 3.5 % in terms of tonnage (GT) and 1.8 % in terms of power (kW).

The distribution of the fishing fleet by autonomous communities, both in terms of number of vessels and tonnage, shows a generalized falling trend. The communities with the highest number of vessels in 2015 were Galicia (4562 vessels), Andalusia (1493 vessels), Canary Islands (800 vessels) and Catalonia (796 vessels), and those with the highest tonnage (volume or capacity of the vessels) were Galicia (148685 GT), Basque Country (69157 GT) and Andalusia (36457 GT).

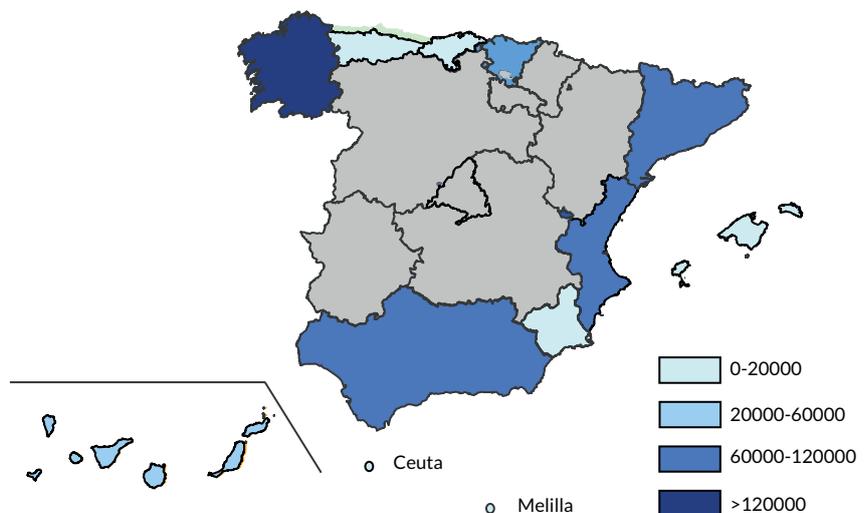
Fishing fleet tonnage. 2015 (total fishing grounds)

Autonomous Community	Tonnage (GT)
Andalusia	36457
Asturias	5072
Balearic Islands	3414
Canary Islands	22889
Cantabria	7123
Catalonia	20961
Ceuta	7982
Galicia	148685
Murcia	2720
Basque Country	69157
C. Valencia	18108



Fishing fleet power. 2015 (total fishing grounds)

Autonomous Community	Power (kW)
Andalusia	114652
Asturias	16331
Balearic Islands	19315
Canary Islands	52704
Cantabria	17861
Catalonia	91316
Ceuta	11211
Galicia	283884
Murcia	10417
Basque Country	116128
C. Valencia	65193



Source: Fishing Fleet Statistics MAPAMA

**Indicator definition:**

The indicator refers to the evolution of the Spanish fishing fleet by the number of vessels in the fleet and their characteristics, tonnage (GT) and power (kW).

Notes on methodology:

The indicator refers to the vessels in the 3rd List of the Registro General de Buques (General Vessels Register), which form the Operational Fishing Vessels Census, for vessels active on 31st December each year. Throughout this period some vessels can change their fishing grounds, and therefore the sum could throw different results depending on the reference date. A significant number of vessels are traditional boats, and some of them do not even have a permanent engine.

To calculate the indicator, the fishing capacity, in accordance with Regulation (EC) 2371/2002 of the Council, is expressed in terms of power, measured in kilowatts (kW) and load capacity (tonnage) expressed in GT (Gross Ton). This unit is the one that has substituted GRT (Gross Register Tonnage) since 1998.

Source:

Ministry of Agriculture and Fisheries, Food and Environment, 2017. Data supplied by the Spanish Secretary-General for Fisheries.

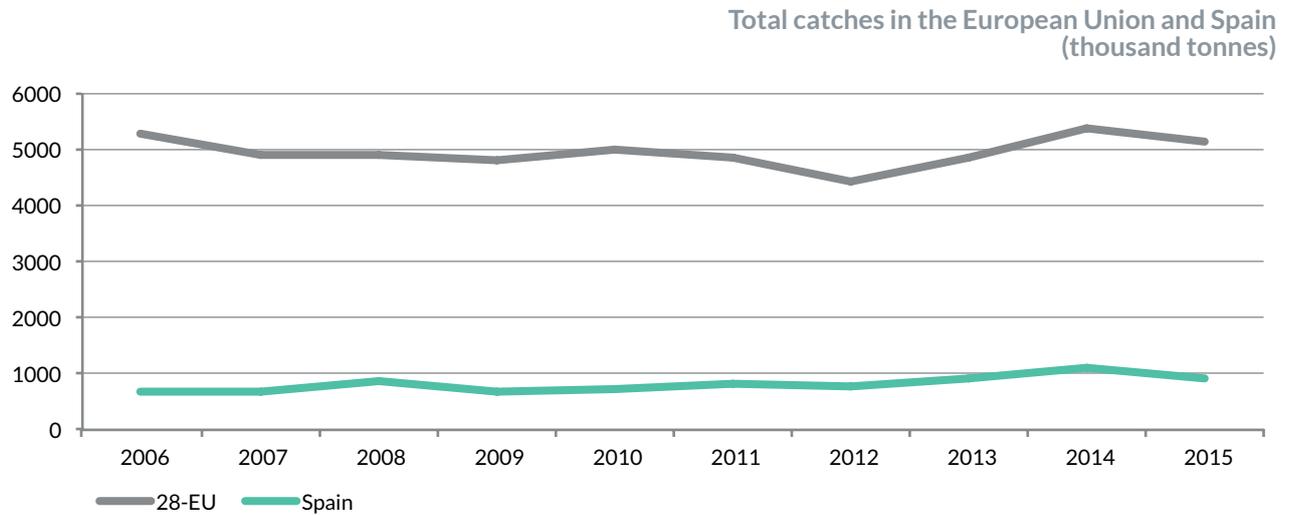
Websites of interest:

- <http://www.mapama.gob.es/es/pesca/temas/>





Fishing fleet catches



Source: Eurostat.

- *17.5% of all catches in the EU-28 in 2015 were by Spain.*
- *Total catches by the Spanish fishing fleet fell by almost 19%.*
- *Nevertheless, catches in adjacent waters were similar to the previous year.*

Conservation of fishing resources, through adaptation of the fishing fleet capacity to catch possibilities, is one of the priorities of the Common Fisheries Policy (CFP).

In order to guarantee the long-term viability of this sustainability goal, the CFP has drafted different rules regulating the access to the Union's waters and to the assignment and use of the resources. Limiting total allowable catches and limiting the fishing capacity are just some of these technical measures.

In order to identify the evolution of the sector, the fishing statistics released by the Eurostat agency have been analyzed. These figures are released annually for catches in all fishing grounds and fishing zones where the vessels from the different European Union countries carry out their fishing activity.

According to these data, total catches by Spanish fishing vessels (liveweight) reached 901512 tonnes in 2015, 18.7% less than the previous year. From among the EU-28 states, Spain contributed 17.5% of total catches, which in 2015 weighed in at 5.1 million tonnes. Although at a different magnitude, the year-on-year catches in the European Union also reported negative growth (-4.4%).

Catches in adjacent waters remained practically the same in 2015, from 330200 to 330431 tonnes (+0.1%). If the distribution of catches in the different fishing grounds where Spanish vessels operate is analyzed, we can see that apart from the Gulf of Cadiz fishing ground, catches in the rest of national fishing grounds decreased in the last year, although at different rates.

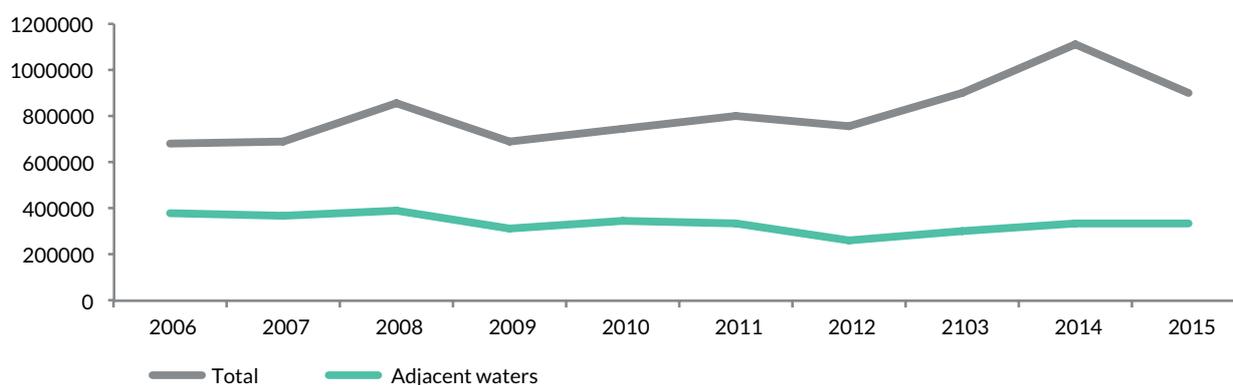


Catches in adjacent waters

Geographical zones	2014	2015	Variation 2014-2015 (%)
Mediterranean	78467	76416	-2.6
Canary Islands	17042	14577	-14.5
Cantabrian Sea and Northeast	143587	134654	-6.2
Gulf of Cadiz	91104	104784	15.0
Total catches in adjacent waters	330200	330431	0.1

Source: Eurostat.

Spanish fishing fleet catches (tonnes)



Source: Eurostat.

In 2015 the highest volume of catches in adjacent waters, in absolute terms, were obtained in the fishing grounds of the Cantabrian Sea and Northeast, where, despite a year-on-year decrease of 6.2%, catches amounted to 134654 tonnes. This was followed by catches in the Gulf of Cadiz with an increase of 15.0%, to reach 104784 tonnes. Catches in the Canary Island fishing grounds were those that reported the largest decrease (-14.5%), with total catches of 14577 tonnes only. Finally, with a slight decrease of 2.6%, the catches in the Mediterranean fishing ground, reached 76416 tonnes.

Indicator definition:

The indicator describes the evolution of the total volume of catches by the Spanish fishing fleet (expressed in liveweight tonnes) in national fishing grounds (adjacent waters) and in other fishing grounds around the world.

Notes on methodology:

For the National Fishing Ground zones (Mediterranean, Cantabric Sea - Northeast, Gulf of Cadiz and Canary Islands) the Eurostat data for the regions "Mediterranean and Black Sea", "Northeast Atlantic, zone R27-08 c", "Northeast Atlantic, zone R27-09a" and "East Central Atlantic, zone 34.1.2" respectively have been used.

Source:

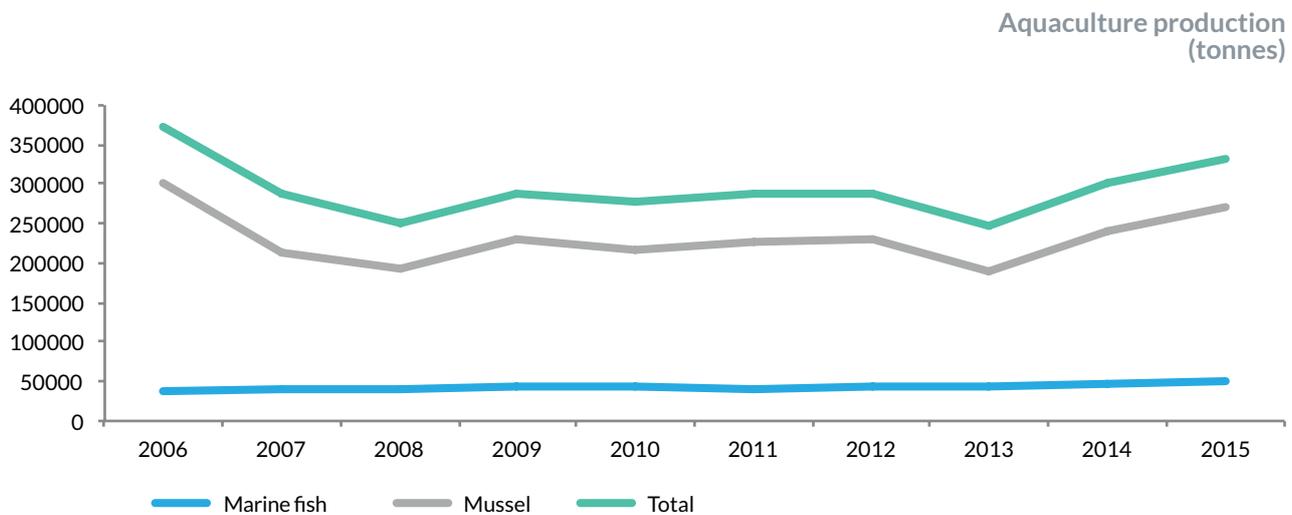
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Total all fishing areas.
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / Mediterranean and Black Sea
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / East-central Atlantic Canarias
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / North-east Atlantic: 1985 onwards North-East Cantabric
- EUROSTAT: Statistics / Statistics by theme / Agriculture and fisheries / Fisheries / Data Base / Catches by fishing area / North-east Atlantic: 1985 onwards Golfo Cádiz Portugal

Websites of interest:

- <http://www.mapama.gob.es/es/pesca/temas/>
- <http://ec.europa.eu/eurostat/web/fisheries/data/database>



Aquaculture production



- In 2015, total fishery production increased by 9.9%, to reach 336539 tonnes.
- Marine fisheries increased by 11.7% in 2015.
- Mussel production, reporting growth of 12.1 %, reached 270635 tonnes in 2015.

According to FAO, aquaculture is perhaps the fastest growing food production sector. It already accounts for almost 50% of all the world's fishing produce for food.

The Multi-annual Strategic Plan for Spanish Aquaculture 2014 - 2020 establishes the directives and strategic action to implement in order to drive orderly, sustainable development of aquaculture in our country. The main goal is to contribute to the expansion and enhancement of a sector that has been considered a strategic activity in the European Union.

According to Eurostat, Spain was the country in the European Union with highest aquaculture production, followed by the United Kingdom. In 2015 total production in the aquaculture sector in Spain amounted to 336539 tonnes, logging a year-on-year increase of 9.9%.

Marine Aquaculture

Production data (tn)	2014	2015	Variation 2014-2015 (%)
Marine fish	46884	51374	9.6
Crustaceans	158	237	49.9
Molluscs	244564	273818	11.9
Organic production (mussels)	582	550	--
Organic production (fish)		390	--
TOTAL	292193	326376	11.7

Source: Jacumar. MAPAMA



Spain has a wealth of species and production systems, largely due to the particular bio-geographical conditions of the Iberian Peninsula. In 2015, total marine aquaculture production increased by 11.7 %, to reach 326376 tonnes. Despite this production wealth and the significant increase in production of a good number of species, particularly fish species, Spain still stands out above all for the production of mussels, which is the most important species in terms of volume and value in aquaculture production in Spain (80.59% of total production). This is followed by marine fish species production, which in 2015 reached 51374 tonnes (15.26% of total production).

In terms of production by marine fish species in 2015, once again bass and sea bream headed the list at 40.2% and 29.9% of the total respectively. Fattening of sea bream decreased by 4.4% to 15359.1 tonnes, while bass reported significant growth of 26.5%, with production in 2015 standing at 20641.4 tonnes. Overall, marine fish species production increased in 2015 by 9.6%.

Once again, within the crustacean species, mussel aquaculture using the hanging platform method reached a new record in 2015, with a production increase of 12.1% to reach 270635 tonnes.

Organic aquaculture production is still fairly insignificant within the marine aquaculture production. In 2015 organic production of marine fish species reached 390 tonnes, whereas mussel production reached 550 tonnes, 0.12% and 0.17% of the total respectively.

In 2015 the number of establishments engaged in marine aquaculture stood at 5069.

Indicator definition:

The indicator studies the evolution of aquaculture production in Spain in tonnes, based on the statistics afforded by the National Advisory Board of Marine Farming (JACUMAR).

Notes on methodology:

The data on aquaculture in Spain are supplied by the National Advisory Board of Marine Farming (JACUMAR), which has been compiling data on production and the value of marine and fresh water aquaculture in Spain since 1985, as commissioned under the Marine Farming Act. The organization requests information on aquaculture in the autonomous communities from the competent general directorates, and then proceeds to unify and validate it before publishing the information for users of the MAPAMA website.

The production data supplied by JACUMAR refer the quantity of each farmed or grown species leaving the establishment at the end of one or several phases of their lifecycles.

Source:

JACUMAR, National Advisory Board of Marine Farming. Ministry of Agriculture and Fisheries, Food and Environment.

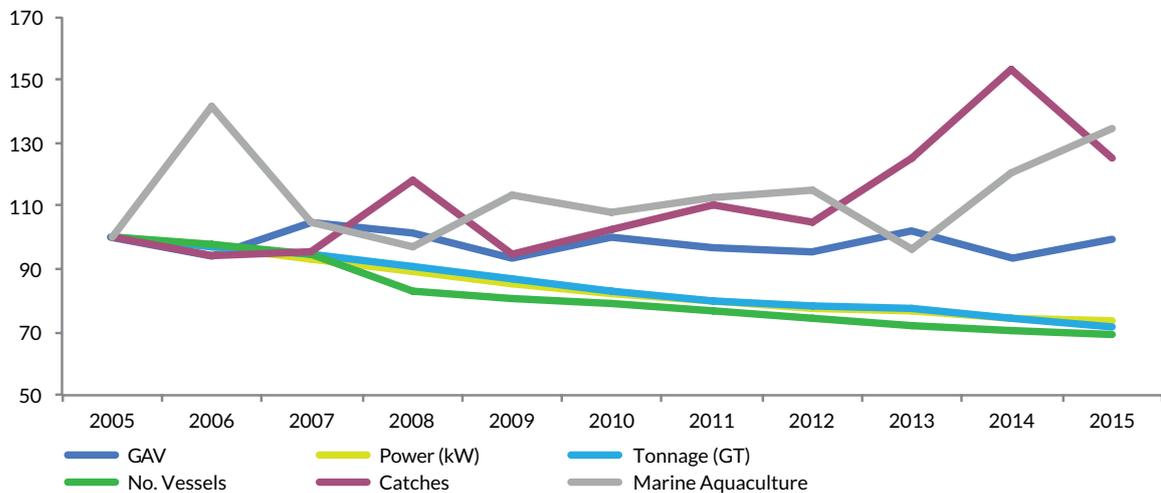
Websites of interest:

- <http://www.mapama.gob.es/es/pesca/temas/acuicultura/>
- <http://www.apomar.es/content/informes-anuales>
- <http://www.observatorio-acuicultura.es/>



Environmental efficiency in the **fishing and aquaculture sector**

Environmental efficiency in the fishing and aquaculture sector
(Index; 2000=100)



Source: INE, Eurostat, MAPAMA

- *The evolution of the variables linked to catches and to the fishing fleet capacity: number of vessels, tonnage and power, is a direct result of application of the Common Fishery Policy based on sustainability criteria.*
- *In 2015 the GAV increased, as did aquaculture production, whereas the number of catches and characteristics of the fishing fleet decreased.*

The evolution of the Spanish fishing sector, characterized through the capacity of the fishing fleet and catches, along with the growing development of aquaculture production techniques, can be related to the evolution in the economic profitability of the sector (through the Gross Added Value of agriculture, livestock farming and fisheries) in order to analyze the environmental efficiency of this strategic sector for the country's economy and development.

The evolution of the fishing sector is a direct consequence of application of the Common Fishery Policy (CFP), which, under criteria of sustainability, seeks to establish a modernized, efficient sector that is capable of guaranteeing the long-term availability of marine resources.

For the reference period, 2005-2015, owing to the community fleet adaptation measures defined in the CFP, we can see how the evolution of variables such as the number of vessels, power (expressed in kW) and tonnage (GT) have undergone a continued reduction throughout the period. For this reference period, the number of vessels decreased by 30.7%, whereas the power and tonnage did so by 26.6% and 28.3% respectively.

In the last year, these variations were less acute, owing to the fact that the adjustments had mostly been carried out over the previous years. In this sense, in the last year the number of vessels decreased by 2.2%, to 9098 vessels, power by 1.8%, to stand at 528488 kW, and tonnage decreased to 143117 GT, 3.5% less.

Owing to the establishment of total allowable catch quotas, the evolution of catches by the fishing fleet is determined by sustainability criteria. The figure has been irregular throughout the period, although it shows a



cumulative increase of 24.9%. Catches in the last year decreased by a larger extent (-18.7%), from 1108830 to 901512 tonnes in 2015.

Aquaculture today is a growing source of quality food production. During the reference period between 2005 and 2015 in Spain, the dynamics of the aquaculture sector have been somewhat irregular, mainly due to mussel production fluctuations, which in 2015 accounted for 84% of Spain marine aquaculture production. Despite these oscillations, marine aquaculture production increased by 34.3% in the reference period. The increase recorded in the last year was 11.7%.

Finally, in economic terms, an overall increase in the Gross Added Value (GAV) was observed in 2015 in the agriculture, livestock and fisheries sector, at current prices of 6.1%. In 2014 this value was 23560 million euros, whereas in 2015 it was 25004 million euros. Evolution of the GAV in the reference period, 2005-2015, shows a decrease of 0.9%.

Indicator definition:

The indicator shows the relationship between the Gross Added Value (GAV) of agriculture, livestock and fisheries, and the evolution of the variables that characterize the Spanish fisheries sector (number of vessels, fishing fleet capacity in power and tonnage and catches) and aquaculture (total production of the sector).

Notes on methodology:

The Gross Added Value for the sector refers to agriculture, fisheries, game and forestry.

For the purposes of calculating the indicator, positive environmental efficiency is deemed to exist when the economic growth evolution of the sector shows a disassociated trend (contrary and divergent) from the environmental stresses produced on the environment.

Source:

- GAV: National Accounting of Spain. INE (National Statistics Institute)
- No. of vessels, power and tonnage: General Secretariat of the Sea. Ministry of Agriculture and Fisheries, Food and Environment.
- Catches: 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 and Fisheries, Food and Environment.

Websites of interest:

- <http://www.mapama.gob.es/es/pesca/temas/>
- <http://www.mapama.gob.es/es/pesca/temas/acuicultura/>
- http://ec.europa.eu/eurostat/statistics-explained/index.php/Fishery_statistics



2.15

TOURISM

World demand for tourism went on growing in 2016, the seventh consecutive year of growth, with over 300 million international travelers, compared to 2008. Arrivals of international tourists increased by 3.9% since 2015, reaching a total of 1235 million, according to data of the UN World Tourism Organization. Compared to 2015, there were 46 million more international tourists.

Europe was still the destination of most international tourists, with 619.7 million, 12.2 million more than in 2015. More specifically, the Mediterranean region was visited by 228.6 million foreign travelers, accounting for a slight increase of 1% compared to the previous year, and was the region within Europe with most visitors.

Spain was visited by 75.6 million tourists in 2016, an increase of 10.8% over 2015, the preferred destinations being Catalonia, Canary Islands and Balearic Islands. Nature tourism also reported significant growth; just the number of people visiting natural reserves increased by 4.2% compared to the previous year, reaching 15 million visits. These figures reaffirm the importance of the tourism sector in Spain.

This growth has been accompanied by a commitment to quality. In 2016, the number of “Q” certificates that the Spanish Tourism Quality Institute¹ awarded to tourism companies, increased by 4.5%. The establishments endorsed by the “Q” for quality mark provide a quality service, security and professionalism. By sectors, health tourism, tourist transport, catering and natural areas are those that had the largest increase in the number of certificates.

On the other hand, Spain reached first position in the Travel and Tourism Competitiveness Index² elaborated by the World Economic Forum. The criteria that were highlighted for the country were security at destination, the health system

¹ <http://www.calidadturistica.es/ESP/m/36/1254/Todas/Noticias/El-sector-turistico-espanol-sigue-apostando-por-la-calidad-en-2016-crecen-en-un-4-5-las-certificaciones-Q-del-Instituto-para-la-Calidad-Turistica-Espanol>
² <http://reports.weforum.org/travel-and-tourism-competitiveness-report-2017/>



and hygiene, existing transport and tourism infrastructures, cultural resources and business trips, and the importance of tourism for the country.

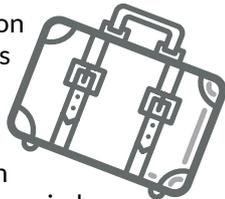
In 2016, the World Tourism Day focused on accessible tourism with the aim of enhancing awareness among the international community about the need for universal accessibility, recognizing existing shortcomings and welcoming all users at tourist destinations.

This year, 2017, has been designated by the United Nations as the International Year of Sustainable Tourism for Development, and is intended to raise awareness about the wealth of heritage of different civilizations and to promote appreciation of different cultures, thus contributing to strengthening peace. The goal is to increase tourism contribution to development, considering all dimensions of sustainability, economical, social and environmental, and to promote changes in policies, business practices and consumer behavior, in order to achieve the Sustainable Development Goals approved by the United Nations General Assembly.



Number of foreign tourists per inhabitant

- In 2016, 75.6 million international tourists visited Spain, 10.8% more than the previous year.
- Distribution of tourism in the national territory is varied, the community with most pressure being the Balearic Islands (11.75 tourists per inhabitant), opposite to Castilla-La Mancha (0.12 tourists per inhabitant).
- In 2016, 80.2% of international tourists travelled to Spain by air.



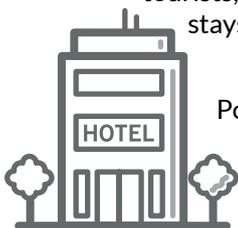
Number of foreign tourists per km of coastline

- The coast is the main tourist destination in Spain, catering for 88.6% of international tourists.
- The number of tourists who travel to coastal autonomous communities increased by 10.0% in 2016, reaching a ratio of 8496 tourists per km of coast.



Equivalent Tourist Population in areas with the highest number of overnight stays in hotels

- In 2016, the island of Majorca was still the leading destination in terms of number of tourists, with 44.6 million overnight stays in hotels.



- The Equivalent Tourist Population in the ten zones with most tourists was 521920 people per day in 2016.

Rural tourism: accommodation, bed capacity, tourists and overnight stays

- In 2016 the upward trend of all rural tourism options continued, particularly the number of travelers and overnight stays, which increased by 11.5% and 12.5% respectively.
- Castilla and Leon, catering for 19.5% of rural tourists in Spain, was the community with most relevance in rural tourism in 2016.



Number of visitors to national parks

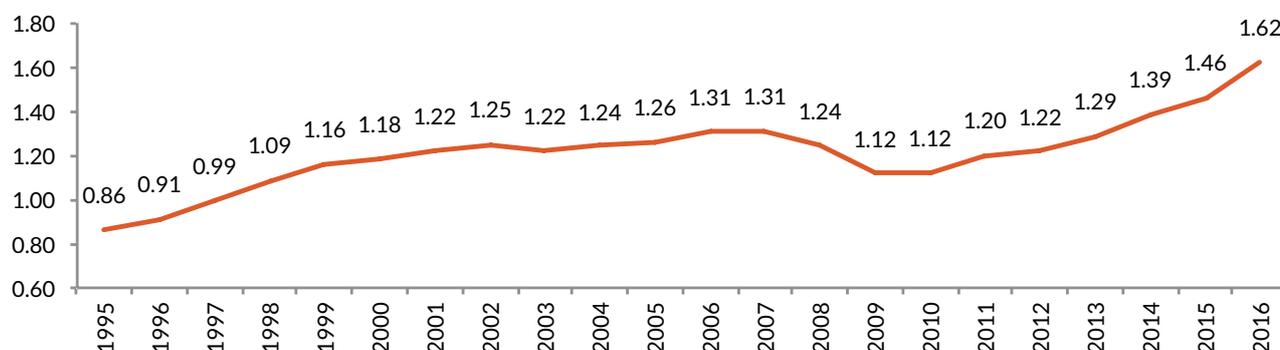
- Natural reserves were visited by a total of 15013412 people in 2016, 4.0% more than the previous year.
- Of the 15 National Parks in Spain, the four in the Canary Islands (Caldera de Taburiente, Garajonay, Teide and Timanfaya) were visited by 7162750 people, accounting for 47.7% of the total.





Number of foreign tourists per inhabitant

Foreign tourists per inhabitant



Source: Turespaña and INE

- **In 2016, 75.6 million international tourists visited Spain, 10.8% more than the previous year.**
- **Distribution of tourism in the national territory is varied, the community with most pressure being the Balearic Islands (11.75 tourists per inhabitant), opposite to Castilla-La Mancha (0.12 tourists per inhabitant).**
- **In 2016, 80.2% of international tourists travelled to Spain by air.**

Throughout 2016, Spain was visited by 75.6 million international tourists, 10.8% more than the previous year (according to INE's provisional data). There were 4 million foreign travelers in the month of December, an increase of 13.3% compared to the same month in 2015. These data reaffirm the growing trend of international tourism in Spain.

Starting 2009, there has been a recovery of tourism, which has undergone constant yearly growth ever since. The growth in the number of foreign travelers between 2009 and 2016 was of 44.8%.

The ratio of tourists per inhabitant in 2016 was 1.62. It must be stated that this ratio concerning international tourism is unevenly distributed around the territories of our country. Indeed, the Balearic Islands, Canary Islands and Catalonia are the destinations with highest pressure from tourism, with tourist per inhabitant ratios of 11.75, 6.33 and 2.39 respectively, the highest in Spain. At the other end of the scale are the regions of Extremadura and Castilla-La Mancha, with the lowest ratios, at 0.25 and 0.12 tourists per inhabitant.

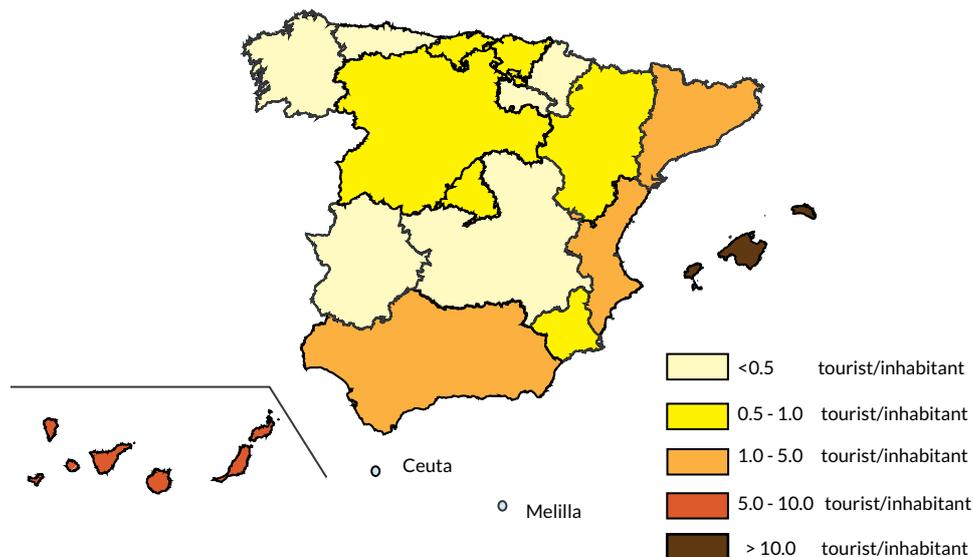
The absolute tourism values give an idea of the importance of the tourism sector in each of the autonomous communities. Hence, the destinations are in the following order: first Catalonia with 18.0 million (23.8% of total tourists), Canary Islands with 13.3 million (17.6% of the total), Balearic Islands with 13.0 million (17.2% of the total), Andalusia with 10.6 million (14.1% of the total) and C. Valencia with 7.8 million (10.4% of the total). At the



other end are Castilla-La Mancha and La Rioja with 235000 (0.3% of the total) and 155800 (0.2% of the total) as the least visited regions.

According to the provisional data provided by INE in 2016, flying was the most widely used mode of transport to reach Spain (60.5 million people, 80.2% of the total). This was followed by road transport, with a considerably lower figure of 13 million tourists (17.3% of the total), and finally maritime and rail, with 1.6 million people (2.1% of the total) and 0.3 million (0.5% of the total) respectively.

Foreign tourists per inhabitant



Source: Turespaña. INE

Number of foreign tourists according to mode of travel

Mode	2007	2015	2016(P)	Variation 2015-2016	Variation 2007-2016
Total	59193289	68215225	75563198	10.8	27.7
Airport	44324017	54215805	60582406	11.7	36.7 %
Road	13086851	12487244	13038391	4.4	-0.4 %
Maritime Ports	1532129	1069731	1578287	47.5	3.0 %
Railway	250292	341180	364115	6.7	45.5 %

P: provisional data
Source: Turespaña, INE

In terms of modes of access in the last decade, the increase in air transport and rail transport, by 36.7% and 45.5% respectively, is worthy of mention, recording in 2016 an increase of 11.7% and 6.7% compared to the previous year. In 2016, the increase of 47.5% in maritime transport compared to the previous year is particularly noteworthy.



Indicator definition:

Quotient between the number of international visitors in Spain and the total population, and that of the autonomous communities.

Notes on methodology:

The indicator relates the number of foreign tourists to the population of Spain. It is used to determine the pressure of tourism on the destinations, since the sustainability of the sector is related to the appropriate proportion of tourists to the resident population, among other aspects. Tourists are defined as persons who travel to another location, other than their usual residence, and spend at least one night there due to causes other than a remunerated activity.

The Statistics on Tourist Movement on Borders, the information source for the indicator, changed on 1st October 2015 from Turespaña to INE. Owing to this modification there has been a change in the methodology for compiling and processing the associated information. These variations can be consulted in the section on Methodology at the following link:

[http://www.ine.es/dyngs/INEbase/es/operacion.](http://www.ine.es/dyngs/INEbase/es/operacion)

[htm?c=Estadistica_C&cid=1254736176996&menu=metodologia&idp=1254735576863](http://www.ine.es/jaxiT3/Tabla.htm?t=23982&L=0)

Source:

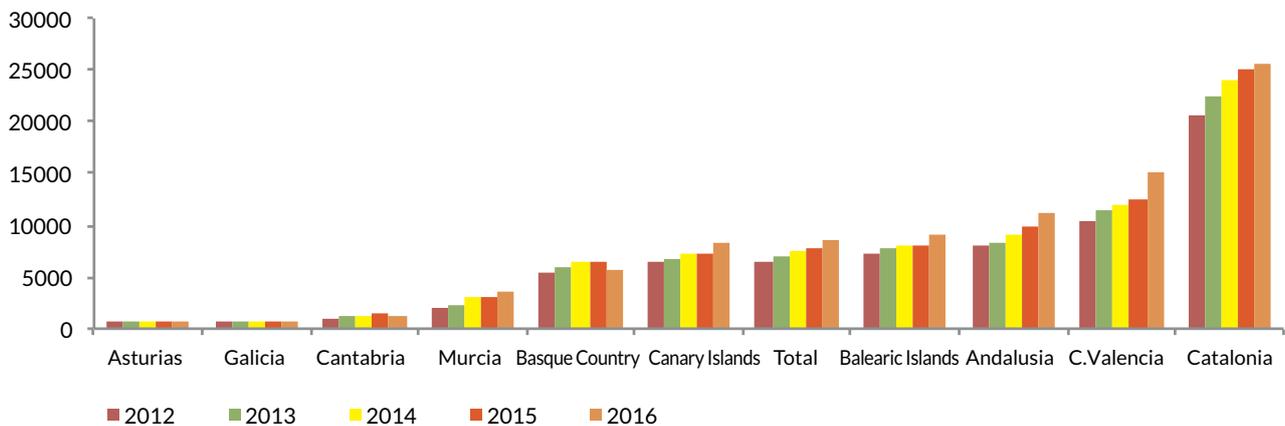
- Information on the number of foreign tourists:
 - Data to September 2015 (both included): Spanish Tourism Institute (Turespaña). Statistics on Tourist Movement on Borders (FRONTUR).
 - Data from October 2016: National Statistics Institute (INE). Statistics on Tourist Movement on Borders.
- Information on the Spanish population:
 - INE (National Statistics Institute) Municipal census as of 1st January 2015.
- **Websites of interest:**
 - <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/anual.aspx>
 - <http://www.ine.es/jaxiT3/Tabla.htm?t=23982&L=0>





Number of foreign tourists per kilometer of coastline

Foreign tourists per km of coastline



Source: Turespaña, INE

- **The coast is the main tourist destination in Spain, catering for 88.6% of international tourists.**
- **The number of tourists who travel to coastal autonomous communities increased by 10.0% in 2016, reaching a ratio of 8496 tourists per km of coast.**

The preferred destination for foreign tourists in Spain is the coast. 89% of total tourists choose coastal regions for destination, although territorial distribution is not uniform. The distribution of foreign tourists per kilometer on the Mediterranean and Atlantic coastlines is unequal, differentiating the Canary Island coasts from the Cantabrian and Galician coast.

According to INE's provisional data for 2016, the leading area on the Mediterranean coast was Catalonia (25735 tourists/km), followed by C. Valencia (15114 tourists/km) and Andalusia (11261 tourists/km), and then the Balearic Islands (9112 tourists/km) and Murcia (3636 tourists/km). Catalonia is still the autonomous community with the highest number of tourists per kilometer of coastline. On the other hand, Murcia is the only Mediterranean region that was below the mean (8496 tourists/km), although 10.0% higher than the previous year and 27.5% compared to the last decade.

In terms of the Atlantic coast, the Canary Islands recorded 8400 tourists/km in 2016. Finally, Basque Country (5706 tourists/km), Cantabria (1351 tourists/km) and Asturias (721 tourists/km), which, along with Galicia (717 tourists/km) have the lowest figures for 2016.

When comparing the 2016 and 2015 figures however, this indicator has reported an increase in most coastal communities (except in the Basque Country, Cantabria and Galicia) C. Valencia logged the highest variation, with an increase of 20.5%.



The absolute values of international tourists help to complete the picture of tourism in coastal destinations. In 2016, 66.9 million international tourists arrived, who visited at least one coastal community. More specifically, 50.5 million chose the Mediterranean coast (75.4% of the total), whereas 13.3 million chose the Canary Islands (19.9% of the total) and 3.1 million travelers chose the Cantabrian region and Galicia (4.7%). This means that there were 13061 tourists/km coast in the Mediterranean area, 8400 in the Canary Islands and 1297 on the northern coast of Spain.

Likewise, the destinations with highest inflow by communities were Catalonia (18.0 million visitors), Canary Islands (13.3 million tourists) and Balearic Islands (13.0 million), compared to Asturias and Cantabria (288999 and 383558 tourists respectively), the latter being the least preferred destinations in absolute terms.

Indicator definition:

Quotient between the number of international tourists whose final destination is the coast, and the length of the coastline.

Notes on methodology:

The length of the coastline taken to calculate the indicator is provided by INE, with data from the Directorate General of the National Geographic Institute. The total length of the coastline of the considered provinces is 7876 km (excluding islands and islets for peninsular provinces).

Regarding the information from the The Statistics on Tourist Movement on Borders (FRONTUR), the source providing information for this indicator is no longer Turespaña, on 1st October 2015 the responsibility was transferred to INE. This has led to a certain change in the methodology for compiling and processing the associated information. These changes can be consulted in the section on Methodology at the following link: http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176996&menu=metodologia&idp=1254735576863

Source:

- Information on the number of foreign tourists:
 - Data to September 2015 (both included): Spanish Tourism Institute (Turespaña). The Statistics on Tourist Movement on Borders (FRONTUR).
 - Data from October 2016: National Statistics Institute (INE). The Statistics on Tourist Movement on Borders.
- Information on Spanish coastline length:
 - INE (National Statistics Institute) Physical environment. Length of coasts and borders. Length of coasts by provinces.

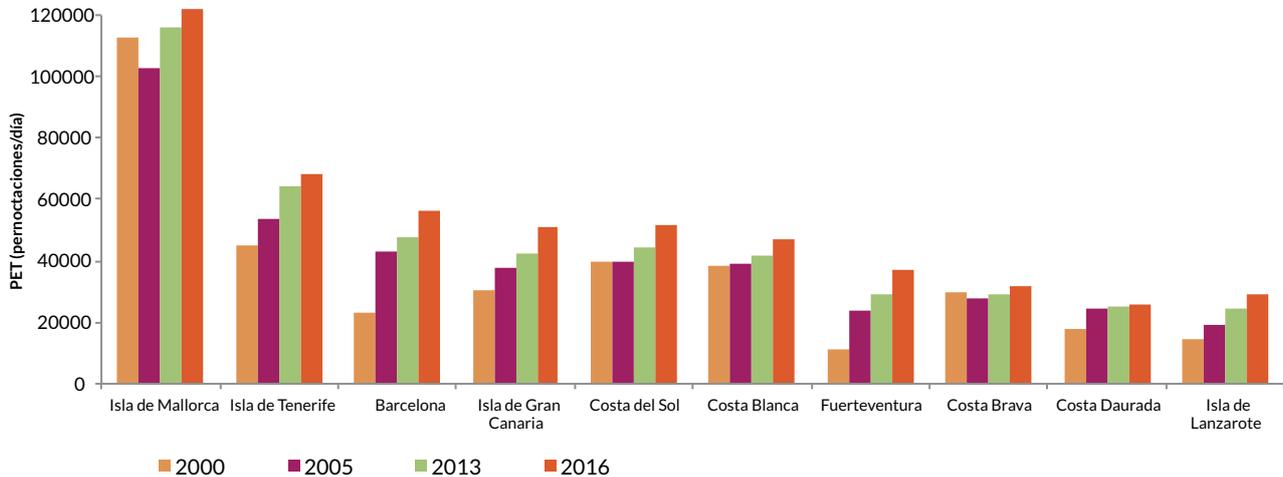
Websites of interest:

- <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/anual.aspx>
- <http://www.ine.es/jaxiT3/Tabla.htm?t=23988&L=0>
- <http://www.mapama.gob.es/es/costas/temas/default.aspx>



Equivalent Tourist Population in areas with highest overnight stays in hotels

Equivalent Tourist Population (ETP)
in main tourist areas, 2000-2016



Source: INE

- In 2016, the island of Majorca was still the leader in terms of number of tourists, with 44.6 million overnight stays in hotels.
- The Equivalent Tourist Population in the ten zones with most tourists was 496,992 people per day in 2016.

The Tourist Population Equivalent (TPE) is calculated as the quotient between the annual overnight stays in hotels in a region, and the number of days in the year. This indicator shows the pressure of tourism on areas with high influx, since it gives the daily number of people (national and foreign tourists) who inhabit the area in addition to the local resident population.

The total number of overnight stays in hotels in the 10 areas with highest tourist influx in Spain over the period 2000-2016 reached 2570 million, and therefore the mean TPE was 414,180 persons per day, and when this is added to the usual resident population, it implies there is a significant pressure from tourism. The island of Fuerteventura is the area that has undergone the highest increase in terms of its TPE (243.6%), followed by Barcelona (141.6%) and the island of Lanzarote (103.3%). At the other end of the scale, the least growth in TPE is reported in Costa Brava (7.7%).

In 2016, according to INE's provisional data, overnight stays stood at 190.5 million, which translates as a TPE of 521,920 persons per day. The destination with the highest tourist influx was Majorca (44.6 million overnight stays; 122,297 person/day), reporting an increase of 6.7% in the TPE compared to the previous year. This is followed by Tenerife (25.0 million overnight stays; 68,589 person/day), Barcelona (20.5 million overnight stays; 56,122 person/day), Costa del Sol (18.9 million overnight stays; 51,872 person/day) and the island of Gran Canaria (18.6 million overnight stays; 51,088 person/day).

In 2016 Lanzarote and Costa Daurada were once again on the list of the 10 main tourist zones, relegating the area of Ibiza - Formentera. The island of Lanzarote recorded 10.7 million overnight stays (29,247 person/day)



and Costa Daurada reached 9.5 million overnight stays (25982 person/day), whereas the islands of Ibiza and Formentera logged 9.1 million overnight stays (24928 person/day), although growth of the TPE was 10.1% in 2016.

In relation to the Pyrenees, the only non-coastal region in INE's hotel occupation survey, it recorded 3.6 million overnight stays (9747 person/day), an increase of 12.1% over 2015.

Tourist Population Equivalent (TPE) in the 10 areas with highest overnight stays in hotels (2000-2016)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
TPE	363443	364260	346733	358709	356312	372199	409880	410352	410338
Index	100.0	100.2	95.4	98.7	98.0	102.4	112.8	112.9	112.9
	2009	2010	2011	2012	2013	2014	2015	2016	Mean
TPE	384229	410620	452976	451356	464343	476191	487197	521920	414180
Index	105.7	113.0	124.6	124.2	127.8	131.0	134.1	143.6	114.0

Source: INE

Indicator definition:

Quotient between the annual overnight stays in hotels in a region, and the number of days in the year. The indicator permits estimating the daily number of people who, as tourists, would equate to the resident population in that area. It is calculated for the ten areas with highest tourist influx in the Hotel Occupation Survey (HOS) published annually by INE.

Notes on methodology:

The TPE indicator is the quotient between the total number of annual overnight stays in hotels for tourists and the 365 days in the year. It estimates the daily maximum of people who inhabit the surveyed areas in addition to the local resident population. The interest of this indicator, from an environmental point of view, is the manifestation of the pressure caused by the population increase that the areas hosting the highest number of tourists have to support.

In Spain, the preferred tourist destinations are considered "mature" destinations, since overnight stays have remained stable over the last 17 years. Nevertheless, there are some exceptions, such as Costa Daurada, Lanzarote and Ibiza-Formentera islands that have reported fluctuations, being periodically in and out from the list of 10 areas with highest number of overnight stays during the year.

Source:

INE (National Statistics Institute): Hotel Occupation Survey (HOS) 2000-2016.

Websites of interest:

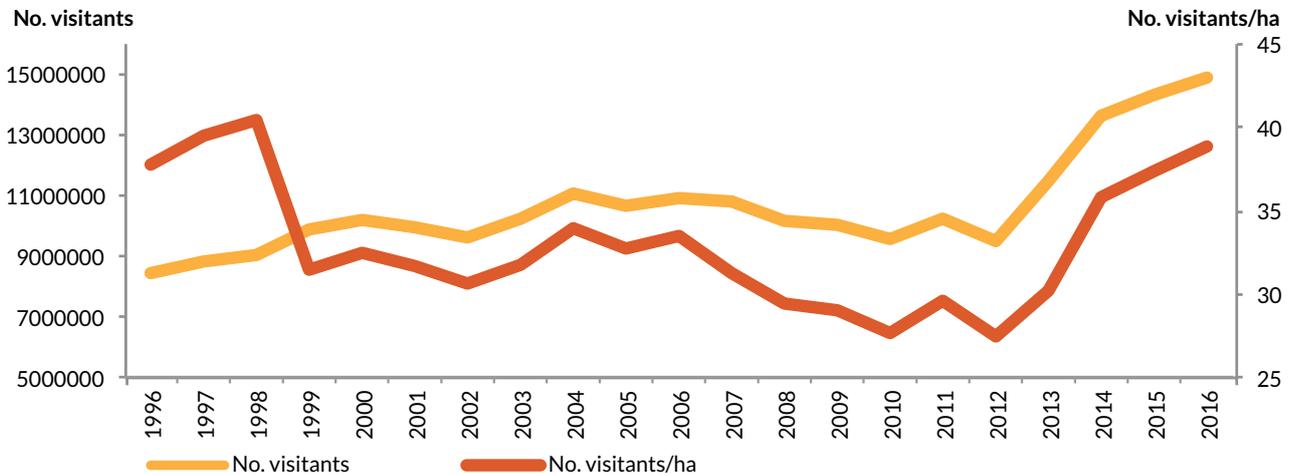
<http://www.ine.es/dyngs/INEbase/es/operacion>.

http://www.ine.es/dyngs/INEbase/es/operacion/htm?c=Estadistica_C&cid=1254736177015&menu=resultados&secc=1254736195376&idp=1254735576863



Number of visitors to national parks

Visitors to national parks



Source: OAPN. MAPAMA

- **National Parks were visited by a total of 15,033,387 people in 2016, 4.2 % more than the previous year.**
- **Of the 15 National Parks in Spain, the four in the Canary Islands (Caldera de Taburiente, Garajonay, Teide and Timanfaya) were visited by 7,162,750 people, accounting for 47.7% of the total.**

National Parks comprise a network of areas of high ecological and cultural value, whose conservation is worthy of preferential attention and which are declared areas of general interest of the State.

Their educational and recreational interest is undeniable, and they have become areas of top level nature tourism. In fact, national parks were visited by 15,013,412 people, an increase of 4% compared to 2015.

Visits to national parks have maintained a generally positive trend, with an increase of 38.2% in the last decade, and 69.4% in the last 20 years. This increase can be explained by the boom in nature tourism and by the latest nominations of areas given this level of protection: Islas Atlánticas de Galicia (2003), Monfragüe (2007) and Sierra de Guadarrama (2013). In absolute terms, the most visited national parks in 2016 were Teide (4,079,823 people), followed by Sierra de Guadarrama (2,440,128 people) and Picos de Europa (2,101,293 people). On the other end, those that were less visited were Cabañeros, Cabrera Archipelago and Tablas de Daimiel, with 104,565, 124,326 and 181,106 visitors respectively.

The evolution of visits to national parks in 2016 reported a mostly positive trend, emphasizing the following increases compared to visits in 2015: Teide (+24.0%), Caldera de Taburiente (+14.4%), Aigüestortes i Estany de Sant Maurici (+11.7%) and Picos de Europa (+9.8%). On the contrary, the national parks of Doñana, Sierra Nevada and Monfragüe reported slight decreases in the number of visitors.

An extremely interesting indicator, often used to characterize the pressure protected natural areas are subjected to from tourism, is the quotient between the number of visitors and the area of the natural space concerned.



Area and visitors to National Parks Year 2016

National Parks	Surface area (ha)	Visitors	No. Visitors/ha
Aigüestortes i Estany de Sant Maurici	14119	586334	41.5
Cabrera Archipiélago	10021	124326	12.4
Cabañeros	40856	104565	2.6
Caldera de Taburiente	4690	509183	108.6
Doñana	54252	288637	5.3
Garajonay	3984	870486	218.5
Islas Atlánticas de Galicia	8480	400465	47.2
Monfragüe	18396	280319	15.2
Ordesa y Monte Perdido	15608	608950	39.0
Picos de Europa	67127	2101293	31.3
Sierra de Guadarrama	33960	2440128	71.8
Sierra Nevada	86208	734539	8.5
Tablas de Daimiel	3030	181106	59.8
Teide	18900	4079823	215.9
Timanfaya	5107	1703258	333.5
Total	384738	15013412	39.0

Source: Autonomous Authority for National Parks. MAPAMA

The mean number of visitors per hectare in 2016 was 39.0%. The National Parks subjected to highest pressure from tourism were in the Canary Islands: Timanfaya (333.5 visitors/ha), Teide (215.9 visitors/ha) and Garajonay (218.5 visitors/ha). Whereas those subjected to least pressure were Cabañeros, Doñana and Sierra Nevada with 2.6 visitors/ha, 5.3 and 8.5 visitors/ha, respectively.

Indicator definition:

The indicator studies the annual evolution, in absolute and relative terms (in relation to the surface area of the parks), of the number of visitors to the different areas comprising the National Parks Network.

Notes on methodology:

The data on visitors to the Sierra de Guadarrama National Park in 2015 has been corrected with the official data (the data used in 2015 was an estimate).

There was a change in the method used to calculate the number of visits for Sierra de Guadarrama Park, which permits a more accurate number being obtained. This change resulted in a decrease in the number of visits in 2016.

Source:

Data supplied by the Autonomous National Parks Organization, 2016.

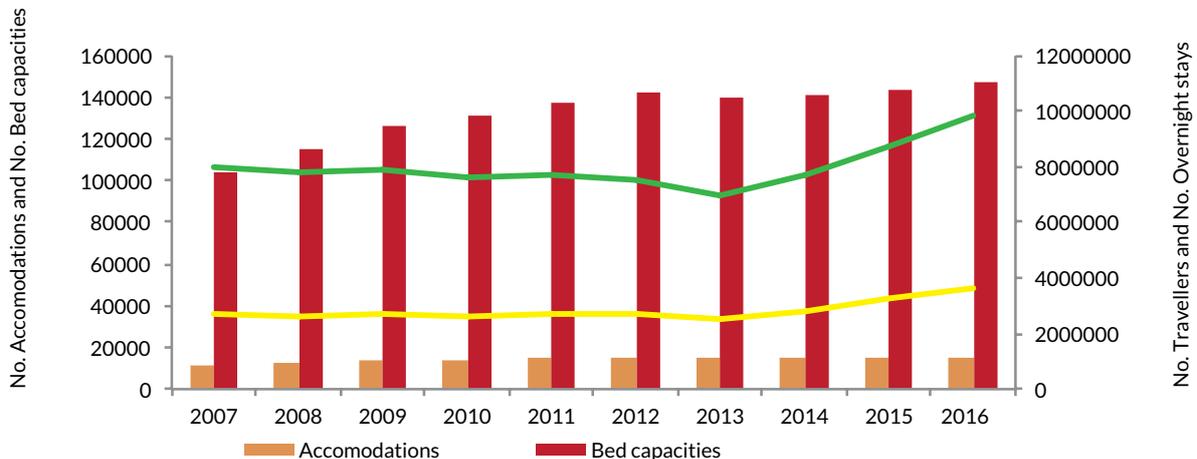
Websites of interest:

<http://www.mapama.gob.es/es/parques-nacionales-oapn/>



Rural tourism: Accommodation, bed capacity, tourists and overnight stays

Rural tourism 2007-2016



Source: INE

- *In 2016 the upward trend of all rural tourism variables continued, particularly the number of travelers and overnight stays, which increased by 11.5% and 12.5% respectively.*
- *Castilla and Leon, catering for 19.51 % of rural tourists in Spain, is the community with most relevance in rural tourism in 2016.*

In 2016, the positive evolution of rural tourism observed over recent years continued. Since 2013 there has been an increase of 41.8% and 43.2% in overnight stays and travelers, respectively. Meantime, the offer increase has only been slight, at 5.8% in bed capacity and 3.9% in number of accommodation establishments.

In the last decade, all the variables concerning the evolution of rural tourism have reported positive growth. Between 2007 and 2016, the number of travelers and the number of accommodation establishments increased by 35.0% and 35.6% respectively, whereas the offered bed capacity increased by 42.9%. In the same period the number of overnight stays increased by 23.4%.

According to provisional 2016 data, overnight stays increased last year by 12.5%, reaching the figure of 9.8 million. Likewise, the number of travelers increased to 3.6 million, with a variation of 11.5% compared to the previous year. The offered bed capacity and the available accommodation establishments have undergone a slighter growth, of 3.4% and 2.4% with 147892 bed spaces and 15669 accommodation establishments. This situation has entailed a growth in the number of jobs created in the rural tourism sector of 2.8%, to reach the figure of 22584 jobs.

In 2016 the autonomous communities with the highest number of rural tourism accommodation establishments were similar to previous years: Castilla and León (3326 establishments), followed by Catalonia (2028), Andalusia



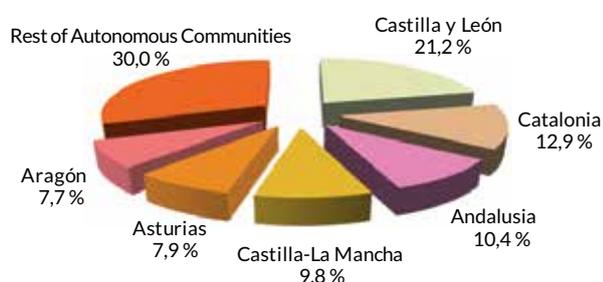
(1631) and Castilla-La Mancha (1535). The number of establishments in these communities was jointly 8520, accounting for 54% of the rural tourism accommodation establishments in the country.

In terms of number of bed places in rural tourism offered in 2016, Castilla y León was in first position (29284 places), followed by Catalonia (16700), Andalusia (14019), Castilla-La Mancha (13582), Asturias (11972) and C. Valencia (9553). These communities jointly totaled 94,110, accounting for 64.3% of the total available bed places in Spain.

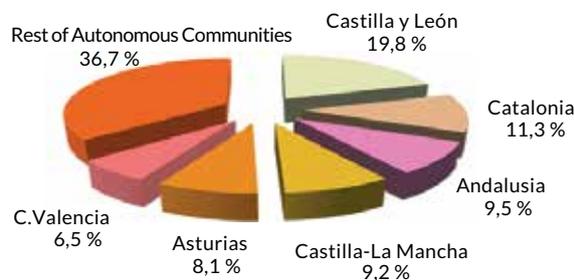
In 2016, the preferred destination in terms of number of rural tourists was Castilla and León, with 701241 tourists (19.5% of the total). This is followed by Catalonia with 394761 people (11.0%) and then Andalusia with 266025 (7.4%). At the other end of the scale are Murcia and La Rioja, which were the least visited communities with 41222 and 35853 travelers. Nevertheless, both communities reported year-on-year growth of 15.5% and 15.0% respectively.

Finally, in terms of overnight stays, Castilla and León (1564041 overnight stays), Catalonia (1123195) and the Balearic Islands (972689) were the communities that reported the highest figures.

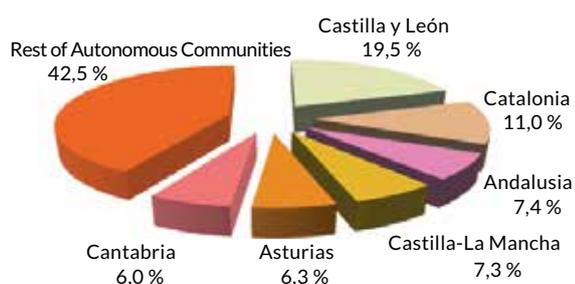
Distribution of No. of rural tourism accommodation establishments (2016)



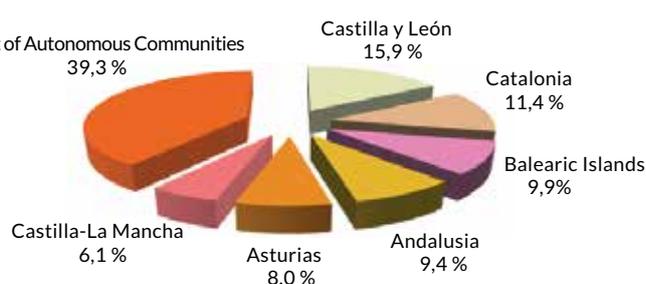
Distribution of No. of rural tourism bed places (2016)



Distribution of No. of rural tourism travelers (2016)



Distribution of No. of rural tourism overnight stays (2016)



Source: INE



Indicator definition:

The indicator analyzes the progress of the principal rural tourism variables: number of accommodation establishments, bed places, travelers and overnight stays in rural accommodation, through the Rural Tourism Non-Hotel Accommodation Occupancy Survey.

Notes on methodology:

Rural tourism accommodation establishments are defined as establishments or houses intended for use as tourist accommodation through payment, with or without complementary services, and which are registered in the Tourist Accommodation Register in each autonomous community. These establishments usually have common features, for example they are usually in buildings with an architecture that is traditional in the area, or on estates that actively farm the area (agritourism).

Source:

INE (National Statistics Institute) Rural Tourism Accommodation Occupancy Survey.

Websites of interest:

- http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736177015&menu=resultados&secc=1254736195376&idp=1254735576863





2.16

TRANSPORT

In today's society, transport is a fundamental piece for economic development, as it structures the territory and facilitates the mobility of people and goods. Nevertheless, it entails negative environmental aspects associated with energy consumption (around 40% of the total in recent years), such as pollutant emissions into the atmosphere (around 25% of all greenhouse gases or GHG), and other problems such as noise pollution, congestion, accidents, occupation and fragmentation of the territory, etc.

Within this framework, in order to discuss the transport sector and its effects on the environment, all these issues must be addressed, and in fact Public Administrations are doing so in order to achieve a more sustainable transport system.

In the EU-28 countries, transport is a key sector for the economy and contributes 4.8% of the GAV (0.55 billion euros). The European Commission promotes initiatives and regulations to advance an efficient, clean, safe and sustainable transport, favoring the development of the necessary conditions to build on the growth of a competitive industry that creates employment. The action framework for this decade is condensed in the White Paper on Transport by the European Commission, which establishes the "roadmap to a single European transport area". Its main objective is to implement a reform of the transport system to gradually reduce dependence on oil, but without sacrificing efficiency or compromising mobility. The proposals contained in that paper have been subsequently materialised in successive strategies and packages of measures focusing on sustainable mobility and emission reduction.

In Spain, regulatory, fiscal and economic policies and measures for this very purpose have been designed, which can be classified as: modal transfer, promotion of alternative energy sources and more efficient, less polluting technologies, plus changes in behavior. Concerning the modal transfer, the 2012-2024 Infrastructure, Transport and Housing Plan (PITVI) and the Spanish Logistics Strategy, which include action to promote modal transfer of passengers and goods, especially to railways, are of particular relevance.



In September 2014, the former Ministry of Agriculture, Food and the Environment published a roadmap (Diffuse Sectors 2020 Roadmap) to work as a guide to reducing greenhouse gas emissions in the diffuse sectors - excluded from the emissions trading system - in Spain between 2013 and 2020. This roadmap assesses a number of measures in different activity sectors releasing emissions into the atmosphere. Among these measures are the modal transfer of passengers to other more efficient, sustainable means and modes (bicycles, collective transport or railway), introduction of low-emission vehicles and second generation biofuels, prioritisation of rail for goods transport, promotion of efficient driving and speeding up turnover of the vehicle fleet.

The Administration departments have promoted measures to help with the purchase of more efficient vehicles and to renew the vehicle fleet. Along these lines at State level, the Government has implemented different programs such as the PIVE, PIMA, MOVELE and MOVEA plans to promote vehicles that run on alternative energies.

Hence, in June 2017, a Plan was approved to boost mobility through vehicles powered by alternative energies (MOVEA 2017) and to install electrical vehicle recharging points, with total grants of 14.26 million euros (Royal Decree 617/2017 of 16th June), with the deadline ending on 15th October 2017 or when the available funds run out.

In relation to the evolution of inland transport demand, from 2014 a growing behavior in the goods transport segment was observed (from 2015 for passengers), after a period spanning several years of market decrease which began in 2008 affecting goods transport in particular (in 2010 for passengers). The predominant inland transport mode for passengers and goods is by road, accounting for around 80% of goods transport and 90% of passenger transport. In the case of inbound and outbound international transport to and from Spain, the most significant mode of goods transport is by sea, accounting for 80%, whereas air travel is most widely used for long-distance passenger travel.

As for the distribution of the touring vehicle fleet by fuel type, diesel is predominant over gasoline, with scarce representation of clean technologies, although they are undergoing a significant growth. Moreover, there is an increase in the proportion of vehicles under four years old and a reduction in middle-aged vehicles.

Finally, the importance of transport as a business activity and its growth in recent years must be highlighted, with an almost uninterrupted increase in the GAV of Spanish transport and storage companies since 2000.



Demand for inter-city transport: passenger and cargo

- The demand for inland passenger and cargo transport increased in 2015 by 4.6% and 5.2% respectively, compared to the previous year.
- Road is the predominant mode of transport, accounting for 87.3% of passengers and 79.3% of cargo transport.
- The second mode of transport for cargo is maritime (13.6% of the total t-km in 2015).



Touring vehicle fleet by fuel type

- 56.8% of the fleet are powered by diesel, compared to 43.2% powered by gasoline.
- New registrations of cars featuring electrical technology accounted for 0.2% of the total in 2015, corresponding to an increase of 58.3% over the previous year.



Environmental efficiency of transport in terms of GAV, demand, atmospheric emissions and energy consumption

- The GAV of transport has been almost uninterruptedly increasing since 2000, whereas traffic, final energy consumption and pollutant emissions report similar trends, with a notable reduction from 2007 to 2013-2014.
- There is notable decoupling between pollutant emissions and traffic and energy consumption, which is slower and less acute for greenhouse gas emissions.



Transport pollutant emissions

- Emissions of acidifying gases and ozone precursors have been reduced significantly over the last 20 years, whereas this reduction in greenhouse gas emissions has been more noticeable during the years of strong economic crisis.
- Nevertheless, in 2015 GHG emissions, acidifying gases and precursors of ozone increased by 3.9%, 2.2% and 1.5% respectively.



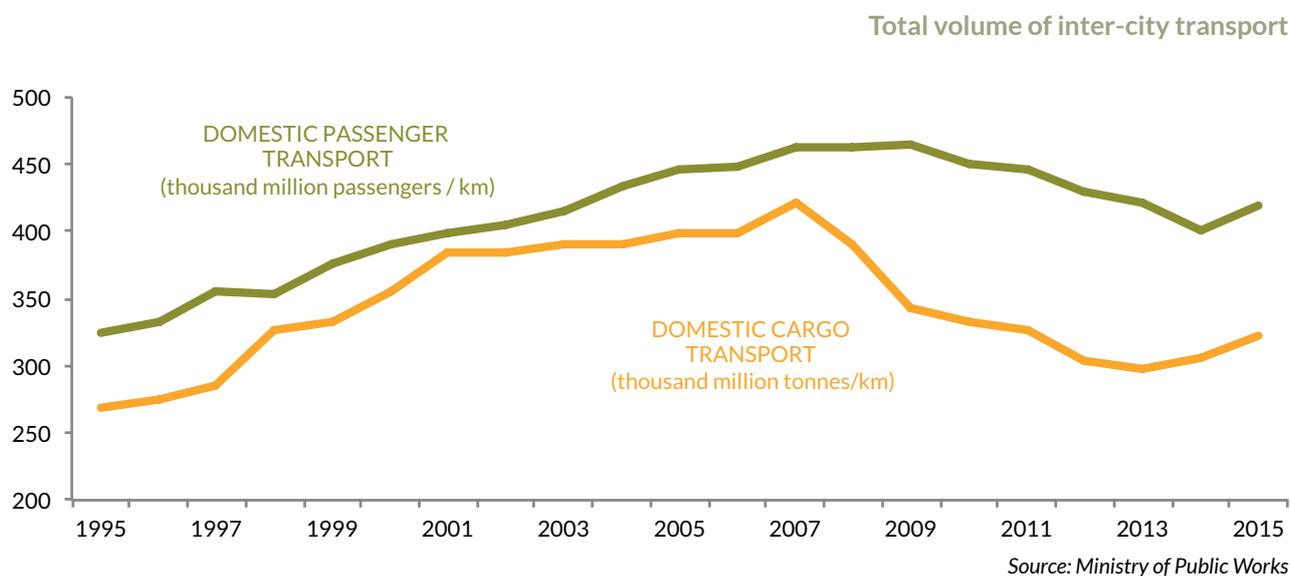
Final consumption of energy by transport

- The transport sector is the main consumer of final energy in Spain, and accounts for around 40% of total energy consumption.
- Most of this energy is consumed on roads (93.6% in 2015). This is followed by air transport (3.2%), maritime transport (1.5%) and rail (1.4%).





Demand for inter-city transport: passengers and cargo



- The demand for inland passenger and cargo transport increased in 2015 by 4.6% and 5.2% respectively, compared to the previous year.
- Road is the predominant mode of transport, accounting for 87.3% of passengers and 79.3% of cargo transport.
- The second mode of transport for cargo is maritime (13.6% of the total t-km in 2015).

The demand for inland passenger and cargo transport has followed a trend down the years in line with the economic situation. As a result of the crisis, demand for inland passenger and cargo transport decreased over those years and moreover, did so in different ways. In the case of passenger transport the decrease was less acute (reduction of 13.8% between 2009 and 2014). However, the demand for cargo transport underwent a sudden decrease in 2008, which continued through to 2013 (a decrease of 29.6% between 2007 and 2013).

This situation has been improving slightly since 2014. The demand for inland goods transport started to increase in 2014 (2.9% compared to the previous year), and continued this trend in 2015 (5.2%) whereas passenger transport started to grow again in 2015 (4.6% compared to the previous year).

According to data obtained from the 2015 "Transport and Infrastructures" annual report, the Observatory for Transport and Logistics of Spain (OTLE) and the Ministry of Public Works Statistics Yearbook, transport in 2015 increased to 419.2 thousand million travellers-km and 321.6 thousand million tonnes-km. By mode of transport, roads accounted for 87.3% of the total inland passenger transport demand and 79.3% of the cargo transport, these figures having remained relatively stable over time, making it the preferred mode of inland transport.

For inland passenger transport, rail and air modes are next in terms of importance, with modal share about similar and slightly over 6%, and much further back is maritime passenger transport, at a very low 0.2%. In rail transport of passengers, long-distance services account for 46.4% of travelers-km being the service that has had most grown in the last year (+7.8%), compared to mid-range and local rail services, which increased slightly



only (by 1.6% and 0.2% respectively). In recent years there has been an increasing trend for long-distance services, possibly due to the opening up of new sections, improvements of tracks and trains, development of high-speed rail services and changes in RENFE's commercial policy and fares system. As for domestic passenger air transport, there was growth of 6.3% in 2015.

Maritime transport is the second most important for inland cargo transport (13.5%) and is clearly the most widely used mode of transport for international cargo (80.0%). Furthermore, in 2015, it was the mode of transport that reported highest inland growth (6.9% in the passenger segment and 7.7% for cargo). Rail and pipeline modes account for 3.4% and 3.8% respectively, of the inland cargo transport. Cargo transport by rail, which has been a free market since 2007, reported an increase of 5.6% in the quantity of tonnes-km transported in 2015 compared to 2014.

Act 38/2015 pursuant to the rail sector, has driven new changes in rail transport under State competence, with changes in the levy system that favor setting up new services, and the inclusion of measures to improve competitiveness of cargo transport by rail, whilst also establishing liberalisation measures for services provided at public terminals and enhancing the role of ports as railway infrastructure administrators within their public domain.

In the European Union, roads are still the most widely used mode of transport for passengers and goods. In 2015, cargo transport by road continued to grow (+1.6%).

Maritime transport is an enormously important part of European trade of goods (accounting for 90% of foreign transport and 40% of inland transport). In 2015, a decrease of 1.3% was reported in the EU-28 states. Air passenger transport increased in 2015 in the European Union by 4.7% compared to the previous year, whereas the increase in air cargo transport increased by 2.13% only.

According to preliminary estimates by the International Transport Forum, there has been slight growth as well in rail cargo transport. The European mean for rail passengers per kilometer in the European network is 32320, and in Spain this figure was approximately 10% higher in 2015. However, the European mean for tonnes-km per kilometer of rail network is 1.8 million, whereas the Spanish mean is approximately 28% lower.



Indicator definition:

The indicator shows the annual evolution of the demand for inland passenger transport, measured in passenger-kilometer (p-km)

Notes on methodology:

- The measuring unit for passenger transport is passengers-kilometer (p-km) which is calculated by multiplying the number of passengers who travel during the year by the number of kilometers travelled.
- The measuring unit for cargo transport is tonnes-kilometer (t-km) which is calculated by multiplying the transported tonnes by the number of kilometers travelled.
- The information on passengers-km and tonnes-km on roads refers in 2015 to 166003 kilometers managed by the State, autonomous communities, provincial councils and chapters.

Source:

Ministry of Public Works: "Transport and Infrastructures. Annual Report (several years)", Statistical Yearbook, Observatory for Transport and Logistics of Spain (OTLE).

Websites of interest:

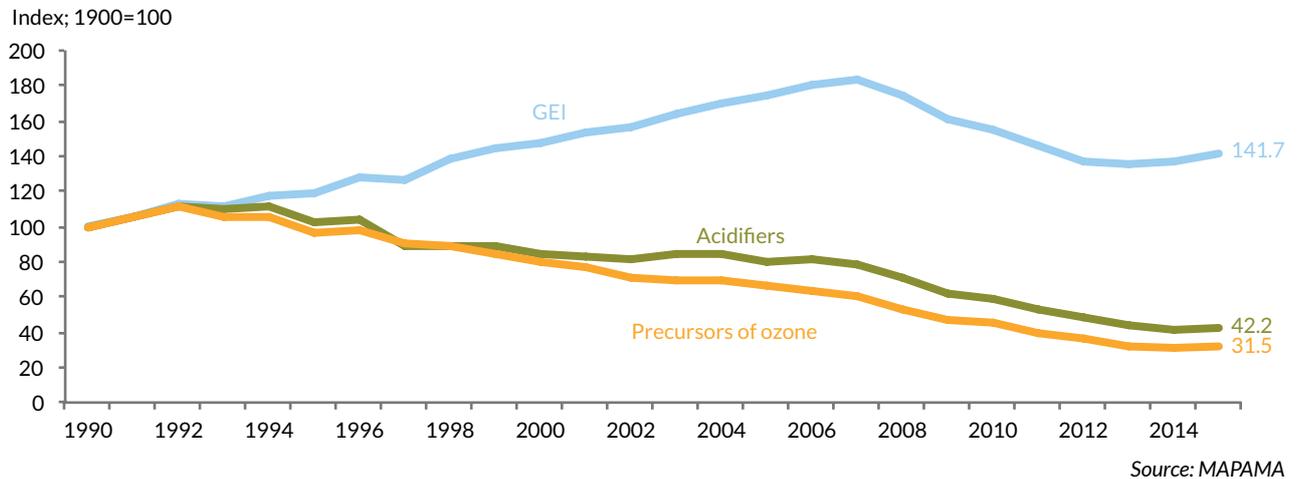
- http://observatoriotransporte.fomento.es/OTLE/lang_castellano/
- http://www.fomento.gob.es/MFOM/LANG_CASTELLANO/ATENCION_CIUDADANO/INFORMACION_ESTADISTICA/
- http://observatoriotransporte.fomento.es/NR/rdonlyres/0AE839CF-9E00-46F3-A27C-88B14AC37715/136237/INFORME_OTLE_2015.pdf
- <http://ec.europa.eu/eurostat/data/database>





Pollutant emissions from transport

Emissions of GHG, acidifying substances and tropospheric ozone precursors from transport



- Emissions of acidifying gases and ozone precursors have been reduced significantly over the last 20 years, whereas this reduction in greenhouse gas emissions has been more noticeable during the years of strong economic crisis.
- Nevertheless, in 2015, emissions of GHG, acidifying gases and ozone precursors increased by 3.9%, 2.2% and 1.5% respectively.

Transport is a business sector of enormous relevance for Spain's economic development, which consumes approximately 40% of the final energy.

Transport produces around 25% of total Greenhouse Gas (GHG) emissions in Spain. According to data from MAPAMA'S Spanish Greenhouse Gases Emission Inventory (1990-2015), as far as road transport is concerned, cars produced 68% of emissions, heavy goods vehicles accounted for 22%, vans 8% and motorcycles 2%.

Greenhouse gas emissions released into the atmosphere are directly related to consumption of fuels - there is no technology to eliminate or reduce the carbon dioxide produced during combustion -, which underwent a continued increase until 2007, when it started to decrease as a result of the economic crisis. Accordingly, between 1990 and 2015 greenhouse gas emissions have reported a rising trend, with an accumulated increase of 41.75%, increasing until 2007, when they reached their peak (108 Mt of CO₂ equivalent). From then on, greenhouse gas emissions started to decrease until 2013, from when they began to increase once again.

The evolution of emissions of acidifying substances and ozone precursors has been different. These emissions reached their maximum during the middle of the 90's, since the application of technological measures for emission reduction even compensated the increase in demand. Emissions of acidifying substances have been reduced since 1990 by 57.8% and tropospheric ozone precursors by 68.5%. Last year (2015), the increase in greenhouse gas emissions rose from 0.5% between 2013 and 2014 to 3.9% between 2014 and 2015. In the case



of acidifying substances and ozone precursors, the downward trend reported over recent years was broken, as an increase was reported of 2.2% and 1.5% respectively with regard to the previous year.

According to reports published by EEA, 2015 was the first year when greenhouse gas emissions started to increase in the EU since 2010. This increase was mainly due to the increase in road transport, which rose by 1.6% in 2015. Aviation emissions also increased (by 3.3%), although these emissions are a small percentage of the total emissions.

Indicator definition:

The indicator shows the aggregate emissions of pollutants into the atmosphere, from inland transport in Spain, presented as an index in which the value for 1990 = 100. It includes the emissions of GHG, acidifying substances and ozone precursors.

Notes on methodology:

- The most important emissions of pollutants from transport activities into the atmosphere, either because of their toxicity and damage to health or for their environmental effects, are grouped into: greenhouse gases (GHG), acidifying and eutrophic gases, and precursors of tropospheric ozone gases. GHG emissions (CO₂, CH₄ and N₂O), are expressed as CO₂ equivalent, calculated by the global warming potential of each gas, with the following factors: CO₂ = 1, CH₄ = 25 and N₂O = 298. Acidifier and eutrophic emissions (NO_x, NH₃ and SO₂) are presented by their acid equivalent (potential to produce hydrogen ions), the emissions being aggregated through the following weighing factors: 31.25 acid equivalent/kg for SO₂ (2.64 acid equivalent/gram), 21.74 acid equivalent/kg for NO_x, expressed as NO₂, (1/46 acid equivalent/gram) and 58.82 acid equivalent/kg for NH₃ (1/17 acid equivalent/gram). Emissions of precursors of tropospheric ozone (NMVOC, NO_x, CO, and CH₄) have been estimated by their tropospheric ozone reduction potential (expressed as NMVOC equivalent); for weighing, the following factors have been used: 1.00 for NMVOC, 1.22 for NO_x, 0.11 for CO, and 0.014 for CH₄.
- The emissions from the following SNAP (Selected Nomenclature for Air Pollution) categories are attributed to the transport sector: 7 (road transport), 08 02 (railways), 08 04 02 (national maritime traffic within the EMEP area), 08 05 01 and 08 05 03 (national air traffic) and 01 05 06 (compressors for pipeline transport).

Source:

- Ministry of Agriculture and Fisheries, Food and Environment. "National Inventory of Greenhouse Gas Emissions. 1990-2015. Edition 2017.

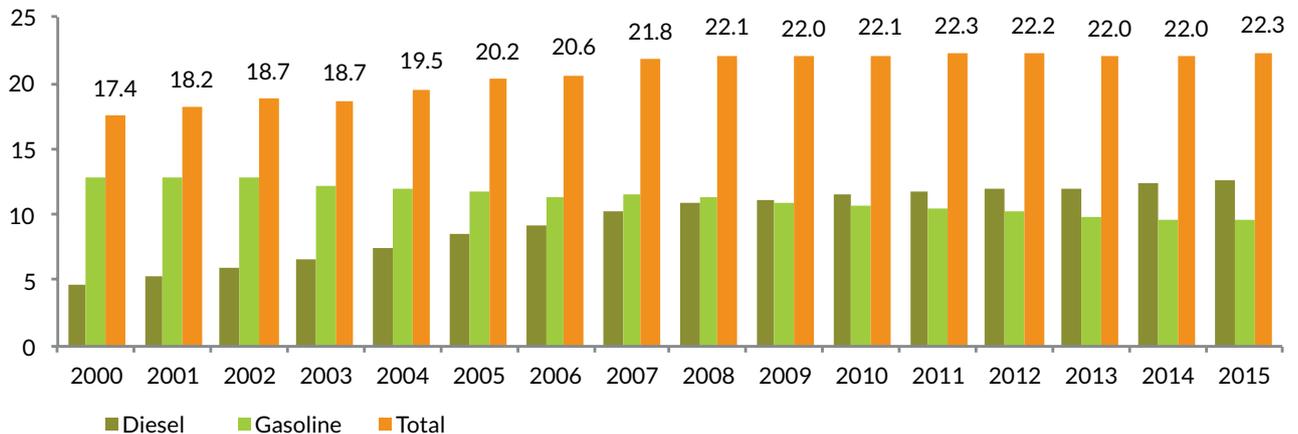
Websites of interest:

- http://cdr.eionet.europa.eu/es/eu/mmr/art07_inventory/ghg_inventory/envvuhnga
- http://cdr.eionet.europa.eu/es/un/UNECE_CLRTAP_ES/envvubzaw/
- http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-nir_2017_abril_tcm30-378883.pdf
- <http://sieeweb.idae.es/consumofinal/bal.asp?txt=Transporte&tipbal=s&rep=1>



Touring vehicle fleet by fuel type

Touring vehicle fleet by engine type
(million vehicles)



Source: MAPAMA

- *56.8% of the touring fleet are powered by diesel, compared to 43.2% powered by gasoline.*
- *New registrations of cars featuring electrical technology accounted for 0.2% of the total in 2015, corresponding to an increase of 58.3% over the previous year.*

The fleet of touring cars in Spain has maintained similar values throughout recent years (2008-2015). In 2015, there were over 22 million vehicles. By fuel types, the trend of preference for diesel vehicles continues to increase compared to gasoline, the differences being increasingly substantial. The touring car fleet in Spain consisted of 17.4 million vehicles in 2000, and increased steadily before becoming stable in 2008 with a total of 22.1 million vehicles. The figure has not varied significantly since that year.

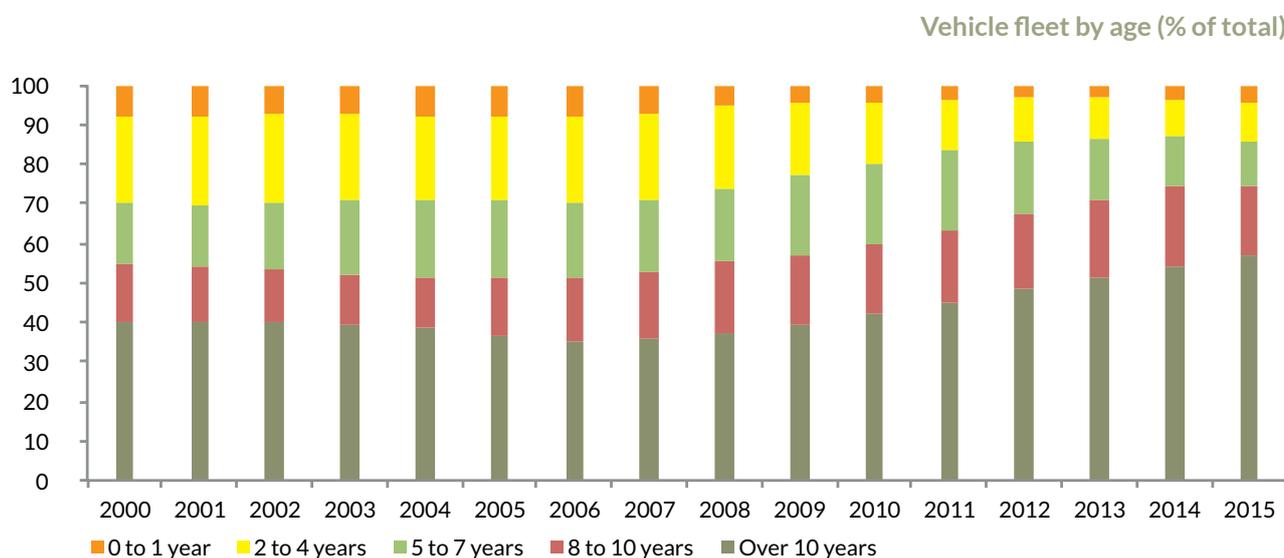
In regard to the last year, the fleet of touring vehicles increased by 1.4% in Spain. By fuel type, in 2015 gasoline vehicles accounted for 43.2% of the vehicle fleet and diesel for 56.8%. The decrease in gasoline vehicles in the last year was 0.3% and the increase in diesel powered vehicles was 2.8%.

The development and promotion of new engine types, such as hybrid or electric powered, permit reducing emissions, while vehicles powered by alternative fuels are increasingly more present (in 2015 they represented approximately 2% of the total new registrations).

In 2005, there were almost 900 hybrid touring vehicles in Spain, whereas in 2015 there were more than 60000. According to the Spanish Association of Automobile and Truck Manufacturers, 18406 hybrid touring cars were registered in 2015, 99.3% of them were hybrid gasoline and the rest were hybrid diesel cars. Analyzing this distribution in greater depth, registrations of hybrid gasoline cars increased by 54.5% compared to previous year, whereas hybrid diesel registrations decreased by 47.7%.



Registrations of electric cars in 2015 reached 2224 vehicles. This is an increase of 58.3% over 2014. This increase is very significant, and indicates an increasing trend towards the use of electric vehicles.



Source: MAPAMA

Regarding the age of the vehicle fleet, the percentage of vehicles over 10 years old has been increasing since 2008. In 2015, 56.85% of vehicles in the fleet were over 10 years old, whereas only 4.73% of the fleet were registered in the last year. Nevertheless, this percentage is significantly higher than the previous year. The percentage of vehicles between 2 and 4 years old also increased in 2015, which suggests there is a trend towards a younger vehicle fleet at cost of the middle-aged vehicles (those between 5 and 8 years old were the only ones whose percentage reduced in 2015).

According to the 2015 report by the Spanish Association of Car and Truck Manufacturers, the mean age of the touring car fleet was 11.6 years, whereas it was 10.7 years in the EU-28 states. The oldest vehicle fleets are in the East European countries; for example 17.2 years in Poland (according to the European Automobile Manufacturers Association). On the other hand, the European Environment Agency places the number of newly registered cars in the EU in 2015 at 13.7 million, which is an increase of 9% compared to 2014.

Indicator definition:

The indicator describes the number and proportion of touring cars in the vehicle fleet, in accordance with the fuel type (diesel or gasoline) used by their engine.

Source:

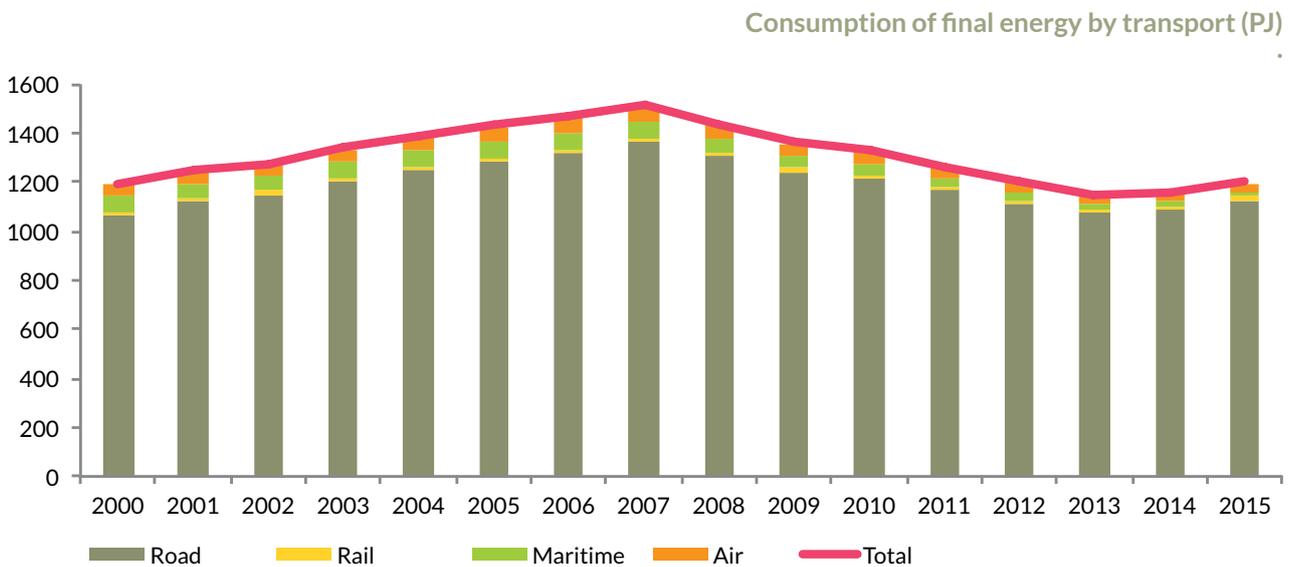
Ministry of Agriculture and Fisheries, Food and Environment. "National Inventory of Greenhouse Gas Emissions. 1990-2015. Edition 2017".

Websites of interest:

- http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/nir_2017_abril_tcm30-378883.pdf
- <http://www.anfac.com/documents/tmp/MemoriaANFAC2015.pdf>
- <http://ec.europa.eu/eurostat/data/database>
- <http://www.acea.be/statistics>



Consumption of final energy by transport



Source: Ministry of Public Works, MAPAMA

- The transport sector is the largest consumer of final energy in Spain, and accounts for around 40% of total energy consumption.
- Most of this energy is consumed on road transport (93.6% in 2015). This is followed by air transport (3.2%), maritime transport (1.5%) and rail (1.4%).

Energy consumption by transport in Spain accounts for 40.4% of the final energy consumption (OTLE's annual report, 2016), whereas in the European Union it is 33.2%. Energy consumption by transport has been increasing since 2000, reaching a peak in 2007, and since then there has been a clear decrease, mostly due to the economic crisis.

From 2013 onwards, due to the improvement in the economic situation, energy consumption began to rise again. Compared to the previous year, in 2015 there was an increase of 3.8% in energy consumption.

This behavior is similar to that of the other analyzed variables, such as mobility demand, GHG emissions, etc., factors that are directly related to the economic situation.

As for modal distribution, road transport still prevails, accounting for around 93.6% in 2015. The distribution of final energy consumption by mode of transport between 2000 and 2015 is shown in the following table.



Distribution of energy consumption by mode of transport (%)

	Road	Air	Maritime	Railway	Pipeline
2000	89.48 %	4.25 %	4.92 %	1.17 %	0.18 %
2015	93.63 %	3.23 %	1.52 %	1.41 %	0.21 %

Source: Ministry of Public Works, MAPAMA

By fuel type, diesel and gasoline are the most widely used sources of energy. Diesel accounts for 78.0% and gasoline for 16.8% of energy consumption in transport. Consumption of electricity, at present is practically limited to rail, accounting for 1.2%.

In 2015, final energy consumption associated with transport in the EU-28 states was 15015.1 PJ (petajoules), having increased by 1.7% compared to 2014. Around 9-10% of the total energy consumed in the EU-28 states corresponds to Spain, with a similar trend although with less pronounced peaks. The trend since 2013 in most EU-28 countries has been growth, except in Germany, Italy, Luxembourg and Slovenia, where decreases in energy consumption have been reported.

Indicator definition:

Consumption of final energy by domestic transport. This consumption is presented for the following modes of transport: road, rail, maritime, air and pipeline.

Notes on methodology:

- The main sources of energy consumed in the transport sector are:
 - Petroleum products: on roads: LPG, gasoline, diesel; for rail: diesel; for maritime transport: diesel and fuel oil; in air transport: gasoline and kerosene; and in pipeline transport: LPG and diesel.
 - Gases: natural gas for road, rail and pipeline transport.
 - Renewable energies: biofuels on roads.
 - Electricity: rail.

Source:

Ministry of Agriculture and Fisheries, Food and Environment. "National Inventory of Greenhouse Gas Emissions. 1990-2015. Edition 2017".

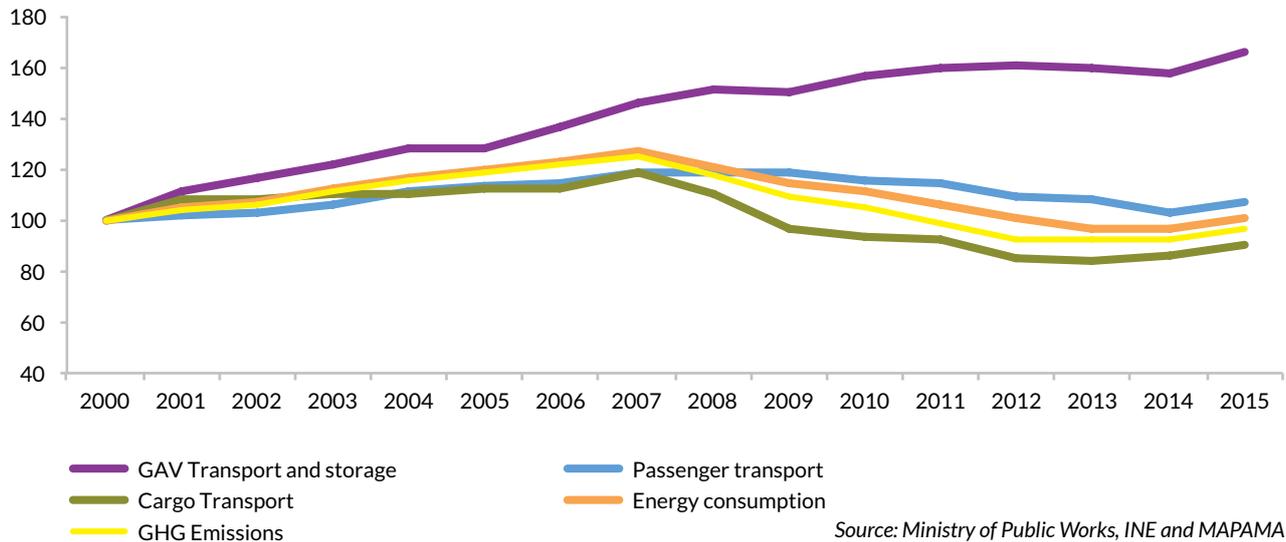
Websites of interest:

- http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-nir_2017_abril_tcm30-378883.pdf
- <http://sieeweb.idae.es/consumofinal/bal.asp?txt=Transporte&tipbal=s&rep=1>
- <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsdpc320>
- http://observatoriotransporte.fomento.es/NR/rdonlyres/0AE839CF-9E00-46F3-A27C-88B14AC37715/136237/INFORME_OTLE_2015.pdf
- http://www.minetad.gob.es/energia/balances/Balances/LibrosEnergia/Energia_2015.pdf



Environmental efficiency of transport in terms of **GAV, transport demand, atmospheric emissions and final energy consumption**

Principal transport variables: Passenger and cargo transport, energy consumption, GHG emissions and GAV (Index; 2000=100)



- *The GAV of transport has been almost uninterruptedly increasing since 2000, whereas traffic, final energy consumption and pollutant emissions report similar trends, with a notable reduction from 2007 until 2013-2014.*
- *There is notable decoupling between pollutant emissions and traffic and energy consumption, which is slower and less acute for greenhouse gas emissions.*

To assess certain aspects of transport efficiency, the relationship between diverse variables in the sector should be analyzed, such as the Gross Added Value, the demand for cargo and passenger transport, emissions of pollutants into the atmosphere and final energy consumption.

The demand for transport varies, following a pattern similar to the economic activity one, particularly in goods. Hence, from 2007 the demand for goods decreased suddenly; however, passenger demand, which had remained on a par, continued smoothly growing. Between 2010 and 2014 it decreased slightly and started to increase afterwards (with one year lag behind the increase in goods transport). Looking at the balance over the last 10 years, transport of goods had a reduction of 19.5%, whereas passenger transport only decreased by 6.3%. In 2015, both grew at a similar rate (5.2% goods and 4.6% passengers).

The Gross Added Value (GAV) at basic prices associated with transport in 2015, accounted for 46319 million euros, 4.8% of the national annual GAV total. The GAV shows a positive trend (with the exceptions of the slight decreases in 2005, 2009, 2013 and 2014). In the last year the GAV increased by 5.3%, and over the last 10 years (2006-2015) it increased by 21.9%.



These figures confirm continued improvement in the economic importance of transport, consistent with the each day bigger difference between GAV growth and traffics (passengers-km and tonnes-km).

A similar analysis could be carried out on energy efficiency, since consumption of energy by transport is directly associated with the traffic. In the last year, consumption of energy by transport increased by 3.8%, although it has reported a decrease of 18.4% over the last 10 years.

Greenhouse gas emissions follow a similar evolution to that of energy consumption, but with a decreasing trend in terms of consumption since 2007 (the year both parameters peaked). This trend, gentle for greenhouse gases (GHG) is steeper for the rest of the pollutant emissions, because of improved technology in new vehicles.

There was an increase in the values of all variables last year, associated with economic recovery. Nevertheless, the increase in economic growth has been higher than the rest of the variables, owing to which it could be claimed that the situation has improved in the sector in terms of efficiency.

Indicator definition:

The indicator considers different variables selected from transport in order to compare their evolution with that of the Gross Added Value (GAV) of the sector, and thus assess their trends and correlation between each other, all this in order to assess the relative efficiency of some aspects in regard to others (environmental, economic...)

Notes on methodology:

- See notes on previous indicators.
- The Gross Added Value (GAV) refers to transport and storage activity, and includes: overland transport and pipeline transport, maritime transport (and navigable inland waterways, insignificant in Spain), air transport, storage and other activities related to transport and post and mailing activities. The contribution to the GAV of postal and mailing activities have been included because there is no separate information available.

Source:

- GAV INE, 2015. National Accounting of Spain. INEbase / Economía / Cuentas económicas / Contabilidad Nacional Anual de España. Base 2010 / Resultados detallados 1995-2015.
- Passenger and Cargo Transport: Ministry of Public Works: "Transport and Infrastructures. Annual Report". Several years.
- Pollutant emissions: Ministry of Agriculture and Fisheries, Food and Environment. "National Inventory of Greenhouse Gas Emissions. 1990-2015. Edition 2017".
- Final energy consumption: Ministry of Agriculture and Fisheries, Food and Environment. "National Inventory of Greenhouse Gas Emissions. 1990-2015. Edition 2017". Ministry of Energy, Tourism and Digital Agenda. Institute for Energy Diversification and Conservation

Websites of interest:

- http://www.fomento.gob.es/MFOM/LANG_CASTELLANO/ATENCION_CIUDADANO/INFORMACION_ESTADISTICA/
- http://www.mapama.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-nir_2017_abril_tcm30-378883.pdf
- <http://sieeweb.idae.es/consumofinal/bal.asp?txt=Transporte&tipbal=s&rep=1>
- http://www.fomento.gob.es/NR/rdonlyres/62AE772A-C268-498D-8611-789416D86331/138573/16TranspTu-beria_15.pdf



2.17

URBAN ENVIRONMENT AND HOUSEHOLDS

Over 60% of the population in the European Union live in urban areas, which are the driving force of the European economy through investment and employment. Not surprisingly these areas generate almost 85% of the gross domestic product of the EU. That is why a deep reflection should be carried out on the quality of life in cities and a more thorough study on urban mobility strategies. This could avoid the millions of euros that are wasted through poor management of mobility in general and specifically traffic in cities, every year. Urban traffic produces 40% of CO₂ emissions and 70% of emissions of other pollutants produced by road transport. Each year the European economy loses around one hundred thousand million euros due to this, i.e. 1% of the EU's GDP.

Indeed, finding solutions through an integrated approach to urban mobility is an urgent matter, which must include: reducing traffic congestion by encouraging walking and cycling; mitigating emissions into the atmosphere and noise, through the development and implementation of efficient, clean vehicle technology, the promotion of eco-driving and the use of alternative fuels; promoting an effective, flexible, accessible, quality collective transport; promoting intelligent transport systems (ITS) and guaranteeing safe urban transport, while emphasizing the construction of more reliable, protected infrastructures and raising the awareness of citizens about their behavior.

In 2014, Ljubljana won the European Green Capital Award for 2016, which is given to cities that achieve very high environmental standards and which are strongly committed to future environmental improvement and sustainable development so that they can be models for other cities. The aim is to encourage an integrated environmental vision of the city in which environmental conservation programs, the sustainable mobility plan, the sustainable energy action plan and the electro-mobility strategies, all converge.

Along this line of work on promoting sustainable mobility, the Ministry of Agriculture and Fisheries, Food and Environment, through the Spanish Climate Change Office and a cooperation agreement signed with the company Ciclogreen, launched a project in September 2016 with the aim of encouraging the use of sustainable transport among



its workers, rewarding those who traveled to work on foot or bicycle. The project lasted for three months and set out a monthly challenge so that the Ministry's workers who adhered to it could record their trips by bicycle or on foot in free mobile applications, building up points according to the distance traveled which they could later exchange for points for free tickets and discounts to cultural events and shows.

With regard to households, the data from surveys on households by the National Statistics Institute, regarding family budgets and living conditions, provide a brief summary on the situation of households in Spain in 2016. The number of households increased by 0.3% in that year, compared to the previous year, which translates as 59900 more homes to reach a total of 18406100. The mean size of homes has reduced to 2.5 people per home and the number of single-person homes increased by 1.2% to reach 4638300 homes in 2016.

The annual Family Budget Survey, which compiles information on consumer expenditure by residential households in Spain, provides several results. The survey, in which the criteria for coding costs were modified this year, including the new European Classification of Individual Consumption by Purpose (ECOICOP), estimates that the total expenditure by Spanish households in 2016, in current terms, was €520119185000, 3% more than the previous year. On the other hand, according to the survey, the mean expenditure per household was €28200 (2.6% more than in 2015), the highest figure since 2007, before the economic crisis, whereas the mean expenditure per person was €11312, accounting for a year-on-year increase of 3%.

Through a more thorough look at the mean cost per household, in the 2015-2016 year-to-year comparison we are able to observe that it decreased among the "Education" (2.1%) and "Health" (0.5%) groups, but grew at a higher rate in the "Communications", "Furnishings and home appliances", "Restaurants and Hotels" and "Miscellaneous services and goods", which reported respective increases of 11.4%, 10.1%, 9% and 7.1%. As for distribution of the mean expenditure, this is divided into three big groups: housing, water, electricity, gas and other fuels, with a mean expenditure of €8706 (31% of the total household budget), food and non-alcoholic drinks, with a mean expenditure of €4123 (14.6% of the total budget) and transport with mean expenditure of €3264 (11.6% of the total).

On the other hand, the Living Conditions Survey provides information about mean earnings in households, which in 2015, the last year for which this data is available, was €26730, 2.4% higher than the previous year. The economic situation of households improved in 2016, with only 15.3% of households having difficulties to reach the end of the month, compared to 16.9% in 2015, while 38.1% are unable to cover any unexpected expenses, 1.3% less than the figure the previous year.



Urban density by autonomous communities and cities

- On 1st January 2016 the total population in Spain was 46557008 inhabitants, having decreased by 0.1% compared to 2015, and the population density is 92.02 people per km², compared to 92.15 the previous year.
- In 2016, Spain had an urban density index of 72.91, barely three tenths less than the previous year.
- In the period between 2000 and 2016, all the autonomous communities had increased their urban density index, except for Asturias where this figure decreased by 2.4%, from 86.7 to 84.6 inhabitants per km².



Final energy consumption by household

- Final energy consumption of households in Spain was 14881 ktoe in 2015, 1.1% higher than the previous year, thus ending the downward trend since 2010.
- Between 2010, the maximum during the period, and 2015 final energy consumption has decreased by 12%.
- 40.4% of consumed energy comes from electricity, 20.2% from gas, 20.1% oil products and 18.4% renewable energies.



Public urban transport

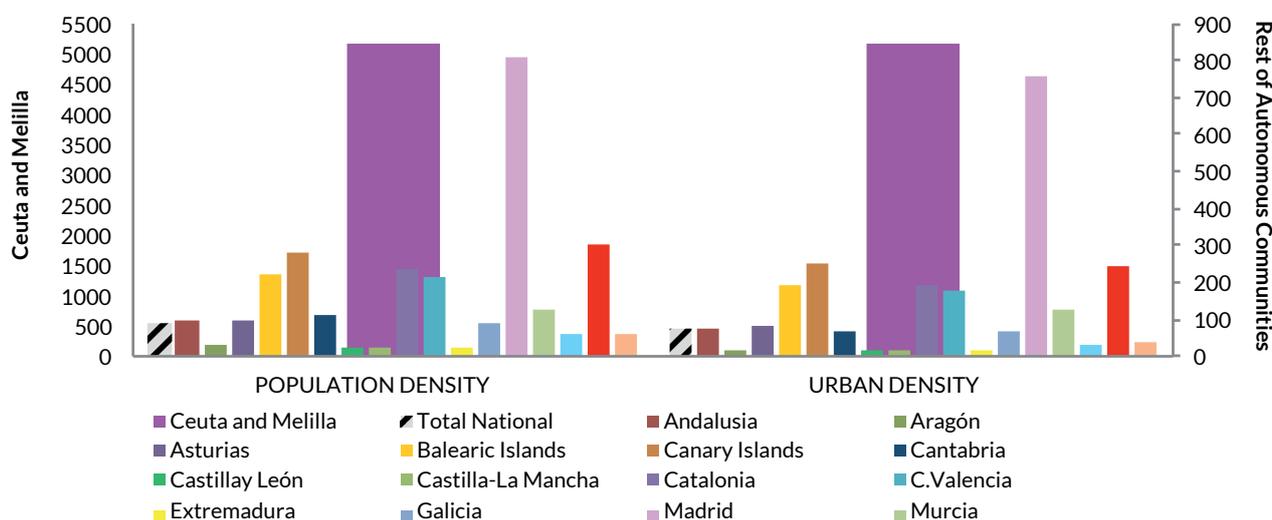
- In 2016, a total of 4637422 million travelers used public transport, 2.4% more than the previous year, the biggest increase since 2005.
- Urban transport grew by 2.3% in 2016 compared to 2015, and intercity transport by 3%.
- In 2016, 59.9% of passengers chose to use the bus, compared to 40% who chose to travel by metropolitan railway.
- The use of buses increased more than the metro in 2016: 3% compared to 1.4%.





Urban density by autonomous communities and cities

2016 Population Density - Urban Density (inhab. per km²)



Source: INE

- On 1st January 2016 the total population in Spain was 46557008 inhabitants, having decreased by 0.1% compared to 2015, and the population density is 92.02 people per km², compared to 92.15 the previous year.
- In 2016, Spain had an urban density index of 72.91, barely three tenths less than the previous year.
- In the period between 2000 and 2016, all the autonomous communities had increased their urban density index, except for Asturias where this figure decreased by 2.4%, from 86.7 to 84.6 inhabitants per km².

According to data from the annual revision of the census as of 1st January 2016, the total population in Spain was 46557008 people, 67374 less than in 2015, which is a decrease of 0.1%. Consequently, the national population density, understanding such as the quotient between the number of inhabitants and the area expressed in km², also reported a year-on-year decrease, standing at 92.02 inhabitants per km² in 2016, compared to 92.15 the previous year. After examining population data for cities and autonomous communities, we can observe that populations of the Balearic Islands, Canary Islands, Catalonia, Madrid, Navarre, Basque Country, Ceuta and Melilla increased in 2016, although the Autonomous Community of Madrid is the one that reported highest growth at 0.47% (30000 more inhabitants). On the other hand, the biggest year-on-year decrease was in Castilla and León, where the population fell by 24533 inhabitants compared to 2015, a difference of 0.99%.

In terms of population density in the autonomous communities, once again Ceuta and Melilla have the highest density (5185.3 inhabitants per km²) and a year-on-year increase between 2015 and 2016 of 0.4%, followed by Madrid with 805.5 inhabitants per km² and the Basque Country with 302.8 inhabitants per km², whereas Castilla and León and Castilla-La Mancha are the regions with the lowest population density, of 25.97 and 25.69 inhabitants per km² respectively.



Having examined the population data from the latest revision of the census, we are now able to measure the urban pressure in a territory in accordance with the urban fact density or urban density, which is the result of the ratio between the population in urban areas of over 10000 inhabitants and the surface area of that territory. Hence, in 2016, 79.2% of the total population of Spain (36893922 people) lived in towns of over 10000 inhabitants, 13971 inhabitants less than the previous year. Particularly noteworthy in this regard are Castilla-La Mancha, whose resident population in this kind of towns decreased by 2.1% compared to 2015, whereas in the Balearic Islands it increased by 1.3% to reach 945375 inhabitants. In terms of population density as such, having done the calculations, we observe that in 2016 the urban density index in Spain was 72.91, barely three tenths less than the previous year.

By autonomous communities, once again Ceuta and Melilla had the highest urban density index by far, since both autonomous cities have a population over 10000 inhabitants, and therefore their population density and urban density figures coincide. Madrid and the Canary Islands are the following autonomous communities with highest urban density, both areas having increased their index compared to 2015: Madrid by 0.4%, to reach 758.9 inhabitants per km², and the Canary Islands 0.1%, reaching 253.7 inhabitants per km². On the other hand, Asturias and Cantabria have respective urban pressure of 84.6 and 70.8 inhabitants per km², both having reported the sharpest year-on-year decreases with percentages of 1.8% and 0.5% respectively.

If we examine the study period between 2000 and 2016, we can observe that all the autonomous communities had increased their urban density index, except for Asturias where this figure decreased by 2.4%, from 86.7 to 84.6 inhabitants per km². On the other hand, the sharpest increases are in Ceuta and Melilla, at 126.6%, the Balearic Islands at 42.2% and Castilla-La Mancha at 38.4%.

Indicator definition:

This indicator shows the population density figures, for Spain as a whole and broken down by autonomous territories, measured as the quotient between the existing population in towns of over 10000 inhabitants and the corresponding area. This ratio is equally referred to as "Urban Fact Density" or "Urban Density" and is used to assess the urban pressure of a territory.

Notes on methodology:

- By "Urban Fact" we refer to the ratio between the population residing in towns of over 10000 inhabitants and the area of the territory. In the case of Spain, it is calculated as a whole for the country and also for the autonomous communities. It is an expression of density (inh/km²), which permits knowing the pressure through the concentration of inhabitants on an urban environment. The indicator has been calculated using the figures provided by the annual municipal census on 1st January.
- To calculate the indicator, urban is defined as "the set of population entities with 10001 or more inhabitants". Although this population threshold is commonly used to separate "urban" from "non urban", this classification appears to obscure many situations which are not properly urban as such, there being other definitions to establish the difference between the urban and rural environments (for example, the methodology used to delimit Spanish Urban Areas in the Statistics Atlas of Urban Areas by the Ministry of Public Works, or the geographical typology for urban/rural classification used by Eurostat).

Source:

INE (National Statistics Institute) Check the web: INEbase/Demografía y población/Padrón. Población por municipios / Población de municipios y unidades poblacionales / Cifras oficiales de población de los municipios españoles: revisión del padrón municipal / Población as of 1st January 2016.

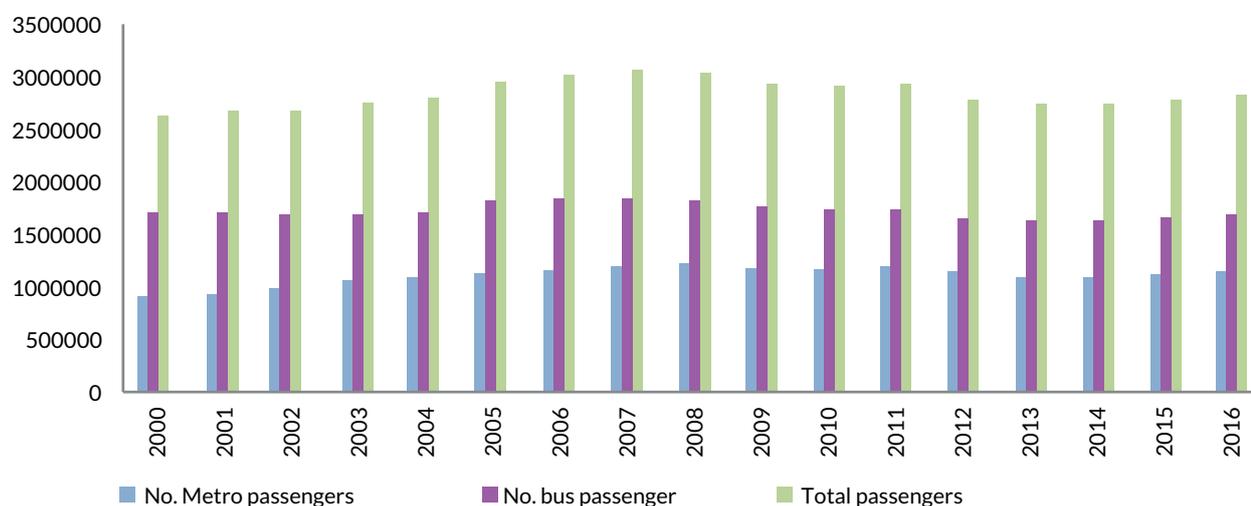
Websites of interest:

- http://www.fomento.gob.es/MFOM/LANG_CASTELLANO/_ESPECIALES/SIU/
- http://www.ine.es/dyngs/INEbase/es/categoria.htm?c=Estadistica_P&cid=1254734710990
- http://www.ine.es/inebmenu/mnu_entornofis.htm



Public urban transport

Urban transport (2000-2016)



Source: INE

- In 2016, a total of 4637422 million travelers used public transport, 2.4% more than the previous year, the biggest increase since 2005.
- Urban transport grew by 2.3% in 2016 compared to 2015, and intercity transport by 3%.
- In 2016, 59.9% of passengers chose to use the bus, compared to 40% who chose to travel by metropolitan railway.
- The use of buses increased more than the metro in 2016: 3% compared to 1.4%.

In 2016, according to the National Statistics Institute data, a total of 4637422000 travelers used public transport, including urban, intercity, special and occasional transport. Compared to the previous year, there were 67334000 more travelers, which is an increase of 2.4%, accounting for the highest increase of this figure since 2005, which was 5%.

By transport types, urban transport increased by 2.3% in the year-on-year comparison between 2015 and 2016, to reach the current figure of 2,838,391,000 travelers, whereas intercity transport increased by 3% from 1265768000 to 1304472000 travelers in 2016.

The breakdown of the data on urban transport for 2016 shows that 40% of travelers chose the metro as their mode of transport, whereas 59.9% chose the bus. By months, the figures are pretty similar for both modes of transport in the year-on-year comparison, with a gradual increase in the number of travelers during the first five months of the year, then starting to fall off in June through to September, when it started to increase again before undergoing a new decrease in November and December. The Metro reached the maximum number of travelers in April with 103015000 and the minimum in August with 66401000 travelers, whereas the highest



number of travelers on buses was in October with 155336000 passengers, compared to the month of August with only 108621000 travelers.

Apart from being used by more people, buses have reported higher growth than the Metro compared to the previous year: buses growth was 3%, from 1650815000 travelers in 2015 to 1701132000 in 2016, whereas use of the Metro grew by 1.4%, with 1120243000 travelers in 2015 and 1137258000 in 2016.

By autonomous communities, the number of urban bus users increased notably in 2016 compared to the previous year. The increase in Madrid was 6.8% and was the region with most users of buses, almost double than Catalonia, positioned second on the list. This figure also increased in the Canary Islands (by 3.7%), Catalonia (3.8%), Valencia (3.7%) and the Basque Country (3.9%). On the other hand, the number of passengers in Andalusia, Asturias and Castilla-La Mancha fell by less than 1% and in Aragon the number fell by 4.4%.

In relation to the number of Metro passengers by autonomous community, in 2016, the number of passengers in five of the seven Spanish cities with a metropolitan railway increased. Madrid, with an increase of 2.5% to reach 584756000 travelers, Malaga with an increase of 3.9 % to reach 5222000 travelers, Palma de Mallorca with an increase of 2.1 % to reach 702000 travelers, Seville with an increase of 2.9 % to reach 15326000 travelers and Valencia with an increase of 3.1 % to reach 62630000 travelers. The remaining cities, namely Barcelona and Bilbao, registered a reduction in the number of travelers on this mode of transport of 0.9% and 0.4% respectively, reaching 381486000 and 87133000, also respectively.

Indicator definition:

This indicator exclusively represents the data on urban passenger transport, understanding such to be public transport around urban or developable land, or that which communicates different urban centers located within the same municipality with each other. It does not include data on intercity, special or occasional transport.

Notes on methodology:

- Metropolitan area is understood as "the urbanized geographical area where there is a high degree of interaction between the different urban centers in terms of transit, daily relations, economic activity, etc." There is no single definition to delimit metropolitan areas in Spain. For the Metropolitan Mobility Observatory (OMM) the metropolitan areas match the geographical scope of action of each Public Transport Authority (ATP).
- In order to maintain statistical secrecy, the data on the autonomous communities of the Balearic Islands, Cantabria, Navarre and La Rioja and the autonomous cities of Ceuta and Melilla have not been published.

Source:

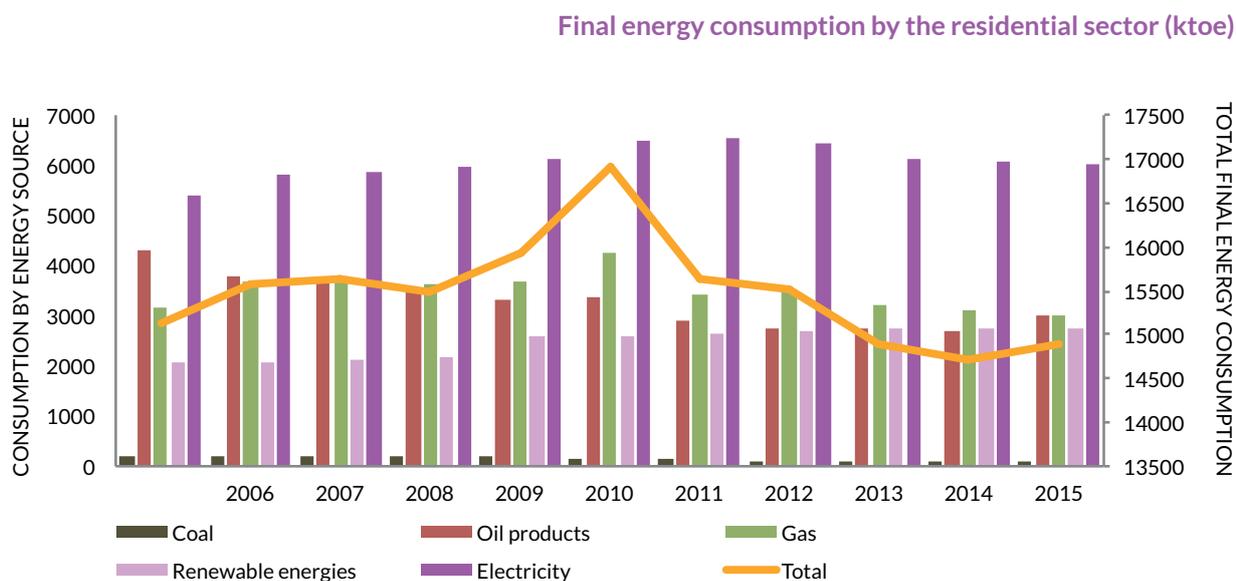
- INE (National Statistics Institute) Check the web: INEbase / Servicios / Transporte / Estadística de transporte de viajeros. Datos coyunturales/Series mensuales/ Total de viajeros y por tipo, medio de transporte y distancia
- INE (National Statistics Institute) Check the web: INEbase / Servicios / Transporte y actividades conexas, comunicaciones/ Estadística de transporte de viajeros. Datos coyunturales/Transporte urbano por autobús por CCAA
- INE (National Statistics Institute) Check the web: INEbase / Servicios / Transporte y actividades conexas, comunicaciones/ Estadística de transporte de viajeros. Datos coyunturales/Transporte urbano: metro y autobús en ciudades que dispongan de metro
- Ministry of Public Works. Check the web: Inicio/ Áreas de Actividad / Transporte terrestre

Websites of interest:

- http://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736176906&menu=ultiDatos&idp=1254735576820
- <http://www.observatoriomovilidad.es/>
- <http://www.transyt.upm.es/>



Consumption of final energy by household



Source: INE

- Final energy consumption of households in Spain was 14881 ktoe in 2015, 1.1% higher than the previous year, thus ending the downward trend since 2010.
- Between 2010, the maximum during the period, and 2015, final energy consumption has decreased by 12%.
- 40.4% of consumed energy comes from electricity, 20.2% from gas, 20.1% from oil products and 18.4% from renewable energies.

Total final energy consumption in 2015, according to the data supplied by the The Institute for the Diversification and Saving of Energy (IDAE), was 80303 kilotonnes of oil equivalent (ktoe), excluding non-energy uses, of which 18.5%, 14881 ktoe, was consumed by the residential sector. Compared to the previous year, final energy consumption by Spanish households increased by 1.1%, breaking the trend of this index which had not reported an increase since 2010, undoubtedly a result of current economic growth, and the boom in the demand for renewable energies. Reviewing the figures since 2005, we are able to see that final energy consumption by households reported a period of evolution over the first five years, peaking in 2010 at 16924.1 ktoe, before decreasing consumption by 13% less in 2014, compared to 2010, and with a year-on-year increase as mentioned earlier between 2014 and 2015. If we consider the period between 2005 and 2015, consumption has decreased by 1.6%, whereas between 2010 and 2015 there was a much sharper decrease, reaching 12%.

Dealing with energy sources, in 2015 final energy consumed was mostly electrical energy, 40.4% (6024.8 ktoe), 18.4% was renewable energy (2749.4 ktoe), 20.2% gas (3017.4 ktoe), 20.1% oil products (3000 ktoe) and 0.5% coal (88.5 ktoe). By breaking down the sources of renewable energies, we observe that biomass and thermal solar power are the ones used the most, likewise Liquefied Petroleum Gas (LPG) and diesel in terms of oil-based products.



When cross-referencing the data on energy sources with usage, we must point out that in 2015 44% of final consumed energy in households was for heating, whereas 29.8% was for lighting and appliances, 17.6% for hot water, 7.4% for cooking and 0.9% for refrigeration.

In the EU-28 States, the residential sector consumed 275155.2 ktoe in 2015, 4.5% more than in 2014. Spain still holds sixth position among the highest consumers of final energy, and consumption in 2015 accounted for 4.5% of the demand in the EU-28, behind Germany, France, United Kingdom, Italy and Poland, the latter being the only country which reduced its consumption compared to the year before.

Indicator definition:

This indicator represents consumption of final energy corresponding to the total consumed by the residential sector in Spain and in Europe.

Notes on methodology:

- The difference between consumption by the residential sector and consumption by households is that the former includes second or holiday homes and communal areas in housing complexes and estates, whereas the latter only considers data for permanent residences.

Source:

- IDAE / Inicio / Ahorro y eficiencia energética / estudios, informes y estadísticas / Detalle de consumos del sector Residencial/Hogares (2015)
- EUROSTAT See website: database / Environment and energy /Energy /Main tables /Energy Statistics-quantities/Final energy consumption by sector/Residential

Websites of interest:

- <http://www.idae.es/informacion-y-publicaciones/estudios-informes-y-publicaciones>
- <http://www.minetad.gob.es/energia/es-ES/Paginas/index.aspx>
- <http://ec.europa.eu/eurostat/data/database>





2.18

NATURAL AND TECHNOLOGICAL DISASTERS

Natural disasters are responsible for important human and material damage on our planet. In order to reduce the effects and losses they cause, the United Nations International Strategy for Disaster Reduction (UNISDR) launched the SENDAI SEVEN campaign, with seven targets to fulfill (by local and national governments, community groups, the private sector and society) at the rate of one target per year for the period spanning 2016 - 2022. Within the group of climate risks, the campaign considers the measures proposed by the Intergovernmental Panel on Climate Change (IPCC) to reduce pollutant emissions (which affect extreme climate phenomena).

No. of catastrophes and deaths caused by natural disasters in the world

	2016	2015	Ten-year annual mean (2006-2015)	Previous 30-year annual mean (1986-2015)
Events	750	730	590	470
Deaths	8700	25400	60600	53200

Source: "Natural Catastrophe in 2016". On the website: www.munichre.com

In 2016, the phenomena that caused most damage happened in Asia and America. From an economic point of view, the disasters that caused most losses were earthquakes and floods.

2016 was the year when most damage was produced through natural disasters since 2012, according to the German insurance company Munich RE. The most important of these phenomena were the floods in China at the end of June and middle of July, which caused damage of almost 18000 million euro, and hurricane Matthew between 29th September and 9th October, causing damage valued at 9000 million euro.



Between May and June 2016 there were serious floods in western central Europe (mainly Germany and France) causing the deaths of at least 20 people. In France alone around 20000 people were evacuated and more than 25000 people had no electricity supply.

In Spain the main natural disasters are associated with rainfall. Firstly flooding, which in recent years has been the main cause of deaths and compensations for the Insurance Compensation Consortium. In 2015, floods were 50% higher than in 2014 for the said organization, although the number of deaths fell by almost half, to stand at 10. In 2016 the most serious floods were in November and December in Cadiz, Malaga, Murcia, Alicante and Valencia.

Storms are another significant phenomenon, both in terms of economic damage and the number of victims, more so if we take into account deaths on land due to storms at sea.

Associated with high temperatures, heat strokes cause a high number of victims in certain episodes and, although a far cry from the 33 deaths in 2015, eight of the 30 victims of natural disasters in 2016 were caused by heat strokes. We also need to consider fires, since although they are mainly caused by human factors, the hot, dry summers of our climate lead to high fire risks. The Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA) plays an important role in preventing and fighting forest fires. In 2016, the number of fires and burned area in Spain decreased, with the ratio between hectares and number of fires decreasing by 14% compared to the mean over the previous 10 years.

Industrial activities, as is true for all types of activity, are subject to accidents. The European Seveso directive is applied in Spain, with the aim of mitigating their occurrence and effects. In 2016 there were nine accidents in this field, the highest figure in the last 10 years, but this does not fail to highlight the extraordinary nature of these events.

Transport is also subject to accidents with environmental consequences. In 2016, there were 21 road accidents with possible environmental damage, just one more than the previous year. There have been no noteworthy maritime accidents involving spillages, beyond small discharges and pollution caused by vessel operations.



Fatal victims due to natural disasters

- Flooding is the natural disaster that has caused most victims since 1995 (26.7% of the total), followed by victims on land through storms at sea (20.3% of the total). Between 1995 and 2016 natural disasters caused a total of 1268 fatal victims.



- The number of fatal victims caused by natural disasters fell in 2016 by 29 people compared to the previous year.

Droughts

- The State Meteorological Agency (AEMET) rated 2016 as a wet year overall in Spain.



- Mean rainfall in 2016 was around 682 mm, 5% higher than the normal value according to the reference period (1981-2010).

Forest fires

- In 2016, there were 8817 fires, affecting an area of 65816.7 hectares.
- In 2016, there was a decrease in the number of fires and burned area in Spain, with the ratio between hectares and number of fires decreasing by 14% compared to the mean over the previous 10 years.



- The North-West region of mainland Spain was the area most affected by forest fires in 2016.

Road and rail accidents with possible environmental damage

- 21 road traffic accidents involving hazardous material were recorded in 2016.
- To date there have been 706 events affecting the environment since 1997. Of these, 75.7% affected soil, 13.2% affected water courses and 11.1% affected the atmosphere.



Industrial accidents involving hazardous substances

- In 2016, 9 accidents caused through industrial activity within the Seveso Directive were registered.
- This is the highest figure in the last 10 years, during which 35 accidents happened.
- By autonomous communities, Catalonia was where most accidents happened, with 20 accidents in the period between 1987 and 2016.



Extraordinary risks: compensation as a result of flooding and storms

- Floods and storms are the main extraordinary risks for compensation. Flooding accounted for 61.3% and storms 19.8% of the total between 1971 and 2015.
- Incidence on compensations in 2015 was higher than in 2014 in the case of flooding (35.7%) and lower in the case of storms (69.8%).





Fatal victims due to natural disasters

Number of fatal victims in Spain due to natural disasters 1995-2016

Natural disaster	1995-2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Floods	237	9	11	6	6	12	9	15	5	2	17	10	339
Storms	147	9	3	4	12	6	2	1	7	5	3	1	200
Forest fires	72	8	1	1	11	9	12	10	1	4	3	1	133
Landslides	21	5	2	1	2	2	3	0	2	0	0	3	41
Heat stroke	95	23	9	3	6	16	6	6	4	0	33	8	209
Avalanches	28	0	0	4	3	11	2	0	4	0	1	1	54
Episodes of snow and ice	20	0	0	0	1	1	1	0	0	0	0	2	25
Deaths on land during sea storms	202	No data	2	5	2	5	2	7	9	18	2	4	258
Earthquakes	0	0	0	0	0	0	9	0	0	0	0	0	9
TOTAL YEAR	822	54	28	24	43	62	46	39	32	29	59	30	1268

Source: DGPCE. MI

- **Flooding is the natural disaster that has caused most victims since 1995 (26.7% of the total), followed by victims on land through storms at sea (20.3% of the total). Between 1995 and 2016 natural disasters caused a total of 1268 fatal victims.**
- **The number of fatal victims caused by natural disasters fell in 2016 by 29 people compared to the previous year.**

Although Spain is not one of the countries that is most affected by these phenomena, there is a number of fatal victims every year due to natural disasters.

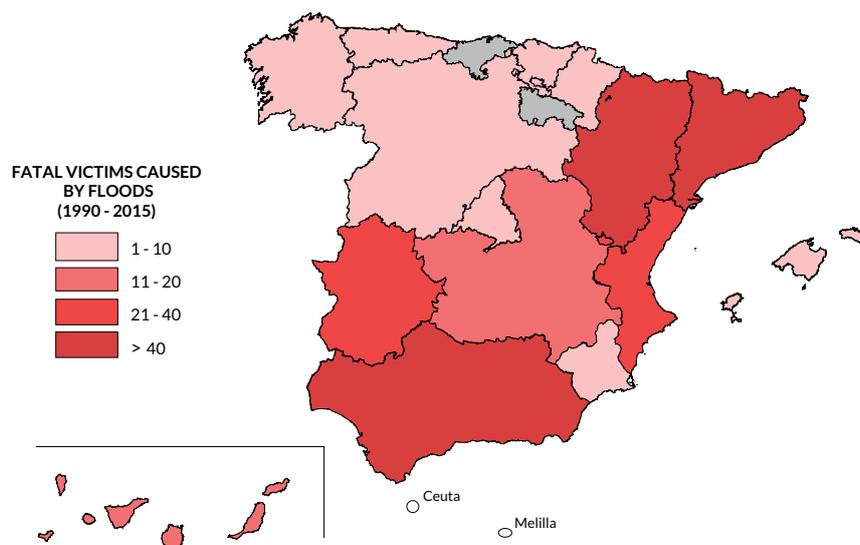
The evolution of the number of natural disasters and their distribution by disaster type does not follow any pattern over the years, owing to the irregular nature of the phenomena themselves. Between 1995 and 2016, there have been a total of 1268 deaths in Spain due to natural disasters.

In 2016 floods were the most common cause of fatal victims due to natural disasters (33.3% of the total). The next natural risk causing most victims is heat stroke (26.7% of the total deaths in 2016).

Since 1995 floods have been the natural disaster that most deaths have caused in Spain, 26.7% of the total. This is followed by deaths on land due to sea storms (20.4%), heat stroke victims (16.5%) and storms (15.8%). The number of deaths due to forest fires is lower (10.5%), followed by the rest of the natural phenomena, with percentages below 4.3%. The deaths caused by earthquakes were those in Lorca in 2011.



Fatal victims in floods 1990-2016



Source: DGPCCE.

As mentioned previously, the natural disaster that has caused most fatal victims during the period and in 2016 was flooding. By autonomous communities, there were four deaths in Andalusia, three in Valencia, two in Catalonia and one in Murcia in the last year.

During the period between 1995 and 2016 the distribution of fatal victims due to flooding by autonomous community indicates that Aragon, Andalusia and Catalonia are the regions with most victims, with 24.7%, 23.9% and 15.1% respectively. In Cantabria, La Rioja, Ceuta and Melilla there have not been any fatal victims from flooding during that period.

Indicator definition:

The indicator refers to the evolution of the number of fatal victims as a result of the various types of natural disasters occurred in Spain.

Notes on methodology:

- Comments on certain natural processes.
 - The landslides that have caused victims in Spain are closely related to periods of heavy rainfall which have caused flooding. Most landslides took place at the same time as the rain or shortly afterwards as a result thereof.
 - Deaths through storms at sea refer to victims on land due to falls, large waves, etc. This does not include victims at sea (floundering, falls, etc.) caused by this type of phenomena.
 - Volcano eruptions and droughts are excluded from the analysis, since although they can take place in our country, they have never given rise to fatal victims during the considered period, even though droughts are recurring events. The only region in Spain with active volcanic activity where there is a risk associated with this type of processes is the Canary Islands. The last eruptions were the Chinyero's (a lateral volcano of Teide) in Tenerife in 1909, Nambroque's in 1949 and Teneguia in 1971, both on La Palma island, and the underwater volcano on El Hierro in October 2011.
- Data adjustment.
 - There were no deaths on-shore due to sea storms reported in 2005 and 2006.
 - The 2015 data have been updated, concerning floods, landslides and heat waves (verified with data supplied by the Ministry of Health, Social Services and Equality).
- The UNISDR Disaster Reduction Strategy assesses legislation and the level of prevention and threat before the natural disasters in over 150 countries. This report underscores that the principal natural catastrophes that threaten Spain are droughts, earthquakes and floods, and positions Spain as the fifth country with most drought risk.

Source:

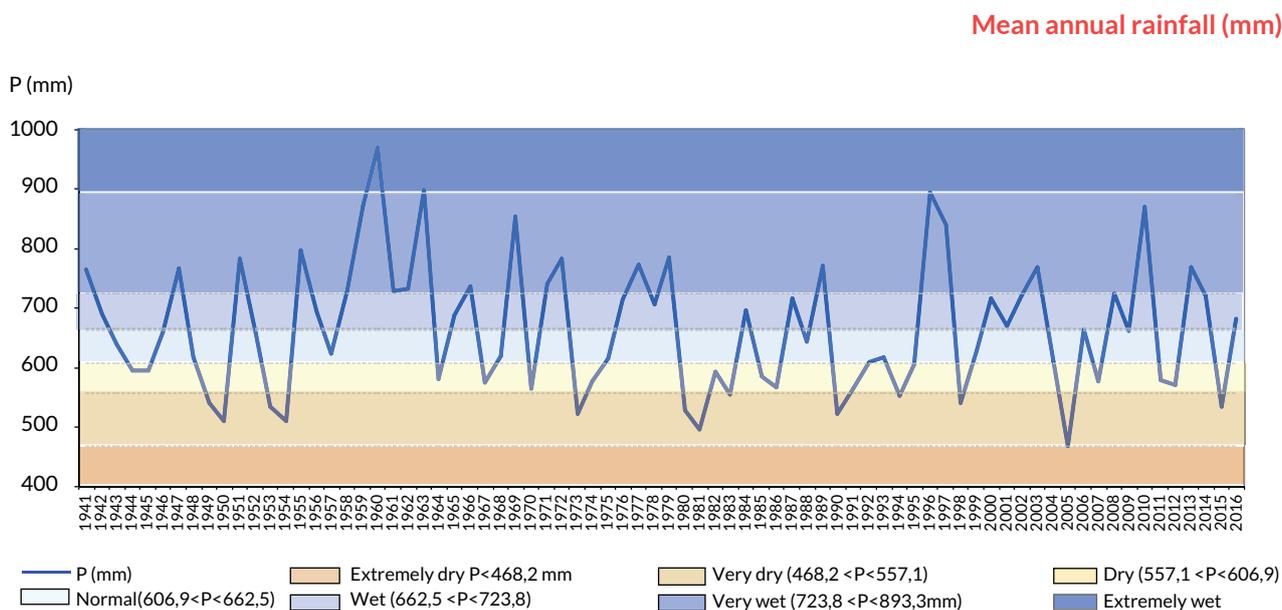
Subdirectorato General of Planning, Operations and Emergencies. Directorate General of Civil Defense and Emergencies. Ministry of Home Affairs.

Websites of interest:

- <http://www.proteccioncivil.es/web/dgpcye/riesgos>
- http://ec.europa.eu/research/environment/index_en.cfm?pg=hazards



Periods of drought



Source: AEMET. MAPAMA

- **AEMET rated 2016 as an overall wet year in Spain as a whole.**
- **Mean rainfall in 2016 was around 682 mm, 5 % higher than the normal value according to the reference period (1981-2010).**

Mean yearly rainfall in Spain was 682.0 mm in 2016, accounting for an increase of 27.5% compared to the previous year. This rainfall level was 2.5% higher than the mean for the period between 1941 and 2016.

Rainfall is unevenly distributed in Spain, although it is related to the topography of the land. In general, rainfall diminishes from north to south, and is higher on the Atlantic side than on the Mediterranean side.

In 2016 the normal rainfall values were exceeded in nearly all mainland Spain, by 25% in the center of Aragon, southeast of Castilla and Leon, northern Extremadura, a large part of Murcia, Granada, Albacete, southern Majorca and northern Fuerteventura.

According to mean rainfall values, each year can be rated according to percentiles established by the State Meteorological Agency (AEMET) for the period between 1981 and 2010.

Percentage of years rated according to mean rainfall (1941-2016)

Extremely Dry $P < 468,2$	Very Dry $468,2 < P < 557,1$	Dry $557,1 < P < 606,9$	Normal $606,9 < P < 662,5$	Wet $662,5 < P < 723,8$	Very Wet $723,8 < P < 893,3$	Extremely Wet $P > 893,3$
1.3	15.8	18.4	17.1	17.1	27.6	2.6

Source: AEMET. MAPAMA



2016 was a wet year, with a significant difference over the previous year which was rated as very dry (535.1 mm). Most of the rainfall took place during the first five months of the year. Spring was a very wet season through practically all the territory, exceeding the mean in March, April and May. The summer months were very dry, as is common in warm Mediterranean climates, characteristic of Spain, with August being the driest month. The Autumn was a dry season in general, despite higher than average rainfalls being recorded in November, which was rated as a wet month. Finally, December was the month with most variations, both in terms of time and space. The rainfall in the east and south of the peninsula increased threefold, whereas in the north and center of the country rainfall was 25% below the mean values.

Concerning temperatures, 2016 was a very hot year in Spain. It was the fifth hottest year in the 21st century. The mean temperature was 15.8°C, exceeding the normal temperature value between 1981-2010 by 0.7°C.

Indicator definition:

The indicator compares mean annual rainfall for the period spanning 1941-2016 with the mean situation established for a 30 year reference period (1981-2010) leading to the generic rating of degrees of dryness / wetness according to rainfall.

Notes on methodology:

The 2016 value (682 mm) is provisional. At the end of 2017 the definitive value will be available and it most likely will be higher than 682 mm.

For AEMET, the 1981-2010 (30 years) reference period is representative of the rainfall pattern and permits establishing the following intervals and determining the generic rating for each year according to mean rainfall:

- Extremely dry (< 468.2): rainfall is less than the minimum value in the period.
- Very dry (≥ 468.2 and < 557.1): rainfall is higher than or equal to the minimum value recorded in the reference period and less than percentile 20 for the period.
- Dry (≥ 557.1 and < 606.9): rainfall is higher than or equal to percentile 20 and less than percentile 40 for the period.
- Normal (≥ 606.9 and < 662.5): rainfall is higher than or equal to percentile 40 and less than percentile 60.
- Wet (≥ 662.5 and < 723.8): rainfall is higher than or equal to percentile 60 and less than percentile 80 for the period (664 mm < p ≤ 747 mm).
- Very wet (≥ 723.8 and < 893.3): rainfall is higher than or equal to percentile 80 and less than the maximum value for the period.
- Extremely wet (≥ 893.3): rainfall is equal to or higher than the maximum value in the period.
- The shortage of rainfall (drought) can lead to insufficient water resources (water shortage) necessary to supply current demand. Therefore there is no universally accepted definition of drought, since this differs from one place to another, each different water user having its own view.

The EU clearly differentiates between “drought” as a temporary reduction in the availability of water due to lack of rainfall, and “water shortage” when the demand for water exceeds the exploitable water resources under sustainable conditions.

Source:

Data supplied by the Climatology and Operating Applications Area of the State Meteorological Agency (AEMET). MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment).

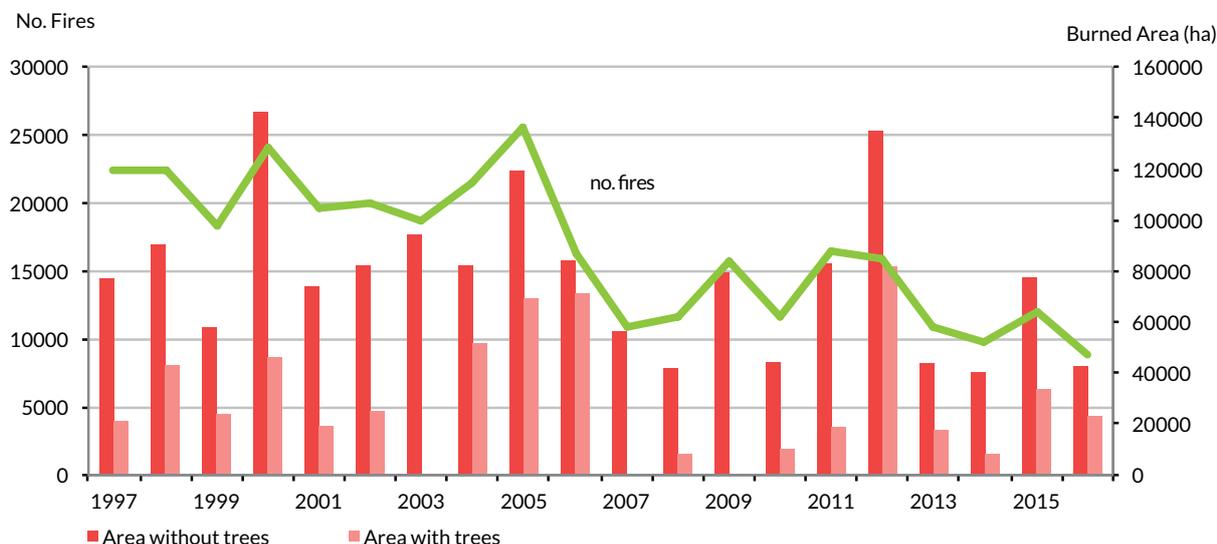
Websites of interest:

- www.aemet.es
- https://www.ign.es/espmmap/mapas_clima_bach/pdf/Clima_Mapas_05texto.pdf
- http://www.aemet.es/documentos/es/serviciosclimaticos/vigilancia_clima/resumenes_climat/anuales/res_anual_clim_2016.pdf



Forest fires

Burned forest area and number of fires, 1997-2016



Source: Forest fires in Spain. MAPAMA

- In 2016, there were 8817 fires, affecting an area of 65816.7 hectares.
- In 2016 the number of fires and burned area in Spain decreased, with the ratio between hectares and number of fires decreasing by 14% compared to the mean over the previous 10 years.
- The North-west region of mainland Spain was the area most affected by forest fires in 2016.

The provisional statistics on forest fires in 2016 elaborated by MAPAMA recorded a total of 8817 fires (26.2% less than in 2015). Of these fires, 66% were small fires (area < 1 ha) and the remaining 34% were large fires (area \geq 1 ha). This is a significant decrease in the number of fires, with 2016 being the year with the least number since 1987. Compared to the mean number of fires in the previous 10 years, this is 28.8% less.

The total burned area in 2016 was 65816.7 hectares. This figure is also lower than the mean for the last 10 years (107334 ha). By establishing the ratio between the burned area (ha) and the number of fires, the mean annual area is obtained, which for 2016 stood at 7.5. In addition to a lower number of fires, the burned area was also reduced.

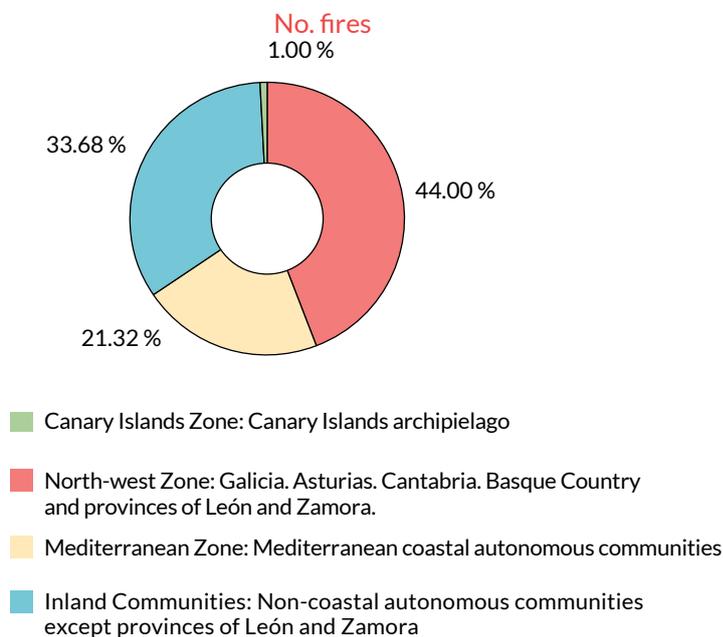


Forest fires: ten year period 2006-2015 and 2016

	Ten-year Mean 2006-2015	2016
No. small fires (< 1 ha)	8662	6479
No. large fires (> 1 ha)	4464	2338
Total fires	13126	8817
Forest area with trees (ha)	32102.06	23173.92
Forest area (ha)	57520.12	36204.69
% burned area / % national forest	0.366	0.239
No. major fires	23	22

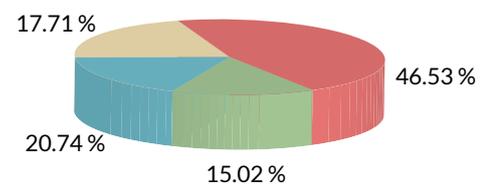
Source: MAPAMA

By autonomous communities, the number of fires (including small and large fires) and the burned area (woody and herbaceous) reduced in 2016 in nearly all areas compared to the previous year, except in the east of mainland Spain (Catalonia, C. Valencia and the Balearic Islands). Galicia and Castilla y León were the autonomous communities where there were most fires (27.2% in Galicia and 15.2% in Castilla y León) and burned area (32.1% in Galicia and 16.9% in Castilla y León).

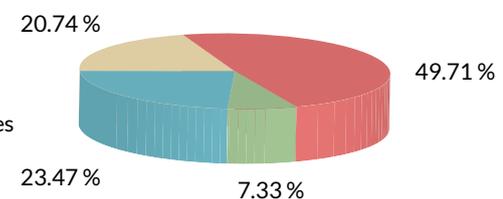


Fires and burned areas in 2016

Area Burned woodland



Area Total burned forest area



Source: MAPAMA

According to the provisional statistics provided by the competent services of each autonomous administration, in 2016 there were 22 Major Forest Fires (MFF), with this category defined as fires exceeding burned areas over 500 ha. In total, MFFs accounted for 49.43% of the total burned area. The biggest fires were in El Paso (La Palma), where 4793.63 hectares were burned on 3rd August; Entrimo (Ourense) with 2999.50 hectares burned on 6th September, and Fabero (León) with 2620.88 ha in the fire on 12th September.

**Indicator definition:**

The indicator shows the number of forest fires in the year (period between 1st January and 31st December). The number of fires includes small fires (less than or equal to 1 ha) and large fires (over 1 ha).

Notes on methodology:

- Owing to the great diversity of Spain's territory, conditioned by the weather, topography, vegetation and socio-economic factors, fires are analyzed geographically and four regions are defined in which territories with certain similarities are grouped together. The proposed regions are:
 - Northwest Region: This includes the autonomous communities of Galicia, Asturias, Cantabria, Basque Country and the provinces of León and Zamora.
 - Mediterranean Region: This includes the Mediterranean coastal autonomous communities, including their inland provinces.
 - Canary Islands: Includes the entire Canary Island archipelago.
 - Inland Communities: This covers the rest of the non-coastal communities, except León and Zamora.

Source:

"Los incendios forestales en España, 1 de enero-31 de diciembre de 2016. Avance informativo". Ministry of Agriculture and Fisheries, Food and Environment.

Websites of interest:

- http://www.mapama.gob.es/es/desarrollo-rural/estadisticas/iiff_2016_def_tcm30-381214.pdf





Road and rail accidents **with possible environmental damage**

Accidents with possible environmental damage during transport of hazardous goods by road and rail, 1997-2016

	1997-2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Road	483	48	45	47	25	26	21	28	10	20	21	774
Railway	37	2	1	0	0	0	0	0	3	0	0	43
TOTAL	520	50	46	47	25	26	21	28	13	20	21	817

Source: DGPE. MI

- *In 2016, 21 road traffic accidents involving the transport of dangerous material were recorded.*
- *To date since 1997, there have been 706 events affecting the environment. Of these, 75.7% affected soil, 13.2% affected water courses and 11.1% affected the atmosphere.*

Technological and industrial development of society entails certain risks stemming from new substances and products.

Because of the number of accidents involving transport of some of these dangerous substances, the conditions to be met by these goods were regulated.

The number of substances rated as “hazardous” is very high. The “Orange Book” (2015) by the United Nations Economic Commission for Europe (UNECE) lists the 3000 most important substances from an economic, danger and socio-economic importance point of view. Throughout the period between 1997 and 2016, there were a total of 817 road and rail accidents with possible environmental effects. Of these, 94.7% were road accidents and only 5.3% were rail accidents.

In 2016 there were 21 accidents, all on the road. These figures exceed the number of accidents the previous year by one. In the last ten years (2007-2016) 297 accidents were recorded, with a mean of almost 30 accidents per year with possible environmental damage. In view of this data, the number of accidents compared to the mean has fallen since 2010.

In addition to the number of accidents involving possible damage, we also need to consider the type of damage to the environment. The type of environmental damage that can be caused by accidents involving dangerous goods transport have been defined as damage to the atmosphere, water and soil. Since 1997 to date, there have been 706 registered cases of damage, of which 75.7% was soil contamination, 13.2% damage to water contamination and the remaining 11.1% refers to pollution of the atmosphere.

The distribution by type of damage in the period between 1997 and 2016 is as shown in the following table:



No. of cases of possible environmental damage during transport of dangerous goods, 1997-2016

	1997-2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Atmospheric pollution	57	8	4	5	7	7	5	4	1	4	2	104
Water pollution	78	7	8	2	4	7	5	2	2	4	4	123
Soil pollution	454	43	39	44	18	21	18	23	10	18	18	706

Source: Directorate General of Civil Defense and Emergencies. Minister for Home Affairs

Indicator definition:

The indicator studies the evolution of the number of accidents with possible environmental damage by mode of transport (road and rail).

Notes on methodology:

- Dangerous goods in road and rail accidents are considered to be those which could entail risks for the population, objects and the environment in the case of accidents during transport. It is considered there is a risk of possible environmental damage when a leak or spillage is reported (either to soil, water or the atmosphere) that could be pollutant.
- The total number of cases with possible environmental damage may not coincide with the total number of accidents, since the same accident may cause damage to more than one area, for example a spillage may cause damage to soil and water.

Source:

Data supplied by the General Directorate of Civil Defense and Emergencies. Minister for Home Affairs.

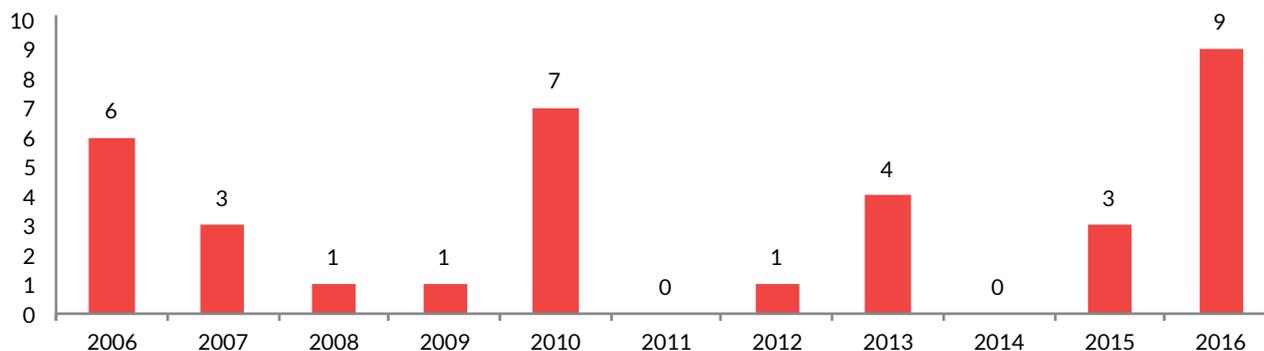
Websites of interest:

- <http://www.proteccioncivil.es/riesgos>



Industrial accidents involving hazardous substances

Evolution of the number of accidents in industrial activities within the Seveso Directive



Source: DGPCE. MI

- *In 2016, 9 accidents caused through industrial activity within the Seveso Directive were registered.*
- *This is the highest figure in the last 10 years, between 2007 and 2016, during which 29 accidents happened.*
- *By autonomous communities, Catalonia was where most accidents happened, with 20 accidents in the period between 1987 and 2016.*

The succession of accidents and disasters in Europe led to the establishment of a regulatory framework in the European Union to control and prevent accidents and disasters in industry.

This is the so-called Seveso Directive, named after the accident in the Italian town of Seveso in 1976. This Directive is currently regulated under Directive 2012/18/EU of the European Parliament and of the Council of 4th July 2012, regulated by Royal Decree 840/2015.

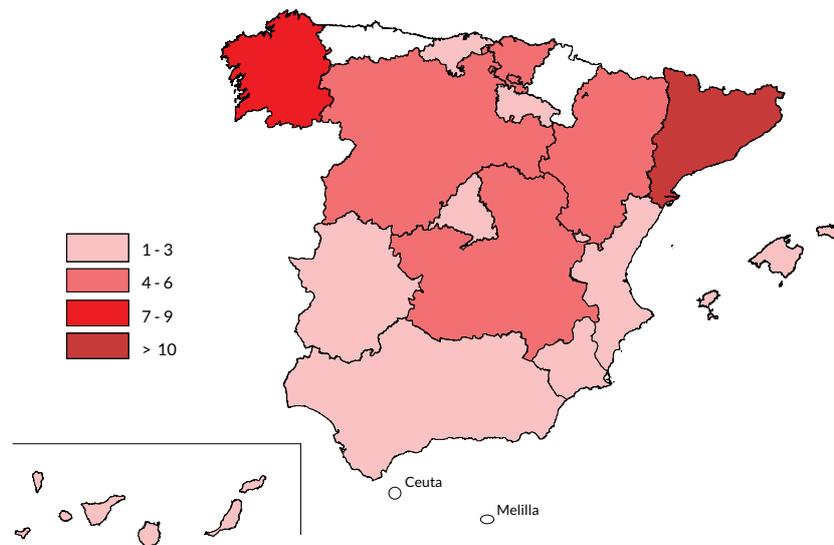
In the last 30 years (1987-2016) in Spain, there have been 58 accidents within the scope of the Seveso Directive. The highest number of accidents was in Catalonia, where 20 were recorded (32.8% of the total), followed by Galicia with a total of nine accidents (15.5% of the total).

In 2016, there was a total of nine accidents, three in Castilla-La Mancha, two in Catalonia and one in Aragón, Galicia, Balearic Islands and La Rioja. The number of accidents in 2016 was the highest in the last 10 years in Spain (2007-2016), during which period the mean number of accidents was three.

These figures prove that these are extraordinary accidents, both in terms of the circumstances and the number. Nevertheless, in the long-term there is an aspect that could establish a relationship concerning the number of industrial accidents, i.e. the territorial factor, linked to significant industrial activity in the different Spanish regions.



Accidents by industrial activity within the scope of the Seveso Directive (1987-2016)



Source: DGPCE. MI

Indicator definition:

The indicator shows the evolution in the number of industrial accidents in activities included within the scope of the Seveso Directive.

Notes on methodology:

- The so-called Seveso Directive is developed through successive European directives repealing and substituting the previous one. Seveso I. The Seveso Directive was approved on the basis of the Directive 82/501/EEC with the aim of preventing serious industrial accidents involving hazardous substances, promoting the safety of workers and limiting the impact of accidents of this type on the population and the environment. Seveso II. The Directive 96/82/EC on control of risks inherent to serious accidents involving dangerous substances has the aim of preventing this type of accidents and reducing the consequences of effects on people's health and the environment. The novelties were mainly to increase the scope to cover a higher number of activities and substances, to standardize the protection levels to EC scale, and the need for further information, among others. Seveso III. Directive 2012/18/EU on control of major accident hazards involving dangerous substances, was transposed to Spanish legislation on 1st June 2015. The main novelties are the adaptation to changes in the classification system of chemical substances and products (Regulation 1272/2008, Regulation CLP on classification, labeling and packaging of substances and mixtures), and adaptation to the requirements of the Aarhus Convention. Moreover, it establishes new inspection requirements (the obligation of implementing an annual, on-site inspection program at establishments with high risk in the event of accidents, and every three years at others), and also updates the activities and substances that are covered by the new regulations, with these obligations now binding more companies.
- Major accidents: any event, such as emissions in the form of leaks or spillages, serious fire or explosions that are the results of an uncontrolled process during operation of any establishment to which the Seveso Directive is applicable, and which poses a serious risk, either immediate or deferred, to people, things and the environment, whether inside or outside the establishment, and in which one or more dangerous substances are involved. The existence of other types of accidents must be noted, which are no less serious and which are damaging to the environment although they are not covered by the Seveso Directive. These include those at mining facilities, such as the collapse of the Aznalcóllar dam (Seville) in April 1998.

Source:

Data supplied by the General Directorate of Planning, Operations and Emergencies. Directorate General of Civil Defense and Emergencies. Minister for Home Affairs.

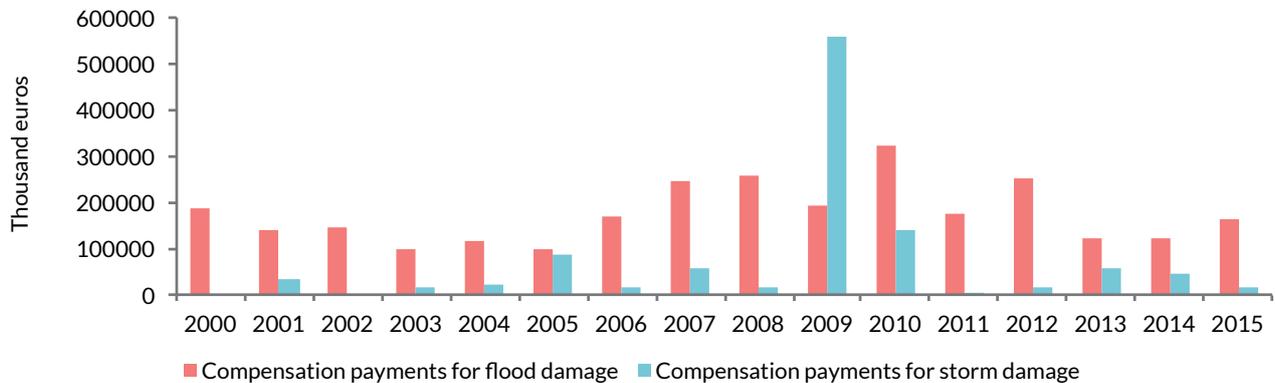
Websites of interest:

- <http://www.proteccioncivil.es/riesgos>



Extraordinary risks: compensations prompted by floods and storms

Evolution of compensations paid out for floods and storms (thousand euro)



Source: Insurance Compensation Consortium

- **Floods and storms are the main extraordinary risks for their compensations. Flooding accounted for 61.3% and storms 19.8% of the total between 1971 and 2015.**
- **Incidence on compensations in 2015 was higher than in 2014 in the case of flooding (35.7%) and lower in the case of storms (69.8%).**

During the period between 1971 and 2015, the Insurance Compensation Consortium resolved a total of 1.27 million claims. Of these, floods and storms accounted for 92.3% of the claims, and 81.1% of compensation payments, although with different participations.

The number of claims concerning both risks is similar, since in that period 621968 claims were filed for storms (49.0% of the total) and 551432 for flooding (43.3% of the total). It must be taken into account that until 1987 the types of damage through storms were considered. Nevertheless, despite the number of claims being similar in both cases, compensation payments for flooding tripled that of storms (floods 61.3% of the total, and storms 19.8%).

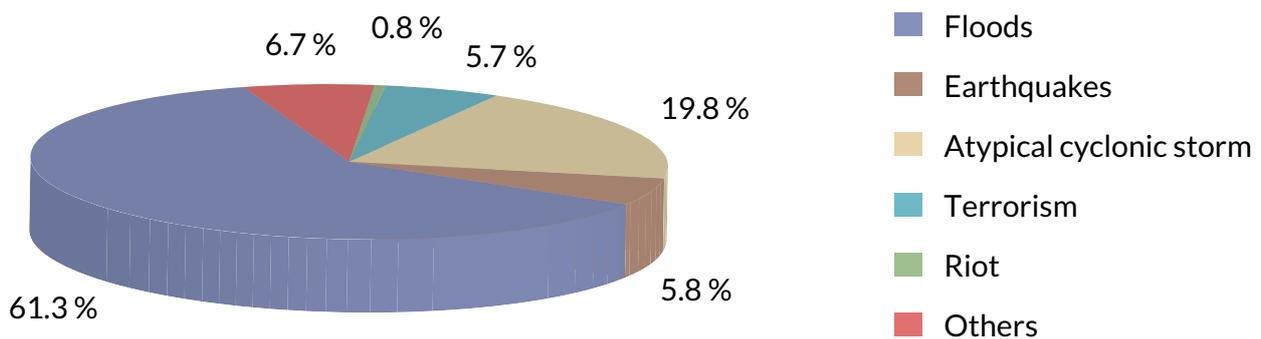
This shows that flooding is the extraordinary risk that has the highest economic repercussion, far higher than storms, despite the fact that the number of associated claims is similar for both cases (other risks are way below these figures). Only in 2009 was there an exception caused by storm "Klaus", when storm compensation payments doubled those of flooding.

In 2015, 31999 flood claims were resolved for the value of 163.76 million euro, and 10056 storm-related claims for the value of 14.03 million euro. Compared to 2014, this is a slight increase, with similar mean costs for each type of risk. Floods were 50% higher than the previous year, and storms were one third higher than in 2014. Compared to the period spanning 1971 to 2015, the mean costs are around half.



The rest of the extraordinary risks account for less than 6% of the total of each category between 1971 and 2015, with participation in the number of claims being approximately half in terms of amount (less still for the miscellaneous category). The most extreme case is the fall of astral bodies and meteorites, which in that period gave rise to just 3 claims and compensation payments of 99423 Euro.

**Distribution of compensation payments by cause.
Series 1971-2015**



Source: Insurance Compensation Consortium

Indicator definition:

The indicator shows the evolution of compensation payments by the Insurance Compensation Consortium as a result of floods and storms.

Notes on methodology:

The Insurance Compensation Consortium is established as a public business entity, whose legal framework is defined by Royal Legislative Decree 7/2004 of 29th October, approving the Amended Text of the Legal Statutes of the Insurance Compensation Consortium. Its function is to compensate for damages caused to people and goods by certain natural phenomena and other events stemming from political or social events.

The events included in the cover of "extraordinary risks" are those whose recurrence is in no way foreseeable (either in frequency or intensity) and therefore are enormously variable in terms of their consequences, with a high probability of accumulations, both in time and space.

Direct damage from rain, hail and snow covered by the Consortium until 1987 (and which are currently limited to flooding actually taking place) are included in the cause "Atypical Cyclonic Storm". The "Others" category used in the compensation distribution graph includes "Falling of Astral Bodies and Meteorites", "Mutiny", "Events and Action by the Armed Forces" and "Miscellaneous".

Source:

ESTADÍSTICA. Riesgos extraordinarios. Serie 1971-2015. Insurance Compensation Consortium. Ministry of Economy and Competitiveness.

Websites of interest:

- https://www.conorseguros.es/web/documents/10184/44193/Estadistica_Riesgos_Extraordinarios_1971_2014/14ca6778-2081-4060-a86d-728d9a17c522





Information by Autonomous Communities: Basic Data



INFORMATION BY AUTONOMOUS COMMUNITY: 3 **BASIC DATA**

This section of the Environmental Profile of Spain includes detailed information about a number of selected indicators by autonomous community, thus complying with the most important objectives of the publication. This complements the analysis that has been carried out in the preceding chapters, and whenever possible, includes references to the European Union and also to the autonomous communities. Nevertheless, this latter was not possible for all the indicators, and therefore including a specific section to incorporate environmental and socio-economic information of interest for that territory is a way of enhancing the information contained in this publication.

This information is presented in the form of descriptive sheets with data from the regional governments of the autonomous communities and from the General State Administration departments and their organizations and institutions.

The contents are in line with the structure used in previous years, comprising three main blocks, although each year there are variations in accordance with the suggestions and proposals from the EIONET Network, of the European Environment Agency. This network, through its Regional Focal Points, is also in charge of supplying information from each autonomous community.

The three information blocks are the following:

- Geographical, administrative and socio-economic information.
- Environmental information referring to: soil, nature, waste, water, air quality, electricity consumption and environmental participation.
- Complementary environmental information, including environmental reports and publications, and links of interest to the websites of the relevant autonomous communities.

The objective of this chapter is to provide information about the situation in each autonomous community concerning the variables and indicators, thus obtaining an



individual picture that should not be used to establish a *ranking* or comparisons between the regions. The reason for this is, as stated previously, that a large amount of information is supplied by the autonomous community itself, and both the features and contents of the variables and the estimation or calculation methods may vary, meaning that even though the information refers to the same variable or indicator, it may not be comparable.

Each of the variables included in each block of the information sheets, cite the information source by means of simple references (MAPAMA, INE, REE, etc.). The appendix at the end of this chapter provides a detailed discussion of the information sources used, and the route to follow in order to consult the website when this information is available. Only in the information received from the Regional Focal Point has the source been specified in detail in the variable itself.

The year the data is taken from is also stated, which is always the same year when the information is from a state department source. If the information has been obtained from an autonomous community, the year could be different. This must be taken into account in order to avoid comparisons, as mentioned earlier. In general terms, the year the information refers to is stated in the table title or header, although in the case of the information referring to another year, this has been indicated by stating the year between brackets following the figure.

The final section of complementary information is set out as a free section where the Regional Focal Points have highlighted any environmental information they have deemed to be of interest. The initial structure provides three key information points: references to the environmental reports by the autonomous communities, websites about environmental themes and other noteworthy information that the different communities believe are worthy of special mention.

It has only been possible to configure these contents thanks to the collaboration by the Regional Focal Points of the Spanish EIONET Network, which have actively contributed to defining the contents to be included, and have also supplied the required information.



ANDALUSIA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 2/2007, of 19th March

Surface area (INE): 87599 km²

Average length of coast: 2138.4 km (20.8% of Spain's total)

Capital: Seville **Provinces:** 8 **Cities / Towns:** 771

Population (2016): 8388107 inhabitants

Population Density (2016): 95.1 inh/km²

Variation in inhabitants (%) 2000-2016: 14.3 / **2015-2016:** - 0.1



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Andalusia	8.7	8.8	5.7	76.8
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
12.8	27.8	31.5	28.9
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
56.4	58.6	58.8	57.8
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Andalusia	5.1	11.5	5.6	68.6
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Andalusia	11032	77.9	0.0
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
38.1	34.6	27.7	24.9
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Andalusia	1.2	2.6	45.2	50.3	0.7
Spain	0.8	2.6	41.7	54.7	0.2
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)					

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
Andalusia	28	28
Source: Inventario Andaluz de Suelos Contaminados. Appendix II 22/2011, on waste and contaminated soils. Consejería de Medio Ambiente y Ordenación del Territorio (CMAOT). Junta de Andalucía		

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Andalusia	2825341.5	77552.2	2902893.7	2608356.4	68398.1	2676754.5	2606988.9	68774.5	2675763.5
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Andalusia	1529087.2	34803.8	1563891.0	139787.5	6278.9	146066.4	37877.7	46174.0	84051.8
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)									

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1 ha)	Fires (> 1 ha)	Total (Wooded + herbaceous)	Wooded			Herbaceous*
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Andalusia	611.0	146.0	3361.2	1066.2	2295.0	3361.2	0.0
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1
*No available data on herbaceous area Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)							

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2015	457.3 (1)	10.8	11.3	9.9	-	-

(1): excluding sorted waste collection
Source: Consejería de Medio Ambiente y Ordenación del Territorio y ECOEMBES para papel-cartón y envases

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Andalusia	142	139	127	120	126	-35.7	5.0	196
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³), 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
45.6	39.7	7.4	4.4	2.9	68
PM10: average annual concentration (µg/m ³), 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	19.7	44.3	36.1	0.0	61
PM2.5: average annual concentration (µg/m ³), 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
4.0	32.0	32.0	20.0	12.0	25
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³), 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
10.7	53.6	35.7			56

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Andalusia	4.843	4.745	4.699	4.524	4.468	4.603	4.691	-3.14
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline < 1 month	Replied within deadline > 1 month	Not replied to
294	168	126	0

Source: Consejería de Medio Ambiente y Ordenación del Territorio. Junta de Andalucía

ENVIRONMENTAL REPORTS

- Annual Report on the Environment in Andalusia (IMA 2015)
- Medio Ambiente en Andalucía. Datos Básicos 2016
- El clima de Andalucía en el siglo XXI. Escenarios locales de cambio climático de Andalucía

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE

AUTONOMOUS COMMUNITY

- www.juntadeandalucia.es/medioambiente/site/web/rediam
- www.juntadeandalucia.es/medioambiente/rediam/IMA
- www.juntadeandalucia.es/medioambiente/rediam/indicadores_ambientales
- <http://laboratorioirediam.cica.es/VisorRediam/>
- <http://laboratorioirediam.cica.es/>

RELEVANT DATA OR INFORMATION

- Traveling exhibition "Andalucía, una visión desde el espacio".
- The General Plan for Sustainable Tourism of Andalusia Horizon 2020 (Environmental Report), is published.
- Andalusia attended the Climate Summit (COP22) in Marrakech, from 7th to 18th November 2016, once again emphasizing its commitment to the fight climate change.
- The climate records for 2016 give the following figures: rainfall: 547 litres per square meter, 3% higher than the reference average; average temperatures were 16.5°C, 0.5°C higher than the average for the period between 1971 and 2000.
- In 2016 "Characterization of Vegetation Formations and Land Cover in Andalusia" was made available on the REDIAM Channel (Environmental Information Network of Andalusia) aimed to provide information about vegetation in Andalusia and the characteristic habitats in this region.
- The Autonomous Community of Andalusia is home to 22% of the world's reproductive birds, with 110 pairs registered in 2016.
- Data on the Lynx for 2016 are: number of territorial females: 101. Number of cubs: 102. Total population: 397. On the other hand, there was an increase in the number of Spanish Imperial Eagles in 2016 of 8.8% over 2015, with a minimum of 111 nesting pairs.
- The Bearded Vulture Re-introduction Project developed by the Environment and Territorial

Planning Council of Andalusia has the aim of releasing young birds through the *hacking* system, in order to achieve an autonomous, stable population of this species in the region. The number of pairs in 2016, a total of two, was maintained compared to the previous year.

- Red Andaluza de Jardines Botánicos y Micológicos, coordinated by the Laboratorio de Propagación Vegetal (LPV) is carrying out a program to collect germplasm of endangered plant species.
- In 2016 CMAOT (Consejería de Medio Ambiente y Ordenación del Territorio) received total joint funding from Europe of €168,126.72 for subsidized competitive projects.
- The total protected surface area in Andalusia in 2016 was 2,825,347.2 ha, 32.25% of the total territory of Andalusia. This does not include partial territorial overlaps between different areas, or marine areas.
- In 2016 the natural areas included in the Natural Protected Areas Network of Andalusia (RENPA) were categorized as follows: 163 areas were listed in accordance with national or regional legislation; 252 European areas in the Natura 2000 Network and 43 areas were listed through international instruments. The protected areas in the Natura 2000 Network cover the largest area, approximately 2.8 million hectares, accounting for 32.25% of the total area of Andalusia.
- At the end of 2016 the number of wetlands included in the Wetlands Inventory of Andalusia amounted to 205. 71.5% of these areas were within the Protected Areas Network of Andalusia (RENPA).
- In 2016 9 areas were listed as Special Areas of Conservation (SAC) in the European Natura 2000 Network. Consequently, from 23 SAC listed at the end of 2013, there were 149 at the end of 2016, with only 40 out of the 189 Sites of Community Importance (SCI) remain to be listed by the European Commission.
- 91% of the analyzed days by the different monitoring networks around the region of Andalusia, confirm an adequate status, compared to 9% that do not. Nevertheless, results are slightly worse than in previous years, owing to the high levels of particles smaller than ten microns and the ozone levels.



ARAGÓN

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 8/82, of 10th August.

Amendment approved by Organic Act 5/2007 of 20th April

Surface area (INE): 47720 km²

Capital: Zaragoza **Provinces:** 3 **Cities / Towns:** 731

Population (2016): 1308563 inhabitants

Population density (2016): 27.4 inh/km²

Variation in inhabitants (%) 2000-2016: 10.0/ **2015-2016:** -0.7



Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Aragón	6.5	19.0	5.9	68.7
Spain	4.2	13.8	5.9	76.2

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Aragón	5.2	21.9	5.3	58.4
Spain	2.3	16.1	5.1	67.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
5.3	15.0	16.3	14.7
2016 Average in Spain 19.6			

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Aragón	15315	108.1	0.0
Spain	14166	100.0	1.1

EMPLOYMENT RATE			
2007	2010	2015	2016
59.4	58.8	58.8	59.3
2016 Average in Spain 59.2			

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
23.4	23.8	18.4	19.5
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Aragón	0.7	1.1	43.5	54.7	0.1
Spain	0.8	2.6	41.7	54.7	0.2
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)					

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
Aragón	10	4
Source: Dirección General de Sostenibilidad del Departamento de Desarrollo Rural y Sostenibilidad del Gobierno de Aragón.		

NATURE

PROTECTED AREAS, YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Aragón	1414123.6	0.0	1414123.6	168264.1	0.0	168264.1	1361299.3	0.0	1361299.3
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Aragón	117265.3	0.0	117265.3	16700.9	0.0	16700.9	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)									

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Aragón	220.0	75.0	915.2	309.9	605.3	915.2	0.0
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1
No differentiation between herbaceous and wooded cleared areas Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)							

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2014	372.9	17.1	12.6	12.8	-	-

Source: Directorate General of Environmental Quality

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Aragón	154	141	129	135	129	130	-15.6	0.8
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES						
NO ₂ : average annual concentration (µg/m ³). 2015						
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015	
30.0	70.0	0.0	0.0	0.0	10	
PM10: average annual concentration (µg/m ³). 2015						
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015	
0.0	60.0	40.0	0.0	0.0	10	
PM2.5: average annual concentration (µg/m ³). 2015						
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015	
0.0	60.0	40.0	0.0	0.0	5	
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015						
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015	
20.0	66.7	13.3			15	

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Aragón	7.852	7.727	7.587	7.501	7.613	7.817	7.974	1.55
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
16,240	16,214	24	2

Source: Servicio de Personal, Asuntos Generales e Información. Departamento Desarrollo Rural y Sostenibilidad

ENVIRONMENTAL PUBLICATIONS

- Estado del Medio Ambiente en Aragón
- Aragón "Surcos al Natural" magazine
- Publications by the Consejo de Protección de la Naturaleza
- Pirineo Digital.com
- Endangered Species of Aragón Catalog leaflets
- Leaflets "Líneas de Actuación" from the Servicio de Biodiversidad
- Fishing season leaflets
- Information leaflets on protected natural species

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_InformacionDATosAmbientales?channelSelect-ed=de0890292fb3a210VgnVCM100000450a15acRCRD
- http://aragon.es/estaticos/GobiernoAragon/Departamentos/AgriculturaGanaderiaMedioAmbiente/TEMAS_MEDIO_AMBIENTE/AREAS/INFORMACION_DATOS_AMBIENTAL-ES/InformeEstadoMedioAmbienteAragon/AGMA_INFORME_MA_2015.pdf
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_Atmosfera?channelSelect-ed=11b736552883a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_Biodiversidad?channelSelect-ed=4ab736552883a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_CambioClimatico?channelSelected=af-c736552883a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_EducacionSensibilizacion?channelSelected=f-1f736552883a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_RedNaturalAragon?channelSelect-ed=ac4890292fb3a210VgnVCM100000450a15acRCRD
- http://www.aragon.es/DepartamentosOrganismosPublicos/Departamentos/DesarrolloRuralSostenibilidad/AreasTematicas/MA_Residuos?channelSelected=0b5890292fb3a210VgnVCM100000450a15acRCRD



ASTURIAS

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 7/81 of 30th December

Surface area (INE): 10604 km²

Average length of coast: 656.0 km (6.4 % of Spain's total)

Capital: Oviedo **Provinces:** 1 **Cities / Towns:** 78

Population (2016): 1042608 inhabitants

Population density (2016): 98.3 inh/km²

Variation in inhabitants (%) 2000-2015: -3.2 / **2015-2016:** -0.8



Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Asturias	3.5	14.9	5.2	76.4
Spain	4.2	13.8	5.9	76.2

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Asturias	1.3	19.6	6.1	63.8
Spain	2.3	16.1	5.1	67.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
8.4	15.9	19.1	17.6
2016 Average in Spain 19.6			

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Asturias	14528	102.6	0.9
Spain	14166	100.0	1.1

EMPLOYMENT RATE			
2007	2010	2015	2016
50.5	51.8	51.0	51.7
2016 Average in Spain 59.2			

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
20.5	22.2	13.6	16.8
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Asturias	0.3	2.3	24.8	72.6	0.1
Spain	0.8	2.6	41.7	54.7	0.2
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)					

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
Asturias	1	4
Source: Consejería de Infraestructuras, OT y Medio Ambiente		

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Asturias	352583.8	19816.5	372400.2	235824.5	4108.1	239932.6	285027.1	19813.2	304840.3
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Asturias	244725.0	98.2	244823.3	2214.3	365.3	2579.6	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)									

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded		Total wooded	Herbaceous
				Trees	Thicket and scrubland		
Asturias	466.0	164.0	1544.5	231.2	1306.5	1537.7	6.8
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)							

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2015	481.7	53.1	34.6	10.0	169.6	-

Source: Infrastructure, Territorial Planning and Environment Council / COGERSA

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Asturias	183	156	150	128	122	134	-26.8	9.8
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES						
NO ₂ : average annual concentration (µg/m ³). 2015						
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015	
18.2	59.1	13.6	9.1	0.0	22	
PM10: average annual concentration (µg/m ³). 2015						
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015	
0.0	19.0	61.9	14.3	4.8	21	
PM2.5: average annual concentration (µg/m ³). 2015						
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015	
0.0	37.5	50	12.5	0.0	8	
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015						
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015	
76.2	23.8	0.0			21	

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Asturias	9.946	10.134	9.597	9.750	9.713	9.958	10.102	1.56
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

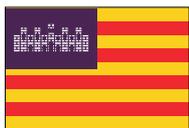
Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

ENVIRONMENTAL PUBLICATIONS

- 2015 Environmental Profile of Asturias

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <https://www.asturias.es/porta1/site/medioambiente/>
- <http://www.cogersa.es/>



BALEARIC ISLANDS

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 2/83 of 25th February (Official State Journal 51 of 1st March 1983), drafted as per Organic Act 1/2007 of 28th February
Surface area (INE): 4992 km²
Average length of coast: 1330 km (12.9 % of Spain's total)
Capital: Palma de Mallorca **Provinces:** 1 **Cities / Towns:** 67
Population (2016): 1107220 inhabitants
Population density (2016): 221.8 inh/km²
Variation in inhabitants (%) 2000-2015: 30.9 / **2015-2016:** 0.2



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Balearic Islands	0.8	6.7	9.4	83.1
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
7.2	20.1	17.3	13.9
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
64.4	66.3	65.8	65.2
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
 Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Balearic Islands	0.4	6.8	5.3	78.2
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Balearic Islands	14410	101.7	1.1
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
39.7	36.5	32.1	26.7
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Balearic Islands	0.2	7.0	48.6	43.7	0.6
Spain	0.8	2.6	41.7	54.7	0.2
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)					

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
Balearic Islands	1	4
Source: Servicio de Residuos y Suelos Contaminados. DG Educación Ambiental, Calidad Ambiental y Residuos. Consejería de Medio Ambiente, Agricultura y Pesca		

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Balearic Islands	178403.6	107065.3	285468.9	74708.9	25680.9	100389.8	115437.1	106462.6	221899.7
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Balearic Islands	70087.9	1749.2	71837.2	3169.4	174.3	3343.7	1315.1	8771.8	10086.9
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)									

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (<1ha)	Fires (>1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Balearic Islands	95.0	18.0	229.6	86.1	76.2	162.3	67.3
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)							

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2015	699.4	37.0	29.5	17.1	265.0	-

Source: Informe de coyuntura del Estado del Medio Ambiente 2014-2015. Servicio de Calidad Ambiental. DG Educación Ambiental, Calidad Ambiental y Residuos. Consejería de Medio Ambiente, Agricultura y Pesca

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Balearic Islands	143	120	124	132	141	124	-13.3	-12.1
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
82.4	11.8	0.0	5.9	0.0	17
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	86.7	13.3	0.0	0.0	15
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
0.0	66.7	33.3	0.0	0.0	3
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
11.8	76.5	11.8			17

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Balearic Islands	5.280	5.160	5.201	5.104	5.062	5.248	5.267	-0.24
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
2595	2595	0	0

Source: Servicio de Calidad Ambiental. DG Educación Ambiental, Calidad Ambiental y Residuos. Consejería de Medio Ambiente, Agricultura y Pesca

ENVIRONMENTAL PUBLICATIONS

- Informes de Estado del Medio Ambiente de Baleares

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- Regional Government: www.caib.es
- Special data: www.ideib.es
- Majorca Council: www.conselldemallorca.net
- Majorca Council: www.cime.es
- Ibiza Council: www.conselldeivissa.es
- Formentera Council: www.consellinsulardeformentera.cat

RELEVANT DATA OR INFORMATION

- 25 años de la declaración del Parque Nacional Marítimo-Terrestre del Archipiélago de Cabrera
- Primer Libro Rojo de los pescados de las Islas Baleares
- Se reabre el centro ornitológico La Gola
- Confirmados positivos de *Xylella fastidiosa*
- Borrador del Plan especial de actuaciones en situación de alerta y eventual sequía en las Islas Baleares (PESIB)
- Anteproyecto de Ley de declaración del Parque Natural des Trenc-Salobrar de Campos
- Presentación al Ministerio de un avance de medidas previstas por Consejería de Medi Ambient, Agricultura y Pesca para la recuperación de aves marinas amenazadas
- Decreto ley 1/2016, de 12 de enero, de medidas urgentes en materia urbanística BOIB núm. 006 Ext. de 2016
- Decreto 4/2016, de 29 de enero, que califica de utilidad pública la lucha contra la plaga del Picudo rojo de la palmera (*Rhynchophorus ferrugineus*, Olivier), BOIB núm. 015 de 2016
- Ley 2/2016, de 30 de marzo, del impuesto sobre estancias turísticas en las Islas Baleares y de medidas de impulso del turismo sostenible BOIB núm. 042 de 2016, y Decreto 35/2016, de 23 de junio, que la despliega, BOIB núm. 081 de 2016
- Decreto 22/2016, de 22 de abril, que regula medidas para la diversificación de los sectores pesquero y acuícola en las Illes Balears, BOIB núm. 051 de 2016
- Decreto legislativo 1/2016, de 6 de mayo, que aprueba el texto refundido de la Ley 9/1991 reguladora del canon de saneamiento de aguas, BOIB núm. 057 de 2016
- Decreto 34/2016, de 17 de junio, por el que se declara la situación de sequía extraordinaria en la isla de Ibiza, BOIB núm. 077 de 2016
- Ley 12/2016, de 17 de agosto, de evaluación ambiental de las Illes Balears, BOIB núm. 106 de 2016
- Decreto 62/2016, de 7 de octubre, que establece la Reserva Marina del Freu de sa Dragonera, BOIB núm. 128 de 2016
- Decreto 71/2016, de 16 de diciembre, que regula las actividades de extracción de flora o fauna marinas y las actividades subacuáticas en la Reserva Marina del Llevant de Mallorca, BOIB núm. 158 de 2016



CANARY ISLANDS

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 10/82, of 10th August

Surface area (INE): 7447 km²

Average length of coast: 1485 km (14.4 % of Spain's total)

Capital: Las Palmas de Gran Canaria and Santa Cruz de Tenerife

Provinces 2 Cities / Towns: 88

Population (2016): 2101924 inhabitants

Population density (2016): 282.3 inh/km²

Variation in inhabitants (%) 2000-2015: 22.5 / 2015-2016: 0.1



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Canary Islands	2.4	5.0	4.9	87.7
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
10.5	28.6	29.1	26.1
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
60.9	61.9	61.9	61.1
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Canary Islands	1.5	7.1	4.6	77.5
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Canary Islands	11827	83.5	-0.8
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
30.8	29.8	23.8	21.9
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Canary Islands	0.2	5.2	18.5	76.1	0.0
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Canary Islands	575613.5	83816.3	659429.8	302037.6	37173.2	339210.8	347952.3	13358.3	361310.6
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Canary Islands	467647.0	364799.4	832446.4	95.2	0.4	95.6	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Canary Islands	77.0	11.0	4,824.1	3,481.9	1,325.1	4,807.0	17.1
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Canary Islands	152	151	152	151	143	144	-5.3	-0.7
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
61.2	30.6	6.1	2.0	0.0	49
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	16.1	58.9	21.4	3.6	56
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
18.6	69.8	9.3	2.3	0.0	43
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
92.9	7.1	0.0			42

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Canary Islands	4.199	4.171	4.198	4.070	4.076	4.128	4.176	-0.54
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline < 1 month	Replied within deadline > 1 month	Not replied to
47	23	17	7

Source: Environmental Information Service - Vice-Council of the Environment

ENVIRONMENTAL PUBLICATIONS

- Estado del Medio Ambiente en Canarias. [Informes de coyuntura](#)

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://www.gobiernodecanarias.org/medioambiente/piac/>
- <http://www.tenerife.es/portalcabte/es/temas/medio-ambiente-de-tenerife>
- <https://www.santacruzdetenerife.es/vtAnaga/anagaweb.html>
- <http://www.involcan.org/>
- <http://www.tenerifemassostenible.es/>
- <http://www.tenerifeeduca.es/>
- <http://www.observatoriodelpaisajedecanarias.es/>
- <http://www.paisajetenerife.es/>
- <http://paisajedegrancanaria.idegrancanaria.es/paisajec/web/>
- <http://observatorios.plocan.eu/index.php/es/caracterizacion-ambiental>
- <http://www.iter.es/portafolio-items/procivmac/>
- <http://visor.grafcan.es/visorweb/default.php?svc=svcEPAM&lat=28.3&lng=-15.799999999999955&zoom=8&lang=es>
- <http://www.laorotava.es/centro-de-educacion-ambiental-ceam>
- <http://www.museosdetenerife.org/museos-de-tenerife/pagina/ver/publico-adulto>
- <http://www.cabildodelanzarote.com/temas.asp?idTema=255&tema=Pol%EDtica%20Territorial,%20Medio%20Ambiente%20y%20Aula%20de%20la%20Naturaleza>
- <http://lanzaroterrecicla.net>
- <http://www.canalgestionlanzarote.es/matildatoallitas/>
- <http://www.lanzarotebiosfera.org/>
- <http://www.geoparque Lanzarote.org/>
- <http://auladenaturalezademaguez.com/>
- <http://www.memoriadelanzarote.com/listado.php?m=tema&Tema=24&Tema=Territorio%20y%20medio%20ambiente&Tpadre=&Tpadrec=&f=IMAG>
- http://www.cabildodelapalma.es/portal/contenedor_tema.jsp?seccion=cuerpo_contenedor_tema.jsp&language=es&codResi=1&codMenuPN=457&codMenu=484&layout=contenedor_tema.jsp&ca=23&layout=contenedor_tema.jsp
- <http://www.senderosdelapalma.es/>
- <http://www.lapalmabiosfera.es/>
- <http://anterior.lagomera.es/index.php/desarrollo-del-territorio>
- <http://www.biosferalagomera.com/>
- <http://cabildo.grancanaria.com/medio-ambiente-aguas-y-sostenibilidad>
- <http://www.fotosantiguascanarias.org/oaistore/opac/categorias.php?grupo=0007>
- <http://www.sociedadatlanticadeoceanografos.org/sao>
- <http://www.eduambiental.org/>
- <http://www.cabildofuer.es/cabildo/areas-tematicas-medio-ambiente/>
- <http://gestion.cabildofuer.es/fuerteventurabiosfera/>
- <http://82.199.33.32:8081/GViewers/ViewerHTML/ElHierro/?showLogo=0>
- <http://www.elhierrogeoparque.es/>
- <http://www.goronadelviento.es/index.php>
- <http://www.fundacionforesta.es/index.php>
- <http://www.fundacioncanariasrecicla.org/>
- <http://www.neotropico.org/index.php>
- <http://www.fundacionciab.com/>
- <http://fundacionorotava.org/>
- <http://www.canariasconservacion.org/>
- <https://www.seo.org/canarias/>
- <http://www.oag-fundacion.org/>
- <http://www.iac.es/>

RELEVANT DATA OR INFORMATION

- The Canary Islands Environmental Information System (SIMAC) is the principal reference to access environmental information produced in the Canary Islands. Moreover, it permits interaction with the Administration and citizen participation in environmental issues and uniform, centralized management of the environmental information produced in the Canary Islands.
- Canary Islands Environmental Information System (SIMAC)
- <http://www.gobiernodecanarias.org/medioambiente/piac/temas/>



CANTABRIA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 8/1981 of 30th December, on the Autonomous Statute of Cantabria
Surface Area (INE): 5321 km²
Average length of coast: 615.0 km (6.0% of Spain's total)
Capital: Santander **Provinces:** 1 **Cities / Towns:** 102
Population (2016): 582206 inhabitants
Population density (2016): 109.4 inh/km²
Variation in inhabitants (%) 2000-2015: 9.6 / **2015-2016:** -0.5



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Cantabria	3.1	15.8	6.9	74.2
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
6.0	13.7	17.7	14.9
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
56.6	56.1	56.1	56.1
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
 Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Cantabria	1.3	19.8	6.3	63.4
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Cantabria	13888	98.0	1.3
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
22.0	23.9	9.7	10.3
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Cantabria	1.0	4.1	26.4	68.2	0.4
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
Cantabria	0	23

Source: Council of Universities, Research, Environment and Social Policy

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Cantabria	151033.8	1868.5	152902.3	150991.7	1868.4	152860.1	145807.8	1855.5	147663.2
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Cantabria	14965.9	0.0	14965.9	5602.2	1076.8	6678.9	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded		Herbaceous	
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Cantabria	59.0	145.0	1285.5	256.6	1009.0	1265.6	19.9
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2014	543.9	16.2	17.2	8.6	172.1	-

Source: Public company MARE y Gestores

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Cantabria	193	170	158	151	144	152	-21.2	5.6
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
9.1	72.7	18.2	0.0	0.0	11
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	36.4	63.6	0.0	0.0	11
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
0.0	100.0	0.0	0.0	0.0	5
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
62.5	37.5	0.0			8

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Cantabria	7.374	7.541	7.408	7.409	7.341	7.259	7.246	-1.73
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
3078	2509	566	3

Source: Council of Universities, Research, Environment and Social Policy

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- www.medioambientecantabria.es
- <http://participacion.cantabria.es>
- <https://www.airecantabria.com/>
- www.cantabria.es
- www.meteocantabria.es



CASTILLA Y LEÓN

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 14/2007
of 30th November, reform of the Autonomous Statute of Castilla y León
Surface Area (INE): 94224 km²
Capital: Valladolid **Provinces:** 9 **Cities / Towns:** 2248
Population (2016): 2447519 inhabitants
Population density (2016): 26.0 inh/km²
Variation in inhabitants (%) 2000-2015: -1.3 / **2015-2016:** -1.0



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
C. y León	7.3	17.0	6.5	69.3
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
7.1	15.8	18.3	15.8
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
53.7	55.1	54.8	55.1
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
C. y León	3.9	20.8	5.6	60.5
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
C. y León	14,040	99.1	0.6
Spain	14,166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
25.4	23.4	16.8	16.7
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
C. y León	0.5	1.3	47.1	51.1	0.0
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
C. y León	7	5 (3 others ongoing)

Source: Junta de Castilla y León

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
C. y León	2943171.2	0.0	2943171.2	760348.7	0.0	760348.7	2464998.0	0.0	2464998.0
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
C. y León	998642.0	0.0	998642.0	3040.3	0.0	3040.3	0.0	0.0	0.0
Spain	5544272.4	485267.4	6,029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
C. y León	918.0	426.0	11153.6	1770.8	7291.4	9062.2	2091.4
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2015	401.5 (1)	18.3	18	9.3	390.0 (2014) (2)	-

(1) Includes sorted collection of paper, glass and packaging. (2) 2014 data. Considers inbound waste at CDW (Construction & Demolition Waste) plants in Castilla y León from other autonomous communities, but does not include CDW produced in Aragón, which is transferred to other autonomous communities. Source: Junta de Castilla y León

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
C. y León	162	164	167	149	157	-166	2.5	5.7
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO ₂ : average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
57.6	30.3	9.1	3.0	0.0	33
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
5.9	79.4	14.7	0.0	0.0	34
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
10.0	80.0	10.0	0.0	0.0	10
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
2.9	88.2	8.8			34

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
C. y León	5.475	5.292	5.392	5.429	5.434	5.609	5.783	5.62
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
346	10	311	25

Source: Junta de Castilla y León

ENVIRONMENTAL PUBLICATIONS

- Educational guide "Sembrar educación ambiental".
- Cultivo de chopos en Castilla y León.
- Informe de medio ambiente 2013.

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://www.medioambiente.jcyles>
- <http://www.praecyl.es>
- <http://www.miespacionaturales.es>
- <http://www.cesefor.com>
- <http://www.avebiom.org>
- <http://www.patrimoniounatural.org>
- <http://www.populuscyl.es>
- <http://www.subastasdecaza.com>

RELEVANT DATA OR INFORMATION

On regulations

- Decree 14/2016, of 19th May, approving the Wolf Conservation and Management Plan in Castilla y León.
- Decree 6/2016, of 3rd March, amending the Town Planning Regulation in Castilla y León, adapting it to Act 7/2014 of 12th September, on measures pursuant to urban restoration, regeneration and renovation, and on sustainability, coordination and simplification of urban development.

On planning

- Agreement 35/2016, of 9th June by Castilla y León Regional Government, approving the Environmental Education Strategy for Castilla y León 2016-2020». (C&L Official Journal 13-06-2016)
- Agreement 64/2016, of 13th October, by Castilla y León Regional Government, approving the measures on sustainable development in Castilla y León.



CASTILLA-LA MANCHA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 9/82, of 10th August.

Surface area (INE): 79461 km²

Capital: Toledo **Provinces:** 5 **Cities / Towns:** 919

Population (2016): 2041631 inhabitants

Population density (2016): 25.7 inh/km²

Variation in inhabitants (%) 2000-2015: 17.7 / **2015-2016:** -0,9



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
C. La Mancha	6.8	16.0	7.6	69.6
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
7.7	21.2	26.4	23.6
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
56.7	58.3	58.6	58.5
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
C. La Mancha	6.0	19.6	6.4	58.8
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
C. La Mancha	11652	82.3	-0.7
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
36.8	33.4	22.3	20.8
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
C. La Mancha	0.5	1.1	53.1	45.1	0.2
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
C. La Mancha	0	0

Source: Viceconsejería de Medio Ambiente

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
C. La Mancha	2277662.9	0.0	2277662.9	582867.9	0.0	582867.9	1837533.3	0.0	1837533.3
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
C. La Mancha	418066.2	0.0	418066.2	10341.9	0.0	10341.9	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
C. La Mancha	445.0	211.0	3411.2	2117.5	609.4	2726.8	684.4
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2016	369.5	9.6	12.7	9.3	233.0	269.2

Data supplied by the SCRAP operating in CLM. MDW: reports by consortium and town halls. CDW IR: manager reports
Source: Vice-Council of the Environment

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
C. La Mancha	174	148	152	142	140	125	-28.2	-10.7
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
55.6	44.4	0.0	0.0	0.0	9
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
12.5	25.0	37.5	25.0	0.0	8
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
20.0	60	20	0.0	0.0	5
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
0.0	57.1	42.9			14

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
C. La Mancha	5.759	5.673	5.665	5.536	5.605	5.619	5.768	0.16
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
462	416	45	1

Source: Vice-Council of the Environment. Agriculture, Environment and Rural Development Council

ENVIRONMENTAL PUBLICATIONS

- Integrated Waste Management Plan. <http://www.castillalamancha.es/sites/default/files/documentos/pdf/20170103/20161220pigr.pdf> (Dec. 2016)
- Flora protegida y de interés del Parque Natural de los Calares del Mundo y de la Sima
- Fishing in Castilla-La Mancha 2016 leaflet.
- Hunting in Castilla-La Mancha leaflet. 2016-2017 season. Hunting periods and special closed seasons.
- El Tajo, un río de contrastes
- La niña, el río y la golondrina

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://www.castillalamancha.es/gobierno/agrimedambydesrur>
- <http://www.castillalamancha.es/tema/medio-ambiente/calidad-ambiental>
- <http://www.castillalamancha.es/tema/medio-ambiente/medio-natural>
- <http://areasprotegidas.castillalamancha.es/>
- <http://www.castillalamancha.es/tema/medio-ambiente/cambio-clim%C3%A1tico-0>
- <http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/dgapfyen/actuaciones/red-natura-2000tramitación-de-planos-de-gestión-y-declaración-de-zec>
- <http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/dgapfyen/actuaciones/planes-de-recuperación-del-Aguila-perdicera>

RELEVANT DATA OR INFORMATION

- The Vice-Council of the Environment participates as a partner in the BIOREGIO (2017-2021) international project, encompassed in the Interreg Europe program, <http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/vicmedamb/actuaciones/proyecto-bioregio-interreg-europe>
- Energy saving and efficiency: <http://www.castillalamancha.es/gobierno/economiaempresasempleo/actuaciones/ahorro-y-eficiencia-energética>
- Environmental Education Programs: <http://www.castillalamancha.es/gobierno/agrimedambydesrur/estructura/vicmedamb/actuaciones/educación-ambiental>



CATALONIA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 6/2006, of 19th July, on the reform of the Autonomous Statute of Catalonia

Surface area (INE): 32113 km²

Average length of coast: 811.9 km (7.9 % of Spain's total)

Capital: Barcelona **Provinces:** 4 **Cities / Towns:** 947

Population (2016): 7522596 inhabitants

Population density (2016): 234.3 inh/km²

Variation in inhabitants (%) 2000-2015: 20.1 / **2015-2016:** 0.2



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Catalonia	1.6	18.3	5.8	74.3
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
6.5	17.7	18.6	15.7
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
63.3	63.8	62.3	62.0
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Catalonia	1.0	19.2	4.3	66.3
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Catalonia	16,522	116.6	2.3
Spain	14,166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
33.2	28.9	22.2	18.9
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Catalonia	0.6	6.1	30.9	62.2	0.1
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
Catalonia	60	52

Source: Catalonia Waste Agency

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Catalonia	1226470.9	93045.3	1319516.2	1025809.9	85938.4	1111748.3	982693.3	85917.4	1068610.7
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Catalonia	337925.5	80617.2	418542.7	52963.4	705.7	53669.1	10871.2	3664.8	14536.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Catalonia	493.0	64.0	1,883.7	941.4	825.6	1,766.9	116.8
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2015	493.3	39.7	21.2	17.8	15.2	4,112,871 kg
Industrial waste data refers to: 3588285 kg (Industries) + 524586 kg (Waste Water Treatment Plant Sludge). Source: Catalonia Waste Agency.						

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Catalonia	163	130	127	123	117	118	-27.6	0.9
Spain	168	142	140	135	130	132	-21.4	1.5
Source: INE (National Statistics Institute)								

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES						
NO _x : average annual concentration (µg/m ³), 2015						
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015	
24.2	31.8	7.6	18.2	18.2	66	
PM10: average annual concentration (µg/m ³), 2015						
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015	
0.0	12.2	54.4	32.2	1.1	90	
PM2.5: average annual concentration (µg/m ³), 2015						
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015	
0.0	19.4	47.2	33.3	0.0	36	
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³), 2015						
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015	
0.0	55.2	44.8			29	
Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)						

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Catalonia	6.527	6.392	6.307	6.126	6.068	6.213	6.189	-5.19
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92
Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)								

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
12007	11468	521	18
Source: Environmental Information Service			

ENVIRONMENTAL PUBLICATIONS

- Informe sobre el estado del medio ambiente 2015. Y anteriores
- Data of the environment in Catalonia, 2016
- Informe sobre el estado del medio ambiente. Período 2006 - 2010
- Informe sobre el estado del medio ambiente. Período 2011 - 2015. (under preparation)

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://aca-web.gencat.cat/aca/appmanager/aca/aca/>
- <http://residus.gencat.cat/ca/index.html>
- <http://www.meteo.cat/>
- <http://agricultura.gencat.cat/ca/ambits/agricultura/>
- <http://icaen.gencat.cat/ca/inici/>

RELEVANT DATA OR INFORMATION

- In 2017 work began on the publication of the second pluri-annual report for the 2011-2015 period, in compliance, among others, with Act 27/2006 of 18th July, on access to Environmental Information. Moreover, the relevant Annual Environmental Report will be drafted with 2016 data and the publication "2017 Environmental Data for Catalonia", which has been published since 1993. In 2015 a new nature reserve was declared in Catalonia: Les Capçaleres del Ter i del Freser Nature Reserve. There are 184 protected areas in Catalonia, covering 32% of the regional territory. The Special Protected Areas in Catalonia cover 9.6% of the regional territory.



CEUTA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 1/1995, of 13th March on the reform of the Autonomous Statute of Ceuta

Surface area (INE): 20 km²

Average length of coast: 22.7 km (0.2 % of Spain's total)

Capital: Ceuta **Provinces:** 1 **Cities / Towns:** 1

Population (2016): 84519 inhabitants

Population density (2016): 4226.0 inh/km²

Variation in inhabitants (%) 2000-2015: 12.3 / **2015-2016:** 0.3



Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Ceuta	-	1.5	4.5	94.0
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
21.0	23.9	27.6	24.9
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
53.5	56.6	57.3	57.4
2016 Average in Spain 59.2			

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Ceuta	0.2	5.4	4.1	81.1
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Ceuta	12,104	85.4	0.0
Spain	14,166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
55.2	45.8	29.5	29.8
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Ceuta	630.5	836.2	1466.7	0.0	0.0	0.0	630.5	836.2	1466.7
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Ceuta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (<1ha)	Fires (>1ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Ceuta	0.0	1.0	3.0	0.0	3.0	3.0	0.0
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT(liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Ceuta and Melilla	141	151	156	109	106	105	-25.5	-0.9
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Ceuta	2.705	2.464	2.524	2.400	2.499	2.438	2.493	-7.85
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)



EXTREMADURA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 1/2011, of 28th January, on the reform of the Autonomous Statute of Extremadura

Surface area (INE): 41634 km²

Capital: Mérida **Provinces:** 2 **Cities/Towns:** 385

Population (2016): 1087778 inhabitants

Population density (2016): 26.1 inh/km²

Variation in inhabitants (%) 2000-2015: 1.7 / **2015-2016:**-0.5



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Extremadura	10.0	10.3	7.6	72.1
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
13.0	23.0	29.1	27.5
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
52.9	54.5	55.2	55.1
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Extremadura	5.9	13.2	6.9	64.8
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Extremadura	10641	75.1	-0.3
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
36.8	31.6	22.9	24.5
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Extremadura	2.0	0.8	31.8	65.4	0.0
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Extremadura	1426186.9	0.0	1426186.9	315463.4	0.0	315463.4	1263943.2	0.0	1263943.2
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Extremadura	376428.7	0.0	376428.7	6990.4	0.0	6990.4	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Extremadura	388.0	315.0	6364.5	709.0	2826.9	3535.9	2828.7
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2016	477.0	31.8	8.8	10.4	247.0	-

Source: www.extremambiente.gobex.es

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Extremadura	175	158	141	137	140	125	-28.6	-10.7
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³), 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
100.0	0.0	0.0	0.0	0.0	7
PM10: average annual concentration (µg/m ³), 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	100.0	0.0	0.0	0.0	13
PM2.5: average annual concentration (µg/m ³), 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
0.0	100.0	0.0	0.0	0.0	7
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³), 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
0.0	57.1	42.9			7

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Extremadura	4.508	4.253	4.412	4.408	4.218	4.424	4.557	1.09
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
8,530	7677	853	0

Source: http://extremambiente.juntaex.es

ENVIRONMENTAL PUBLICATIONS

- www.extremambiente.gobex.es
- www.observatorioclimatico.es
- www.repica.gobex.es

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://extremambiente.juntaex.es/>
- www.observatorioclimatico.es
- <http://xtr.gobex.es/repica/>

RELEVANT DATA OR INFORMATION

- Decree 23/2015 of 24th February, regulating the regime for agro-environmental and climate, and organic farming subsidies for agriculture compatible with protection and improvement of the environment in the region.
- Decree 38/2015 of 17th March, regulating feeding of certain wild fauna species with animal sub-products not for human consumption in the Autonomous Community of Extremadura.
- Decree 49/2015 of 30th March, regulating the legal regime of contaminated soils in the Autonomous Community of Extremadura.
- Decree 57/2015 of 7th April, declaring Castañar Gallego de Hervás a Protected Public Landscape.
- Environment approved the Extremadura Strategy against the illegal use of poisoned bait in the natural environment in order to end this problematic practice.
- Order of 25th March 2015 approving the Rector Plan for use and management of the Tajo International Nature Reserve.
- ACT 16/2015, of 23rd April, on Environmental Protection in the Autonomous Community of Extremadura.
- Decree 110/2015 of 19th May, regulating the European Natura 2000 Network in Extremadura, developing the regulation on the Natura Network (NN) as per Act 8/1998 of 26th June, on Conservation of Nature and Natural Areas of Extremadura and the relevant basic legislation.
- Decree 284/2015 of 16th October, establishing the regulatory basis for subsidies to Town Halls whose towns are within the Socio-economic Area of Influence of Monfragüe National Park, and the call for 2015-2016 subsidies.
- Resolution of 16th October 2015 by the Council, granting subsidies from the Cooperation Fund for the Integral Associations of Townships of Extremadura for 2015.
- Announcement of 24th June 2015 on notification for publication of the payment correction procedure for payment of subsidies for sustainable development in protected areas, protected species reproduction areas or important habitats, in relation to the call established in the Order of 21st May 2014.
- Announcement of 2nd September 2015 on notification for publication of the resolution of the loss of right to subsidies in the procedure for subsidies for sustainable development in protected areas, protected species reproduction areas or important habitats, in relation to the call established in the Order of 21st May 2014.
- Announcement of 12th August 2015 on notification for publication of the resolution of the loss of right to subsidies in the procedure for subsidies for sustainable development in protected areas, protected species reproduction areas or important habitats, in relation to the call established in the Order of 21st May 2014.



GALICIA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 1/1981, of 6th April on the reform of the Autonomous Statute of Galicia

Surface area (INE): 29575 km²

Average length of coast: 1890 km (18.4 % of Spain's total)

Capital: Santiago de Compostela **Provinces:** 4 **Cities / Towns:** 315

Population (2016): 2718525 inhabitants

Population density (2016): 91.9 inh/km²

Variation in inhabitants (%) 2000-2015: -0.5 / **2015-2016:** -0.5



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Galicia	6.9	15.6	6.9	70.7
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
7.6	15.3	19.3	17.2
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
54.0	54.2	53.5	53.5
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Galicia	4.9	18.2	6.4	61.4
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Galicia	13,098	92.5	2.1
Spain	14,166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
22.9	22.8	18.5	17.0
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Galicia	0.7	2.8	27.8	68.7	0.1
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Galicia	970116.7	37184.6	1007301.3	359415.6	39314.8	398730.4	355283.4	34569.8	389853.2
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Galicia	726535.4	2930.2	729465.6	4563.4	3108.3	7671.6	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Galicia	1872.0	1528.0	21112.2	8845.9	12266.3	21112.2	0.0
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

No differentiation between herbaceous and wooded cleared areas
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2016	407.9	12.7	15.2	8.4	193.3 (2015)	1502.9 (2015)

Source: Follow-up Report on the Galicia Urban Waste Management Plan 2010-2020 and follow-up report on the Galicia Industrial Waste Plan Galicia 2016-2022 (PRIGA)

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Galicia	154	131	132	132	119	129	-16.2	8.4
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES						
NO _x : average annual concentration (µg/m ³). 2015						
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015	
62.5	30.0	7.5	0.0	0.0	40	
PM10: average annual concentration (µg/m ³). 2015						
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015	
15.4	69.2	12.8	2.6	0.0	39	
PM2.5: average annual concentration (µg/m ³). 2015						
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015	
0.0	70.0	30.0	0.0	0.0	20	
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015						
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015	
48.1	51.9	0.0			27	

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Galicia	7.148	7.097	7.065	7.184	7.185	7.217	7.311	2.27
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
3745	3620	96	29

Source: Environmental Information System databases Xeral Sub-directorate for Residues

ENVIRONMENTAL PUBLICATIONS

- Informe anual de calidad de aire de Galicia 2015
- Ruido Ambiental 2016
- Estudio sobre el patrimonio cultural de la Reserva de la Biosfera Transfronteriza do Geres- Xurés. Book.
- Mapa Patrimonio da Reserva da Biosfera Transfronteriza do Geres-Xurés, Map. Galego
- Guía do Patrimonio Cultural da Reserva da Biosfera Transfronteriza Geres-Xurés. Book, Galego
- Baixa Limia Serra do Xurés parque y reserva d Biosfera: Galego and Spanish
- Parque Natural Fragas do Eume, políptico, Spanish and Galego
- Parque Natural das Fragas do eume. Book, Galego
- Fragas do Eume. Nature Park. English
- Parque Natural Fragas do Eume. Guía de la Flora. Galego
- Os camiños da Fraga: Guía de sendas do Parque Natural das Fragas do Eume. Galego
- Camiño dos Cerqueiros, Monfero. Brochure Galego
- Camiño de Fontardiño: As pontes, A Capela. Bochure, Galego
- Camiños dos Cumios de Sanguñedo, Monfero, Brochure, Galego
- Camiño de pasada Vella, Monfero. Brochure, Galego
- Camiño en bicicleta de Pena Fesa, Monfero. Brochure, Galego
- Parque Natural Complexo Dunar de Corrubedo e Lagoas de Carregal e Vixán. Brochure, Spanish, Galego
- The Nature Park Complexo Dunar de Corrubedo e Lagoas de Carregal e Vixán. Brochure, English
- Guía de la Flora del Parque Natural del Complejo Húmedo de Corrubedo e Lagoas de Carregal. Book, Spanish

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- Galicia Nature Park Network <http://parquesnaturais.xunta.gal/es>, Galicia Environmental Information System (SIAM) <http://siam.xunta.gal/portada>
- Galicia Waste Information System (SIRGA) <http://sirga.xunta.gal/>
- Galicia Geographical Information <http://mapas.xunta.gal/portada>



LA RIOJA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 3/1982, of 9th June on the reform of La Rioja

Surface area (INE): 5045 km²

Capital: Logroño **Provinces:** 1 **Cities / Towns:** 174

Population (2016): 315794 inhabitants

Population density (2016): 62.6 inh/km²

Variation in inhabitants (%) 2000-2015: 19.5 / **2015-2016:** -0.4



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
La Rioja	6.0	24.8	4.4	64.8
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
5.8	14.2	15.4	13.6
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
59.4	59.9	59.4	59.2
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
La Rioja	5.9	26.1	5.4	53.5
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
La Rioja	14772	104.3	1.4
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
29.7	27.2	21.1	21.5
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
La Rioja	0.5	2.4	35.5	61.7	0.0
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
La Rioja	0	0

Source: Directorate General of Environmental and Water Quality

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
La Rioja	258221.4	0.0	258221.4	167624.4	0.0	167624.4	167545.8	0.0	167545.8
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
La Rioja	119822.1	0.0	119822.1	86.1	0.0	86.1	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
La Rioja	35.0	12.0	93.1	54.0	39.1	93.1	0.0
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

No differentiation between herbaceous and wooded cleared areas
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2016	336.4	25.3	27.8	14.6	402.9	26.0

Source: Directorate General of Environmental and Water Quality

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
La Rioja	145	119	120	130	112	106	-26.9	-5.4
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
100.0	0.0	0.0	0.0	0.0	5
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	60.0	40.0	0.0	0.0	5
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
0.0	100.0	0.0	0.0	0.0	5
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
0.0	100.0	0.0			5

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
La Rioja	5.549	5.412	5.355	5.292	5.299	5.441	5.524	-0.45
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
302	296	6	0

Source: Dirección General de Medio Natural

ENVIRONMENTAL PUBLICATIONS

- "Páginas de Información Ambiental" magazine
- Guides to Biodiversity in La Rioja Collection (La Rioja Regional Government. 7 issues published)
- Map of Forests in La Rioja (La Rioja Regional Government)
- Colección Guías de campo de los espacios protegidos de La Rioja (La Rioja Regional Government. 2 issues published)

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://www.larioja.org/medio-ambiente/es>
- <http://www.larioja.org/care>
- <http://www.larioja.org/estadistica>
- <http://www.iderioja.larioja.org>

RELEVANT DATA OR INFORMATION

- La Rioja hosts the X Foro de Comunidades Autónomas sobre Suelos Contaminados.
- The Regional Government provides support to Ecoembes to implement a Circular Economy Laboratory in Logroño of European benchmark.
- La Rioja hosts the 3rd National Youth Conference "Let's Take Care of the Planet" which concludes with a request by young people for society to become involved in building an eco-sustainable future.
- La Rioja Regional Government approves the 2016-2026 Plan Director de Residuos 2016-2026



MADRID

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 3/1983, of 25th February on the Autonomous Statute of the Community of Madrid

Surface area (INE): 8028 km²

Capital: Madrid **Provinces:** 1 **Cities / Towns:** 179

Population (2016): 6466996 inhabitants

Population density (2016): 805.6 inh/km²

Variation in inhabitants (%) 2000-2015: 24.2 / **2015-2016:** 0.5



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Madrid	0.3	8.2	4.9	86.6
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
6.2	15.8	17.1	15.7
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
65.0	66.1	64.6	63.7
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Madrid	0.0	9.8	4.0	77.1
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Madrid	17943	126.7	2.4
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
26.4	22.3	18.3	15.6
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Madrid	0.9	16.4	28.0	54.6	0.0
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
Madrid	30	26

Source: Waste Planning and Management Department Directorate General for the Environment Environmental, Local Administration and Territorial Planning Council

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Madrid	330316.8	0.0	330316.8	120892.1	0.0	120892.1	319553.1	0.0	319553.1
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Madrid	62014.0	0.0	62014.0	487.6	0.0	487.6	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded		Herbaceous	
				Trees	Thicket and scrubland		
Madrid	35.0	12.0	93.1	54.0	39.1	93.1	0.0
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2015	328.8	12.7	12.1	20.4	347.6	28.6

To estimate industrial waste, the data for hazardous waste processed in the Community of Madrid has been considered, prepared from the annual reports filed by the waste managers.
Source: Área de Infraestructuras and Área de Planificación y Gestión de Residuos. Consejería de Medio Ambiente, Administración Local y Ordenación del Territorio.

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Madrid	160	139	140	135	131	131	-18.1	0.0
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³), 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
10.6	17.0	12.8	29.8	29.8	47
PM10: average annual concentration (µg/m ³), 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	46.4	53.6	0.0	0.0	28
PM2.5: average annual concentration (µg/m ³), 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
5.3	63.2	31.6	0.0	0.0	19
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³), 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
0.0	27.0	73.0			37

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Madrid	5.072	4.862	4.771	4.574	4.407	4.486	4.497	-11.34
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline < 1 month	Replied within deadline > 1 month	Not replied to
17802	17802	0	0

Source: Área de Información y Documentación Ambiental. Consejería de Medio Ambiente, Administración Local y Ordenación del Territorio.

ENVIRONMENTAL PUBLICATIONS

- Situation report "Diagnóstico Ambiental de la Comunidad de Madrid 2016": <http://www.madrid.org/bvirtual/BVCM003517.pdf>
- Hunting Rules in Madrid 2016-2017 leaflet
- Fishing Rules in Madrid 2016 leaflet

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://www.madrid.org>
- <http://www.madrid.org/legislacionambiental>
- <http://www.madrid.org/calidadelaire>
- http://www.madrid.org/cartografia_ambiental

RELEVANT DATA OR INFORMATION

- Autotaxi Madrid incentives, to promote gradual substitution of taxis in the Community of Madrid for low NO_x y CO₂ emissions models: 311 beneficiaries. Total subsidies awarded: €992000 (provisional as of 2017).
- Incentives for Efficient Light Goods, Auxiliary and Service Vehicles in the Community of Madrid (PIVCEM-Madrid), for gradual substitution of light goods vehicles in the Community of Madrid for low NO_x y CO₂ models: 214 beneficiaries. Total subsidies awarded: €702000 (provisional as of 2017).
- Presentation of the draft for the new Estrategia de Gestión Sostenible de Residuos de la Comunidad de Madrid 2017-2024.
- Presentation of the draft Protocolo Marco para Episodios de contaminación por NO_x de la Comunidad de Madrid
- Publication of the Territorial Information System (SIT) for the Community of Madrid (<http://www.madrid.org/cartografia/sitcm>), a cartographic viewer featuring information about the urban planning approach by the region, also including information about natural areas on the environmental cartography.
- Commemoration of the 25th anniversary of the Tren de la Naturaleza - an educational environment program in the Community of Madrid in collaboration with RENFE which uses an old electrical railway carriage to take citizens to the Guadarrama Mountains, and the 20th anniversary of the Arboreto Luis Ceballos environmental education center.
- Issue of 3521 inter-autonomic hunting and fishing permits - the second autonomous community in the issue of this type of permit.



MELILLA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 2/1995, of 13th March on the reform of the Autonomous Statute of Melilla

Surface area (INE): 12 km²

Average length of coast: 7.3 km (0.1 % of Spain's total)

Capital: Melilla **Provinces:** 1 **Cities / Towns:** 1

Population (2016): 86026 inhabitants

Population density (2016): 7168.8 inh/km²

Variation in inhabitants (%) 2000-2015: 29.8 / **2015-2016:** 0.5



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Melilla	-	3.7	2.8	93.5
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
18.2	22.8	34.0	30.8
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
55.8	54.1	57.3	58.6
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Melilla	0.1	4.9	4.2	81.7
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Melilla	10818	76.4	0.5
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
33.5	35.4	19.6	24.1
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Melilla	46.1	45.5	91.6	0.0	0.0	0.0	46.1	45.5	91.6
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Melilla	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded		Total wooded	Herbaceous
				Trees	Thicket and scrubland		
Melilla	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WATER

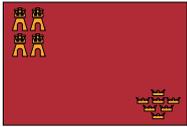
AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Ceuta and Melilla	141	151	156	109	106	105	-25.5	-0.9
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Melilla	2.801	2.738	2.691	2.506	2.484	2.495	2.421	-13.57
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)



MURCIA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 4/1982, of 9th June on the reform of the Autonomous Statute of the Region of Murcia

Surface area (INE): 11314 km²

Average length of coast: 271.6 km (2.6 % of Spain's total)

Capital: Murcia **Provinces:** 1 **Cities / Towns:** 45

Population (2016): 1464847 inhabitants

Population density (2016): 129.5 inh/km²

Variation in inhabitants (%) 2000-2015: 27.5/ **2015-2016:** 0.2



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Murcia	13.6	13.0	4.8	68.6
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
7.5	22.9	24.6	19.8
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
60.6	61.9	59.5	59.1
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Murcia	4.5	17.0	5.5	63.8
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Murcia	11291	79.7	-0.8
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
39.8	34.9	24.1	23.6
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Murcia	0.3	5.1	49.4	45.1	0.1
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Murcia	276955.7	27070.9	304026.6	62104.3	122.5	62226.8	266747.6	27070.0	293817.6
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Murcia	0.0	0.0	0.0	1686.2	13500.4	15186.6	1774.4	25728.6	27503.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Murcia	99.0	14.0	438.7	290.2	143.2	433.4	5.3
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Murcia	162	159	152	145	124	126	-22.2	1.6
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³), 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
12.5	62.5	12.5	0.0	12.5	8
PM10: average annual concentration (µg/m ³), 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	11.1	66.7	22.2	0.0	9
PM2.5: average annual concentration (µg/m ³), 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
0.0	0.0	100.0	0.0	0.0	1
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³), 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
28.6	42.9	28.6			7

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Murcia	5.697	5.663	5.838	5.648	5.774	6.079	6.215	9.09
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

ENVIRONMENTAL PUBLICATIONS

- Publications issued by the Directorate General of the Environment

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- [https://www.carm.es/web/pagina?IDCONTENIDO=64&IDTIPO=140&RASTRO=c\\$m](https://www.carm.es/web/pagina?IDCONTENIDO=64&IDTIPO=140&RASTRO=c$m)



NAVARRE

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 13/82 of 10th August, on reintegration and improvement of the Regional Regime of Navarre

Surface area (INE): 10391 km²

Capital: Pamplona **Provinces:** 1 **Cities / Towns:** 272

Population (2016): 640647 inhabitants

Population density (2016): 61.7 inh/km²

Variation in inhabitants (%) 2000-2015: 17.8 / **2015-2016:** 0.0



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Navarre	3.6	25.1	4.6	66.7
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
4.7	11.9	13.8	12.5
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
61.3	60.7	58.8	58.6
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Navarre	2.9	30.1	4.8	52.7
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Navarre	17513	123.6	1.0
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
17.9	16.9	11.8	10.8
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Navarre	0.5	2.6	39.7	57.2	0.0
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Navarre	288973.4	0.0	288973.4	83068.4	0.0	83068.4	280950.0	0.0	280950.0
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Navarre	39285.3	0.0	39285.3	315.8	0.0	315.8	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded			Herbaceous
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Navarre	143.0	80.0	1730.8	563.4	970.6	1534.0	196.7
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Navarre	135	125	132	126	112	111	-17.8	-0.9
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
42.9	42.9	14.3	0.0	0.0	7
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	100.0	0.0	0.0	0.0	7
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
0.0	66.7	33.3	0.0	0.0	3
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
14.3	71.4	14.3			7

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Navarre	7.720	7.704	7.445	7.411	7.460	7.562	7.752	0.42
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

ENVIRONMENTAL PUBLICATIONS

- Informe del Estado del Medio Ambiente: https://www.navarra.es/home_es/Temas/Medio+Ambiente/Informe+de+estado/

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- https://www.navarra.es/home_es/Gobierno+de+Navarra/Departamento+Desarrollo+Rural+Medio+Ambiente+Administracion+Local/
- https://www.navarra.es/home_es/Temas/Medio+Ambiente/



BASQUE COUNTRY

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Law 3/1979, of 18th December on the Autonomous Statute of the Basque Country

Surface area (INE): 7234 km²

Average length of coast: 500.7 km (4.9 % of Spain's total)

Capital: Vitoria **Provinces:** 3 **Cities / Towns:** 251

Population (2016): 2189534 inhabitants

Population density (2016): 302.7 inh/km²

Variation in inhabitants (%) 2000-2015: 4.3 / **2015-2016:** 0.0



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Basque Country	1.4	22.3	5.5	70.9
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
6.2	10.7	14.8	12.6
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
58.0	58.2	56.7	57.0
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
Basque Country	0.7	26.2	5.5	58.3
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
Basque Country	18,672	131.8	0.3
Spain	14,166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
14.7	13.1	9.4	9.7
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
Basque Country	0.7	6.4	24.9	68.0	0.1
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

No. OF CONTAMINATED SITES TO 2015		
Area	Declared	Decontaminated / Recovered
Basque Country	12411 plots (9438 ha)	

Source: Basque Regional Government, Environment and Regional Policy Department

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Basque Country	171245.1	5174.7	176419.8	101359.2	4138.4	105497.6	150391.5	1442.9	151834.4
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
Basque Country	21774.8	269.2	22044.0	1635.8	227.4	1863.2	0.0	0.0	0.0
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded		Herbaceous	
				Trees	Thicket and scrubland	Total wooded	Total herbaceous
Basque Country	54.0	21.0	143.7	19.2	101.0	120.2	23.5
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2015	502 (1)	-	-	-	-	-

(1) Includes household and commercial waste.
Source: Departamento de Medio Ambiente, Planificación Territorial y Vivienda. Urban Waste Statistics for the Basque Country Autonomous Community

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
Basque Country	140	120	115	116	123	116	-17.1	-5.7
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x : average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
22.2	48.1	25.9	3.7	0.0	27
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
0.0	88.5	11.5	0.0	0.0	26
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
8.3	91.7	0.0	0.0	0.0	12
O ₃ : maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
58.8	35.3	5.9			17

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
Basque Country	8.477	8.101	7.601	7.554	7.671	7.755	7.420	-12.47
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS			
Requests for information received in 2016			
Total	Replied within deadline <1 month	Replied within deadline > 1 month	Not replied to
9984	9984	0	0

Source: Basque Regional Government Environment, Territorial Planning and Housing Department

ENVIRONMENTAL PUBLICATIONS

- Perfil ambiental de Euskadi 2016. Aire: <http://www.euskadi.eus/documentacion/2017/perfil-ambiental-de-euskadi-2016-aire/web01-s2ing/es/>

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://www.ingurumena.eus>
- <http://www.euskadi.eus/informacion/estadisticas-del-departamento-de-medio-ambiente-y-politica-territorial/web01-s2ing/es/>
- <http://www.euskadi.eus/documentacion/2017/medio-ambiente-en-la-comunidad-autonoma-del-pais-vasco/web01-s2ing/es/>



C. VALENCIA

GEOGRAPHICAL AND ADMINISTRATIVE INFORMATION

Statute of the Autonomy: Organic Act 1/2006 of 10th April, Reform of Organic Act 5/1982 of 1st July, on the Statute of the C. Valencia
Surface area (INE): 23255 km²
Average length of coast: 552 km (5.4% of Spain's total)
Capital: Valencia **Provinces:** 3 **Cities / Towns:** 542
Population (2016): 4959968 inhabitants
Population density (2016): 213.3 inh/km²
Variation in inhabitants (%) 2000-2015: 20.4 / 2015-2016: -0,4



SOCIO-ECONOMIC INFORMATION

SECTORAL STRUCTURE OF EMPLOYMENT (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
C. Valencia	2.8	16.5	6.0	74.7
Spain	4.2	13.8	5.9	76.2

UNEMPLOYMENT RATE			
2007	2010	2015	2016
8.7	22.9	22.8	20.6
2016 Average in Spain 19.6			

EMPLOYMENT RATE			
2007	2010	2015	2016
60.0	60.1	59.1	59.4
2016 Average in Spain 59.2			

Source: Ministry of Education, Culture and Sport for high-school dropouts, and INE for all other variables.
 Note: the percentages may not total 100 due to rounding off to one decimal point

SECTORAL STRUCTURE OF GAV (%), YEAR 2016				
AREA	Agriculture	Industry	Construction	Services
C. Valencia	2.2	18.1	5.7	64.7
Spain	2.3	16.1	5.1	67.2

HOUSEHOLD GROSS DISPOSABLE INCOME (2014)			
AREA	€/inhabitant	Spain=100	Variation 2013-2014 (%)
C. Valencia	12612	89.0	1.4
Spain	14166	100.0	1.1

HIGH-SCHOOL DROPOUT RATE IN EDUCATION / TRAINING			
2005	2010	2014	2015
32.2	28.4	23.4	21.4
2015 Average in Spain 20.0			

ENVIRONMENTAL INFORMATION

SOIL

DISTRIBUTION OF SOIL SURFACE AREA IN %, YEAR 2016					
Area	Water	Artificial	Agriculture	Forests and semi-	Wetlands
C. Valencia	0.8	5.3	39.4	54.0	0.5
Spain	0.8	2.6	41.7	54.7	0.2

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

No. OF CONTAMINATED SITES TO 2016		
Area	Declared	Decontaminated / Recovered
C. Valencia	1	7

Source: Inventario de Suelos Contaminados. Comunitat Valenciana

NATURE

PROTECTED AREAS YEAR 2016									
Area	Total protected area (ha)			Protected areas by NPA			Protected areas by RED NATURA		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
C. Valencia	916342.3	18227.6	934569.9	244632.0	9754.9	254386.9	871795.4	17873.4	889668.8
Spain	16583845.9	8526058.5	25109904.5	7363769.1	511448.0	7875217.1	13825029.8	8432232.3	22257262.1
Area	OTHER INTERNATIONAL FIGURES								
	Protected areas by MAB			Protected areas by RAMSAR			Protected areas by ZEPIM		
	Terrestrial	Marine	Total	Terrestrial	Marine	Total	Terrestrial	Marine	Total
C. Valencia	0.0	0.0	0.0	31540.2	168.1	31708.2	19.4	12286.5	12305.9
Spain	5544272.4	485267.4	6029539.7	281220.5	25605.5	306826.0	51857.9	96625.7	148483.6

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

FOREST FIRES, YEAR 2016							
Area	Number of incidents		Forest area (ha)				
	Small fires (< 1ha)	Fires (> 1 ha)	Total (wooded + herbaceous)	Wooded		Herbaceous	
				Trees	Thicket and scrubland		
C. Valencia	280.0	60.0	6913.5	2421.8	4491.6	6913.5	0.0
Spain	6479.0	2338.0	65816.7	23173.9	36204.7	59378.6	6438.1

Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

WASTE

WASTE PER INHABITANT (kg/inhabitant)						
Year	Municipal waste	Sorted collection of paper/card	Sorted collection of glass	Sorted collection of packaging	Construction / demolition waste	Industrial waste
2016	411.0	11.3	16.5	8.8	170.0	-

Source: Regional Government of Comunitat Valenciana

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT (liters / inhabitant / day)								
Area	2005	2010	2011	2012	2013	2014	Variation 2005-2014 (%)	Variation 2013-2014 (%)
C. Valencia	174	157	152	161	158	162	-6.9	2.5
Spain	168	142	140	135	130	132	-21.4	1.5

Source: INE (National Statistics Institute)

AIR: AIR QUALITY IN RELATION TO PROTECTION OF HUMAN HEALTH

PERCENTAGE STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES					
NO _x ; average annual concentration (µg/m ³). 2015					
<=13 (<=LT/2)	13-26 (LT/2-LT)	26-32 (LT-UT)	32-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
60.4	30.2	5.7	1.9	1.9	53
PM10: average annual concentration (µg/m ³). 2015					
<=10 (<=LT/2)	10-20 (LT/2-LT)	20-28 (LT-UT)	28-40 (LT-ALV)	>40 (>ALV)	No. stations 2015
4.0	62.0	32.0	2.0	0.0	50
PM2.5: average annual concentration (µg/m ³). 2015					
<=6 (<=LT/2)	6-12 (LT/2-UT)	12-17 (LT-UT)	17-25 (LT-ALV)	>25 (>ALV)	No. stations 2015
7.9	57.9	26.3	7.9	0.0	38
O ₃ ; maximum daily values in mobile eight-hour averages (µg/m ³). 2015					
>120 (<=LTT)	(LTT-TV)	>120 (25 average excess 3 years) (>TV)			No. stations 2015
11.5	69.2	19.2			52

Note: LT = Lower Threshold; UT = Upper Threshold; ALV = Annual Limit Value; LTT = Long-Term Target; TV = Target Value
Source: MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment)

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)								
Area	2010	2011	2012	2013	2014	2015	2016	Variation 2010-2016 (%)
C. Valencia	5.453	5.320	5.162	5.064	5.172	5.370	5.441	-0.22
Spain	5.863	5.735	5.652	5.540	5.519	5.647	5.692	-2.92

Sources: Compiled by authors, based on data from REE (The Red Eléctrica Group) and INE (National Statistics Institute)

ENVIRONMENTAL PUBLICATIONS

- Manual d'identificació dels hàbitats protegits a la Comunitat Valenciana (Decree 70/2009). Valencia. 2016.

LINKS TO WEBSITES OF INTEREST ON THE ENVIRONMENT IN THE AUTONOMOUS COMMUNITY

- <http://www.agroambient.gva.es/>
- <http://www.parquesnaturales.gva.es/>
- <http://www.ceam.es>
- <http://bdb.cma.gva.es>

INFORMATION SOURCES

Geographical and administrative information

Surface area: National Statistics Institute. Surfaces area of Autonomous Communities and Provinces, by altitude zones. 1994 Yearbook. Chapter 1. Section 1.3. Surface Area and Altitude. Available on: <http://www.ine.es/inebaseweb/pdfDispacher.do?td=154090&L=0>

Population and population by size of municipal unit: National Statistics Institute. Official population figures from the revision of the Municipal Census as of 1st January. Summary by Autonomous Communities. Population by autonomous communities and cities and by gender. Web search: INEbase/Demography and population/Register. Population by municipalities/Official population figures from Spanish municipalities: Revision of the Municipal Register/Population by municipalities, islands, provinces and Autonomous Communities. Latest published data: Population figures as of 1st January 2016 (Royal Decree 636/2016 of 2nd December, declaring the population figures from the municipal census review of 1st January 2016 as official figures).

Data on number of provinces and municipal units: National Statistics Institute. Consultation on website: INEbase/Classifications/Listing of municipalities, provinces, autonomous communities and their codes/Listing of municipalities and their Codes, by Province on 01-01-2017.

Population Density (2016): Compiled by authors using the quotient between the 2016 population and the surface area of the autonomous community. See sources of above variables (Population and Surface Area).

Variation in inhabitants: Compiled by authors, based on population data from 2000, 2015 and 2016.

Length of coast: "2014 State of the Natural Heritage and Biodiversity in Spain". Directorate General of Environmental Quality and Assessment and of the Natural Environment. MAPAMA (Ministry of Agriculture and Fisheries, Food and Environment). Information on the Length of Terrestrial Maritime Public Domain. It differs from that used in previous issues from the National Geographic Institute (NGI).

Socio-economic information

Sectoral employment structure (employees per business sector) (% in 2016): National Statistics Institute. Consult INEbase Labour Market/Economic Activity, Employment and Unemployment/Economically Active Population Survey/Annual Results/Average of the four quarters of the year/Results by Autonomous Communities/6.31 Employed by economic sector, sex and Autonomous Community. Percentages of the total for each community.

Unemployment rate: National Statistics Institute. Consult INEbase. Labour Market/Economic Activity, Employment and Unemployment/Economically Active Population Survey/Annual Results/Average of the four quarters of the year/Results by Autonomous Communities/6.42 Unemployment rates by different age groups, sex and Autonomous Community.

Employment rate: National Statistics Institute. Consult INEbase. Labour Market/Economic Activity, Employment and Unemployment/Economically Active Population Survey/Annual Results/Average of the four quarters of the year/Results by Autonomous Communities/6.10 Activity rates by different age groups, sex and Autonomous Community.

Sectoral Structure Of GAV (% in 2016): National Statistics Institute. Consult INEbase/ Economy/ Economics Accounts/Spanish Regional Accounts. Base 2010/Functional Approach. GDP and its components/ Latest data: 2000-2016 Series (30 March 2017)/Main results/2010-2016 Series. Per capita. 2.1 GDP. at market prices and gross added value at basic prices by activity branch: Current prices by autonomous communities and cities, magnitude and period.

Notes on methodology: The overall values taken have been obtained via the following aggregate:

- Agriculture: Includes agriculture, livestock, forestry and fishing.
- Industries: Includes mining, manufacturing, electricity, gas, steam and air conditioning supply, water supply, sewage related activities, waste management and decontamination.
- Construction: Includes construction.
- Services: Includes: Wholesale and retail, motor vehicle and motorcycle repairs, transport and storage; catering; information and communications; finance and insurance activities; real estate activities; professional, scientific and technical activities and auxiliary activities; public administration and defense, mandatory social security, education, health activities and social services; artistic, recreational and entertainment activities; repairs to domestic appliances and other services.

The estimated percentages are part of the GDP estimate, and the item “Net tax on products” must be added to it, which is usually 9.2% of the GDP structure. Therefore, the GAV accounts for 90.8% of the total GDP.

Household gross disposable income per capita (2014): National Statistics Institute. Consult INEbase/Economy/Economic Accounts/Spanish Economics Accounts/Economic Accounts/ Spanish Regional Accounts. Base 2010/ Institutional Approach. Gross Household Income. Latest published data: 2000-2014 Series (22 December 2016)/Main results/Picture 2. Available gross household income (Per Capita).

School dropout rate: Ministry of Education, Culture and Sport. Consultation on website: Educabase/Nivel de formación, formación permanente y abandono: explotación de las variables educativas de la encuesta de población activa/Indicadores de la educación de la estrategia europea 2020/ 1.1 Abandono temprano de la educación-formación por comunidad autónoma, sexo y año (updated 2015).

Notes on methodology: School and vocational training dropouts are understood as the “percentage of the population between 18 and 24 who have not completed the 2nd Stage of Secondary School Education, and are not undergoing any kind of education or vocational training”.

Report on the Situation of the Environment

SOIL

DISTRIBUTION OF SOIL USE IN % (2016)

Data provided by the Banco de Datos de la Naturaleza. Directorate General of Environmental Quality and Assessment and of the Natural Environment. From the update of the SIOSE (Spanish Land Cover Information System) with up-to-date information on forest and wetland areas from the Forestry Map. 2016 data to one decimal point has been used, and therefore the total may not be exactly 100%.

No. OF CONTAMINATED SITES TO 2016

Data provided by the Regional Focal Point. The table specifies the source when this item has been detailed. Includes information about the number of sites declared and recovered until 2016.

Notes on methodology: There are autonomous communities where the number of recovered sites is higher than the number of declared sites. This is because of the option in Article 38 of Act 22/2011 which permits voluntary recovery of sites without the need to declare them as contaminated sites according to Article 34 of the aforementioned Act.

NATURE

PROTECTED AREA (2016)

Data provided by the Banco de Datos de la Naturaleza. Directorate General of Environmental Quality and Assessment and of the Natural Environment. Ministry of Agriculture and Fisheries, Food and Environment (MAPAMA) From the update of the SIOSE (Spanish Land Cover Information System) revision of forest and wetland areas from the Forestry Map.

FOREST FIRES

The 2016 forest fire data are from the report “Los Incendios Forestales en España. 1 enero-31 diciembre 2016. Avance informativo”. http://www.mapama.gob.es/es/desarrollo-rural/estadisticas/iiff_2016_def_tcm30-381214.pdf

WASTE

WASTE PER INHABITANT (kg/inhabitant)

Data provided by the Regional Focal Point. The table specifies the year the information refers to and the source.

WATER

AVERAGE WATER CONSUMPTION PER INHABITANT(liters / inhabitant / day)

National Statistics Institute. Consultation on website: INEbase/Agriculture and Environment/Water/ Surveys on water supply and Sewerage/Indicators on water. 2000-2014 Series /Results by Autonomous Communities/ Indicators on water supply by Autonomous Cities and Communities / 2.1.1 Total volume of water registered and distributed, by type of user and household http://www.ine.es/dyngs/INEbase/en/operacion.htm?c=Estadistica_C&cid=1254736176834&menu=ultiDatos&idp=1254735976602

AIR

PERCENTAGE OF STATIONS INCLUDED IN EACH OF THE RANGES CLASSIFIED FOR EACH POLLUTANT BY LEGISLATED VALUES YEAR 2015.

Source: Ministry of Agriculture and Fisheries, Food and Environment, 2016. Air Quality Database. Directorate General of Environmental Quality and Assessment and of the Natural Environment. Data supplied on specific request.

Notes on methodology: The percentage of stations included in each of the ranges into which average annual concentrations are classified is provided (measured in $\mu\text{g}/\text{m}^3$) for each pollutant:

NO₂: Referring to the Lower Assessment Threshold (LT), Upper Assessment Threshold (UT) and the Annual Limit Value (ALV). The ranges are:

- Concentrations lower or equal to LT/2 (13 $\mu\text{g}/\text{m}^3$)
- Concentrations between LT/2 and LT (13-26 $\mu\text{g}/\text{m}^3$)
- Concentrations between LT and UT (26-32 $\mu\text{g}/\text{m}^3$)
- Concentrations between UT and ALV (32-40 $\mu\text{g}/\text{m}^3$)
- Concentrations higher than ALV (>40 $\mu\text{g}/\text{m}^3$)

PM10: Referring to the Lower Assessment Threshold (LT), Upper Assessment Threshold (UT) and the Annual Limit Value (ALV). These ranges are the following:

- Concentrations lower or equal to LT/2 (10 µg/m³)
- Concentrations between LT/2 and LT (10-20 µg/m³)
- Concentrations between LT and UT (20-28 µg/m³)
- Concentrations between UT and ALV (28-40 µg/m³)
- Concentrations higher than ALV (>40 µg/m³)

PM2.5: Referring to the Lower Assessment Threshold (LT), Upper Assessment Threshold (HT) and the Annual Limit Value (ALV). These ranges are the following:

- Concentrations lower or equal to LT/2 (6 µg/m³)
- Concentrations between LT/2 and LT (6-12 µg/m³)
- Concentrations between LT and UT (12-17 µg/m³)
- Concentrations between UT and ALV (17-25 µg/m³)
- Concentrations higher than ALV (>25 µg/m³)

For Ozone (O₃), this shows the percentage of stations with sufficient number of data included in each of the three ranges classifying the maximum daily values of the mobile eight-hour measurements which, for protection of human health, must not exceed the mean on more than 25 occasions in a three-year period (it defines the Target Value - TV) or in the calendar year (it defines the Long Term Target - LTT). These ranges are the following:

- Concentrations lower or equal to LTT(120 µg/m³)
- Concentrations between the LTT and the TV
- Concentrations over the TV (120 µg/m³ and 25 occasions of excess in 3 years)

For all pollutants, the number of stations that have been used for the assessment is presented.

ENERGY

ELECTRICITY CONSUMPTION PER INHABITANT: ELECTRICAL ENERGY DEMAND PER INHABITANT (MWh/inhabitant)

The indicator is elaborated using the quotient between the electrical energy demand data, supplied by The Red Eléctrica Group (REE), and the population data resulting from the Municipal Census on the 1st January each year, from the National Statistics Institute.

Notes on methodology: The data refers to consumption by end clients by autonomous community.

BUSINESS RESPONSE AND SOCIAL PARTICIPATION

CITIZENS ADVICE: RESPONSE TO INFORMATION REQUESTS

This specifies the number of information applications received and processed in 2016, and the reply period. Data provided by the Regional Focal Point. The table specifies the source when this item has been detailed.

Environmental reports

Data supplied by the autonomous community sent by the Regional EIONET Focal Point.

Links to websites of interest on the environment in each autonomous community

Data supplied by the autonomous community sent by the Regional EIONET Focal Point.

Relevant data or information

Data supplied by the autonomous community sent by the Regional EIONET Focal Point.





INFORMATION BY AUTONOMOUS
COMMUNITY: **BASIC DATA**





Appendices

- I Index of initials, acronyms, abbreviations, units and clarifications
- II Index of thematic indicators
- III Participants and collaborators in the elaboration and review of this report

APPENDIX I

INDEX OF INITIALS, ACRONYMS, ABBREVIATIONS, UNITS AND CLARIFICATIONS

AAI	Integrated Environmental Authorization (Autorización Ambiental Integrada)
AEE	Spanish Eco-tourism Association (Asociación de Ecoturismo en España)
EEA / AEMA	European Environment Agency / <i>Agencia Europea de Medio Ambiente</i>
AEMET	State Metereological 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
ANFFE	National Association of Fertilizer Producers (Asociación Nacional de Fabricants de Fertilizantes)
ATP	Public Transport Authority (Autoridad de Transporte Público)
BOE	State Agency Official State Gazette (Boletín Oficial del Estado)
BREF	Best Available Techniques reference documents
CCAA	Autonomous Communities
EC / CE	European Commission / <i>Comisión Europea</i>
CEDEX	Centre for studies and experimentation on public works (Centro de Estudios y Experimentación de Obras Públicas)
CBD	Convention on Biological Diversity
CDR	<i>Central Data Repository</i> of the EEA
CCHH	River Basin Authorities
CDTI	The Centre for the Development of Industrial Technology (Centro para el Desarrollo Tecnológico Industrial)
CEE / EEC	European Economic Community
CETS / ECTS	European Charter for Sustainable Tourism
CIEMAT	Centre for Energy, Environmental and Technological Research (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas)
CITES	Convention on Internacional Trade in Endangered Species of Wild Fauna and Flora / <i>Convenio Internacional sobre el Comercio de Especies Amenazadas de Fauna y Flora Silvestres</i>
CLC	Corine Land Cover
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CNAE	National Classification of Economic Activities (Clasificación Nacional de Actividades Económicas)
CNE	Spanish National Accounts
CNM	National Consumption of Materials (Consumo Nacional de Materiales)
CNMB	National Catalogue of Base Materials (Catálogo Nacional de Materiales de Base)
CNMC	National Markets and Competition Commission
NRC / CNR	National Reference Centre / <i>Centro Nacional de Referencia de la Red EIONET</i>
CRF	Common Reporting Form
ETC / CTE	European Topic Centre / <i>European Topic Centre Centro Temático Europeo de la Red EIONET</i>
COP	Conference of the Parties on the United Nations Framework Convention on Climate Change
DEI	Industrial Emissions Directive (Directiva de Emisiones Industriales)
DG	Directorate General
DGIC	Directorate General of Innovation and Competitiveness (Dirección General de Innovación y Competitividad)
DGICT	Directorate General of Scientific and Technical Research (Dirección General de Investigación Científica y Técnica)
DGT	Directorate General for Traffic (Dirección General de Tráfico)
DIRCE	Central Companies Directory (Directorio Central de Empresas)
DPMT	Public Maritime-Terrestrial Domain (Dominio Público Marítimo Terrestre)
EBCC	European Bird Census Council / <i>Censo Europeo de Aves</i>
Ecoembes	Non-profit organization engaged in recycling of packaging/containers throughout Spain
EEMS	Spanish Sustainable Mobility Strategy (Estrategia Española de Movilidad Sostenible)
EEDS	Spanish Sustainable Development Strategy (Estrategia Española de Desarrollo Sostenible)
EESUL	Spanish Strategy for Urban and Local Sustainability (Estrategia Española para la Sostenibilidad Urbana y Local)
EIONET	<i>Environmental Information and Observation Network</i>
EMAS	<i>Eco-Management and Audit Scheme</i>
EMAU	Urban Environment Strategy (Estrategia de Medio Ambiente Urbano)

EMEP/VAG/CAMP	European Monitoring Evaluation Programme, Global Atmospheric Watch / <i>Cooperation Programme for the evaluation and monitoring of Long-distance Transport of Air Pollutants in Europe</i>
PA/ENP	Protected Area (Espacio Natural Protegido)
EOH	Hotel Occupancy Survey (Encuesta de Ocupación Hotelera)
EPA	Active Population Survey (Encuesta de Población Activa)
EPF	Family Budget Survey (Encuesta de Presupuestos Familiares)
ESYRCE	Survey on Crop Areas and Yields (Encuesta sobre Superficies y Rendimientos de Cultivos)
Eurostat	Statistical Office of the European Union
FAMILITUR	Survey of tourist movements of Spaniards (Encuesta de los movimientos turísticos de los españoles)
FAO	Food and Agriculture Organization of the United Nations (<i>Organización de las Naciones Unidas para la Agricultura y la Alimentación</i>)
FCC	Canopy Cover (Fracción de Cobertura)
FEDER / ERDF	European Regional Development Fund
FEMP	Spanish Federation of Municipalities and Provinces (Federación Española de Municipios y Provincias)
EFF / FPE	European Maritime and Fisheries Fund (Fondo Europeo Marítimo y de Pesca)
FFCC	Railways
FRONTUR	Tourist Movement on Borders (Movimientos Turísticos en Fronteras)
GBAORD	Government budget and appropriations or outlays for R&D / <i>Estadísticas sobre créditos presupuestarios públicos de investigación y desarrollo</i>
GoO / GdO	Guarantee of Origin (Garantías de Origen)
GHG / GEI	Greenhouse Gases (Gases de Efecto Invernadero)
HORECA	Hotel, Restaurant and Catering Sector (<i>Sector de la Hostelería, la Restauración y el Catering</i>)
IDAE	Institute for Diversification and Energy Saving (Instituto para la Diversificación y Ahorro de la Energía)
IDF	Inventory of Forest Damage (Inventario de Daños Forestales)
IEEM	Spanish Inventory of Marine Species (Inventario Español de Especies Marinas)
IEET	Spanish Inventory of Terrestrial Species (Inventario Español de Especies Terrestres)
IEHEM	Spanish Inventory of Marine Habitats and Species (Inventario Español de Hábitat y Especies Marinas)
IEP	Index of occupancy of protected land spaces (Índice de Superficie de Espacios Protegidos)
IEPNB	Spanish Inventory of Natural Heritage and Biodiversity (Inventario Español del Patrimonio Natural y de la Biodiversidad)
IET	Instituto de Estudios Turísticos
IFA	International Fertilizer Association
IFN	National Forest Inventory (Inventario Forestal Nacional)
IGME	Geological and Mining Institute of Spain (Instituto Geológico y Minero de España)
IGN	National Geographic Institute (Instituto Geográfico Nacional)
INE	National Statistics Institute (Instituto Nacional de Estadística)
INES	National Soil Erosion Inventory (Inventario Nacional de Erosión de Suelos)
INIA	National Institute for Agricultural and Food Research and Technology (Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria)
CPI / IPC	Consumer Price Index (Índice de Precios al Consumo)
IPCC	Intergovernmental Panel on Climate Change / <i>Panel Intergubernamental sobre el Cambio Climático</i>
IPI	Industrial Production Index (Índice de Producción Industrial)
IPPC	Integrated Pollution Prevention and Control / <i>Prevención y Control Integrado de la Contaminación</i>
JACUMAR	National Counselling Board for Marine Farming (Junta Nacional Asesora de Cultivos Marinos)
SCIs / LIC	Sites of Community Importance (Lugares de Interés Comunitario)
LULUCF	Land Use, Land Use Change and Forestry
MAB	Man and Biosphere-MaB
MAPAMA	Ministry of Agriculture and Fisheries, Food and Environment (Ministerio de Agricultura, Pesca, Alimentación y Medio Ambiente)
MER	Strategic Noise Map (Mapa Estratégico de Ruido)
MF	Ministry of Public Works (Ministerio de Fomento)
MINETAD	Ministry of Energy, Tourism and Digital Agenda (Ministerio de Energía, Turismo y Agenda Digital)
MSSSI	Ministry of Health, Social Services and Equality (Ministerio de Sanidad Servicios Sociales e Igualdad)

NABS	Nomenclature for the analysis and comparison of science budgets and programmes
NÁYADE	National Bathing Water Zones Information System (Sistema de Información Nacional de Aguas de Baño)
NEDIES	Natural and Environmental Disasters Information Exchange System / <i>Sistema de Intercambio de Información sobre los desastres naturales y ambientales</i>
UN / NNUU	United Nations / <i>Naciones Unidas</i>
NTM	Total Material Requirement (Necesidad Total de Materiales)
OECD / OCDE	Organisation for Economic Co-operation and Development / <i>Organización para la Cooperación y el Desarrollo Económicos</i>
SDG / ODS	Sustainable Development Goals (Objetivos de Desarrollo Sostenible)
OEPM	Spanish Patents and Trademarks Office (Oficina Española de Patentes y Marcas)
OLP	Long Term Target (Objetivo a Largo Plazo)
OMM	Metropolitan Mobility Observatory (Observatorio de la Movilidad Metropolitana)
WHO / OMS	World Health Organization / <i>Organización Mundial de la Salud</i>
UNWTO / OMT	World Tourism Organization / <i>Organización Mundial de Turismo</i>
NGO / ONG	Non-governmental Organisation (Organización No Gubernamental)
ONS	National Drought Observatory (Observatorio Nacional de la Sequía)
OOAA	Autonomous Authorities (Organismos Autónomos)
OSPAR	The Convention for the Protection of the Marine Environment of the North-East Atlantic
OTLE	Spanish Transport and Logistics Observatory (Observatorio del Transporte y la Logística en España)
CA/PPAC	Common Agricultural Policy (Política Agraria Común)
SEAP / PAES	Sustainable Energy Action Plan (Plan de Acción para la Energía Sostenible)
PAND	National Action Programme to combat Desertification (Programa de Acción Nacional contra la Desertificación)
PDRS	Rural Sustainable Development Plan (Plan de Desarrollo Rural Sostenible)
PECBM	Pan-European Common Bird Monitoring Escheme / <i>Sistema de Seguimiento de Aves Comunes Pan Europeas</i>
PEIT	Strategic Infrastructures and Transport Plan (Plan Estratégico de Infraestructuras y Transportes)
PEMAR	State Waste Management Framework Plan 2016-2022
PEPR	State Program on Waste Prevention 2014-2020.
PHE	Spanish Historical Heritage (Patrimonio Histórico Español)
GDP / PIB	Gross Domestic Product (Producto Interior Bruto)
PIN 2020	2020 Industrial Policy Integral Plan (Plan Integral de Política Industrial 2020)
PITVI	Infrastructure, Transport and Housing Plan (Plan de Infraestructuras, Transporte y Vivienda)
PM	Particulate matter in the air
NP / PN	National Park (Parque Nacional)
PNCA	National Plan for Water Quality: Sanitation and Water Treatment (2007-2015) (Plan Nacional de Calidad de las Aguas: Saneamiento y Depuración (2007-2015))
PNIR	National Integrated Waste Management Plan (2008-2015) (Plan Nacional Integrado de Residuos)
PNOA	National Plan of Aerial Orthophotography (Plan Nacional de Ortofotografía Aérea)
PNR	National Reform Plan (Plan Nacional de Reformas)
PNSD	National Plan on Sanitation and Water Treatment (Plan Nacional de Saneamiento y Depuración)
PNT	National Transition Plan for Major Combustion Plants (Plan Nacional Transitorio para grandes instalaciones de combustión)
UNEP / PNUMA	United Nations Environment Programme / <i>Programa de las Naciones Unidas para el Medio Ambiente</i>
PORN	Management Plan for Natural Resources (Plan de Ordenación de los Recursos Naturales)
CFP / PPC	Common Fisheries Policy (Política Pesquera Común)
NPs / PPNN	National Parks (Parques Nacionales)
PRUG	Master Plan for Use and Management (Plan Rector de Uso y Gestión)
ETP	Equivalent Tourist Population
EEEW/RAEE	Electrical and electronic equipment waste
RAMPE	Spanish Network of Marine Protected Areas (Red de Áreas Marinas Protegidas de España)
RAMSAR	Convention on Wetlands of International Importance
REDIA	Environmental Inspection Network (Red de Inspección Ambiental)
REPACAR	Spanish Association for Paper and Cardboard Recovery (Asociación Española de Recuperación de Papel y Cartón)
RIS	Research and Innovation Strategy for Smart Specialization (<i>Estrategia de Especialización Inteligente en Investigación e Innovación</i>)
RMIP	Marine Reserves of Fishing Interest (Reservas Marinas de Interés Pesquero)

DRR / RRD	Disaster Risk Reduction (Reducción del Riesgo de Desastres)
SUW / RSU	Solid Urban Waste (Residuos Sólidos Urbanos)
UW / RU	Urban Waste (Residuos Urbanos)
RUSLE	<i>Revised Universal Soil Loss Equation</i>
SACRE	Common Reproductive Birds Monitoring Program by SEO BirdLife (<i>Programa de Seguimiento de las Aves Comunes Reproductoras empleado por la SEO</i>)
SAU	Utilized/Usable Agricultural Area (Superficie Agrícola Utilizada)
ESA / SEC	European System of Accounts (Sistema Europeo de Cuentas Nacionales)
SECEM	Spanish Society for the Study and Conservation of Mammals (Sociedad Española para la Conservación y Estudio de los Mamíferos)
SEO	Spanish Ornithological Society (Sociedad Española de Ornitología)
SEPRONA	Nature Protection Service of the Spanish Civil Guard (Servicio de Protección de la Naturaleza de la Guardia Civil)
SICA	Basic Information System on Noise Pollution (Sistema de Información sobre la Contaminación Acústica)
SIG/GIS (a)	Geographic Information System (<i>Sistema de Información Geográfica</i>)
IMS / SIG (b)	Integrated Management System (Sistema Integrado de Gestión)
SIGNUS	Integrated Management System of Used Tyres (Sistema Integrado de Gestión de Neumáticos Usados)
SCOPUS	Database including citations and bibliographic references by the publisher Elsevier
SNAP	Selected Nomenclature for Air Pollution (<i>Nomenclatura de Actividades Contaminantes de la Atmósfera</i>)
SNS	National Healthcare System (Sistema Nacional de Salud)
SOER 2005	EEA Report: “ <i>State and Outlook on the Environment Report 2005</i> ”
SOER 2010	EEA Report: “ <i>The European Environment: State and Outlook 2010</i> ”
SOER 2015	EEA Report: “ <i>The European Environment: The European Environment: State and Outlook 2015</i> ”
SPCAN	Protection Service against Polluting Agents (Servicio de Protección Contra Agentes Nocivos)
TURESPAÑA	Spanish Tourism Institute (Instituto de Turismo de España)
EU / UE	European Union (Unión Europea)
EU-15	Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden and United Kingdom.
EU-25	Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom, Hungary, Poland, Cyprus, Czech Republic, Estonia, Malta, Latvia, Lithuania, Slovenia and Slovakia.
EU-27	EU 25+ Bulgaria and Romania
EU-28	EU 27 + Croatia
UICN/IUCN	International Union for Conservation of Nature / <i>The World Conservation Union</i>
UE (2)	Evaluation Threshold
LET / UEI	Lower Evaluation Threshold (Umbral de Evaluación Inferior)
UET / UES	Upper Evaluation Threshold (Umbral de Evaluación Superior)
UNISDR	United Nations Office for Disaster Risk Reduction
UV-B	Ultraviolet Radiation
GAV / VAB	Gross Added Value (Valor Añadido Bruto)
GAW / VAG	Global Atmospheric Watch (<i>Vigilancia Mundial de la Atmósfera</i>)
LV / VL	Limit Value (Valor Límite)
ALV / VLA	Annual Limit Value (Valor Límite Anual)
DLV / VLD	Daily Limit Value (Valor Límite Diario)
HLV / VLH	Hourly Limit Value (Valor Límite Horario)
TV / VO	Target Value (Valor Objetivo)
WISE	Water Information System for Europe (<i>Sistema Europeo de Información de Agua</i>)
WWF	World Wide Fund for Nature (<i>Fondo Mundial para la Naturaleza (WWF-España, in Spain)</i>)
ZEC	Special Area of Conservation (Zona Especial de Conservación)
SPABs / ZEPA	Special Protection Areas for Wild Birds (Zona de Especial Protección para las Aves)
ZEPIM	Specially Protected Areas of Mediterranean Importance (Zonas Especialmente Protegidas de Importancia para el Mediterráneo)

Symbols, units and chemical compounds

€	Euro
€05	Euro value at constant prices in 2005
AOT 40	<i>Amount Over Threshold</i>
CCl ₄	Carbon Tetrachloride
CFC	Chlorofluorocarbon
CH ₄	Methane
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
COP	Persistent Organic Pollutants (Compuestos orgánicos persistentes)
COV	Volatile Organic Compounds (Compuestos orgánicos volátiles)
COVNM	Non-methane Volatile Organic Compounds (Compuestos orgánicos volátiles no metánicos)
dB	Decibel. Measure of sound pressure level
dB(A)	Weighted decibels (A-scale)
DBO ₅	Five-day Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
GT	<i>Gross tonnage</i> : 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 (inh)	Inhabitant
HBFC	Hydrobromofluorocarbon
HCFC	Hydrochlorofluorocarbon
hm ³	Cubic hectometre
kg	Kilogram
km	Kilometre
km ²	Square kilometre
ktoe	Kilotonnes of oil equivalent
kW	Kilowatt
kWh	Kilowatt-hour
l	Liter
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 noise indicator Measured in dB
mg	Milligram
Mt	Thousand tonnes
MW	Megawatts
MWp	Megawatt peak
MWt	Thermal megawatt
m ²	Square meter
m ³	Cubic meter
N	Nitrogen
NH ₃	Ammonia
N ₂ O	Nitrous Oxide

NO_x	Nitrogen Oxide
O₃	Ozone
P	Phosphorus
PCB	Polychlorinated biphenyl
PCT	Polychlorinated terphenyl
PFC	Perfluorocarbon
P₂O₅	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
Ppmm	Parts per thousand million
SF₆	Sulphur hexafluoride
SO₂	Sulphur dioxide
t	Tonne
t-km	Tonne-kilometer. Unit of measurement of freight transport. It is calculated by multiplying the number of tonnes transported by the number of kilometers traveled.
TJ	Terajoule
GRT	Gross Registered Tonnes
p-km	Passengers - kilometer. The unit of measure for passenger transport, which is calculated by multiplying the number of passengers who travel during the year by the number of kilometers traveled
µg	Micrograms
>	Greater than
<	Less than
1000 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 makes public the Agreement of the Council of Ministers from 22 July 2005, approving the guidelines of technical regulations. This resolution establishes the official denominations of the Spanish Autonomous Communities and cities with autonomous statutes. The official denominations are as follows, listed in order of approval of their statutes:

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 Murcia
Autonomous Community of Valencia
Autonomous Community of Aragon
Autonomous Community of Castilla-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 Castilla y León
Autonomous City of Ceuta
Autonomous City of Melilla

Notwithstanding this regulation, throughout the Environmental Profile of Spain, abbreviated references of the autonomous communities are likely to appear in the charts or tables, as otherwise it would be too 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.

MAP IDENTIFYING AUTONOMOUS COMMUNITIES AND AUTONOMOUS CITIES IN SPAIN (NAMED IN SPANISH) ACRONYMS, ABBREVIATIONS, UNIT



APPENDIX II

THEMATIC INDEX OF INDICATORS

AREA / INDICATOR	PAGE
Economy and Society	
Population	35
Economic evolution	37
Risk of poverty or social exclusion	39
Air Quality	
Average annual concentration of NO ₂	45
Average annual concentration of PM ₁₀	47
Average annual concentration of PM _{2.5}	49
Average annual concentration of O ₃	51
Regional background air quality: mean SO ₂ , NO ₂ , PM _{2.5} , PM ₁₀ y O ₃	53
Atmospheric emissions and climate change	
Greenhouse Gas Emissions.....	59
Emissions of acidifying, eutrophic and precursors of tropospheric ozone gases	61
Particulate matter emissions.....	63
Spanish Background Climate Carbon Footprint.....	65
Carbon footprint register, compensation and carbon dioxide absorption projects.....	67
Water	
Water Consumption	73
Reservoir water levels.....	75
Status of water bodies	77
Quality of continental bathing water	80
Waste water treatment.....	82
Soil	
Land occupation: comparison CLC 2006 vs. CLC 2012.....	87
Urban surface area	89
Soil loss due to erosion	91
Nature	
Protected Areas	97
Forest land and other forest formations	99
Forest defoliation	101
Reproductive forest material	103
Common bird population trends.....	105
Diversity of wild terrestrial species.....	107
Environmental monitoring.....	109
Coasts and Marine Environment	
Litter on beaches, an indicator in the Marine Strategies Framework.....	115
Demarcated coastline	120
Quality of Coastal Bathing Water	122
Green circular economy	
Energy intensity of the economy	129
National consumption of material goods.....	131
Organizations with Eco-Management and Audit Scheme (EMAS)	133
Environmental Taxes.....	135
Approach to green employment	137
Environmental Research, Development and Innovation	
Main bibliometric indicators in environmental sciences.....	142
R&D&I grants for environmental issues by the General State Administration.....	144
General State Administration R&D&I Budget for environmental programs	146
Public financing for environmental R&D	147
Environmental thematic in calls for public R&D grants.....	149

AREA / INDICATOR	PAGE
Waste	
Municipal waste generation	155
Municipal waste treatment	157
Packaging waste recycling and recovery.....	160
Agriculture	
Fertilizer consumption.....	167
Phytosanitary product consumption	169
Organic farming	171
Organic livestock farming	173
Integrated farming.....	175
Irrigated area.....	177
Environmental performance in agriculture	179
Energy	
Evolution of final energy demand.....	185
Consumption of renewable energies.....	187
Environmental performance in the energy sector	189
Guarantees of origin and electricity labeling.....	191
Industry	
Final energy consumption in the industrial sector	197
GHG Emissions in the industrial sector	199
Industry taxes and investment in environmental protection	201
Fishing	
Number of vessels and fishing fleet capacity	207
Fishing fleet catches	210
Aquaculture production.....	212
Environmental efficiency in the fishing and aquaculture sector.....	214
Tourism	
Number of foreign tourists per inhabitant.....	219
Number of foreign tourists per km of coastline	222
Equivalent Tourist Population in areas with the highest number of overnight stays in hotels.....	224
Number of visitors to National Parks	226
Rural tourism: accommodation, capacity, tourists and overnight stays.....	228
Transport	
Demand for inter-city passenger and cargo transport	235
Transport emissions of pollutants	238
Passenger vehicle fleet by fuel type	240
Final energy consumption in transport.....	242
Environmental efficiency of transport in terms of GAV, demand, emissions to the atmosphere and final energy consumption.....	244
Urban Environment and Households	
Urban density by autonomous community and autonomous city	249
Urban public transport.....	251
Final energy consumption per household	253
Natural and Technological Disasters	
Fatalities due to natural disasters	259
Drought periods.....	261
Forest fires	263
Road and rail accidents causing possible environmental damage	266
Industrial accidents involving hazardous substances.....	268
Extraordinary risks: compensation as a result of flooding and storms.....	270

APPENDIX III

PARTICIPANTS AND PARTNERS IN THE PREPARATION AND REVISION OF THIS REPORT

National Reference Centres of the Spanish EIONET Network:

Irene Olivares Bendicho (Air Quality), Martín Fernández Díez-Picazo (Mitigation of Air Pollution and Climate Change), JFrancisco Javier Heras Hernández (Climate Change: Impacts, Vulnerability and Adaptation), José Manuel Sanz Sa (Noise), Víctor Manuel Arqued Esquía (Water), María Itziar Martín Partida (Marine & Coastal Environment), Carmen Asencio Castillejo (Fisheries), Miguel Aymerich Huyghues-Despointes (Nature), Antonio Arozarena Villar (Land Cover, Land Occupation and Spatial Planning), Antonio Callaba de Roa (Soil), Margarita Ruiz Saiz-Aja (Waste and Consumption and Sustainable Production), Miguel Llorente Isidro (Natural & Technological Risks), M. Teresa Velasco Rincón (Energy), Rocío Báguena Rodríguez (Transport), Antonio García de la Paz (Environmental Information Systems), Micaela García Tejedor (Environmental Health), Paz Fentes Piñeiro (Agriculture), Guillermo Fernández Centeno (Forests), Ana Rodríguez Roldán (Chemicals), Carmen Canales Canales (Industrial environment), Pilar Lobo Montero (Tourism).

Regional Focal Points of the Spanish EIONET Network:

José Manuel Moreira Madueño (Andalusia), Ignacio Iturralde Navarro (Aragón), Manuel Gutiérrez García (Asturias), Pedro Nicolás Miguel Martín (Canary Islands), Alfonso Peña Rotella (Cantabria), Sagrario Ruiz Díaz (Castilla-La Mancha), Carmelo Alonso Temiño (Castilla y León), Francesc Xavier Camps Fernández (Catalonia), Francisco Javier Martínez Medina (Ceuta), Fernando Ribes Blasco (C. Valencia), Isabel de Vega (Extremadura), M^a Isabel Seoane Ramallo (Galicia), Aldo Gabriel Bardi Figini (Balearic Islands), Ángel Martínez Garrido (La Rioja), María José Gallego Muñoz (Madrid), Noelia Jodar García (Melilla), Ramón Ballester Sabater (Murcia), Eduardo de la Cruz Martínez (Navarre), Marta Iturribarría (Basque Country).

Other contributing experts in the preparation of contents for the chapters:

Air quality: Alberto Orío Hernández, María José Cornide Cristóbal, María Hervás Martín, Rebeca Javato Martín, Francisco Reina Velázquez.

Atmospheric emissions and climate change: Juan Carlos Cano Rego, Julia García Ruíz-Bazán, Marta Hernández de la Cruz, Elisa Notario López, Ana Ortíz La Seca, Ana Isabel de la Peña López.

Water: Laura Acacio Sánchez, Miguel Ángel Bordas Martínez, María del Carmen Coletto Fiaño, José Fernández del Pino, Concepción Marcuello Olona, Javier de Pablos Navarro, Margarita Palau Miguel, Fernando Pastor Argüello, Antonio Pérez Baviera, Alejandra Puig Infante.

Soil: Francisco Javier Cano, Luis Martín Fernández, Araceli Martínez Ruiz.

Nature: Alfredo Goenaga Sánchez, Jaime Hervás González, David León Carbonero, Tania López Piñero, Juan Carlos del Moral, Mónica Puebla Estrada, Elena Robla González, José Luis Rubio García, Blanca Ruiz Franco, María Luisa Sánchez López, María José de la Torre Sainz, Belén Torres Martínez, Roberto Vallejo Bombín, Íñigo Vázquez-Dodero Estevan, Cristina Viejo Téllez, Juan Manuel Villares Muyo.

Coasts and the Environment: Elena Alonso de Ventura, Sagrario Arrieta Algarra, Antonio Fernández y García de Vinuesa, María Jesús de la Fuente Álvaro, José Ramón Martínez Cordero, Victoria Palacios Quereda, Concepción Rey Mejías.

Green economy: Gema de Esteban Curiel, Beatriz Terribas Fernández.

Environmental Research, Development and Innovation: Cecilia Cabello Valdés, Clara Eugenia García García, Laura Valeria Bonora Eve.

Waste: Alicia Pollo Albéniz, Alberto Irigoyen Pérez, Carmen Tapia Carrasco.

Agriculture: Yago Delgado Moya, Mónica Domench.

Fishing: Paloma Carballo Tejero.

Tourism: Luis Gayo Ibáñez, Alberto Moral González.

Transport: Jesús Merchán Rubio.

Natural and Technological Disasters: M. Roser Botey Fullat, Carlos Dueñas Molina, María Ángeles Herradón García, Laura de la Torre Gutiérrez, Eugenia Sillero Maté, Gema Yáñez Sánchez.

In the Autonomous Communities:

Saray Aguinaga Alzate, Mikel Armendáriz Carrascón, Roger Bassols Morey, Marisa Bernal González, Francisco Cáceres Clavero, José Félix García Gaona, Pilar Flores González, Sara García García, María Luisa González Sáez, Susana Llanos Serrano, Pablo López García, Sonia Luján Gómez, Juan Antonio Martín Ventura, María del Mar Martínez Beltrán, María Jesús Martínez Pérez, Ana Martínez Prados, Julio Antonio Palomares Puente, M^a Pilar Paz Otero, Carmen Raíndo Dávila, Margarita Vaquer Caballería, Covadonga Viedma Gil de Vergara.

Other contributing institutions

- National Park Network. National Parks Autonomous Agency. Ministry of Agriculture and Fisheries, Food and Environment.
- Trade Association for Plant Protection (AEPLA).
- National Environmental Education Center. National Parks Autonomous Agency. Ministry of Agriculture and Fisheries, Food and Environment.
- Spanish Foundation for Science and Technology (FECYT). Ministry of Economy and Competitiveness.
- Institute for Energy Diversification and Saving (IDAE). Ministry of Industry, Energy and Tourism.
- Red Eléctrica de España [The Red Eléctrica Group].
- Nature Protection Service (SEPRONA) and Citizens Advice Bureau of the Spanish Civil Guard. Directorate-General for the Police and Spanish Civil Guard. Ministry of the Interior.

Photographs (page number shown in brackets):

Geográfica Films / Fototeca CENEAM (página 13), A. Palomares Martínez / Fototeca CENEAM (22, dos fotografías), F. Cámara Orgaz / Fototeca CENEAM (26), J.M. Reyero / Fototeca CENEAM (32), C. Valdecantos / Fototeca CENEAM (36), J.M. Reyero / Fototeca CENEAM (41), C. Valdecantos / Fototeca CENEAM (56), J.M Pérez de Ayala / Fototeca CENEAM (66), J.M Pérez de Ayala / Fototeca CENEAM (108), L. Ynguanzo / Fototeca CENEAM (111), Área de Educación / Fototeca CENEAM (126), R. Anguita / Fototeca CENEAM (139), L. Merino Ruesga / Fototeca CENEAM (140), Texenery Ferrera / TRAGSAMEDIA (51), A. Moreno Rodríguez / Fototeca CENEAM (159), J.L. Perea / Fototeca CENEAM (204), A. Gabriel López portales / Fototeca CENEAM (209), M. tibau / Fototeca CENEAM (232) y Carlos Salvo Luengo / Fototeca CENEAM (272).

Preparation and drafting:

Miguel-Álvaro Aguirre Royuela, Cristina Álvarez Tutor, Marta Chicharro Alique, Miguel García Rodrigo, Óscar Herranz Baquero, Luis Daniel Mateos García, Beatriz Mesa León, Begoña Nava de Olano, Ana Sánchez García, Elvira Valbuena Sáenz.